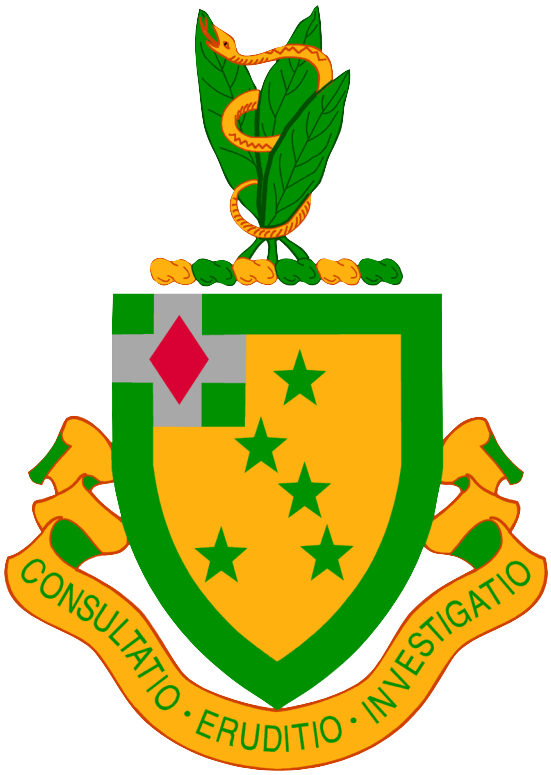
ARMED FORCES INSTITUTE OF PATHOLOGY

# 2007 Annual Report

**The Armed Forces Institute of Pathology supports the United States Department of Defense and serves the American people by providing medical expertise in diagnostic consultation, education, and research to enhance the health and well being of the nation.**



# 2007 ANNUAL REPORT

**Armed Forces Institute of Pathology**
**Washington, DC 20306-6000**

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# Director's Message

The year 2007 was a year of invigoration for the Armed Forces Institute of Pathology (AFIP). By remaining intensely focused on the vital services we provide in the areas of pathology consultation, education, and research, we were able to maintain our status as one of the premier pathology centers in the world. Equally important were steps we took to instill new life and spirit into both the Institute's current and future operations.

The Division of Molecular Pathology moved from the Gillette Building to AFIP Headquarters and began a significant upgrade of its laboratory. The move fully integrated the division into AFIP's consultative service, thereby improving the quality of support provided to the diagnostic and research services. The move and laboratory upgrade directly impacts the success of the division's mission, which focuses on providing prompt test results for clinical consultation services, developing new molecular assays for the surgical pathology departments, and actively collaborating with the pathologists and other scientists involved with research using molecular techniques.

Additionally, a Clinical Initiatives Program was activated to move the science of pathology forward at a faster rate. This is a forward-leaning program that includes reaching out to the scientific community, academia, biotechnology companies, and the pharmaceutical industry to share what we're doing, learn more about what others are doing, and capitalizing on emerging trends and research to improve service to our customers. This effort will result in the development of new technologies and techniques that will help render faster, higher quality diagnoses.

The Scientific Laboratories began planning for creation of an institute-wide research and development laboratory that would capitalize on the Clinical Initiatives Program. Ideas for new procedures will come from that program, and those selected by a review committee will be acquired from commercial vendors and developed in-house and then validated and brought into the diagnostic laboratories. New prognostic markers for infectious disease are priority for development.

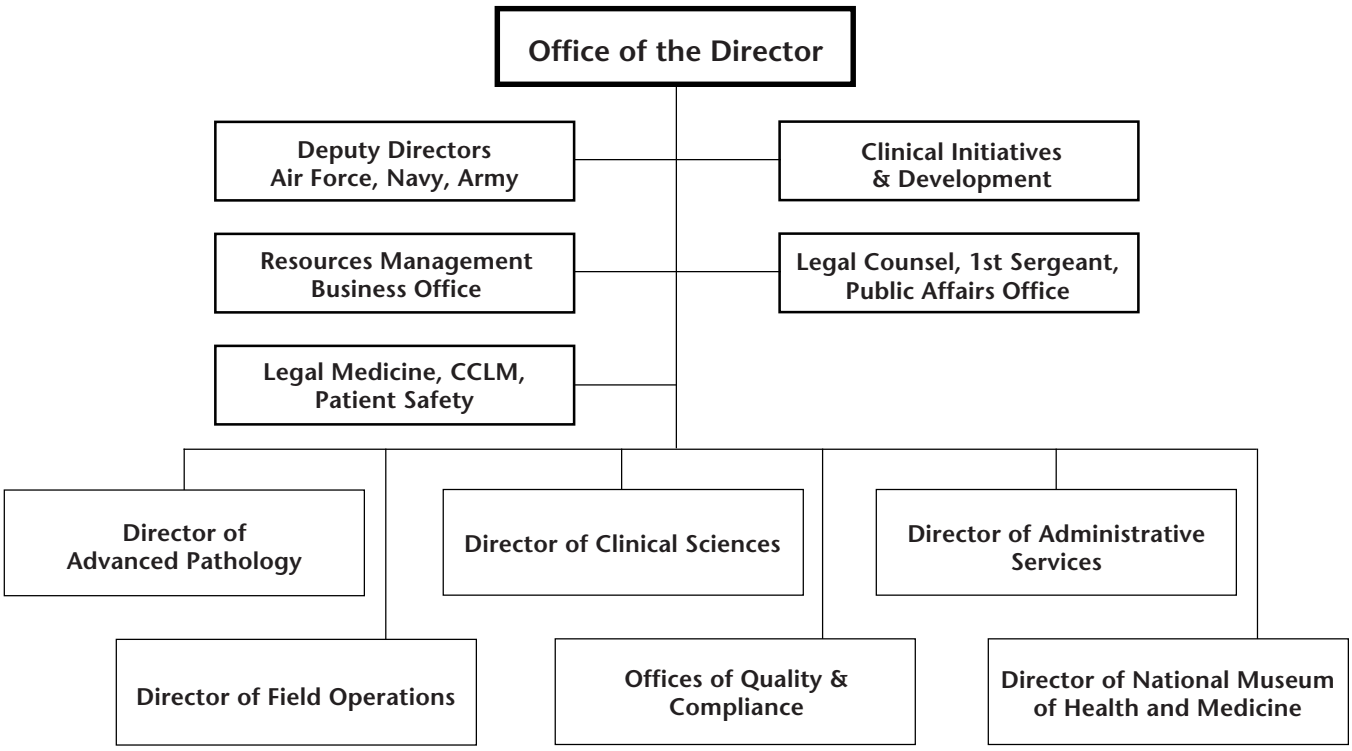
AFIP also began a vital study of the Tissue Repository—one our greatest assets consisting of more than 7.1 million case files. The study will assess the integrity and robustness of five computer databases that underpin the operation of the repository, as well as conduct a complete analysis and assessment of a representative sample of blocks, slides, and tissues. This effort is key to modernization of the repository's holdings, which are available for study internationally, as well as being an integral part of AFIP's digital fascicle library and the Tissue Microarray Program.

The six divisions of the Medical Examiners System—Operations, Education and Research, Special Investigations, DNA, Toxicology, and Mortality Surveillance—successfully carried out their mission that encompasses an unprecedented workload and challenges. The entire staff should be justifiably proud of their accomplishments in fully accounting for those who have died while serving the United States. Just as important, the System has made significant contributions to the ongoing efforts to make U.S. servicemembers of today and tomorrow safer and more effective on the battlefield and in garrison. Data gathered and research undertaken has had a direct impact on medical care and the design of the next generation of personal protective equipment. The Mortality Surveillance Division continued to expand in recognition with the vital information they provide to all levels of the Department of Defense and federal government.

While 2007 indeed has been a year of invigoration, I fully understand that it has also been a year marked by uncertainty because of Base Realignment and Closure. With this in mind, please accept my sincere appreciation for all your dedication and hard work, and especially for your enthusiasm. Without such enthusiasm it would have been impossible to make the tremendous strides that made 2007 a success—not only for the Institute, but for the clients we serve—our nation's military members, their families, and our veterans.

Florabel G. Mullick, MD, ScD, FCAP
Senior Executive Service
The Director

# Organization




# AFIP Key Personnel

**Florabel G. Mullick, MD, ScD, FCAP**
**Senior Executive Service**
The Director, AFIP

**Charles W. Pemble III, Col, USAF, DC**
Deputy Director, Air Force
Director, Field Operations

**Terrell W. Blanchard, COL, VC, USA**
Deputy Director, Army
Director, Quality and Compliance
Chief, Department of Veterinary Pathology

**Robert D. Foss, CAPT, DC, USN**
Associate Director, Navy

**Sumitra Parekh, COL, MC, USA**
Director, Advanced Pathology

**Christopher R. Owner, PhD**
Director, Clinical Sciences

**Adrianne Noe, PhD**
Director, National Museum of Health and Medicine, AFIP

**James L. Staiger, PHD**
Director, Administrative Services

**William A. Gardner Jr, MD**
Executive Director
American Registry of Pathology

**Catherine M. With, JD, LLM, LLM**
Major, Judge Advocate General's Corps, US Army
Legal Counsel

**Paul Stone**
Public Affairs Officer

**SFC Chanda L. Sutton, USA**
First Sergeant

# Board of Governors

**The Board of Governors** of the AFIP consists of the Assistant Secretary of Defense (Health Affairs), who serves as Chair of the Board; the Assistant Secretary for Health, Department of Health and Human Services; the Surgeons General of the Army, Navy, and Air Force; the Chief Medical Director for the Department of Veterans Affairs; and a former Director of the Armed Forces Institute of Pathology. The Board of Governors meets several times a year, and, based on the recommendations of the Scientific Advisory Board and institutional reports, establishes guidelines and broad administrative and professional policies in consonance with the medico-military objectives of the Institute. The Board of Governors met April 11, June 19, and October 31, 2007.

**S. Ward Casscells, MD**
Assistant Secretary of Defense for Health Affairs
Department of Defense
Pentagon, Washington, DC

**MG Gale S. Pollock, MC, USA**
Acting Surgeon General
United States Army
Bolling Air Force Base
Washington, DC

**VADM Donald C. Arthur, MC, USN**
The Surgeon General
United States Navy
Bureau of Medicine and Surgery
Washington, DC

**LTGen James Roudebush, USAF, MC**
The Surgeon General
United States Air Force
Bolling Air Force Base
Washington, DC

**RADM Kenneth Moritsugu, MD, MPH**
Assistant Secretary for Health (Acting)
US Department of Health and Human Services
Rockville, MD

**Michael Kussman, MD, MS, MACP**
Under Secretary for Health
US Department of Veterans Affairs
Washington, DC

**Robert F. Karnei, MD**
Former Director (32nd), AFIP
Wythe County Community Hospital
Wytheville, VA

Florabel G. Mullick, MD, ScD, FCAP, SES
The Director
Date of Appointment — 25 June 2007

# OFFICE OF THE DIRECTOR

## MISSION/ORGANIZATION

The Director, Armed Forces Institute of Pathology (AFIP), is responsible for the overall direction, administration, policy formulation, business practices, operation and management of the organization in executing all of its assigned missions. The Director, AFIP, provides broad guidance and leadership for all areas of the Institute and insures that these areas contribute in an appropriate manner to the overall missions of the Institute. The Director ensures the integration of financial strategies, business planning, and the scientific activities of the Institute. The Director is responsible for program development and management review of all Institute resources and missions to insure they are consistent with planned resource objectives. The Director, AFIP is responsible for scientific policy, financial budgeting, and resources management oversight of all Institute programs and missions.

## STAFF

James Affonco, MA, Chief of Staff
Ridgely L. Rabold, AAS, Executive Assistant
Hilda P. Elescano, Administrative Assistant

## CONSULTATION, EDUCATION, RESEARCH

In addition to Institutional privileges, Dr. Mullick maintains sub specialized privileges in environmental pathology and pediatric pathology. As Chair, Department of Environmental and Infectious Disease Sciences, she provides consultations in environmental pathology and reviews the overall consultation workload of the department. She is a world-recognized expert in adverse drug reactions and continues to lecture widely on environmental and adverse drug reaction issues, especially in pediatric pathology, and participates in the development of funded research protocols. She also lectures at AFIP courses and serves as course co-director for the AFIP Spanish Course. Dr. Mullick obtained funding to continue the Summer Student Program at the AFIP and has been a strong champion for minority education through her work with the Ana G. Mendez University System. For additional information see the Department of Environmental and Infectious Disease Sciences section.

## ADMINISTRATION AND MANAGEMENT SYSTEMS OVERSIGHT

The quest for leadership is a long-term game. Our challenge is to fight our way through all the doubts about the future, continue to turn in superior performance, and deliver sustainable value to our stakeholders. Fortunately, we love what we do. We believe in our adopted business model, our ever improving technology, and our people. We know that we have a great and vital role to play. And we're prepared to step up to the plate and do what we do best—adapt, innovate, and deliver great service to the Department of Defense and the Nation.

At the same time we remain steadfast in our commitment to our core values—honesty, loyalty, service, teamwork, innovation, excellence and community—the same values that are woven into the fabric of the military personnel we were founded to serve 145 years ago. These core values continue to guide our actions and provide an ethical and philosophical foundation for everything we do.

Our employees deserve special mention for their dedication to our contributors, patients, and stakeholders, for their focus on results during a tumultuous year, and their can-do spirit in an age when too many people find it easier to make excuses than to make progress. The months ahead will put their resourcefulness to the test.

## SPECIFIC ACTIVITIES FOR THE DIRECTOR

### *Publications:*

1. Centeno JA, Tchounwou PB, Patlolla AK, Mullick FG, Murakata L, Meza E, Todorov TI, Longfellow D, Yedjou CG. Environmental pathology and health effects of arsenic poisoning: a critical review. In: *Managing Arsenic in the Environment—From Soil to Human Health*, Naidu R, Smith E, Owens G, Bhattacharya P, Nadebaum P, eds. Australia: CSIRO Publishing; 2006, chapter 17: 311-327.
2. Todorov TI, Ejnik JW, Mullick FG, Centeno JA. Chemical and histological assessment of depleted uranium in tissues and biological fluids. In: *Depleted Uranium - Properties, Uses, and Health Consequences*. Miller AC, ed. Boca Raton, Florida: CRC Press-Taylor & Francis Group; ISBN 0-8493-3047-5; 2007.
3. van der Voet GB, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG. Metals and health: a clinical and toxicological perspective on tungsten and review of the literature. *Military Medicine*. 2007;172:1002-1005.

### *Abstracts:*

1. Centeno JA, Cook A, Weinsteinn, P, Mullick, FG, Finkelman RB, Selinus, O. Health effects of natural and mineral dust—the role of trace elements and compounds. In: Book of Proceedings XXVI International Academy Congress of the International Academy of Pathology, Symposium on Environmental Pathology–Respiratory Toxicology, Montreal, Canada, September 16-21, 2007; CD media publication.
2. Centeno JA, Finkelman RB, Selinus O, Mullick FG. Global impacts of geogenic arsenic: a medical geology research case. In: Book of Abstracts: International Symposium on Medical Geology, Royal Swedish Academy of Sciences, Stockholm, Sweden, May 2007.
3. Kalasinsky VF, Tristan JO, Pizzolato KM, Amerson ML, Strausborger SL, Gaydos JC, MacIntosh VH, Rumm PD, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database, Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, Boston, MA, February 26–March 1, 2007.
4. Kalasinsky VF, Tristan JO, Pizzolato KM, Amerson ML, Strausborger SL, Gaydos JC, MacIntosh VH, Rumm PD, Mullick FG. DoD Public Health Laboratory Services Internet-Accessible Databases, Book of Abstracts of the meeting of the Infectious Disease Society of America, San Diego, CA, October 3–7, 2007.
5. Specht CS, Katus MC, Kalasinsky VF, Lewin-Smith MR, Amato RSS, Rushing EJ, Mullick FG. Macrophagic myofasciitis: histochemical, immunohistochemical, and spectroscoopic findings in a pediatric case. *J Neuropathol Exp Neurol*. 2007;66:450 (558.6).
6. Todorov TI, Gray MA, Kadjacsy-Balla A, Mullick FG, Centeno JA. Cadmium, zinc, selenium and arsenic content in fresh and paraffin-embedded prostate tissues. In: Book of Abstracts, 9th International Symposium on Metal Ions in Biology and Medicine, Lisbon, Portugal, May 21–24, 2007, pp 143.
7. Van der Voet GB, Sarafanov A, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG. Clinical and analytical toxicology of dietary supplements: a case study. Annual Force Health Protection Conference, Louisville, Kentucky, August 2007
8. Van der Voet GB, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG, Elemental composition of surgically removed metal fragments. Annual Force Health Protection Conference, Louisville, Kentucky, August 2007.

### *Lectures and Presentations:*

1. March 29–April 3, 2007: Key-note address: "History of IAP," 1st Forum of the Latin American Divisions of the IAP, Puebla, Mexico.
2. October 25–26, 2007: School of Medical Technologist lecture, San Juan, PR.
3. September 14, 2007: Key-note address, XVIII Undergraduate Research Symposium, San Juan, PR.

### *Deployments:*

1. January 22–26, 2007: AGMUS Board of Directors, San Juan, PR.
2. February 23–24, 2007: Jackson State University meeting, Jackson State, Mississippi.

3. February 27–28, 2007: US Advisory Board Meeting, San Juan, PR.
4. March 21–22, 2007: Defense Health Board Meeting, Washington, DC (WRAIR) .
5. March 24, 2007: ADASP Meeting, San Diego, CA.
6. March 24–27, 2007: USCAP Meeting, San Diego, CA.
7. March 29–April 03, 2007: Latin American Division Meeting (IAP), Puebla, Mexico.
8. April 17–20, 2007: US Advisory Board Meeting, San Juan, PR .
9. May 17–28, 2007: AGMUS Board of Directors, San Juan, PR.
10. July 17–20, 2007: AGMUS Board of Directors, San Juan, PR.
11. August 11–14, 2007: AGMUS Board of Directors, San Juan, PR.
12. August 11–14, 2007: AGMUS Board of Directors Annual Seminar, San Sebastian, Spain.
13. October 19–20, 2007: SMCAF Annual Meeting, USUHS.
14. August 11v14, 2007: AGMUS Board of Directors, San Juan, PR.
15. December 4–7, 2007: AGMUS Board of Directors, San Juan, PR.
16. December 20–21, 2007: Defense Health Board Meeting, Arlington, VA.

***External Representastion:***

1. Department of Defense Representative to the National Advisory Environmental Health Sciences Council, National Institute of Environmental Health Sciences, Chapel Hill, North Carolina.
2. Armed Forces Institute of Pathology representative to Armed Forces Epidemiology Board, Department of Defense (Health Affairs), Washington, DC.
3. Editorial Reviewer:
   *–Electronic Journal of Pathology and Histology*
   *–Annals of Diagnostic Pathology*
   *–Toxicologic Pathology*
   *–Patologia: Revista Latinoamericana*
4. Member, External Advisory Committee, Center for Environmental Health, Jackson State University.
5. Member, International Geological Correlation Program in Medical Geology, International Union of Geological Sciences and UNESCO.
6. Member, Research Center for Minority Institutions, Metropolitan University, Ponce, Puerto Rico.
7. President, National Science Foundation's Model Institutions for Excellence Advisory Board, Ana G. Mendez University System.
8. Chair, Task Force for National Science Foundation's Science and Technology Alliance, Ana G. Mendez University System.
9. Member, Scientific Advisory Board, FindCancerExperts.com, the patient web resource for accurate cancer diagnosis.
10. Chair, US Presidential Advisory Board for Science and Technology, Ana G. Mendez University System.
11. Executive Secretary, Sub-committee on Scientific Advisory Board for Pathology and Laboratory Science to the Defense Health Board.

***Representation to Professional Societies:***

1. Member, Foundation for Advanced Education in the Sciences, Inc
2. Member, Society for Pediatric Pathology
3. Member, United States and Canadian Academy of Pathology
4. Member, American Academy of Federal Service Physicians
5. Member, Hans Popper Society
6. Member, Sociedad de Gastroenterologia, Puerto Rico
7. Member, Academy of Medicine of Washington
8. Member, Senior Executives Association
9. Member, Association of Directors of Surgical Pathology
10. Member, American Medical Association
11. Founding Member, History of Pathology Society
12. Member, Society of Toxicologic Pathologists
13. Member, Sociedad Latino Americana de Patologia
14. Member, Asociacion Mexicana de Patologos, A.G., Mexico

15. Member, Latin America Pathology Foundation
16. Member, Education Committee, International Academy of Pathology
17. Member, Finance Committee, International Academy of Pathology
18. President-Elect, International Academy of Pathology

***Other Representations:***

1. Hispanic Employment Manager, Armed Forces Institute of Pathology, Washington, DC.
2. Consultant, Equal Employment Opportunity, Armed Forces Institute of Pathology, Washington, DC.
3. Member, Ash Library Committee, Armed Forces Institute of Pathology, Washington, DC.
4. Chair, Executive Committee, Armed Forces Institute of Pathology.

Catherine M. With, JD, LLM, LLM
Major, US Army Judge Advocate General's Corps
Legal Counsel
Date of Appointment — 15 July 2006

# OFFICE OF THE LEGAL COUNSEL

## STAFF

Catherine M. With, JD, LLM, LLM, Major, US Army Judge Advocate General's Corps, Legal Counsel
Alan P. Cash, RN, JD, Deputy Legal Counsel
Charlene Davis, Legal Assistant

## ACCOMPLISHMENTS IN 2007

The Legal Counsel's Office provided legal services and legal advice on a wide range of topics to the Director and Staff of the Institute, to include the legal issues regarding the unique relationship between the AFIP and the American Registry of Pathology (ARP), Animal research, Bioethics issues, Biosurety and Biosafety issues, Biotechnology, Base Realignment and Closure Law (BRAC), Claims, the Code of Conduct, Complementary and Alternative Medicine, Computer Crimes, Congressional Inquiries, Contract Administration/Review and Procurement law matters, Copyright issues, Credentialing, Criminal law (civilian), Deposition preparation, Environmental law, Ethics Reviews and Ethics Training, Fiscal Law, Food and Drug Law, Fraternization, Freedom of Information Act issues, Genetics and the Law, Health Care law, Health Information and Technology, Health Information Portability and Accountability Act (HIPAA), Information Technology, Institutional Review Board, Intellectual Property, Intelligence activities law, International law, Labor and Employment Law, Law of War, Legal Assistance/Notary/Tax Support, Legal Issues surrounding DNA, legal research on many issues, Licensing issues, Litigation support and preparation, Medical-Legal issues, Medical records, Memoranda of Agreements/Understanding, Military and Civilian Personnel Law Issues, Military Justice, National Museum of Health and Medicine, National Practitioner Data Bank, OGE 450's and SF 278's, the Office of the Armed Forces Medical Examiner (OAFME), Operational Law, Patient Safety, Posse Comitatus issues, Privacy Act issues, Procurement Fraud issues, Quality Assurance, Regulatory law, Risk Management, Statutory research, Technology Transfer Agreements (Cooperative Research and Development Act), and Trademark issues.

1. The Office of the Legal Counsel successfully underwent an Article 6 Inspection by The Judge Advocate General (Army) in February 2007.
2. The Office of the Legal Counsel provided substantial support and advice to the OAFME on a variety of matters, including issues affecting the OAFME in the Global War on Terrorism. Such support included:
    - Deployed to The Dover Port Mortuary and assisted the medical examiners/forensic pathologists with their operations.
    - Directly supported OAFME Virtual Autopsy research program whereby data from the forensic evaluation of gunshot or blast wound victims gathered by AFMES medical examiners processing the remains of service members who died while serving the United States contributed directly to research on battlefield ballistic injuries and to the development of new-generation body armor that will protect troops in battle.
    - Directly supported the AFMES in collecting, storing and appropriately releasing when required, the data collected in the Medical Mortality Registry which performs surveillance to monitor all active duty deaths, to quickly identify fatalities that requite autopsy by the AFMES, or could require a public health response, or those that could be the result of a bioterrorist act.

- Reviewed the requirements for release of autopsy reports.
- Legal review and revision of MOA with other government agencies for DNA analysis.
- Legal review and revision of MOA with NASA for support of space shuttle mission.
- Legal representation at depositions of OAFME physicians and scientists.
- Legal review of various FOIA requests.

3. The Legal Counsel's office coordinated numerous requests to interview and depose Institute staff in connection with government and private litigation, or to obtain patient information relevant to litigation, and represented Institute and DoD interests at several such interviews and depositions while advising staff members providing the testimony.
4. The office continued its involvement as liaison to the Army Litigation Division and the Department of Justice with regard to pending tort claims and litigation. The office also provided support to Army Claims Service and Army Litigation Division on various claims filed against Army Military Treatment Facilities, as well as to various military prosecutors in courts martial.
5. As the Institute's designated agency ethics official and ethics counselor, the Legal Counsel provided ethics training, prepared written and oral opinions and advisory letters for Institute leadership and individual staff members, and also managed the financial disclosure reporting required of certain staff members under the Joint Ethics Regulation. All AFIP personnel received ethics training as prescribed by the Department of Defense.
6. The Office of the Legal Counsel provided legal support and advice on several copyright, licensing, software and nondisclosure issues. The office continued to oversee technology transfer activities, including coordination on additional cooperative research and development agreement proposals and management of material transfer agreement documents, to include:
    - Several Cooperative and Research Development Agreements involving AFIP veterinary service.
    - Drafted/edited and performed legal reviews on dozens of MOAs/MOUs, short term training agreements, data sharing agreements, and consultation service agreements with various Federal and Non-Federal entities pertaining to research, education and training.
    - At least a half dozen Material Transfer Agreements and Four amendments of Material Transfer Agreements for the transfer of biological agents for research purposes and pursuant to a Defense Threat Reduction Agency agreement.
    - Drafted/edited or performed legal reviews of 20 Cooperative Research and Development Agreement (CRADA) Agreements, Material Transfer Agreements (MTA), and amendments to existing agreements.
    - A Cooperative and Research Development Agreements for the publication of an AFIP veterinary scientific text.
    - A Non-exclusive License for the production of assays for Department of Defense Programs.
    - AskAFIP trademark registered with the US Patent Office in coordination with the Regulatory Law and Intellectual Property Division US Army Legal Services Agency.
7. The Legal Counsel continued to provide support to the IRB, Research Committee and IACUC.
    - Reviewed at least 25 scientific research proposals as part of the IRB and the Research Committee.
8. The Legal Counsel provided routine legal advice and guidance on the day-to-day work of the Institute in such areas as:
    - Participated as member of numerous AFIP committees: AFIP Executive Committee, AFIP Executive Proponency Committee, Principal Deputy Director Council, Institutional Review Board (IRB), Research Committee, Institutional Animal Care and Use Committee (IACUC), Quality Assurance Committee, Credentials Committee, HIPAA Compliance Committee, and Safety Committee.
    - MOAs with other agencies for provision or exchange of technical and/or educational services, as well as agreements with nonfederal and foreign entities pertaining to research, education and training.
    - Requests by outside parties for access to patient records and tissues.

- Coordination with the AFIP Office of Public Affairs to offer legal advise and counsel when necessary, particularly in the areas of HIPAA and Privacy Act compliance.
- Responding to biosurety and biosafety legal issues.
- Civilian and military personnel administration, discipline, and investigations.
- Offers by outside sources to pay employees' travel expenses.
- Proposed revisions to Institute regulations.
- Military administrative law matters.
- Contract administration and procurement law matters.
- Fiscal law matters, including the structure of reimbursable operations.
- Issues specific to the operation of the National Museum of Health and Medicine.

9. Other matters of particular note include:
   - Extensive continuing support to the Institute's development of HIPAA procedures.
   - Reviews of externally funded research protocols and development of data sharing agreements and Business Associate Agreements.
   - Confirmation by the Office of the DoD General Counsel for Health Affairs that AFIP may bill and retain proceeds for civilian consultation services and assistance to AFIP Business Office concerning an exemption from CMAC rates for civilian consultations.
   - Continuing to respond to legal issues concerning the disestablishment of the AFIP pursuant to the BRAC Commission decision and the resulting issues related to the Tissue Repository.
   - Began process to obtain approval for a legal assistant position.
   - Coordinated development of a business plan for the AFIP Tissue MicroArray Program with a Department of Defense contractor.
10. The Legal Counsel's Office personnel participated in the following conferences and training events in 2007:
    1. December 2007: The 2007 Annual Human Research Protection Programs in an Evolving Research Landscape Conference.
    2. November 2007: The AFIP's Basic Forensic Pathology Course.
    3. October 2007: The World Wide Continuing Legal Education Program, The Judge Advocate General's Legal Center and School.
    4. June 2007: American Health Lawyer's Association, Annual Meeting.
    5. June 2007: American Bar Association Health Law Section, Annual Meeting.
    6. March 2007: American College of Legal Medicine, Annual Meeting.
    7. March 2007: The Judge Advocate General's Legal Center and School, Fiscal Law Course.
    8. February 2007: ABA Health Law Section Emerging Issues in Healthcare Law.
    9. January 2007: American Health Lawyer's Association Legal Issues Affecting Academic Medical Centers and Other Teaching Institutions.

### *Lectures and Presentations during 2007:*

**Major With:**

1. November 2007: Lecturer, Genetics and the Law - Legal and Policy Issues, AFIP Grand Round Videoteleconferences.
2. November 2007: Lecturer, Ethical and Legal Issues, End-of-Life Nursing Education Consortium (ENLEC), Nursing Education and Staff Development, Walter Reed Army Medical Center, Washington, DC.
3. Oct 2007 – ongoing: Instructor, Copyright Law, Instructor Training Course, Nursing Education and Staff Development, Walter Reed Army Medical Center, Washington, DC.
4. October 2007: Presenter, Legal Guidelines for End of Life Issues, Medical Ethics Course, at the Walter Reed Army Medical Center, Washington, DC.
5. Fall, 2007: Facilitator, Medical Ethics Class, Uniformed Services University of Health Sciences.
6. July 2007: Lecturer, History of Health Law, & Legal and Policy Issues – Complementary, Alternative & Integrative Medicine, AFIP Summer Intern Program, Armed Forces Institute of Pathology, Washington, DC.
7. May 2007: Lecturer, Genetics and the Law - Legal and Policy Issues, Lunch With the Law Lecture Series, Armed Forces Institute of Pathology, Washington, DC.
8. May 2007: Lecturer, Legal and Policy Issues Concerning Electronic Medical Records,

Lunch With the Law Lecture Series, Armed Forces Institute of Pathology, Washington, DC.

9. May 2007: Lecturer, HIPAA and Genetics and the Law, Soldiers' Counsel Training for Physical Evaluation Boards, Walter Reed Army Medical Center, Washington, DC.
11. May 2007: Adjunct Professor, Various topics in Health Law, the Health Care Law Elective, 55th Graduate Course, The Judge Advocate General's Legal Center and School, Charlottesville, VA.
12. May 2007: Lecturer, Legal and Policy Issues – Complementary, Alternative and Integrative Medicine, Lunch With the Law Lecture Series, Armed Forces Institute of Pathology, Washington, DC.
13. May 2007: Lecturer, The History of Health Law, Lunch With the Law Lecture Series, Armed Forces Institute of Pathology, Washington, DC.
14. May 2007: Lecturer, Advanced Medical Directives, Armed Forces Institute of Pathology, Washington, DC.
15. April 2007: Lecturer, Ethical and Legal Issues, End-of-Life Nursing Education Consortium (ENLEC), Nursing Education and Staff Development, Walter Reed Army Medical Center, Washington, DC.
16. June 2007 - ongoing, Instructor, Copyright Law, Instructor Training Course, June 2007 - ongoing, Nursing Education and Staff Development, Walter Reed Army Medical Center, Washington, DC.
17. 2007 – ongoing: Instructor, Legal and Ethics Issues, EMT-Basic Course, 68W Courses, Walter Reed Army Medical Center, Washington, DC.
18. March 2007: Adjunct Professor, Various topics in Health Law, the Health Care Law Elective, 55th Graduate Course, The Judge Advocate General's Legal Center and School, Charlottesville, VA.
19. April 2007: Presenter, Acquisition Ethics Training for AFIP personnel, AFIP, Washington, DC.
20. March 2007: Presenter, Legal Guidelines for End of Life Issues, Medical Ethics Course, at the Walter Reed Army Medical Center, Washington, DC.
21. February 2007: Presenter, Genetics and The Law, Department of Defense Health Care Law Symposium, at the Uniform Services University of the Health Sciences, Bethesda, MD.

### *Representation to Professional Organizations:*

**MAJ With:**

1. American College of Legal Medicine, Member.
2. American Bar Association, Member.
3. American Bar Association – Health Law Section, Member.
4. American Health Lawyers Association, Member.

Paul Stone
Public Affairs Specialist
Date of Appointment – 26 June 2007

# OFFICE OF PUBLIC AFFAIRS

## STAFF

Paul Stone, Director
Michele Hammonds, Public Affairs Specialist (departed in May 2007 for one year of active duty service in Kuwait)

## MISSION

The Office of Public Affairs is responsible for providing public affairs services and advice to the Director and staff of the Institute.

## IMPACT

For Public Affairs, 2007 was a year of transition. Because of a mid-year change of Director in Public Affairs and the deployment of the public affairs specialist for a one-year tour of duty in Kuwait, there were long periods of time when the office was understaffed. Despite these challenges, the Office of Public Affairs was still able to execute a full range of external and internal communications programs in support of AFIP's essential military and civilian health care missions.

### *MEDIA RELATIONS*

Responded to 15 media inquiries, to include arranging interviews on highly controversial topics, such as Vietnamese skulls housed in the Museum of Health and Medicine, the process for returning remains to families when subsequent remains are discovered, and the database of DNA profiles on detainees.

Specific media outlets included:

*The Washington Post*
National Public Radio
The *Santa Fe New Mexican* Newspaper
The American Forces Press Service
The Pentagon Channel
*San Antonio Express News*
*Stars & Stripes*
*Lancet Oncology*
*Montgomery County Gazette*
*Baltimore Sun*

## INTERNAL COMMUNICATIONS

Re-energized the AFIP LETTER, producing both a Fall and Winter edition in a five-month period.

Revamped the AFIP Command Briefing, making it more focused on AFIP's core missions and accomplishments.

Managed, coordinated and led organizational Newcomer's Briefing

Reviewed 49 scientific abstracts, articles and presentations to identify any possible problems with operational security, HIPPA, or actionable medical information.

## COMMUNITY RELATIONS/MARKETING

Arranged tours of AFIP laboratories for three high school groups and arranged presentations by staff members on careers in pathology and forensic

***Marketed AFIP courses and ASK AFIP at the following conferences:***

1. 2007 Military Health Care System Conference, January 29–February 1, 2007, Washington, DC
2. US-Canadian Academy of Pathology, San Diego, CA, March 24–30, 2007
3. Association of Military Surgeons of the United States, Salt Lake City, Utah; November 11–16, 2007

Donna M. Roncarti, Col, USAF, BSC
Director
Date of Appointment — 1 September 2002

# CENTER FOR CLINICAL LABORATORY MEDICINE

## STAFF

Donna M. Roncarti, Col, USAF, BSC, Director
Dan E. Harms, COL, MS, USA, Associate Director
Larry R. Ciolorito, CDR, MSC, USN, Associate Director
Imelda Catalasan, Maj, USAF, BSC, Deputy Director, Office of Lab Management
Gerry S. Rapisura, HMC, USN, LCPO, Navy CLIP Program Manager
(D) Jacqueline M. Bryant, SFC, USA, Army CLIP Program Manager (PCSd August 2007)
(A) Robert D. Wojtaszczyk, SGM, USA, Army CLIP Program Manager (Arrived August 2007)
(A) Connie M. Wise, SSG, USA, Assistant Army CLIP Program Manager (Arrived September 2007)
Gary S. Brown, MSgt, USAF, Air Force CLIP Program Manager

## IMPACT

Directs the operation of the DoD Clinical Laboratory Improvement Program as defined by DoD Instruction 6440.2 and Public Law 100-578 (Clinical Laboratory Improvement Act (CLIA)). Administers public law and federal policy for military medical laboratory operations in peace, contingency, and wartime; ensuring no restrictions or cessation of laboratory services that would impede DoD mission requirements.

### *Regulatory Oversight*

- Determines policy that provides guidance for all military medical laboratory operations in the DoD.
- Directs activities and funding of an operating budget of over $3.5 million annually for office administration and component central contracts for medical laboratory inspection and accreditation and proficiency testing.
- Resolves situations where public or state law is in conflict with DoD policy.
- Responds to congressional, military, or public inquiries relative to laboratory services.
- Reviews laboratory operations data to include accreditation and regulatory inspection results and proficiency testing results.
- Coordinates laboratory technical assistance and intervention strategies among DoD laboratories.

### *Consultative Services*

- Provides consultative services and impact analysis on clinical laboratory issues to the Director, Armed Forces Institute of Pathology (AFIP), to each Service's Surgeon General, and to the Office of Assistant Secretary of Defense for Health Affairs.
- Provides professional and management guidance to DoD laboratory officers and enlisted members.
- Serve as members of the DoD Laboratory Joint Working Group (LJWG).
- Army Associate Director serves as the DoD Gatekeeper for Tri-Service participation in the CDC initiative to develop a biological warfare detection and response system, i.e., National Laboratory Response Network (LRN).

## EDUCATION

Department staff presented 13 workshops/seminars at various venues during the year.

## ACTIVITIES

- The following are DoD laboratory registration statistics as of December 31, 2007:
  - — Army: 639 certificates with 1170 sites
  - — Navy: 249 certificates with 584 sites
  - — Air Force: 363 certificates with 717 sites
  - — NOTE: This office saves over $250,000 annually in CMS CLIA certificate registration fees.

- Enhancement/sustainment of Tri-Service participation in CDC-sponsored Laboratory Response Network (LRN) Partnership Initiative. The purpose of the LRN is to rapidly detect and identify biological and chemical threat agents and to alert public health and law enforcement agencies of a suspected release to minimize exposure to that agent. The LRN may also establish surveillance/diagnostic capability for select emerging infectious diseases or other public health threats. CCLM functions as the coordinating office for DoD participation in the LRN as directed by the 3 Service SGs. As the coordinator of DoD laboratory network participation, CCLM must communicate, implement, and ensure compliance with all changes in federal law regarding handling of select agents, specimen collection, and testing protocols, and maintenance of proficiency by DoD network labs. To assist with the communication/coordination responsibilities, CCLM made the update of LRN progress, activities, and issues a standard agenda item at the biannual Laboratory Joint Working Group meetings. Significant actions during CY07 included:

  **Air Force:**
  - Andrews AFB submitted a Laboratory Qualification Agreement (LQA) to become a 'H5 Only' Reference laboratory. The LQA was approved by the CDC and the lab is now operational with the H5 RT-PCR assay.
  - Travis AFB submitted a LQA to become a 'H5 Only' Reference laboratory, which was approved by the CDC. Training of staff is pending and the lab was not operational with the H5 RT-PCR assay as of the end of CY07.
    (NOTE: 'H5 Only' Reference laboratories are established to increase DoD's force health protection readiness and are Sentinel-level or other laboratories with the technical personnel expertise and facility requirements that allow performance of PCR test procedures and are either located in remote locations or are high personnel transit centers. Increasing force health protection for DoD personnel stationed or operating within the Pacific Rim was a primary goal of this effort.)

  **Army:**
  - The installation of modular BSL-3 laboratories has been completed at Tripler, Eisenhower, and Madigan Army Medical Centers. These sites are awaiting CDC Select Agent Program review and approval and/or completion of a Department of Army Safety Office preoperational survey.
  - The modular BSL-3 laboratory for the 121 General Hospital (Korea) is in country but has not yet been installed as of the end of CY07.
  - The construction of MILCON BSL-3 laboratories has been completed at William Beaumont, Carl R. Darnall, and Womack Army Medical Centers. These sites are awaiting CDC Select Agent Program review and approval and/or completion of a Department of Army Safety Office preoperational survey. Darnall Army Medical Center has submitted their LQA to become a LRN Reference laboratory, which was approved by the CDC; however, the laboratory was not operational with any LRN Reference laboratory-level procedures as of the end of CY07.

  **Navy:**
  - NH Okinawa was operational with the H5 RT-PCR assay as a 'H5 Only' Reference laboratory as of the end of CY06.
  - NH Guam submitted a LQA to become a 'H5 Only' Reference laboratory near the end of CY06, which was approved. The lab is now operational with the H5 RT-PCR assay.
  - NH Yokosuka submitted a LQA to become a 'H5 Only' Reference laboratory, which was approved by the CDC. Training of staff is pending and the lab was not operational with the H5 RT-PCR assay as of the end of CY07

- USS Peleliu submitted a LQA to become a 'H5 Only' Reference laboratory, which was approved by the CDC. The USS Peleliu is now operational with the H5 RT-PCR assay. Successful completion of this action established a model for the future addition of other U.S. Navy ships as LRN testing sites.

- **Proficiency Testing (PT):**
  All registered laboratories performing moderate- and/or high-complexity procedures (and most laboratories performing waived procedures) were enrolled in centralized Service-specific PT contracts during 2007. CCLM reviewed DoD laboratory performance for 253,418 PT survey challenges during CY07. There was 1 instance of repetitive PT failures (failure on 3 consecutive or 3 out of 4 consecutive survey events) in 2007 that required action by the respective CCLM Service representative. When such a PT failure occurs, all Services require that the performing laboratory immediately cease testing for the failed analyte, conduct an investigation to determine why the repetitive failures occurred, implement corrective action, and forward all documentation to their respective CCLM Service representative for review. If the respective CCLM Service representative agrees that appropriate corrective action has been taken, approval is given to resume testing for the analyte. Overall, proficiency test performance for all survey events was 95.7%, well above the 80% standard.
- **Accreditation:**
  The College of American Pathologists (CAP), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and COLA are all institutions that accredit DoD laboratory facilities. Each facility is inspected biennially, results of inspections are forwarded to CCLM for review, and CCLM maintains active liaison with DoD laboratory facilities and accrediting organizations, helping ensure effective communication, compliance, and problem resolution.
- **Laboratory Composite Health Care System (CHCS):**
  - Interconnectivity: Continued to support the ongoing effort to train DoD MTF lab personnel and expand the use of CHCS interconnectivity software to establish laboratory data transfer between DoD facilities, DoD and VA facilities, and DoD and civilian reference laboratories. Refresher training is conducted on a quarterly basis by Wilford Hall Medical Center. Laboratory Interoperability has significantly increased patient safety and improved quality of patient care by eliminating transcription errors and allowing real-time retrieval of referral test results.
  - Current Procedural Terminology: Maj Catalasan was a member of the Tri-Service Laboratory Current Procedural Terminology (CPT) Working Group. She also served as liaison to the Reference Code Table Synchronization and Standardization Working Group.
    - Coordinated updates to the most current lab CPT codes for inclusion in the baseline files deployed to appropriate military healthcare systems.
  - Workload Assignment Module (WAM): CDR Ciolorito participated in an ad hoc Tri-Service working group to provide laboratory subject matter expertise in the development of WAM software enhancements. The software enhancement was implemented in December 2007 and included the following elements:
    - Collection of workload data for the analysis of non-human specimens.
    - Improved accuracy of MEPRS codes assigned to laboratory orders and secondary tests.
    - Ensured that QC and Repeat tests display only on the Lab Statistical Workload reports.
    - Updated workload assignment to ensure appropriate credit to both referring and receiving laboratories.
- Continued participation as TMA Integrated Project Team members regarding the effort to standardize newborn screening within the DoD and expand the panel of tests performed to match the screening panel as recommended by the American College of Medical Genetics. The Statement of Work, Technical Submission Requirements, and Technical Evaluation Factors required as part of an RFP to provide comprehensive screening under a uniform DoD contract with a commercial reference laboratory were written and submitted to the Defense Supply Center, Philadelphia (DSCP) early in CY06. CCLM has continued to track the extended contracting process and serve as Subject Matter Expert for the laboratory portion of these expanded requirements. As of the end of CY07, the Statement of Work was undergoing various levels of DSCP review. These reviews must be completed before the Request for Proposal/Solicitation can be released. When awarded and implemented at DoD sites, the contract will provide for a comprehensive battery of screening tests at all DoD sites, greater standardization within the military healthcare system, and enhanced patient safety.
- Continued to participate in both the Integrated Consortium of Laboratories Network (ICLN)

and the DoD Laboratory Policy and Coordinating Group (LPCG). The ICLN, with CCLM membership on the Information Technology and Communication Sub-Committee (ITCC), began to identify the technology needs to link U.S. national assets, labs, processes, procedures, testing, standards, and scenarios. The LPCG has continued to work bio-defense issues across the DoD with specific concentration on laboratory requirements, testing protocols, and standards. Both groups focus on threat scenarios and their outcomes to identify requirements in the testing and readiness arena to ensure the nation and DoD are prepared for any contingency.

- Served as subject matter experts for the new Laboratory/Anatomic Pathology Commercial-Off-The-Shelf System (COTS) integration project. Represented both Service and DoD laboratory communities in evaluating ongoing integration efforts and the re-evaluation of strategic options for Lab-COTS procurement and integration. Served as a primary resource for laboratory information technology strategy to the Clinical Information Technology Program Office and the Service's Chief Informatics Officers. Compiled list of all instruments used at Air Force laboratories to determine interface requirements for a future laboratory information system. Key member of a panel of experts involved in the design of the DoD prototype.

**Col Roncarti/Maj Catalasan:**

- Advisor to the Air Force Medical Service Laboratory Bio-Defense Steering Committee on proficiency testing requirements and procedural issues.
- Actively engaged in promoting bio-defense initiatives. Coordinated laboratory breakout sessions at the 2007 Global Medical Readiness Symposium. These training sessions provided the most recent updates to laboratory testing policies, technology used for identification of bio-agents, and current and future bio-defense programs.
- Performed data analysis for Air Force Surgeon General staff on clinical laboratory workload statistics to validate current manpower requirements at individual Air Force laboratories.
- Participated in a consensus-building meeting that provided recommendations to policy makers on the development of the framework for electronic laboratory reporting (ELR). The ELR will provide the capability to electronically network laboratory results from all US laboratories to ensure early detection and rapid control of disease outbreaks.

**COL Harms:**

- Coordinated the Tri-Service laboratory update to the status of actions taken in response to the DoD Healthcare Quality Initiative Review Panel Report (HQIRP; otherwise known as the Buck Report).
- Continued to serve as a laboratory subject matter expert to OASD(HA) for pandemic influenza preparedness and other force health protection issues, to include participation in the NORTHCOM Global Deconflict PI Conference in Apr 07, an ICLN ITCC PI Tabletop Exercise in Apr 07, an Overseas Laboratory Review in Jun 07, and an Oct 07 meeting to discuss how DoD can assist with the development of diagnostic tests for pandemic influenza.
- Continued participation in the DHHS Pandemic and Seasonal Influenza Risk Management Meeting and its Influenza Diagnostics Working Group; coordinated with Service laboratory program managers and Service LRN Gatekeepers for issues being addressed within these meetings as necessary.
- Attended CMS Clinical Laboratory Improvement Advisory Committee (CLIAC) meeting in Atlanta, Ga, 14–15 Feb 2007, to gain an awareness of the current issues being discussed regarding the Clinical Laboratory Improvement Amendments (CLIA '88, 42 CFR Part 493)
- Attended an LRN Gatekeepers Meeting held at the CDC in Atlanta, Ga, 17–18 Jul 07.
- Member of the LRN National Meeting planning committee. Attended the LRN National Meeting in Portland, Ore, 10–12 Sep 07, and served as a moderator for one of the presentation blocks.

**CDR Ciolorito:**

- Reviewed clinical laboratory/blood banking requirements for operational support to the Global War on Terrorism; identified and coordinated the deployment of 9 Navy medical technologists during CY07.
- Continued to monitor Navy preparations for a potential influenza pandemic; actively promoted the establishment of 'H5 Only' Reference laboratories within the PACOM and on fleet assets.

### *Presentations*

1. January–December 2007: Web-based briefings routinely posted to the Navy Medical Technology webpage, to include presentations on Navy Medical Technology Community Management, Workload Recording, the laboratory role in confidential management of sexual assault victims, and Navy operational support missions for laboratory professionals; LR Ciolorito.
2. January 2007: Washington, DC, Laboratory Joint Working Group Meeting, "CCLM CY06 review," "LRN update," "DLN update," "AFIP Pamphlet 40-24 update," DE Harms.
3. February 2007: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "The ins and outs of workload recording," "Clinical laboratory management indicators," "Laboratory standard cost methodology," "AF manpower model," "Clinical laboratory improvement program," "PT basics," "LRN and bio-defense," I Catalasan.
4. February 2007: Atlanta, Ga, LRN Partners Meeting, "DoD LRN update," "DLN update," DE Harms.
5. February 2007: Boston, Mass, Society of Armed Forces Medical Laboratory Scientists, Thirty-Fifth Annual Meeting, "The DoD Clinical Laboratory Improvement Program," GS Rapisura.
6. February 2007: Boston, Mass, Society of Armed Forces Medical Laboratory Scientists, Thirty-Fifth Annual Meeting, Co-presenter "Cerner Pathnet Millennium Demo – DoD Prototype," I Catalasan.
7. March 2007: Boston, Mass, Society of Armed Forces Medical Laboratory Scientists, Thirty-Fifth Annual Meeting, "Navy breakout session," LR Ciolorito.
8. March 2007: Boston, Mass, Society of Armed Forces Medical Laboratory Scientists, Thirty-Fifth Annual Meeting, Army Breakout Session, "CCLM CY06 review," "LRN update," "AFIP Pam 40-24 update," "CLIPO and AFIP Pam 40-24 brief," DE Harms.
9. May 2007: San Diego, Calif, 9th Annual DoD Joint Influenza Working Group, "Guidelines for laboratory planning and diagnostics as contained in Pandemic Influenza: Clinical Guidelines for the Military Health System (April 2007)," "LRN and DoD's LRN participation," DE Harms.
10. August 2007: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, "The ins and outs of workload recording," "Clinical laboratory management indicators," "Laboratory standard cost methodology," "AF manpower model," "Clinical laboratory improvement program," "PT basics," "LRN and bio-defense," I Catalasan.
11. August 2007: Washington, DC, Navy Bureau of Medicine and Surgery, "Status Report on the Navy Medical Technology Community," LR Ciolorito.
12. August 2007: Austin, Tex, Army Junior Lab Officer's Workshop, "CCLM CY06 Review," AFIP Pam 40-24 Update," "CLIPO and AFIP Pam 40-24 Brief," DE Harms.
13. August 2007: Crystal City, Va, LRN Partners Meeting, "DoD status and participation update," DE Harms.

## RESEARCH

### *Publications*

1. Catalasan I. BOMO Lab Break Out CD: a compendium of laboratory management topics and issues. Self-published.
2. Ciolorito LR. Consultant's Corner, Society Scope. Society of Armed Forces Medical Laboratory Scientists Newsletter. Winter 2009; Vol 10, Number 1.

## PROFESSIONAL ACTIVITIES

### *Official Trips*

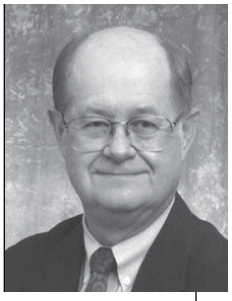
1. March 2007: Society of Armed Forces Medical Laboratory Scientists, Annual Meeting, Boston, Mass, Coordinated various elements of the annual meeting as a member of the Board of Directors; directed and coordinated Navy Officer participation and professional development; directly mentored and assisted in the subsequent duty station assignment of 25 officers, LR Ciolorito
2. September 2007: Society of Armed forces Medical Laboratory Scientists, mid-year meeting of the Board of Directors, New Orleans, La, Assisted in the overall direction of the organization and in the planning and venue review for the 2008 annual meeting, LR Ciolorito

### *Professional Participation*

Service as the Vice President of the Society of Armed Forces Medical Laboratory Scientists, March–December 2007, assumed leadership of all planning for the February 2008 annual meeting of the Society, LR Ciolorito.

## GOALS

1. Support the United States Department of Defense readiness posture and contribute to the ongoing health and well being of military personnel.
   - Continue to coordinate with national clinical laboratory accrediting agencies to resolve any issues that impact the accreditation of DoD laboratories.
   - Continue to provide consultation to the Armed Services Blood Program Office on restructuring and consolidation issues.
   - Continue to be a resource for information on the development of biological warfare agent identification and emerging infectious disease procedures, biosurety, and select agent handling rules, and the oversight of the PT program for LRN Sentinel, Reference, and National labs.
   - Continue to provide support for the establishment of field-deployable equipment/ supply requirements.
   - Key role/membership in the Integrated Consortium of Laboratories Network (ICLN) and the DoD Laboratory Policy and Coordinating Group. The former to ensure DoD representation to the U.S. national consortium for bio-defense policies and processes and the latter to ensure DoD stakeholders' say in planning and coordinating bio-defense posture into the future.
2. Contribute to the provision of top-quality, cost-effective health care benefits.
   - Review and analyze DoD reference laboratory utilization patterns to identify candidate tests for diversion to cost saving DoD testing facilities.
   - Support the continued development and evolution of the Laboratory Joint Working Group.
   - Promote potentially cost saving Tri-Service consolidation of cytology and molecular/ genetic testing services.
   - Promote the adoption of the recommendations made by the American College of Medical Genetics regarding expansion of newborn screening.
3. Assist in the development of military and civilian leaders and staff who excel in a changing world.
   - Attend the Society of Armed Forces Medical Laboratory Scientists annual meetings. Present the status of CLIP registration, identify problem areas, outline the long-term plan, and identify anticipated changes made by CLIAC.
   - Educate members of the DoD laboratory community on Laboratory Joint Working Group projects and issues.



Geoffrey W. Rake, MD, MSA
Director
Date of Appointment — 6 October 2003
(contractor, 2 September - 3 October 2003)

# DEPARTMENT OF DEFENSE PATIENT SAFETY CENTER

## STAFF

*Professional:*

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Rajasri Roy, PhD, Epidemiologist (contractor)
(A) Erin Lawler, MS, Human Factors Engineer (contractor)
Mary Ann Davis, RN, Safety Officer (contractor)
Pamela Copeland, RN, JD, Safety Officer (contractor)
(D) Juanita Gray, Data Analyst (contractor)
(A) Jean-Philippe Chartol, Data Analyst (contractor)
Richard Hildreth, Information Systems (contractor)

*Administrative:*

Peter Stifel, Administrator (contractor)
Pamela Oetgen, Newsletter Editor (contractor)
Nanette Barry, Secretary (contractor)
Karen Ashbrook-Barnes, Technical Editor (contractor)
Greg Hacke, Technical Editor (contractor)

## IMPACT

The Department of Defense (DoD) Patient Safety Center (PSC) in 2007 continued to meet its mission as defined in statute and DoD Directive and Regulation. The PSC, established in 2000, maintains the DoD Registry for patient safety data collected by the Services from 170 military medical and dental clinics and hospitals worldwide.

In 2007 the PSC produced four Quarterly Summaries and the fourth Annual Summary of Information Reported to the PSC, quarterly Patient Safety Newsletters, four Focused Reviews exploring our data in areas of particular concern, and one DoD Patient Safety Alerts and six Safety Advisories. The PSC continued its active participation in the procurement of a commercial of the shelf patient safety reporting (PSR) system. Initial deployment of PSR was delayed and then cancelled due to concerns raised during testing and subsequent modifications. PSR acquisition is currently under review and, if approved, deployment is now projected to begin in 2010. This has led to a decision to revise the current aggregate event reporting tool, an effort that is currently under way. The Patient Safety Center was actively engaged with the Agency for Healthcare Research and Quality and other federal agencies (VHA, CDC, FDA, HSI, and HRSA) to develop national adverse event reporting tools in support of the Patient Safety and Quality Improvement Act of 2005. Lastly, plans to move the Patient Safety Center from the Armed Forces Institute of Pathology to the TRICARE Management Activity remain on hold pending final determinations subsequent to the Base Relocation and Closure process.

Bottom line: In 2007 the Patient Safety Center continued to explore and expand its role for improving patient safety across DoD.

## CONSULTATION

The DoD PSC Registry collects, analyzes, and reports cases on a fiscal year basis. The cases are collected in five separate streams: Monthly Summary Reports of non-medication events (includes near-misses and actual events), MEDMARX medication error events, potential patient safety events based on M2 data (ICD-9 discharge codes) and AHRQ Patient Safety Indicator (PSI), Root Cause Analyses (RCA), and Failure Mode and Effects Analysis (FMEAs).

| *Cases* | *Total cases* |
|---|---|
| Monthly summary report (non-medication) events (FY07) | 70,271 |
| MEDMARX (medication) events (FY07) | |
| Inpatient | 8,304 |
| Outpatient | 26,987 |
| RCAs (received CY07) | 80 |
| FMEAs (received CY07) | 48 |

## EDUCATION

Number of courses participated in by staff: 12

***Presentations:***

**January**

1. Regional Patient Safety Conference, Yokosuka NB, Japan, G Rake
2. Patient Safety Center Overview, Introduction to Patient Safety, USUHS, P Hoerner

**February**

Institute of Medicine Committee, Washington DC: "Dietary Supplement Use in the Military," P Hoerner

**March**

1. Advanced MEDMARX Training, San Antonio TX, P Hoerner
2. United States Pharmacopeia Medication Error Summit, Rockville MD: "The DoD Patient Safety Center Initiatives," P Hoerner
3. Patient Safety Center Overview, "Introduction to Patient Safety," USUHS, G Rake

**April**

Patient Safety Center Overview, "Introduction to Patient Safety," USUHS, G Rake

**June**

1. AF QSPAR, "Identifying Issues to Consider in RCAs and FMEAs," New Orleans LA, E Lawler
2. Patient Safety Center Overview, "Introduction to Patient Safety," USUHS, G Rake

**September**

Human Factors, AF Perioperative Nurses Training, E Lawler

**October**

1. Patient Safety Center Overview, Introduction to Patient Safety, USHUS, G Rake
2. Combined Forces Pharmacy Seminar, Anaheim CA: 1) Advanced MEDMARX User Training, 2) MEDMARX, A Tool for the Joint Commission's National Patient Safety Goals and IHI 5 Million Lives Campaign, 3) Air Force Pharmacy Special Interest Group, P Hoerner
3. Combined Forces Pharmacy Seminar, Anaheim CA, E Lawler

## PROFESSIONAL ACTIVITIES

***Official trips***

**January**

TRICARE MHS Conference, Washington DC, G Rake

**February**

Joint Commission Wrong Site Surgery Summit, Chicago IL, G Rake

**March**

Food and Drug Administration Medication Postmarketing Surveillance Think Tank, Rockville MD, P Hoerner

**April**

1. TapRooT Summit, San Antonio TX, E Lawler
2. Transforming Fall Prevention Practices, Clearwater FL, P Copeland

**May**

National Patient Safety Foundation Congress, Washington DC, G Rake, M Davis

**June**

17th Annual Social Marketing in Public Health Conference, Clearwater FL, R Roy

**September**

1. Kaiser Permanente Quality Forum Visit, Oakland CA, G Rake
2. AHRQ 2007 Annual Conference, Washington DC, G Rake, P Hoerner, M Davis, R Roy
3. The Joint Commission Summit on Medication Reconciliation, Chicago IL, P Hoerner

**October**

ASHRM Conference, Chicago IL, P Copeland

***Publications***

**Focused Reviews**

**March**

"Joint Commission National Patient Safety Goals-Suggestions to Help with Compliance," M Davis

**July**

"Perinatal Events," M Davis

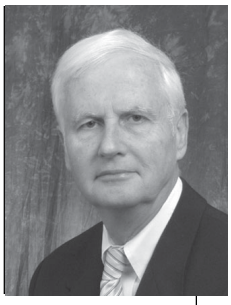
**August**

"National Patient Safety Goals," M Davis

**September**

"Anticoagulants," P Hoerner, M Davis

"Safe Patient Handling and Movement during the Perioperative Continuum: Mobile Surgical Platform Use," Perioperative Nursing Clinics Journal, E Lawler



Frank T. Flannery, MD, JD
Chair
Date of Appointment — 9 October 1990

# DEPARTMENT OF LEGAL MEDICINE

## MISSION

The mission of the Department of Legal Medicine includes consultation, education, and research on medicolegal, medical quality assurance, and risk management matters confronting the military, federal agencies, and the civilian sector. The Department's primary responsibility is to meet the informational needs of the Department of Defense (DoD) regarding medical negligence litigation and consequent remedial measures.

## STAFF

*Medical:*

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William J. Oetgen, MD, MBA
(A) James O. Scott, Jr., RN, BS
(D) Susan Freeburn, RN

*Legal:*

Jill E. Thach, JD

*Administrative:*

Kevin Slaton, TSGT, USAF
Herman Furlow, Administrative Assistant
Daniel Wheatley, MS, Statistics Specialist
Mary Ann Millett, Credentials Manager
Patricia Broseker, Administrative Assistant
(A) Kristina Estabrook, Administrative Assistant
Michael Orlowski, Legal Assistant
(A) Chantel Baker, Credentials Clerk

## IMPACT

The Department continues to maintain and augment its critical roles in the areas of quality assurance and risk management by providing assistance to the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)), the Tricare Management Activity (TMA), and the three military services. The three major activities of the Department in 2007 were the continued collection and analysis of risk management data obtained from the Centralized Credentials Quality Assurance System (CCQAS), the analyses of MHS-wide system issues identified in DoD medical malpractice claims and participation in the Maximus External Peer Review Program of the Department of Defense in order to ensure compliance with the statement of work for this important quality management function.

Since its inception twelve years ago, CCQAS continues to undergo modification and development. The Department continued its important role in this process as the DoD component analyzing medical malpractice cases, adverse privileging actions and disability cases within CCQAS. The analysis and reporting of this information possesses a high degree of military relevance and it improves the quality of medical care for our soldiers and their families and reduces patient harm as well as claim costs both in peacetime and during major deployments.

Secondly, the Department continued the use of MAXIMUS case reviews for the purposes of

analyzing, collating and reporting summary information to the DoD Risk Management Committee in order to identify system issues resulting in medical injury.

The third major impact area for the Department of Legal Medicine in 2007 was its analysis and review of several hundred military paid medical malpractice cases. Detailed analysis of various issues including the standard of care, causation and system issues are important parts of this case review process. This effort was performed jointly with OASD(HA) and TMA. The identification of high risk medical practices and procedures, providing the opportunity to appropriately target quality assurance efforts, has great military relevance in improving the quality of medical care in the military health system, eliminating patient harm and lowering claim expenses.

## QUALITY MANAGEMENT/RISK MANAGEMENT/CREDENTIALS MANAGEMENT CONSULTATION

| *Cases* | *Completed* |
|---|---|
| Military | 562 |
| Army (98) | |
| Navy (130) | |
| Air Force (42) | |
| Coast Guard (292) | |
| Federal | 259 |
| DOJ (BOP) (223) | |
| DOJ (PSOB) (36) | |
| Civilian | 0 |
| Interdepartmental | 3 |
| Total | 824 |

The Department of Legal Medicine has provided consultation in the areas of medical, legal, and credentials expertise for the DoD and other federal agencies. The Department continued to participate in and provide statistical input and analysis of DoD malpractice information related to quality improvement and risk management to a number of senior level DoD committees. A primary focus of the Department has been active involvement with the DoD Risk Management Committee chaired by OASD (HA). The Department of Legal Medicine assists OASD (HA) in the analysis of aggregate Triservice malpractice data provided by the services. Medical malpractice payment data from the Treasury Department is obtained by the Department of Legal Medicine and reported to that committee and the three services. This enables DoD to monitor and respond in an appropriate, timely manner to paid medical malpractice cases. The Department of Legal Medicine also participates in the TRICARE Clinical Quality Forum. Members of the Department periodically provide briefings regarding our activities at AFIP that include CCQAS data, malpractice case information, Treasury data, and Feres -barred (active duty) cases to this high level DoD committee. Finally the Department continues to provide ongoing assistance to further develop the Department of Defense CCQAS system by participation on various committees. The structure and content of the CCQAS database including the Risk Management, Disability and Adverse Actions modules, as well as the ad hoc and standard reporting features, have continued to be reviewed by the staff of the Department of Legal Medicine in 2007.

Second, the Department of Legal Medicine has an important role with the Maximus External Peer Review Program (Maximus). Paid medical malpractice cases, which meet the standard of care at the offices of the respective Surgeons General, have been reviewed by Maximus as an external entity under contract to DoD. The Department fulfills the important role of insuring that all medical-legal reviews conform to the particulars of the statement of work regarding standard of care issues, causation, and system issues. The Department analyzes each case and provides feedback to OASD(HA) based on the review.

Third, the Department of Legal Medicine continues valuable to monitor DoD malpractice payments with the Department of the Treasury. The Department of Legal Medicine staff works closely with the Treasury Department to ensure continuation of this important function. DoD medical malpractice payments and trends as well as financial reports are collected from the

Department of the Treasury and analyzed periodically by The Department of Legal Medicine in order to assist OASD (HA) in monitoring. These figures are of great importance and are used for comparison purposes with the larger database in the private sector. Our Treasury data reports provide timely notification of newly paid medical malpractice cases to the three Offices of the Surgeons General in order that they can meet their statutory requirements of reporting to the National Practitioner Data Bank in a timely fashion.

Fourth, the Department the Department of Legal Medicine continues participation on the CCQAS Functional Work Group in analyzing the Risk Management, Disability, and the Adverse Action modules of the Centralized Credentials Quality Assurance System. In 2007, the further refinement of these modules enhanced the usefulness of the reports which can be produced from these data bases. Further development of these modules will be necessary on an ongoing basis.

Fifth, in the field of credentials management in 2007, the Department has continued its valuable DoD credentials work through sharing agreements with the Navy Recruiting Command and the United States Coast Guard. The credentials and claim histories of health care providers who have applied to be accessioned as military personnel for the Department of the Navy are verified. The Department has also continued its work in the credentials evaluation and prime source verification of Coast Guard health care providers. Finally, the Department has continued its credentials management work through a sharing agreement with the Department of Justice for health care providers in that federal agency.

Finally, case review for other federal agencies, according to the Department's mission statement through sharing agreements, continued in 2007. Active sharing agreements included those with the Department of Health and Human Services Inspector General's Office, the Bureau of Prisons' (General Counsel), and the Public Safety Officer's Benefit Program (PSOB) for the Department of Justice. The PSOB cases were reviewed to determine whether injured law enforcement officers or public safety officers are eligible to obtain benefits through that program after appropriate evaluation. The medical-legal reviews done by Legal Medicine for the supported agencies evaluated standard of care, causation, and injury elements of these health care related cases. All of these sharing agreements expired in December 2007 and will not be renewed per agency direction.

The Department of Legal Medicine maintains a repository at Forest Glen Annex of over 22,475 closed DoD medical malpractice cases. This DoD-wide repository has existed since 1990. In 2007, the Department accessioned and catalogued 475 closed Department of Defense medical malpractice cases including risk management closed case files. The Department of Legal Medicine, in conjunction with Department of Repository and Research Services at AFIP, continued work with a contractor to image medical malpractice claim files in the repository. To date, over 7 million pages have been imaged. Electronic imaging preserves the records from aging damage, saves space and offers a more rapid access to records as required by the services. Standard of care determinations in paid medical malpractice cases are available within the records. Additionally, through an ongoing collaborative relationship of the American Society of Anesthesiology and the Department of Legal Medicine, a reduction of both liability for anesthesia providers and care related harm to anesthesia patients continues.

## EDUCATION

The Department has again produced its annual risk management journal, Legal Medicine. By completing a quiz, physicians earn five category I CME credits. The credit is provided free of charge to military and full-time federal physicians. Approximately 13,000 CME credits were awarded in calendar year 2007. A substantial portion of the credits were awarded to military and federal civilian physicians.

Legal Medicine has proven military relevance, especially for remotely deployed personnel who are unable to attend conferences. The year 2007 marks the final mailing of Legal Medicine in the hardcopy format. The publication and its associated CME program has been placed in an electronic format on the Ask AFIP website. This use of the new format will save substantial printing and mailing costs for the Department and AFIP. The new format will also be accessible to more practitioners in the new electronic form.

The Department also provided medical-legal training to a number of USUHS and Georgetown medical students.

### *Faculty Appointments*

Flannery FT, Clinical Assistant Professor, Georgetown University Medical School.

### *Presentations*

1. May, 2007: Georgetown University, Washington, DC "Medical malpractice update," F Flannery.
2. March, 2007: Washington, DC, DoD Risk Management Committee, "System issues identified in maximus reviews," R Granville.
3. June, 2007: Washington, DC, DoD Risk Management Committee, "CCQAS claims management module general statistics," R Granville.
4. July, 2007: Washington, DC, DoD Risk Management Committee, "System issues identified in maximus reviews," J Scott.
5. October, 2007: Washington, DC, DoD Risk Management Committee, "System issues identified in maximus reviews," J Scott.

## RESEARCH

### *Publications*

1. Flannery F. Recent Court Decisions. *Legal Medicine*. 2007: 6-12.
2. Waxman S. Medico-legal issues in urology. *Legal Medicine*. 2007: 13-21.
3. Lester A. Med/Mal 101: Liability principles in OB/GYN and how they relate to other health care disciplines. *Legal Medicine*. 2007: 22-35.
4. Thatch J. Legal battles, medical ethics and the health care directive. *Legal Medicine*. 2007: 36-41.
5. Dige A, Lewrandoski K. Avoid errors in clinical laboratory critical value reporting. *Legal Medicine*. 2007: 42-49.
6. Buss P. Tricare benefit development: advances in medical practice. *Legal Medicine*. 2007: 50-55.

## PROFESSIONAL ACTIVITIES

### *Editorial Work:*

1. *Federal Practitioner,* Flannery FT, MD, JD.
2. *Military Medicine,* Granville RL, MD, JD.

Kevin P. Monahan
Director

# DIRECTORATE OF RESOURCES MANAGEMENT

## MISSION

The staff of the Directorate of Resources Management is dedicated to advising and supporting the AFIP Director and staff through funds management, budget development and execution, fiscal program analysis, reimbursable program oversight, and travel systems administration. The staff provides these services by:

- Advising the AFIP Director, Executive Committee and AFIP staff members on financial administration and execution of AFIP's multiple funding streams
- Planning, coordinating and supervising all activities related to program/budget formulation, budget execution and funds control of AFIP resources
- Preparing, analyzing, briefing and distributing fund status and expense information to AFIP personnel
- Reviewing, analyzing and interpreting budget policies and language contained in Program Budget Decisions (PBD), Budget Circulars and appropriation/authorization acts
- Implementing, maintaining and providing guidance and training for all aspects of the Defense Travel System (DTS)
- Providing management and oversight of the Government Travel Card (GTC) program
- Establishing, managing and fiscally monitoring a substantial reimbursable program comprising numerous reimbursable agreements with other federal agencies

## ORGANIZATION

The Directorate of Resources Management includes the Director's Office, the Financial Management Division (FMD) and the Business Office. The overall staff includes Budget Analysts, Management Analysts/Accountants, a Program Manager, and a Resource Management Officer.

## STAFF (DIRECTOR'S OFFICE AND FINANCIAL MANAGEMENT DIVISION)

Kevin P. Monahan, Director
Jeanette H. Barnes, Supervisory Budget Analyst
John R. Brock, Budget Analyst
Melvinn D. Chance, Budget Analyst
Reginald V. Wilkes, Budget Analyst

Mike F. Nola, PhD
Chief

# AFIP BUSINESS OFFICE

## MISSION

The staff of the Business Office is a team of committed professionals, who advise and assist the AFIP leadership in data collection, analysis and evaluation, financial management and accounting. The staff advises and supports the AFIP Director, Service Line Directors and the Executive Committee by:

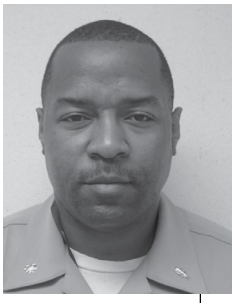
- Advising the Executive Committee on key issues affecting the business aspects of pathology consultation, education and research within the AFIP
- Providing budgetary and financial counseling across the Institute
- Tracking financial performance of Institute programs
- Providing analytical and statistical reviews of programs and contracts, as well as business case analyses
- Managing the billing and collection activity for the Institute's civilian consultation cases
- Reviewing, overseeing and auditing the Institute's cost and revenue centers and MIPRs
- Managing the Institute's contracts and agreements, and the electronic file management system

## ORGANIZATION

The Business Office is composed of a Program Manager, a Business Analyst and Management Analysts/Accountants who directly support the Directorate of Resources Management Director. The staff serves as advisors to the Service Line Directors as well as to the AFIP Director and the Executive Committee.

## STAFF

Mike F. Nola, PhD, Chief
Francis R. Costa, Business Analyst/Accountant (VA supported)
Tonya L. Wilson, Management Analyst/Accountant
Rosalyn A. Payne, Management Analyst and Support Program Manager
Michele M. Block, Management Analyst



LCDR Garland H. Andrews, MSC, USN
Chief, Research Services

# RESEARCH SERVICES DIVISION

## MISSION

The Research Services Division supports the mission of the AFIP through the following activities:

1. Reviewing and processing protocols and educational projects submitted by AFIP staff for approval and funding.
2. Ensuring protocol administrative requirements are met and maintaining official protocol files.
3. Coordinating activities of the AFIP Research Committee, Institutional Review Board (IRB), and Institutional Animal Care and Use Committee (IACUC).
4. Performing annual protocol reviews, conducting semiannual laboratory animal facility inspections, drafting meeting minutes, preparing committee action documents and notices to investigators, and preparing required reports for various accrediting and oversight organizations.
5. Monitoring the status of conditionally approved projects and publishing a monthly status report of all active protocols within the Institute.
6. Coordinating publication of the AFIP Annual Research Progress Report and the Institute's Annual Report to Congress on Laboratory Animal Care and Use.

## STAFF

Chief, Research Services - LCDR Garland H. Andrews, MSC, USN
Asst Chief, Research Services – Ms. Soundia Akerele
Administrative Coordinator - Marcia Pringle

## ACTIVITIES

The year 2007 ended with a total of 163 active in-house projects, extramural grants, research contracts, and agreements. This is an 11 percent decrease from the previous year.

**Institutional Animal Care and Use Committee (IACUC):** Of note this year was the completion of our Annual Report to Congress for FY06, which was completed on 23 Oct 07. In addition, the USDA Annual Report for FY07 was completed on 28 Nov 2007, the PHS Annual Report for FY07 was completed on 30 Jan 08, and the FY07 Annual AAALAC Report was completed on 4 Jan 2008. The required IACUC Protocol Annual Reviews for FY07 were completed in Feb 2008. The required semiannual facility inspections and program reviews took place in March and October 2007. Only a few very minor deficiencies were noted and the Institute received continued full accreditation.

**Institutional Review Board (IRB):** Efforts of the IRB this year focused on implementation of new, more comprehensive training requirements for investigators, to include a new PowerPoint presentation on local policies and procedures, as well as research ethics. In addition, significant progress was made toward development and implementation of an Institute-wide monitoring and training database with IRB and IACUC training requirements.

**Research Committee:** The Research Committee reviewed and the Director gave final approval to a total of 20 new protocols this year with approximately 16 more in various stages of review at the end of the calendar year. Of note, the Army Human Research Protection conducted a site assessment in July 2007. Minor discrepancies were noted and have been resolved prior to accreditation.

# DIRECTORATE OF ADVANCED PATHOLOGY

Sumitra Parekh
COL, MC, USA
Director, Advanced Pathology

**GROUP 1—**
- Genitourinary Pathology (Nephropathology)
- Gynecologic & Breast Pathology
- Neuropathology & Ophthmic Pathology

**GROUP 2—**
- Dermatopathology
- Soft Tissue Pathology
- Oral & Maxillofacial Pathology
- Endocrine & Otorhinolaryngic/Head-Neck Pathology

**GROUP 3—**
- Hematopathology
- Veterinary Pathology
- Environmental & Infectious Disease Pathology

**GROUP 4—**
- Hepatic & Gastrointestinal Pathology
- Pulmonary & Mediastinal Pathology

# ADVANCED PATHOLOGY

# GROUP 1

## Genitourinary Pathology (Nephropathology)

## Gynecologic & Breast Pathology

## Neuropathology & Ophthalmic Pathology

Isabell A. Sesterhenn, MD
Chair
Date of Appointment — May 2004

# DEPARTMENT OF GENITOURINARY PATHOLOGY AND NEPHROPATHOLOGY

In June 2007, the Department of Genitourinary Pathology and the Institute lost Dr. Charles J. Davis Jr. (Colonel US Army retired). As the Deputy Chairman since 1972 COL Davis held an essential role in the Department. He inspired the members of the Department and the Institute.

## STAFF

*Medical:*

Isabell A. Sesterhenn, MD
Charles J. Davis, Jr., MD (Deceased)
Raj Shekar, COL, MC, USA
(D) William Winecoff, COL, MC, USA
(A) Joel H. Barton, MD
(A) Michael D. Grinkemeyer, COL, MC, USAF
Anandita Datta, MD, (Nephropathology)
Bungo Furusato, MD, Fellow (GU Pathology)

*Scientific:*

Frank A. Avallone, Research Biologist
Denise Young, Histopathology Technologist, ARP
Stacy Tamer, Histopathology Technologist

*Administrative:*

Renee Upshur-Tyree, Administrator
(D) Vera Pettus, Medical Secretary

## IMPACT:

The Department's relevance to the Institute can be seen in the work of the GU laboratory's provision of immunohistochemistry, immunofluorescence and in situ hybridization for this and for 10 other departments of the AFIP and for the Urology and Pathology Services of Walter Reed, Malcolm Grow, Ireland Medical Center, OAFME and the Naval Medical Center Camp Pendleton.

The Departments' relevance to the military in general is illustrated in our role as the pathology center for the Center for Prostate Disease Research – a tri-service prostate specimen repository. This was mandated by Congress as authorized in Public Law 102-172. In this capacity our department is frequently requested to provide personal consultations to members of Congress and high ranking military officers.

The Departments' contributions to civilian medicine, as well as the military's entail not only our consultation work but our service as the WHO Collaboration Center for Histological Classification of Tumors of Urinary Tract and Male Sex Organs. In 2004, the WHO Classification of Tumours: Pathology and Genetics of the Urinary System and Male Genitourinary System was published. Members of the staff contributed as authors and co-editors to this book. These books provide criteria for the diagnosis of tumors.

The GU Pathology Department collaborated with the Center of Prostate Disease Research on Gene expression profiling in formalin-fixed paraffin-embedded specimens. This methodology will greatly enhance the utilization of specimens representing malignant and nonmalignant

diseases of the genitourinary tract. The GU Registries at the AFIP are in a unique position to contribute to molecular pathology with its vast repository of typical and unusual diseases.

The nephropathology division staff served as the primary pathologist in most of the cases, performing light, immunofluorescence and electron microscopy to render quality diagnosis. Most of the cases are received with request for performing light, electron and/or immunofluorescence microscopy essential in the final diagnosis. This includes time consuming research for clinical data and discussion with the clinicians or contributing pathologists to arrive at the final diagnosis. The staff uses immunohistochemistry (peroxidase method) when tissue for immunofluorescence microscopy is inadequate. Among the 348 human kidney biopsies, 304 (85%) were from federal institutions and 44 (15%) were from civilian contributors. The average case turnaround (TAT) was 7 days.

***Consultation:***

During the year the number of consultations on difficult kidney tumors has increased. The number of consultation on bladder tumors in young patients is increasing. However, most of our surgical consultations were on prostate specimens, many of which are from patients in their forties and fifties.

Because of screening programs, we are seeing biopsies on totally asymptomatic patients who are found to have elevated PSA, a nodule on digital rectal examination, or an abnormal ultrasound. These biopsies, especially in a group of young patients from whom six or more biopsy specimens were taken, have led to problems in interpretation because we encounter changes not seen before. The major problem in these cases is whether the carcinoma represents latent cancer (prostatic cancer found in patients who die of other causes). The problem is compounded by the fact that many patients have been pretreated with a variety of new drugs. Most of our prostate biopsies are received from active members of the military and VA.

The overall number of consultations was stable; 26% of these were civilians and 74% were military and VA cases. In 2007, 60% of the cases were submitted without a contributor's diagnosis or required a diagnostic change. A minor diagnostic change with respect to a pathological disagreement can have major impact on clinical management.

## DIAGNOSTIC CONSULTATION

### GENITOURINARY PATHOLOGY

| *Cases* | *Completed* |
|---|---|
| Military | 829 |
| Army (515) | |
| Navy (127) | |
| Air Force (187) | |
| Federal | 1485 |
| VA (1484) | |
| OFA/USPHS (1) | |
| Civilian | 525 |
| Interdepartmental | 181 |
| Total | 3020 |

### NEPHROPATHOLOGY

| *Cases* | *Completed* |
|---|---|
| Military | 179 |
| Army (137) | |
| Navy (34) | |
| Air Force (8) | |
| Federal | 125 |
| VA (121) | |
| OFA/UPHS (4) | |
| Civilian | 44 |
| Interdepartmental | 21 |
| Total | 369 |

The department provided telepathology consultation on 21 cases (8% of all telepathology cases) to national and international sites including military. Half of the telepathology cases are military.

1 National and International civilian contributors
1 VA
19 Military

Our department made no change in the contributor's diagnosis in 1082 cases (2/3) of which were for confirmation), a minor change in diagnosis in 1282 cases, and a major change in diagnosis in 64 cases and received 440 cases with no contributor diagnosis.

The Division of Nephropathology interpreted 369 renal biopsies including electron microscopy. 78% of these were military and VA and 22% were civilian cases. In 257 cases there was no diagnosis by the contributor. In 80 cases no change in the contributor's was made and in 8 cases a minor change in the diagnosis was made.

### *Quality Assurance:*

We participated in 2 proficiency tests in immunohistochemistry and 2 tests in in-situ hybridization.

The genitourinary laboratory processed 127 total prostatectomies as whole mounts resulting in 1524 large and 635 small blocks. The department cut overall 2323 blocks with 7477 unstained sections and 4872 H&E slides. We performed 7377 immunohistochemical stains, 840 in situ hybridization for HPV and interphase cytogenetics. We cut 5,812 slides on 447 blocks for 4 departments resulting in 3676 immunofluorescence stains and 447 H&E stains. For the Center for Prostate Disease Research we processed 20 cases with 2 frozen blocks each resulting in 1600 slides.

### *Faculty Appointments:*

**IA Sesterhenn**

1. Assistant Professor of Pathology, Uniformed Services University of the Health Sciences, Bethesda, MD.
2. Member, United States Military Cancer Institute, Walter Reed Army Medical Center, Washington, DC, 2002–present.

**CJ Davis**

1. Assistant Professor of Pathology, Uniformed Services University of the Health Sciences, Bethesda, MD.
2. Member, United States Military Cancer Institute, Walter Reed Army Medical Center, Washington, DC, 2002–2007.

### *Offices and Committee Membership in National and International Societies:*

**IA Sesterhenn**

1. Member of International Working Group on Bladder Cancer
2. Member of the German Prostate Cancer Consortium

## EDUCATION:

Department staff participated in 9 seminars, workshops, and lectures, and continued their affiliations with WRAMC, National Naval Medical Center and USUHS by lecturing to pathologists, residents, and fellows. Dates and titles are listed at the end of this report.

### *Educational Aides:*

The computer laboratory at the Annual F.K. Mostofi Urologic Pathology and Radiologic Course includes 150 virtual slides on diseases of the genitourinary tract in addition to 2000 digital images. The course participants received discs with images with the most important entities of the GU tract. The handouts include photomicrographs.

### *Trainees:*

2 Urology residents from WRAMC, who spent 2 months each in the department and additional time, as required, since they are involved in joint research project.

We had 3 federal employees, 3 non-federal trainee and 1 foreign national for a total 132 days

Two internet based courses (bladder and penis) are available on the web as are virtual slides on 150 entities of the genitourinary tract.

***Faculty appointments:***

1. May 2007: AFIP, 17th Anatomic Pathology Course (3 hrs)
2. July 2007: 5-day Annual Urological Pathology Course (48.5 hrs) Total Man-hours–18,000

***Presentations: (Military and/or Civilians)***

1. January 2007: San Diego, CA, Kimbrough 55th Annual Meeting, "Diagnostic and prognostic potential of TMPRSS2-ERG fusion transcript in prostate cancer and confirmation of the ERG paradox," G Petrovics, A Dobi, S Shaheduzzaman, B Furusato, L Ravindranath, C Cook, Y Chen, V Srikantan, J Cullen, IA Sesterhenn, DG. McLeod, S Srivastava.
2. January 2007: San Diego, CA, Kimbrough 55th Annual Meeting, "Quantitative analysis of Pca3/Dd3 expression in prostate tumor and benign epithelial cells and its clinical significance," DJ Osborn, IL Rosner, B Furusato, L Ravindranath, Y Chen, J Cullen, IA Sesterhenn, DG Mcleod, S Srivastava, G Petrovics.
3. March 2007: San Diego, CA, 96th Annual United States and Canadian Academy of Pathology Meeting, "The relationship of preopertive PSA levels in prostatic weight and tumor size," B Furusato, I Rosner, D Osborn, J Cullen, Y Chen, C Davis, I Sesterhenn, DG McLeod.
4. March 2007: San Diego, CA, 96th Annual United States and Canadian Academy of Pathology Meeting, "Clinico-pathologic aspects of follow-up on small tumor volume prostate cancer after the radical prostatectomy at Walter Reed Army Medical Center," B Furusato, D Osborn, I Rosner, J Cullen, CJ Davis, JW Moul, S Srivastava, DG McLeod, I Sesterhenn, A Allen.
5. March 2007: San Diego, CA, 96th Annual United States and Canadian Academy of Pathology Meeting, "Quantitative tissue PSA mRNA expression as a predictor of outcome in radical prostatectomy and alterations in the androgen signaling pathway," J Sterbis, C Gao, B Furusato, J Culen, Y Chen, L Ravindranath, DG McLeod, I Sesterhenn, G Pretrovics, S Srivastava.
6. March 2007: San Diego, CA, 96th Annual United States and Canadian Academy of Pathology Meeting, "Androgen receptor activity is elevated in prostatic tumors with decreased PMEPAI expression," A Dobi, K Masuda, I Xu, J Cullen, G Petrovics, B Furusato, H Li, S Srivastava,
7. March 2007: San Diego, CA, 96th Annual United States and Canadian Academy of Pathology Meeting, "Epithelial cell transcriptome of poorly and moderately differentiated prostate cancers," S Shaheduzzaman, C Gao, Z Wang, B Furusato, G Petrovics, V Srikantan, L Ravindranath, M Nau, Y Chen, Y Chen, J Cullen, DG McLeod, I Sesterhenn, M Vahey, S Srivastava.
8. March 2007: San Diego, CA, 96th Annual United States and Canadian Academy of Pathology Meeting, Mechanisms of downregulation of lactotransferrin in prostate cancer," S Shaheduzzaman, A Vishwanath, B Furusato, J Cullen, Y Chen, L Banez, M Nau, L Ravindranath, KH Kim, A Mohammed, Y Chen, M Ehrich, V Srikantan, I Sesterhenn, DG McLeod, M Vahey, G Petrovics, A Dobi, S Srivastava.
9. April 2007: Los Angeles, CA, American Association for Cancer Research Annual Meeting, Quantitative features of a common TMPRSS2-ERG fusion transcript in prostate cancer," A Dobi, G Petrovics, J Cullen, B Furusato, L Ravindranath, C Cook, Y Chen, CL Gao, IA Sesterhenn, DG McLeod and S Srivastava.
10. April 2007: Los Angeles, CA, American Association for Cancer Research Annual Meeting, "Mapping of TMPRSS2-ERG fusion in multi-focal prostate cancer," CL Gao, B Furusato, DG McLeod, S Srivastava, G Petrovics, IA Sesterhenn.
11. April 2007: Los Angeles, CA, American Association for Cancer Research Annual Meeting, "Effects and mechanisms of frequent downregulation of lactotransferrin (LTF) in prostate cancer," S Shaheduzzaman, AVishwanath, B Furusato, J Cullen, Y Chen, L Bañez, M Nau, L Ravindranath, KH Kim, A Mohamed, Y Chen, M Ehrich, V Srikantan, I A. Sesterhenn, DG McLeod, M Vahey, G Petrovics, A Dobi and S Srivastava.
12. May 2007: Anaheim, CA, American Urological Association Annual Meeting, "Mapping of TMPRSS2-ERG fusion in multifocal prostate cancer," C Gao, B Furusato, DG McLeod, S Srivastava, G Petrovics, IA Sesterhenn.
13. May 2007: Anaheim, CA, American Urological Association Annual Meeting, "Quantitative features of a common TMPRSS2-ERG fusion transcriptin prostate cancer," C Gao, G Petrovics, J Cullen, B Furusato, L Ravindranath, C Cook, Y Chen, A Dobi, IA Sesterhenn, DG McLeod, S Srivastava.
14. May 2007: Anaheim, CA, American Urological Association Annual Meeting, "Elevated secreted protein, acidic, and rich in cysteine (SPARC) MRNA expression in neoplastic

prostate epithelial cells correlates with PSA recurrence after radical prostatectomy," C DeRosa, Y Chen, L Ravindranath, B Furusato, C Cook, J Cullen, IA Sesterhenn, DG McLeod, S Srivastava, G Petrovics.

15. May 2007: Anaheim, CA, American Urological Association Annual Meeting, "Magnetic resonance microscopy of radical prostatectomies at 7 TESLA," B Furusato, K Potter, R Becker, S Srivastava, DG McLeod, IA Sesterhenn.
16. May 2007: Anaheim, CA, American Urological Association Annual Meeting, "Effects and mechanisms of frequent downregulation of lactotransferrin (LTF) in prostate cancer," S Shaheduzzaman, A Vishwanath, B Furusato, J Cullen, Y Chen, LL Bañez, M Nau, L Ravindranath, KH Kim, A Mohamed, Y Chen, M Ehrich, V Srikantan, IA Sesterhenn, DG McLeod, M Vahey, G Petrovics, A Dobi, S Srivastava.
17. September 2007: Paris, France, 29th Congress of the Societe Internationale d'Urologie Pathology, "PIN/ASAP/Glandular Atrophy and Tissue Markers: What do They All Mean?" IA Sesterhenn.
18. October 2007: Southampton, Bermuda, Mid Atlantic AUA."Elevated secreted protein, acidic, and rich in cysteine (SPARC) mRNA expression in neoplastic prostate epithelial cells correlates with PSA recurrence after radical prostatectomy," CA DeRosa, Y Chen, L Ravindranath, B Furusato, C Cook, J Cullen, IA Sesterhenn, DG McLeod, S Srivastava, G Petrovics.
19. December 2007: Bethesda, MD. Society For Urologic Oncology (SUO) Annual Meeting. "Mapping of TMPRSS2-ERG fusions in the context of multi-focal prostate cancer," B Furusato, CL Gao, L Ravindranath, Y Chen, J Cullen, DG McLeod, S Srivastava, G Petrovics, IA Sesterhenn.

## RESEARCH

### *PUBLICATIONS:*

#### *Journal Articles:*

1. Furusato B, Gao CL, Ravindranath L, Chen Y, Cullen J, McLeod DG, Dobi A, Srivastava S, Petrovics G, Sesterhenn IA. Mapping of TMPRSS2-ERG fusions in the context of multi-focal prostate cancer. *Mod Pathol*. 2008;21:67-75. Epub 2007 Dec 7.
2. Furusato B, Koff S, McLeod DG, Sesterhenn IA. Sarcoidosis of the prostate. *J Clin Pathol*. 2007;60:325-326. Review.
3. Miki J, Furusato B, Li H, Gu Y, Takahashi H, Egawa S, Sesterhenn IA, McLeod DG, Srivastava S, Rhim JS. Identification of putative stem cell markers, CD133 and CXCR4, in hTERT-immortalized primary nonmalignant and malignant tumor-derived human prostate epithelial cell lines and in prostate cancer specimens. *Cancer Res*. 2007;67:3153-3161.
4. Rosner IL, Ravindranath L, Furusato B, Chen Y, Gao C, Cullen J, Sesterhenn IA, McLeod DG, Srivastava S, Petrovics G. Higher tumor to benign ratio of the androgen receptor mRNA expression associates with prostate cancer progression after radical prostatectomy. *Urology*. 2007;70:1225-1229.
5. Shaheduzzaman S, Vishwanath A, Furusato B, Cullen J, Chen Y, Bañez L, Nau M, Ravindranath L, Kim KH, Mohammed A, Chen Y, Ehrich M, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Petrovics G, Dobi A, Srivastava S. Silencing of lactotransferrin expression by methylation in prostate cancer progression. *Cancer Biol Ther*. 2007;6 [Epub ahead of print]
6. Shaheduzzaman S, Vishwanath A, Furusato B, Nau M, Ravindranath L, Chen Y, Petrovics G, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Dobi A and Srivastava S. Frequent Expression alterations and biological function of lactotransferrin (LTF) in prostate cancer. *Cancer Biology and Therapy*. 2007;6:1-8.
7. Shilo K, Dracheva T, Mani H, Fukuoka J, Sesterhenn IA, Chu WS, Shih JH, Jen J, Travis WD, Franks TJ. Alpha-methylacyl CoA racemase in pulmonary adenocarcinoma, squamous cell carcinoma, and neuroendocrine tumors: expression and survival analysis. *Arch Pathol Lab Med*. 2007;131:1555-1560.

#### *Abstracts:*

1. DeRosa CA, Chen Y, Ravindranath L, Furusato B, Cook C, Cullen J, Sesterhenn IA, McLeod DG, Srivastava S, Petrovics G. Elevated secreted protein, acidic, and rich in cysteine (SPARC) mRNA expression in neoplastic prostate epithelial cells correlates with PSA recurrence after radical prostatectomy. *J Urol*. 2007;177:4.
2. Dobi A, Masuda K, Xu I, Cullen J, Petrovics G, Furusato B, Li H, Srivastava S. Androgen receptor activity is elevated in prostatic tumors with decreased PMEPAI expression. *Lab*

*Invest.* 2007;87:144A, 648 Suppl 1.
3. Furusato B, Rosner I, Osborn D, Cullen J, Chen Y, Davis CJ, Sesterhenn IA, McLeod DG. "The relationship of preopertive PSA levels in prostatic weight and tumor size. *Lab Invest.* 2007;87:147A, 663 Suppl 1.
4. Furusato B, Osborn D, Rosner I, Cullen J, Davis CJ, Moul JW, Srivastava S, McLeod DG, Sesterhenn I, Allen A. Clinico-pathologic aspects of follow-up on small tumor volume prostate cancer after the radical prostatectomy at Walter Reed Army Medical Center. *Lab Invest.* 2007;87:147A, 664 Suppl 1.
5. Furusato B, Potter K, Becker R, Srivastava S, McLeod DG, Sesterhenn IA. Magnetic resonance microscopy of radical prostatectomies at 7 Tesla. *J Urol.* 2007;177:4.
6. Gao CL, Petrovics G, Cullen J, Furusato B, Ravindranath L, Cook C, Chen Y, Dobi A, Sesterhenn IA, McLeod DG, Srivastava S. Quantitative features of a common TMPRSS2-ERG fusion transcript in prostate cancer. *J Urol.* 2007;177:174.
7. Petrovics G, Shaheduzzaman S, Furusato B, Dobi A, Ravindranath L, Cook C, Chen Y, Srikantan V, Cullen J, Sesterhenn IA, McLeod DG, Srivastava S. Association of increased levels of TMPRSS2-ERG fusion transcripts in pT2 and well differentiated prostate cancer. *Lab Invest.* 2007;87:170A, 771, Suppl 1.
8. Shaheduzzaman S, Gao C, Wang Z, Furusato B, Petrovics G, Srikantan V, Ravindranath L, Nau M, Chen Y, Chen Y, Cullen J, McLeod DG, Sesterhenn IA, Vahey M, Srivastava S. Epithelial cell transcriptome of poorly and moderately differentiated prostate cancers. *Lab Invest.* 2007;87:174A, 793, Suppl 1.
9. Shaheduzzaman S, Vishwanath A, Furusato B, Cullen J, Chen Y, Bañez L, Nau M, Ravindranath L, Kim KH, Mohamed A, Chen Y, Ehrich M, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Petrovics G, Dobi A, Srivastava S. Mechanisms of frequent downregulation of lactotransferrin (LTF) in prostate cancer. *J Urol.* 2007; 177:4.
10. Shaheduzzaman S, Vishwanath A, Furusato B, Cullen J, Chen Y, Banez L, Nau M, Ravindranath L, Kim KH, Mohammed A, Chen Y, Ehrich M, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Petrovics G, Dobi A, Srivastava S. Mechanisms of downregulation of lactotransferrin in prostate cancer. *Lab Invest.* 2007;87:175A, 793. Suppl 1.
11. Sterbis J, Gao C, Furusato B, Cullen J, Cchen Y, Ravindranath L, McLeod DG, Sesterhenn IA, Pretrovics G, Srivastava S. Quantitative tissue PSA mRNA expression as a predictor of outcome in radical prostatectomy and alterations in the androgen signaling pathway. *Lab Invest.* 2007;87:177A, 806 Suppl 1.

One journal article is in press.

***Syllabus:***

Annual Genitourinary Pathology Course, Annual Anatomic Pathology Course Conference, Kyorin Univeristy, Tokyo, Japan.

***Collaborators:***

**Military**

1. Center for Prostate Disease Research, Urology Services of Walter Reed Army Medical Center, Naval Medical Center, San Diego, Malcolm Grow Medical Center, Madigan Army Medical Center, Brook Army Medical Center and UHUHS
   - Characterization of Prostate Cancer Associated Tumor Suppressor Gene Locus on chromosome 6q16.1.
   - Characterization of PCGEM1, a novel prostate-specific gene overexpressed in prostate cancer
   - A novel prostate-specific G-protein-coupled receptor gene, PSGR, is overexpressed in prostate cancer
   - Preclinical evaluation of prostate-specific G-protein coupled receptor, PSGR, for developing prostate vaccine.
   - SAGE-Bioinformatics to Define Prostate Specific and Prostate Cancer Associated Quantitative Gene Expression Profiles
   - Coordinated Gene Expression Patterns Define Endoplasmic Reticulum (ER) Stress Response Pathway as a Novel Component of Androgen Signaling in Prostate Cancer Cells
   - CPDR Prostate Tissue LCM-based RNA/DNA Bank
   - The Prostate Cancer Cell Center in CPDR
2. Tripler Army Medical Center and Queens Hospital Hawaii.

- Cancer localization in the prostate with F-18 Fluorocholine PET

3. Walter Reed Pathology Department
   - Lymphatic Invasion in Prostate Cancer

**Civilian:**

1. Division of Epidemiology and Genetics, NCI
   - International Study on Familial Testicular Tumors
2. Division of Cancer, Epidemiology and Genetics, NCI
   - Comparison of Chinese and American prostatic carcinomas
3. Tripler Army Medical Center and Queens Hospital Hawaii.
   - Cancer localization in the prostate with F-18 Fluorocholine PET

**Intramural: (Hepatic and Gastrointestinal Pathology–Z Goodman)**

- Evaluation of liver histology in a double-blind placebo controlled, randomized dose ranging study of recombinant human interleukin-10 (Tenovil) for treatment of hepatic fibrosis in patients with chronic hepatitis C who failed to respond to previous combination therapy (interferon alfa-2b plus ribavirin) (UBIB)
- Morphometric analysis of distribution of fibrosis (UBGI)
- Evaluation of liver histology in a phase II, double-blind, randomized, placebo controlled, multicenter study of the safety and anti-fibrotic efficacy of interferon-gamma 1b in patients with severe liver fibrosis or compensated fibrosis due to hepatitis (UBTQ)
- The utility of gene-specific DNA hypermethylation within diagnostic sextant biopsies as an early detection molecular marker of prostate cancer. Cancer Prevention Studies Branch, Center for Cancer Research, NCI and WRAMC

***Funds Received:***

$131,960.00 – Henry M Jackson Foundation for supplies and personnel (GU Laboratory and Fellow)

***Departmental Projects:***

1. Prostatic Carcinoma, Histopathological and Molecular Correlation
2. Studies of Various Renal Tumors in Adults (Wilms' tumor, certain epithelial tumors, multilocular cystic nephroma, and a group of renal hamartomas (angiomyolipoma, capsuloma, adenoleiomyofibroma)
3. Review of Testicular Tumors in Infants and Children
4. Studies of Carcinoma In Situ of the Bladder
5. Reclassification of the first 2000 bladder tumors in the Bladder Tumor Registry

## PROFESSIONAL ACTIVITIES

***Official Trips (funding agencies in parenthesis)***

1. January 2007: Kyorin University, Tokyo, Japan, IA Sesterhenn (Self)
2. March 2007: United States and Canadian Academy of Pathology, San Diego, CA, IA Sesterhenn (Self)
3. May 2007: AUA Annual Meeting, Anaheim, CA, IA Sesterhenn, (Self)
4. November 2007: SIU Meeting, Paris, France, IA Sesterhenn (Self)

***Editorial Work:***

**Manuscripts Reviewed:**

IA Sesterhenn reviewed 4 manuscripts for the following professional journals:

1. *Urology*
2. *Journal of Urology*
3. *Human Pathology*

Tuyethoa Vinh, MD
Chair
Date of Appointment—2 July 2007

# DEPARTMENT OF GYNECOLOGIC AND BREAST PATHOLOGY

## STAFF

*Medical*

Tuyethoa N. Vinh, MD, Chair
Rubina Mattu, MD, Assistant Chair
Mona Tata, MD
(D) Michael D. Stamatakos, LTC, USAF, MC
(A) Samuel H. Fistel, MD
(D) Adonica Walker, LTC, USAF, MC

*Scientific*

Gary L. Bratthauer, MS, MT (ASCP)
Yan-Gao Man, MD

*Administrative*

Angeline Edmonds, Administrative Officer
(D) Consuelo Lewis

## IMPACT

The Department continues to provide expert and timely consultation services for military, federal and civilian institutions around the World in the field of Gynecologic and Breast pathology. Since 2000, we had been consulted on the highest volume of telepathology cases of any department in the Institute, generating a diagnosis on most cases in less than a half hour. The number of telepathology cases varies from 100 to 167 per year. In January 2007, Dr. Adonica Walker, our pediatric pathologist, had departed from the department. During the six month period immediately following the retirement of Dr. Stamatakos, our former Chair, and one of our administrative assistants, Ms. Consuelo Lewis, in June 2007, the department experienced a serious deficit in manpower. Despite this major impediment, our department continues to fulfill its mission in providing an excellent consultation service with a consistently low turn-around time and praise from our contributors. The Department had also provided extensive training to numerous rotating residents from various military and civilian institutions throughout the year.

## CONSULTATION

The department provides expert opinion on a wide-variety of difficult, controversial, and rare breast and gynecologic pathology cases submitted for consultation from US military and VA hospitals, and civilian institutions around the world. The majority of cases are active surgical pathology cases, including telemedicine cases, with important patient management decisions pending the results of our interpretation. Since the inception of telemedicine at AFIP in the mid 90's, we had been consulted on the most number of telepathology cases in the whole institute, reaching a number of 167 per year in 2006, and with an increasing demand for

consultation on telepathology quality assurance cases from numerous military hospitals in the US and overseas.

The department had also participated in the College of American Pathologists' Inter-Laboratory Proficiency Comparison Program Exercises in Gynecologic and Non-Gynecologic Cytopathology. The department staff had taken the Federally Mandated Gynecologic Cytopathology Proficiency Test (with a passing score of 100%).

| ***Cases*** | ***Completed*** |
|---|---|
| Military | 1,563 |
| Army (648) | |
| Navy (496) | |
| Air Force (419) | |
| Federal | 279 |
| VA (275) | |
| USPHS (4) | |
| Civilian | 832 |
| Interdepartmental | 140 |
| Telepathology | 89 |
| Total | 2,903 |

## EDUCATION

### *Courses*

17th AFIP Anatomic Pathology Review Course, April 2007, Rockville MD

- Pathology of the Ovary.
- Intraepithelial Lesions of the Breast.
- Pathology of the Endometrium.
- Papillary Neoplasms and Sclerosing Lesions of the Breast.
- Cervical Lesions.
- Placental and Trophoblastic Pathology.
- Pathology of the Uterine Corpus.
- 2 hours of interactive glass slides review and discussions.

### *Trainees*

The department provided two-week rotations for (2) national consortium fellows, one-month rotations for (2) ARP fellows and a one to two-month long training for (4) research visitors.

The department maintains and constantly updates a complete collection of glass slide study sets on a wide-variety of lesions in breast and gynecologic pathology for review by residents, visiting pathologist, and surgeons.

### *Presentations and Seminars:*

1. January 2007: Changchun, Jilin, China, Y-G Man, MD. An invited scientific speech at the College of Animal Science and Veterinary Medicine, Jilin University.
2. April 2007. Changchun, Jilin, China, Y-G Man, MD. An invited speech at Norman Bethune College of Medical Science, Jilin University.

### *Invited manuscript reviewing*

1. One manuscript submitted to Cancer Therapy
2. Forty four (44) Manuscripts submitted to Cancer Detection and Prevention
3. One manuscript submitted to Archives of Medical Research
4. One manuscript submitted to Intern J Biolog Sci
5. One manuscript submitted to BMC Clinical Pathology

### *Academic appointment*

1. Assistant Editor to the editor-in-chief, *Cancer Selection and Prevention* (a 30-year old international journal indexed by all the major reference networks) (YM)
2. Grant reviewer committee member for Susan G. Komen Breast Cancer Foundation (YM)

3. A full visiting-professor of Jilin University of China (in the top 8 list among Chinese Universities) (YM)

***Committees (Intramural):***

1. AFIP Credential Committee.
2. AFIP HIPPA Committee.

## RESEARCH

***Research Grant:***

Research Grant (BCTR0706983) with $300,000 from the Susan Komen Breast Cancer Foundation.

***Publications:***

***Journal Articles:***

1. Man YG. Focal degeneration of aged or injured myoepithelial cells and the resultant autoimmunoreactions are trigger factors for breast tumor invasion. *Medical Hypotheses*. 2007;96(6):1340-1357.
2. Man YG, Gardner WA. Focal degeneration of basal cells and the resultant autoimmunoreactions: A novel mechanism for prostate tumor progression and invasion. *Medical Hypotheses*. 2007;July 19 [Epub ahead of print].
3. Stamatakos MD, Vinh TN, Man YG. Elevated expression of tumor aggressiveness and invasiveness-related proteins in cells overlying focally disrupted breast myoepithelial cell layers. *Lab Investigation 87* (supplement 1):309A, 2007.
4. Zhao CQ, Bratthauer GL, Barner R, Vang R. Diagnostic utility of WT1 immunostaining in ovarian Sertoli Cell Tumor. *Am J Surg Pathol*. 2007;31(9):1378-1386.
5. Zhao CQ, Bratthauer GL, Barner R. Vang R. Comparative analysis of alternative and traditional immunohistochemical markers for the distinction of ovarian Sertoli Cell Tumor from Endometrioid tumors and Carcinoid Tumor: A study of 160 cases. *Am J Surg Pathol*. 2007;31(2):255-266.
6. Zhao CQ, Bratthauer GL, Barner, Vang R. Immunohistochemical analysis of SOX9 in ovarian Sertoli Cell Tumors and other tumors in the differential diagnosis. *Int J Gynecol Pathol*. 2007;26:1-9.

***Abstracts:***

1. Cavalli L, Man YG, Schwartz a, Haddad B, Berg PE. DNA amplification of the BP1 homeobox gene in breast cancer. (AACR Annual meeting. 2007 April. Los Angeles Convention Center, Los Angeles, CA). *Proc Am Assoc Cancer Res*. 2007;48:401.
2. Jewell E, Levine PH, Man YG, Schwartz a, Veneroso C, Berg PE. Expression of BP1, a homeobox gene, is associated with tumor grade and lymph node status in breast cancer. (AACR annual Meeting. 2007; April. Los Angeles Convention Center, Los Angeles, CA). *Proc Am Assoc Cancer Res*. 2007;48:5082.
3. Liu AJ, Man YG, Gardner WA. Prostatic ducts and acini with and without focal disruptions in the basal cell layer have a different gene expression profile: Implications for tumor progression and invasion. American Society for Cell Biology 2007 Annual Meeting, December 1–5, Washington DC.
4. Man YG. Focal degeneration of aged or injured basal cells and resultant auto-immunoreactions are trigger factors for prostate tumor invasion. Accepted for poster presentation at the Department of Defense Prostate Cancer Research Program Meeting. 2007 September, Atlanta GA.
5. Man YG, Mason J, Vinh TN, Zhang SM, Stamatakos MD. Focal myoepithelial cell layer disruptions and basement membrane disappearance are correlated events: implications for breast tumor invasion. (Experimental Biology 2007 April-May, Washington DC). *FASEB J*. 2007:21(5):544.22.
6. Nelson A, Tuteja A, Man YG. Inflammatory cells and membrane disruption in prostate carcinoma. Do they have a role in tumor invasion. Lab Investigation 87 (Supplement 1): 2007; 166A.
7. Rushing EJ, Man YG. Correlation between p63 immunoreactivity and tumor grade in meningiomas. (Experimental Biology. 2007 April-May, Washington, DC). *FASEB J*. 2007;21(5):555.1.
8. Schwartz AM, Man YG, Rezaei MK, Berg PE. BP1, homeoprotein, is significantly expressed in prostate adenocarcinoma and concordant with prostatic intraepithelial neoplasia. (AACR Annual Meeting. 2007 April. Los Angeles Convention Center, Los

Angeles, CA). *Proc Am Assoc Cancer Res*. 2007;48:162.

9. Stamatakos M, Vinh TN, Man YG. Elevated expression of tumor aggressiveness and invasiveness-related proteins in cells overlying focally disrupted breast myoepithelial cell layers. *Lab Investigation 87* (Supplement 1): 2007; 309A.

The Department has 5 journal articles and 1 book chapter in press, and 7 abstracts accepted for 2008 meetings.

***Projects***

1. UBXA: Lobular intraepithelial neoplasia (LIN) of the breast: an examination of the relationship to ductal disease and infiltrating carcinomas.
2. UB5G: Analysis of Ovarian Sertoli cell tumors.
3. 05AN: An assessment of the difference in expression levels of the transcription factor ATAT5a and its activator, the prolactin/prolactin receptor complex in benign and malignant breast disease.
4. UBZY: ATAT 5a in in-situ ductal and lobular lesions and in invasive breast carcinomas.
5. UBYI: Peutz-Jehger's syndrome.
6. UBWW: Comparison of novel myoepithelial cell immunohistochemical markers with more established immunomarkers in the human breast.
7. UBIF: New approaches for the early detection of breast cancer.
8. UBSA: Mesotheliomas involving the Ovary.
9. 05AA: Impacts of Focal Myoepithelial Cell Disruptions.
10. 06BF: Focal Basal Cell Layer Disruption in Prostate.
11. 07DJ: Potential Values of Cytokeratin-associated Protein.
12. UBJX: Loss of Heterozygosity in Bilateral Breast.
13. UBNI: Genetic Alterations in Breast Neoplasia.
14. UBZP2: Detection of Male Breast Tumor Invasion.

***Collaborators:***

1. LTC Ross Barner, MD, Department of Pathology, Walter Reed Army Medical Center, Washington, DC
2. Russell Vang, MD, Assistant professor, Department of Pathology, Johns Hopkins University, Baltimore, MD.
3. Cheng Q. Zhao, MD, Magee-Women's Hospital, University of Pittsburgh Medical Center, Pittsburgh, PA.
4. Micheal D Stamatakos, George Washington University, Washington, DC.
5. Norman Bethune College of Medical Science and Jilin University, Changchun, China.
6. Ira Pastan, MD, Member, US Science Academy Chief, Laboratory of Molecular Biology, National Cancer Institute / NIH, Bethesda, MD.
7. Chuxiao Deng, PhD Chief, Mammalian Genetics Section GDDB, NIDDK, NIH, Bethesda, MD.
8. Herbert E. Nieburgs, MD, Professor in Pathology Massachusetts Medical School. Editor-in-chief, Cancer Detection and Prevention, Worcester, MA.
9. Arnold A. Schwartz, M.D., PhD. Professor in Pathology Associate dean, George Washington University Medical Center, Washington, DC.
10. Patricia E. Berg, PhD, Chairman, Research Committee of the George Washington University, Director of Breast Cancer Research Laboratory, George Washington University Medical Center, Washington, DC.
11. Samuel J. Simmens, PhD, Associate professor in Biostatistics, George Washington University Medical Center, Washington, DC
12. Luciane R. Cavalli, PhD, Assistant Professor, Georgetown University Medical Center, Washington, DC.
13. Qing-xiang Amy Sang, PhD, Associate Professor, Department of Chemistry and Biochemistry, Florida State University, Tallahassee, FL.
14. Judith Weitz, MD, Department of Obstetrics and Gynecology and Pathology, Pennsylvania State University Medical School, Hershey, PA.
15. Xiao Zeng, PhD, Director Research and Business Development, SuperArray Bioscience Corp., Frederick, MD.
16. Farid Moinfar, Department of Pathology, Graz University School of Medicine, Austria.
17. Xichen Zhang, PhD, Vice dean, College of Animal Science and Veterinary Medicine, Jilin University, Changchun, China.

18. Gui-Yuan Li, MD., PhD, Director of Cancer Research Institute, Vice president, Central South University, Changsha, China
19. Anjun Liu, MD, Vice chairman, Department of Pathology, Beijing 301 Hospital, Beijing, China

## PROFESSIONAL ACTIVITIES:

***Official Trips:***

1. February 2007: Maryland Society of Pathologists Meeting Baltimore, MD. "Columnar Cell Lesions of the Breast: What's in a name?"
2. Sept 24-25 2007: 18th Annual Gastro-Intestinal Pathology, Washington, DC.
3. October 24, 2007: Maryland Society of Pathologists Meeting, Johns Hopkins University School of Medicine. "Cervical Squamous and Glandular Lesions: Diagnostic Use of Ancillary Techniques."

***Others:***

Monthly Department Journal Club meetings throughout the year.

Elisabeth J. Rushing, COL, MC, USA
Chair
Date of Appointment — 7 March 2005

# DEPARTMENT OF NEUROPATHOLOGY AND OPHTHALMIC PATHOLOGY

## MISSION

The Department of Neuropathology and Ophthalmic Pathology supports the mission of the Armed Forces Institute of Pathology by providing diagnostic consultation and conducting research and educational programs related to diseases of the nervous, neuromuscular and visual systems.

## ORGANIZATION

The department is organized into 2 divisions.

1. Division of Neuropathology – Elisabeth J. Rushing, COL, MC, USA
2. Division of Ophthalmic Pathology – Ahmed Hidayat, MD

## STAFF- NEUROPATHOLOGY

*Medical:*

Elisabeth J. Rushing, COL, MC, USA, Chair
Glenn D. Sandberg, COL, MC, USA, Staff Neuropathologist
Charles S. Specht, MD, Staff Neuropathologist
(A) Iren Horkayne-Szakaly, Staff Neuropathologist, ARP
(D) Matthew Katus, MAJ, USAF, MC, Second Year Resident

*Administrative:*

Erlinda T. Castro, Secretary, ARP
(A) Phyllis Hickey, ARP

## DIAGNOSTIC CONSULTATION

***Division of Neuropathology:***

| ***Cases*** | ***Completed*** |
|---|---|
| Military | 102 |
| Army (72) | |
| Navy (24) | |
| Air Force (06) | |
| Federal | 84 |
| VA (84) | |
| AFIP | 3 |
| Civilian | 276 |
| Interdepartmental | 67 |
| Total | 532 |

## DIVISION OF NEUROMUSCULAR PATHOLOGY:

| *Cases* | *Completed* |
|---|---|
| Military | 68 |
| Army (34) | |
| Navy (33) | |
| Air Force (1) | |
| Federal | 120 |
| VA (108) | |
| USPHS (9) | |
| OFA (0) | |
| Civilian | 267 |
| Interdepartmental | 2 |
| Total | 457 |

Our Divisions of Neuropathology and Neuromuscular Pathology made no change in the contributor diagnosis in 236 cases, a minor change in diagnosis in 64 cases, and a major change in diagnosis in 1 case. We received 521 cases with no contributor diagnosis.

Cases submitted to Neuropathology and Neuromuscular Pathology include surgical specimens, whole brains obtained at autopsy, skeletal muscle biopsy specimens from cases of medical disorders of skeletal muscle, peripheral nerve biopsy specimens, and skin biopsy specimens from suspected cases of storage disease. All cases accompanied by radiologic studies are reviewed in conference with the Neuroradiology staff of the Department of Radiologic Pathology. Whole brains are serially sectioned and studied according to standardized protocols for specific disorders. Skeletal muscle biopsy specimens are routinely examined using histochemical stains, enzyme histochemical methods, and in selected cases, with immunohistochemistry and electron microscopy. Peripheral nerve and skin biopsy material are evaluated with light and electron microscopy. The department also provides neuropathology review on selected cases from the Office of the Armed Forces Medical Examiner. Consultation is also provided for Veterans Affairs claim cases.

## IMPACT

The diagnostic expertise of the staff is constantly in demand for a variety of lectures at military and civilian hospitals including Walter Reed Army Medical Center (WRAMC), Madigan Army Medical Center (MAMC), National Naval Medical Center (NNMC), Uniformed Services University of Health Sciences (USUHS), University of Maryland Medical System, Baltimore, MD, Georgetown University Medical Center, Howard University Medical School and Washington Hospital Medical Center.

A close relationship has been established with the Department of Pathology and the Neurosurgery Service, WRAMC, for the interpretation of intraoperative consultations and tumor board cases.

This is the only military program fully accredited by the Accreditation Council for Graduate Medical Education in the military services for training of medical officers, including neurosurgeons and neurologists, in the field of neuropathology. Our trainees have consistently received high marks in exams leading to board certification, and many have achieved international recognition for their research endeavors in neuropathology. Military and civilian physicians in training in neurology, neurosurgery and pathology from medical centers nationwide and abroad regularly attend the semi-annual, intensive, three month didactic course designed in support of preparation for specialty board certification.

Members of the staff participated in the ongoing NASA investigation of the space shuttle Columbia disaster.

## EDUCATION

### *Clinicopathologic Conferences:*

Department staff participates in the following clinicopathologic conferences as part of our ongoing educational mission:

1. Neuropathology and Ophthalmic Pathology, AFIP: Daily Sign-out conference.
2. Department of Neuropathology, AFIP: Weekly Neuropathology/Neuroradiology conference.

3. Department of Neuropathology, AFIP: Bimonthly review of muscle biopsies with the staff of the Connective Tissue Disease Section, National Institutes of Health.
4. Walter Reed Army Medical Center: Monthly neurosurgery tumor board.
5. Department of Neuropathology, AFIP: Journal club, bi-monthly.

***Courses:***

Members of the staff participated as faculty members in 4 AFIP-sponsored general pathology courses and in 1 non-AFIP course.

1. Feb 20–24, 2007: 45th Annual Neuropathology Review, 169 attendees.
2. Mar 20–26, 2007: 16th Annual Anatomic Pathology, 140 attendees.

***Trainees:***

The department is fully approved for residency training in neuropathology by the Residency Review Committee for Pathology of the Accreditation Council for Graduate Medical Education. In 2007 the department had had 10 civilians for a total of 177 training days in 2007.

***Educational Aides:***

**Department Library**

1. Syllabus of General Neuropathology: This collection consists of non-neoplastic lesions of the nervous system mounted on glass slides.
2. Syllabus of Neoplastic Lesions of the Central Nervous System: This collection consists of sections of tumors mounted on glass slides.
3. Histology: A Photographic Atlas: This system includes a videodisc that contains over 7,000 color photographs of cells, organs, and tissues, including the nervous system.
4. Radiologic Atlas of Brain Tumors: This is a collection of 1,040 cases of brain tumors on a videodisc.
5. Yakovlev-Haleem Collection: This collection includes 1,570 specimens of cerebrovascular disease, neurosurgery for behavioral diseases, congenital malformations, and experimental animals. Associated with the collection are a reference library and computer-training technology.
6. Lindenberg Collection: 15,000 specimens. Includes clinical and laboratory records, glass slides, and paraffin blocks documenting cases of head trauma from the Office of the Maryland State Medical Examiner. The late Dr. Richard Lindenberg founded the collection.
7. Rubinstein Collection: 4,000 specimens, which includes slides, paraffin blocks, photographs, and records documenting brain tumors. The collection was founded by the late Dr. Lucien J. Rubenstein and transferred to the AFIP from the University of Virginia in 1991.

## RESEARCH

***Publications:***

Members of the department contributed to the publication of 10 refereed journal articles and eight abstracts. A syllabus for the 43rd Annual Neuropathology Review was published. Handouts for lectures in one AFIP-sponsored course were prepared.

***Projects:***

The divisions of Neuropathology and Neuromuscular Pathology have 10 officially approved research protocols:

1. Protein expression in brain tumors and muscle, 05AH, Elisabeth Rushing
2. Hypoxic signaling in ischemic and metabolic brain lesions, UB5S, Elisabeth Rushing
3. Meningiomas: Study of unusual variants, UBSV, Elisabeth J. Rushing
4. Exertional rhadbomyolysis: a genetic perspective, 06BC, Elisabeth J. Rushing
5. Survey of Wilm's Tumor 1 (WT1) expression in Glial neoplasms, 07CZ
6. A review of neuromuscular pathology and neuropathology in Desert Storm and Gulf War veterans, UBWC, Charles Specht
7. Imaging in CNS neurodegenerative disease, 06CF, Elisabeth J. Rushing
8. GABAergic system gene expression in pediatric brain tumors, 06BG, Glenn D. Sandberg
9. A novel approach to transporting muscle biopsies, 06CJ, Elisabeth J. Rushing
10. Hemangiomas of the Spinal Cord, 07DB, Charles S. Specht

## OTHER ACCOMPLISHMENTS

### *Collaborators:*

#### Military/Federal

1. COL William Campbell, MD, Department of Neurology, Uniformed University of the Health Sciences, Bethesda, MD, and "Rhabdomyolysis Study Group"
2. Martha Quezado, MD, National Cancer Institute, National Institutes of Health, Bethesda, MD, Chromogenic In Situ Hybridization of Brain Tumors
3. MAJ Stephen S. Roberts, MD, Department of Pediatric Oncology, Uniformed Services University of the Health Sciences, GABAergic system gene expression in pediatric brain tumors
4. James Smirniotopoulos, MD, Department of Radiology, Uniformed University of the Health Sciences, Bethesda, MD, Neuroradiology of Pleomorphic xanthoastrocytoma
5. Alexander Vortmeyer, MD, National Institutes of Health, Bethesda, Proteomic Analysis of Inclusion Body Myositis

#### Civilian:

1. Deborah Blumenthal, MD, University of Utah, Department of Neurology, Hypermethylation status in Glioblastoma after 06-Benzylguanine treatment
2. David N. Louis, MD, Matthew P. Frosch, MD, Harvard University School of Medicine, Boston, MA, AFIP Central Nervous System Atlas on Non-tumor Pathology.
3. Mariarita Santi, MD, Children's Hospital National Medical Center, Washington DC, Pediatric meningiomas, CISH and ependymoma and GBM
4. Juan C. Troncoso, MD, Johns Hopkins University School of Medicine, Baltimore, MD, Histological review of brains in Baltimore longitudinal study of aging (BLSA)

#### Interdepartmental:

1. Aaron Auerbach, MD, Department of Hematologic Pathology
2. Yan-Gao Man, MD, PhD, Department of Gynecologic and Breast Pathology
3. Ann Nelson, MD, Department of Environmental and Infectious Disease Sciences

#### Committees Intramural:

#### E. Rushing:

1. Registrar, Registry of Neuropathology, American Registry of Pathology
2. Member, Oversight Committee for Continuing Medical Education
3. Chair, Library Committee
4. Member, Graduate Medical Education Committee

#### GD Sandberg:

Member, Information Management Support Council.

#### CS Specht:

1. Chair, Research Committee.
2. Member, Bio-Safety Committee

#### MC Katus:

Member, Library Committee

### *Manuscripts Reviewed:*

Members of the Department reviewed 10 manuscripts for the following professional journals:

1. *Journal of Neuropathology and Experimental Neurology* (3), EJ Rushing
2. *Archives of Pathology and Laboratory Medicine*, EJ Rushing
3. *Neuropathology and Applied Neurobiology* (2), EJ Rushing
4. *Acta Neuropathologica* (2), EJ Rushing
5. *Cancer*, EJ Rushing
6. *Journal of Cellular and Molecular Medicine* (2)

### *Offices/Committee Memberships in National or International Societies:*

1. Brain Pathology Reviewer, Southwest Oncology Group (SWOG), San Antonio, TX, EJ Rushing
2. Professional Affairs Committee, American Association of Neuropathologists, EJ Rushing

***Faculty Appointments:***

1. Walter Reed Army Medical Center, Washington, DC, Consultant in Neuropathology, EJ Rushing
2. Walter Reed Army Medical Center, Washington, DC, Consultant in Neuropathology, GD Sandberg
3. Georgetown University, Washington, D.C., Adjunct Professor, Department of Pathology, EJ Rushing
4. Uniformed Services University of the Health Sciences, Bethesda, Maryland, Professor, Department of Neurology, EJ Rushing

***Official Trips:***

1. July 2007, Kaiserslautern, Germany, Expert witness for military trial, EJ Rushing
2. July 2007, Tacoma, Washington, Madigan Army Medical Center, Department of Pathology, Neuropathology Training for residents and staff, EJ Rushing
3. September 2007, Kaiserslautern, Germany, Expert witness for military trial, EJ Rushing

***Continuing Education:***

Members of the Department attended the following courses for training during 2007:

1. 45th Annual Neuropathology Review, AFIP course, Bethesda, MD (ARP)
2. Neuroradiology Course, AFIP, Bethesda, MD
3. Maryland Society of Pathologists Lecture Series, Baltimore, MD
4. AFIP Weekly Professional Staff Conferences, Washington, DC

## PRESENTATIONS

1. January 2007: Washington Hospital Center, Department of Neurosurgery, "Surgical neuropathology, selected cases," EJ Rushing.
2. January 2007: Washington, DC, Georgetown University Medical Center, Department of Pathology "Surgical neuropathology unknowns," EJ Rushing.
3. January 2007, Washington DC, Walter Reed Army Medical Center. Consultant, Department of Pathology. EJ Rushing.
4. February 2007: Washington, DC, Howard University School of Medicine, lecture to sophomore medical students on "Brain tumor, primary and metastatic."
5. February 2007, Bethesda, MD, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Muscle biopsy conference, EJ Rushing.
6. March 2007: Washington, DC, Georgetown University Medical School, "Alzheimer and other neurodegenerative diseases" and "Demyelinating diseases," J Keylock, EJ Rushing.
7. March 2007: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology II," EJ Rushing.
8. March 2007: Washington, DC, AFIP, Weekly Professional Staff Conference, "Macrophagic myofasciitis," CS Specht.
9. April 2007: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pituitary pathology," EJ Rushing.
10. April 2007: Washington, DC, Georgetown University Medical Center, Department of Pathology, " Pathology residents: neuropathology quiz I," EJ Rushing.
11. April 2007, Bethesda, MD, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Muscle biopsy conference, EJ Rushing.
12. April, 2007: Columbia, MD, "Astrocytomas and oligodendroglioma," Surgical Pathology Symposium, Maryland Society of Pathologists, CS Specht.
13. May 2007: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology III," EJ Rushing.
14. May 2007: Washington, DC, Georgetown Medical Center, Department of Pathology, "Pathology residents: neuropathology quiz II," EJ Rushing.
15. May, 2007: Washington, DC, AFIP Anatomic Pathology Course, "Introduction to neuropathology," CS Specht.
16. May, 2007: Washington, DC, AFIP Anatomic Pathology Course, "Astrocytomas," EJ Rushing.
17. June 2007: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
18. June 2007: Washington, DC, Georgetown University Medical Center, Department of

Pathology, "Brain cutting conference," EJ Rushing.

19. June 2007: Washington, DC, Walter Reed Army Medical Center, Department of Pathology, "Embryonal Tumors," EJ Rushing.
20. June 2007: Washington, DC, Walter Reed Army Medical Center, Department of Pathology, "Muscle Pathology," EJ Rushing.
21. June 2007, Bethesda, MD, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Muscle biopsy conference, EJ Rushing.
22. July 2007: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Brain cutting conference," EJ Rushing.
23. August 2007: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
24. August 2007: Washington, DC, Walter Reed Army Medical Center, Department of Neurosurgery, Introduction to CNS Neoplasia.
25. September 2007: Greifswald, Germany, Gesellschaft für Neuropathologie und Neuroanatomie, Muscle diagnostic seminar, EJ Rushing.
26. October 2007: Washington, DC, Washington Hospital Center, Department of Neurosurgery, " Selected topics in surgical neuropathology IV," EJ Rushing.
27. November 2007: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
28. December 2007: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pathology residents: quiz," EJ Rushing.
29. December 2007, Bethesda, MD, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Muscle biopsy conference, EJ Rushing.
30. December 2007: Bethesda, MD, Uniformed Services University of the Health Sciences, Department of Anatomy, Neuroanatomy Lab for freshman medical students, EJ Rushing.

## PUBLICATIONS

### *Journal Articles:*

1. Sandberg GD, Wong K, Iren Horkayne-Szakaly I, Dickey G, Rorke-Adams LB, Rushing EJ. Trimyelia with divergent cord pathways and three foramina magni: A case report. *Childs Nerv Sys*. 2007;23: 249-253.
2. Makuria AT, Henderson FC, Rushing, EJ, Hartmann D-P, Azumi N, Ozdemirli M, Oligodendroglioma with neurocytic differentiation versus atypical extraventricular neurocytoma: A case report of unusual pathologic findings of a spinal cord tumor. *J NeuroOncol*. 2007;82:199-205.
3. Verma A, Acs G, Roy S, Rushing E, Wong K, Tait A, McFate T, Lu H, Dalgard C, Mohyeldin A. Erythropoietin promotes survival and invasiveness of astrocytomas. *J Neurosurg*. 2007;106: 338-350.
4. Smirniotopoulos JG, Murphy FM Rushing EJ, Rees JH, Schroeder JW. Patterns of contrast enhancement: brain and meninges. *Radiographics*. 2007;27:525-551.
5. Santi M, Kadom N, Vezina G, Rushing EJ. Undiagnosed medulloblastoma presenting as fatal hemorrhage in a 14-year old boy: case report and review of the literature. *Childs Nerv Sys*. 2007;23:799-805.
6. Crespo-Rodríguez AM, Smirniotopoulos JG, Rushing EJ. MR and CT imaging of 24 pleomorphic xanthoastrocytomas (PXA) and a review of the literature. *Neuroradiology*. 2007;49:307-315.
7. Begnami MD, Palau M, Rushing EJ, Santi M, Quezado M. Evaluation of NF2 gene deletion in sporadic schwannomas, meningiomas, and ependymomas by chromogenic in situ hybridization. *Human Pathol*. 2007;38:1345-1350.
8. Wedderburn LR, Varsani H, Li CKC, Newton KR, Amato AA, Banwell B, Bove KE, Corse AM, Emslie-Smith A, Harding B, Hoogendijk J, Lundberg IE, Marie S, Minetti C, Nennesmo I, Rushing EJ, Sewry C, Allen E, Charman SC, Pilkington CA, Holton JA. International consensus on a proposed score system for muscle biopsy evaluation in patients with JDM, for potential use in clinical trials. *Arthritis and Rheum*. 2007:15;57:1192-1201.
9. Rushing EJ, Cooper PB, Quezado M, Begnami M, Crespo A, Smirniotopoulos JG, Ecklund J, Olsen C, Santi M. Subependymoma revisited: Clinicopathological evaluation of 83 cases. *J NeuroOncol*. 2007;85:297-305.

10. Agarwal B, Ahmed A, Rushing EJ, Bloom M, Kadom N, Vezina G, Krasnewich D, Santi M. Congenital disorder of glycosylation-x: clinicopathological study of an autopsy case with distinct neuropathological features. *Human Pathol*. 2007;38:1714-1720.

***Book Chapters***

1. Rushing EJ, Giangaspero F, Paulus W, Burger PC. Craniopharyngioma. In: Louis DN, Ohgaki H, Wiestler OD, Cavenee WK, eds: WHO Classification of Tumors of the Central Nervous System, Lyon, IARC 2007, 238-240.
2. Giannini C, Rushing EJ, Hainfellner JA. Haemangiopericytoma. In: Louis DN, Ohgaki H, Wiestler OD, Cavenee WK, eds: WHO Classification of Tumors of the Central Nervous System, Lyon, IARC 2007, 178-180.

***Abstracts:***

1. Begnami M, Santi M, Rushing EJ, Quezado M. Evaluation of Chromosome 7 alterations including epidermal growth factor amplification status in pediatric meningiomas. *Mod Pathol*. 2007;20:296A.
2. Specht CS, Katus MC, Kalasinsky VF, Lewin-Smith MR, Amato RSS, Rushing EJ, Mullick FG. Macrophagic myofasciitis - Histochemical, immunohistological and spectroscopic findings in a pediatric case. *J Neuropathol Exp Neurol*. 2007; 66:450. (558.6).
3. Lin DC, Dimitriadis EK, Horkayne-Szakaly I, Basser PJ, Horkay F. Swelling and Biomechanical Properties of Tissue-Engineering Cartilage 51st Annual Meeting of the Biophysical Society, March 3-7, 2007, Baltimore, MD. Abstracts.
4. Horkay F, Lin DC, Dimitriadis EK, Horkayne-Szakaly I, Basser PJ. Interactions among the Polymer Components of Cartilage Matrix 233rd ACS National Meeting, Chicago, IL. March 24-29, 2007. Abstracts.
5. Sandberg GD, Horkayne-Szakaly I, Rushing EJ. Evaluation of a novel tissue transport media for muscle biopsy specimens. Experimental Biology Annual Meeting, Washington, DC, April 28–May 2, 2007. Abstracts LB66.
6. Lin DC, Silva CC, Dimitriadis EK, Horkayne-Szakaly I, Basser PJ, Horkay F. Integrative Study of Cartilage Chemical and Physical Properties. Experimental Biology Annual Meeting, Washington, DC, April 28-May 2, 2007. Abstracts LB3.
7. Horkay F, Lin CD, Horkayne-Szakaly I, Dimitriadis EK, Silva C, Basser PJ. Biomechanical properties of tissue engineered cartilage. 234th ACS National Meeting, Boston, MA. August 19–23, 2007. Biotechnology Division.
8. Rushing EJ, Man Y-G. Correlation between p63 immunoreactivity and tumor `grade in meningiomas. Experimental Biology Annual Meeting, Washington, DC, April 28-May 2, 2007. Abstracts A388.
9. Basser PJ, Lin DC, Silva C, Horkayne-Szakaly I, Horkay F. A Polymer Physics/Materials Science Approach to Explain the Material Properties of Cartilage, MRS Fall Meeting, Biomimetic Polymers and Gels, November 26–30, 2007, Boston, MA. Abstracts LL.5.2.
11. Silva CC, Lin CD, Horkayne-Szakaly I, Basser PJ, Horkay F. Novel Applications of the QCM Technique in Biomaterials Science. MRS 2007 Fall Meeting, Boston, MA, November 26-30, 2007. Abstracts LL.3.6.

***Other Publications:***

1. Syllabus for 45th Annual Neuropathology review
2. Handouts for lectures in one AFIP-sponsored course
3. Keylock J and Rushing EJ, Check Sample on “Rosai-Dorfman Disease of the Brain”

## GOALS:

Our goals include (1) diagnosing all consultation cases in accurate and timely manner by reducing the turnaround time; (2) maintaining the residency program by recruiting at least one new resident each year; (3) incorporating newly published scientific information into the short and long neuropathology courses; (4) identifying, investigating, and publishing significant research projects in collaboration with intramural and extramural sources and presenting the results at national and international meetings; and (5) serving as a neuromuscular reference laboratory for DoD and other government and civilian institutions.

# DIVISION OF OPHTHALMIC PATHOLOGY

## STAFF

*Medical*

Ahmed A. Hidayat, MD, Chief
Emiko Furusato, MD, Assistant

*Administrative*

Erlinda T. Castro, Secretary

## IMPACT

- The division provides consultation services to pathologists of the Armed Forces, VA, US Public Health Service, and to civilians. Complete gross and microscopic examinations are made on enucleated eyeballs for contributors from hospitals where facilities and trained personnel are not available for this specialized work. Diagnoses are provided to medical centers on microslides of interesting, unusual, and/or difficult cases.
- Division staff conduct research based on the wealth of accumulated case material in the Registry of Ophthalmic Pathology. Research is often conducted with outside scientists or in collaboration with personnel in other departments and divisions, involving special histochemical, immunological, and electron microscopic techniques and specialized equipment.
- The division administers graduate training in ophthalmic pathology to residents, medical students, and fellows, and organizes and conducts courses in ophthalmic pathology.

## CONSULTATION

The division provided consultation services to military and VA hospitals. This amounted to "first echelon" support for most of these contributors. Very few governmental hospitals have either technical or professional personnel trained to prepare whole eyes for histopathologic study or to evaluate alterations in sectioned eyes. The division, therefore, served as the central laboratory for routine diagnostic work in ophthalmic pathology and provided consultation services as well. Similarly, there are many civilian communities throughout the world where no facilities are available for this work. Through the auspices of the Registry of Ophthalmic Pathology, sponsored by the American Academy of Ophthalmology, the division rendered consultation services to civilian contributors. Much of the routine work has been diverted to ophthalmic pathology laboratories at universities and other institutions. These laboratories now provide high-quality service and forward only the particularly difficult or unusually interesting cases to the AFIP, so that our division is receiving fewer but more difficult cases.

The scientific laboratory handled 122 cases by processing wet tissue, preparing histologic slides, and special stains. Whole eye specimens received as wet tissue were carefully grossed to identify the pathology.

| ***Cases*** | ***Completed*** |
|---|---|
| Military | 81 |
| Army (43) | |
| Air Force (5) | |
| Naby (33) | |
| Federal (VA/PHS/OFA) | 149 |
| Civilian | 206 |
| Total | 436 |

## EDUCATION

***Courses:***

In 2007, the division presented its annual course, "Ophthalmic Pathology for Ophthalmologists," at Hilton hotel. The division staffs present a daily clinicopathologic conference to residents in ophthalmology at NNMC, WRAMC, and local civilian programs.

***Trainees:***
Division facilities and personnel are in great demand for training in various phases of ophthalmic pathology and research. During 2007, we had approximately 19 residents from local hospitals were assigned for 1 to 6 months. In addition, 3 medical students spent their elective months in the division.

***Presentations***

1. March 2007: United States and Canadian Academy of Pathology (USCAP) 96th Annual Meeting, San Diego, CA "BCL-2 expression in melanocytic neoplasms of the conjunctiva," E Furusato, AA Hidayat .
2. April 2007: Verhoeff – Zimmerman Society for Ophthalmic Pathology, Columbia, Maryland, "Infectious crystalline keratopathy," AA Hidayat.
3. May 2007: Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Fort Lauderdale, Florida," Inflammatory infiltrates in melanocytic lesions of the conjunctiva," E Furusato, B Furusato, AA Hidayat. Ophthalmic Pathology, Genitourinary Pathology, Armed Forces Institute of Pathology, Washington, DC.
4. May 2007: Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Fort Lauderdale, FL, "Relationship between birefringence and neurotubule density in the primate retinal nerve fiber layer," RG Aranibar, HG Rylander, NJ Kemp, JC Dwelle, SE Byers, MKMarkey, CS Specht, TE Milner.
5. May 2007: Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Fort Lauderdale, FL, "Immunopathology of sympathetic uveitis," CS Specht, EJ Rushing.
6. May, 2007: AFIP/VA Video Teleconference, "Iris stromal neoplasms," CS Specht.
7. Oct 2007: Eastern Ophthalmic Pathology Society, Houston, Texas, "Orbital malignant lymphoma with amyloidosis," AA Hidayat.

## RESEARCH

***Publications:***

***Journal Articles:***

1. Chung EM, Smirniotopoulos JG, Specht CS, Schroeder JW, Cube R. From the Archives of the AFIP: Pediatric orbit tumors and tumor-like Lesions: non-osseous lesions of the extraocular orbit. *RadioGraphics*. 2007: 27: 1777-1799.
2. Chung EM, Specht CS, Schroeder JW. From the Archives of the AFIP: Pediatric orbit tumors and tumor-like lesions: neuroepithelial lesions of the ocular globe and optic nerve. *RadioGraphics*. 2007; 27: 1159-1186.
3. Colyer MH, Bower KS, Ward TP, Hidayat AA, Subramanian PS. Mitochondrial myopathy presenting with segmental corneal oedema and retrocorneal membrane. *Br J Ophthalmol*. 2007 May; 91(5):696-697.
4. Hidayat AA, Flint A, Marentette L, Torczynski E, Al-Qahtani JM, Ahl NC, Elner VM. Myxomas and angiomyxomas of the orbit: a clinicopathologic study of 6 cases. *Ophthalmology*. 2007 May; 114(5):1012-1019.
5. Wang M, Khurana RN, Parikh JG, Hidayat AA, Rao NA. Myxofibrosarcoma of the orbit: an underrecognized entity? Case report and review of the literature. *Ophthalmology*. 2007 Dec 18 [Epub ahead of print].

One book chapter is in press.

***Projects:***

1. Inflammatory infiltrates in melanocytic lesions of the conjunctiva, E Furusato, A Hidayat
2. Ocular leprosy, KJ Wroblewski, A Hidayat
3. Tuberculosis of the eye, KJ Wroblewski, A Hidayat

## PROFESSIONAL ACTIVITIES

***Manuscripts Reviewed:***
Division Chief reviewed 23 manuscripts for scientific journals in 2007.

***Editorial Boards:***
*Saudi Ophthalmology Journal*, AA Hidayat.

# ADVANCED PATHOLOGY

# GROUP 2

## Dermatopathology
## Soft Tissue Pathology
## Oral & Maxillofacial Pathology
## Endocrine & Otorhinolaryngic/Head-Neck Pathology

George P. Lupton, MD
Chair
Date of Appointment — 1 July 1988

# DEPARTMENT OF DERMATOPATHOLOGY

## STAFF

*Medical:*

George P. Lupton, MD, Chair
Maria-Magdalena Tomaszewski, MD, Assistant Chair
Luke S. Chung, MD
Walter L. Rush, MD
James R. Hallman, MD

*Administrative:*

Clara Desane
Vashti A. Jefferson
Reneta Walker, HM1/USN/AD (since September 22, 2006)

## IMPACT

Our goals are:

- to provide expert and timely consultation on dermatopathology cases sent to us for review.
- to provide education in dermatopathology through lectures at local, regional and national meetings and by providing training to rotating residents.
- to conduct research on pertinent topics in dermatopathology and publish results in respected national and international journals of dermatopathology, pathology and dermatology.
- to conduct a fully accredited Dermatopathology Fellowship Training Program to provide the military services with board certified dermatopathologists, thereby enhancing patient care at the primary care level.

The Department of Dermatopathology continues to provide expert consultation on the highest volume of cases of any department in the Institute. The Department has full accreditation for its Dermatopathology Fellowship Training Program by the Accreditation Council for Graduate Medical Education. This program, the only one of its kind in the Department of Defense, provides training for military physicians leading to Board Certification in Dermatopathology for the military services. In addition, the Department provides extensive training to numerous rotating residents, both military and civilian, throughout the year.

## CONSULTATION

The Department of Dermatopathology provides consultation services in the field of dermatopathology for military, federal and civilian institutions. Many accessioned federal and civilian consultations are difficult cases, such as melanocytic lesions, that could present high-risk medicolegal problems. The total number of reviewed cases was 7,788 including interdepartmental consultations. Military and federal institutions submitted 6,492 cases, which constituted 89.5% of cases submitted in 2007. We changed the patient's diagnosis from a benign lesion to cancer or from cancer to a benign lesion, in 187 cases, about 2.5% of cases, greatly changing the treatment outcome, leading to a potential saving of millions of dollars in medical malpractice suits. We received 2,785 cases, over 38% of cases, without a contributor diagnosis.

| *Cases* | *Completed* |
|---|---|
| Military | 3,015 |
| Army (1,134) | |
| Navy (1,022) | |
| Air Force (859) | |
| Federal | 3473 |
| VA (3,460) | |
| PHS (13) | |
| In house/OFA/FM | 4 |
| Civilian | 760 |
| Interdepartmental | 536 |
| Total | 7,788 |

## EDUCATION

### *Presentations and Seminars:*

Our department made three presentations at the 17th Annual Anatomic Pathology Review Course (AFIP), Arlington, VA, representing a total of 414 man-hours.

Department staff presented teaching and diagnostic slide conferences weekly for staff pathologists, dermatopathology fellows, residents, and visiting physicians. We also participated in teaching activities at the AFIP, such as weekly professional staff conferences and the Quarterly AFIP/VA and Military Histopathology Quality Assessment Program.

The staff of the Department of Dermatopathology attended six different training courses/meetings in 2007, provided at the following venues:

- 17th Anatomic Pathology Review Course of the AFIP, Arlington, VA.
- 10th Joint Meeting of the International Society of Dermatopathology, Washington, DC.
- 65th Annual Meeting of the American Academy of Dermatology, Washington, DC.
- The Harvard Medical School Dermatopathology Update, Boston, MA.
- 44th Annual Meeting of the American Society of Dermatopathology, Baltimore, MD.
- 28th Symposium of the International Society of Dermatopathology Meeting, Paris, France.

### *Trainees*

In 2007, the department provided training for a total of 45 trainees, 18 federal, 26 non-federal and one foreign national physician, fellows, and residents in dermatology, pathology and dermatopathology and medical students. Trainees spent an average of 23.5 days in our department, for a total of 1056 training-days.

They came from teaching facilities including Walter Reed Army Medical Center, National Naval Medical Center, Washington Hospital Center, Howard University Medical Center, Georgetown University Medical Center, George Washington University Medical Center, National Institutes of Health and other military teaching hospitals, and civilian institutions across the country.

26 dermatology residents (14 federal and 12 non-federal), 17 pathology residents (4 federal and 13 non-federal), one foreign visiting pathologist and one federal intern participated in our program. During the academic year 2006-2007, two Air Force pathologists were trained as dermatopathology fellows. Both successfully completed the program in June 2007 and both subsequently successfully passed the certification exam in dermatopathology.

### *Faculty Appointments*

**GP Lupton**

1. Uniformed Services University of the Health Sciences, Bethesda, MD
2. George Washington University School of Medicine, Washington, DC

**WL Rush**

John Hopkins Medical School, Baltimore, MD

### *Presentations*

1. April 2007: Washington, DC, WRAMC, Dermatology Clinic, "Primary cutaneous malignant lymphoma," M-M Tomaszewski.

2. May 2007: Arlington, VA, AFIP 17th Annual Anatomic Pathology Course, "Pitfalls in the histopathologic diagnosis of pigmented lesions," GP Lupton.
3. May 2007: Arlington, VA, AFIP 17th Annual Anatomic Pathology Course, "Adnexal neoplasms," LS Chung.
4. November 2007: Paris, France, 28th Symposium of the International Society of Dermatopathology, "Hepatocellular carcinoma presenting as a precocious cutaneous metastasis" (poster presentation), GP Lupton, WL Rush.

## RESEARCH

### *Publications:*

1. Fetsch JF, Laskin WB, Hallman JR, Lupton GP, Miettinen M. Neurothekeoma. An analysis of 178 tumors with detailed immunohistochemical data and long term patient follow-up information. *Am J Surg Pathol.* 2007: 31(7):1103-1114.
2. Osswald SS, Lulick KB, Tomaszewski M-M, Sperling LC. Viral associated trichodysplasia in a patient with lymphoma: a case report and review. *J Cutan Pathol*. 2007; 34(9):721-725.

### *Projects:*

1. Cohen GL, Lewin-Smith MR, Specht CS, Kalasinsky VF, Moroz AL, Hallman JR, Mullick FG. The Characteristics of Malignant Melanocytic Neoplasms arising in a cohort of 1990-1991 US Persion Gulf War Veterans. Departments of Environmental and Infectious Disease Science, Neuropathology, and Dermatopathology.
2. Fetsch JF, Hallman JR, Lupton GP, Miettinen M. Unusual Vascular Neoplasms of the Skin and Soft Tissue. Departments of Soft Tissue Pathology and Dermatopathology.

## PROFESSIONAL ACTIVITIES

### *Editorial work:*

**GP Lupton**
*American Journal of Dermatopathology*, editorial board.

Markku Miettinen, MD, PhD
Chair
Date of Appointment — 1 July 1996

# DEPARTMENT OF SOFT TISSUE AND ORTHOPEDIC PATHOLOGY

## STAFF

*Medical*

John J. Fetsch, MD, Assistant Chair of Soft Tissue Pathology
Julie C. Fanburg-Smith, MD, Assistant Chair of Orthopedic Pathology
(D) Val Finnell, Col, USAF, MC
Chandra Prabha, Col, MC, USA
Sumitra L. Parekh, COL, MC, USA
Daniel Strum, COL, MC, USA

*Scientific*

Jerzy P. Lasota, MD, PhD, Research Pathologist
Virginia Achstetter, HT (ASCP), Senior Laboratory Technologist

*Research fellow*

(A) Vasuki Anandan, MD

*Administrative*

David Dinges, Administrator
Charmaine Howard, Secretary

## IMPACT

In 2007, the Department gave a large number consultations to Military, VA, and civilian contributors and strengthened internal training program with the trainees being able to take advantage of the Departmental study set, an unique reference resource. Eighteen research articles on subjects such as gastrointestinal stromal tumors, neurothekeomas, and other fibrohistiocytic tumors reflected departmental clinicopathologic research activities that had a large collaborative basis within the AFIP, nationally, and internationally. The Department launched in situ hybridization for analysis of gene rearrangement studies for EWSR1, FUS, and SYT genes that will improve capabilities in specific diagnosis of sarcomas.

## CONSULTATION

Consultations included cytology, needle biopsies, excisional biopsies, resection and autopsy specimens of a wide variety of soft tissue, bone, and cardiovascular lesions from a broad range of anatomic sites. We examined tumors with a wide variety of histogenesis, including examples of inflammatory, degenerative, post-traumatic, and iatrogenic conditions. We also saw specimens from a wide variety of locations as interdepartmental consultations. The overall number of cases decreased from the last year but the average level of case difficulty increased, presumably due to more selective contributor submissions.

| *Soft tissue cases* | *Completed* |
|---|---|
| Military | 552 |
| Army (258) | |
| Navy (165) | |
| Air Force (129) | |
| Federal | 398 |
| VA (397) | |
| Other federal (1) | |
| Civilian | 844 |
| Interdepartmental | 1112 |
| Total | 1794 |

| *Orthopedic cases* | *Completed* |
|---|---|
| Military | 135 |
| Army (67) | |
| Navy (46) | |
| Air Force (22) | |
| Federal | 105 |
| VA (104) | |
| Other federal (1) | |
| Civilian | 359 |
| Interdepartmental | 47 |
| Total | 646 |

***Military deployments:***
At WRAMC, COL Parekh, COL Prabha and Dr. Fanburg-Smith participated in diagnostic anatomic pathology activities, and Drs. Fanburg-Smith and Fetsch delivered lectures on specific types of soft tissue tumors for the residency program of Walter Reed Army Medical Center and National Naval Medical Center. Col Finnell acted as Military Consultant for Medical Ethics to the Air Force Surgeon General, as member, of Air Force Surgeon General Human Research Protection committee, and as AFIP controlled substances inventory inspector.

***Administrative:***
Drs. Fanburg-Smith and Miettinen participated as members in the Institutional Review Board for research activities.

## EDUCATION

***Courses:***
Department staff participated as faculty in 2 AFIP courses and 1 non-AFIP course.

***Trainees:***
The department hosted 12 military and federal trainees for a total of 192 training days, and 10 domestic civilian trainees for a total of 178 training days, and 7 foreign national trainees and visiting scholars for a total of 143 training days. Training consisted of review of departmental study sets, attendance at special training sessions and clinical conferences, and participation in departmental research projects. Department staff also participated in HPQA for the Department of Defense and VA facilities with submissions to the monthly and quarterly case programs, and to Brazil case review program.

***Presentations:***
1. May 2006: Washington, DC, Telepathology lecture, Walter Reed Medical Center, “Role of molecular genetic testing in surgical pathology of soft tissue tumors,” J Lasota.
2. May 2007: Philadelphia, PA, Annual Resident lecture: “Gastrointestinal stromal tumors,” M Miettinen.
3. June 2007: Warsaw, Poland, M. Sklodowska-Curie Memorial Cancer Center and Institute of Oncology, Department of Molecular Biology, “Update on molecular genetics of gastrointestinal stromal tumors (GISTs),” J Lasota.

4. July 2007: Washington, DC, Howard University Grand Rounds: "Immunohistochemistry of soft tissue tumors," M Miettinen.
5. September 2007: Istanbul, Turkey, 22th International Congress of Pathology "Vascular Tumors of the Head and Neck," M Miettinen.
6. September 2007: Istanbul, Turkey, 22th International Congress of Pathology: "Gastrointestinal stromal tumors," M Miettinen.
7. September 2007: Istanbul, Turkey, 22th International Congress of Pathology: KIT and PDGFRA mutations in gastrointestinal stromal tumors, J Lasota.
8. October 2007: Chicago, Illinois, University of Illinois, "Fibroblastic tumors," M Miettinen.
9. October 2007, Washington, Department of Pathology, Howard University, DC Grand Rounds: "Role of molecular genetic testing in surgical pathology of soft tissue tumors," J Lasota.
10. November 2007: Ellicott City, Maryland, Maryland Society of Pathologists" Gastrointestinal stromal tumors," M Miettinen.
11. November 2007: Bonn, Germany, 1st update on molecular diagnostics and treatment of sarcomas, "AFIP as a reference center for soft tissue tumors," M Miettinen.
12. November 2007: Bonn, Germany, 1st update on molecular diagnostics and treatment of sarcomas: "Genetic subtypes of gastrointestinal stromal tumors," J Lasota.

***Published Abstracts and Scientific Presentations:***

1. Fanburg-Smith JC, Murphey M, Vidal J.Presented at International Skeletal Society, Budapest Hungary, Benign metastasizing ganglioneuroma in NF1 patient with primary posterior thoracic tumor, October 2007.
2. Lampuri C, Long T, Fanburg-Smith JC, Robinson-Bostom L. Cutaneous Extraskeletal Osteosarcoma. American Academy of Dermatology Summer Meeting 2007. PSN-AAD07V1-1506.
3. Lasota J et al. Hemizygous/homozygous KIT Exon 11 mutations indicate highly malignant clinical behavior of gastrointestinal stromal tumors (GISTs). *Lab Invest.* 2007;87 Supp:17A. Presented at USCAP 2007, San Diego, CA
4. Moran CA, Vidal JA, Murphey MD, Miettinen M, Fanburg-Smith JC. Desmoplastic fibroma: more clearly defining this entity: a clinicopathologic and radiologic study of 58 cases. *Modern Pathol.* 2007 20 (1): #67. Presented at the US and Canadian Academy of Pathology, San Diego, CA, March 2007.
5. Patel RM, Downs-Kelly E, Fanburg-Smith JC, Billings SD, Tubbs RR, Goldblum JR. FUS fluorescence in-situ hybridization is useful for differentiating cutaneous low-grade fibromyxoid sarcoma from other superficial fibromyxoid neoplasms. *Modern Pathol.* 2007 20 (1): #12. Presented at the US and Canadian Academy of Pathology, San Diego, CA, March 2007.

## RESEARCH

***Journal Articles***

1. Assämäki R, Sarlomo-Rikala M, Lopez-Guerrero JA, Lasota J, Andersson LC, Llombart-Bosch A, Miettinen M, Knuutila S. Array comparative genomic hybridization analysis of chromosomal imbalances and their target genes in gastrointestinal stromal tumors. *Genes Chromosomes Cancer*. 2007 Jun;46(6):564-576.
2. Burke A, Li L, Kling E, Kutys R, Virmani R, Miettinen M. Cardiac inflammatory myofibroblastic tumor: a "benign" neoplasm that may result in syncope, myocardial infarction, and sudden death. *Am J Surg Pathol*. 2007 Jul;31(7):1115-1122.
3. Dinauer PA, Brixey CJ, Moncur JT, Fanburg-Smith JC, Murphey MD. Pathologic and MR imaging features of benign fibrous soft-tissue tumors in adults. *Radiographics*. 2007 Jan-Feb;27(1):173-187.
4. Ehrig T, Billings SD, Fanburg-Smith JC. Superficial primitive neuroectodermal tumor/ Ewing sarcoma (PN/ES): same tumor as deep PN/ES or new entity? *Ann Diagn Pathol*. 2007 Jun;11(3):153-159.
5. Fetsch JF, Laskin WB, Hallman JR, Lupton GP, Miettinen M. Neurothekeoma: an analysis of 178 tumors with detailed immunohistochemical data and long-term patient follow-up information. *Am J Surg Pathol.* 2007 Jul;31(7):1103-1114.
6. Hartel PH, Fanburg-Smith JC, Frazier AA, Galvin JR, Lichy JH, Shilo K, Franks TJ. Primary pulmonary and mediastinal synovial sarcoma: a clinicopathologic study of 60 cases and

comparison with five prior series. *Mod Pathol*. 2007 Jul;20(7):760-769.
7. Jha P, Moosavi C, Fanburg-Smith JC. Giant cell fibroblastoma: an update and addition of 86 new cases from the Armed Forces Institute of Pathology, in honor of Dr. Franz M. Enzinger. *Ann Diagn Pathol*. 2007 Apr;11(2):81-88.
8. Laskin WB, Miettinen M, Fetsch JF. Calcareous lesions of the distal extremities resembling tumoral calcinosis (tumoral calcinosislike lesions): clinicopathologic study of 43 cases emphasizing a pathogenesis-based approach to classification. *Am J Surg Pathol*. 2007 Jan;31(1):15-25.
9. Lasota J, Miettinen M. KIT exon 11 deletion-inversions represent complex mutations in gastrointestinal stromal tumors. *Cancer Genet Cytogenet*. 2007 May;175(1):69-72.
10. Lasota J, Wasag B, Steigen SE, Limon J, Miettinen M. Improved detection of KIT exon 11 duplications in formalin-fixed, paraffin-embedded gastrointestinal stromal tumors. *J Mol Diagn*. 2007 Feb;9(1):89-94.
11. Lasota J, vel Dobosz AJ, Wasag B, Wozniak A, Kraszewska E, Michej W, Ptaszynski K, Rutkowski P, Sarlomo-Rikala M, Steigen SE, Schneider-Stock R, Stachura J, Chosia M, Ogun G, Ruka W, Siedlecki JA, Miettinen M. Presence of homozygous KIT exon 11 mutations is strongly associated with malignant clinical behavior in gastrointestinal stromal tumors. *Lab Invest*. 2007 Oct;87(10):1029-1041.
12. Lasota J. Not all c-kit mutations can be corrected by imatinib. *Lab Invest*. 2007 Apr;87(4):317.
13. Lasota J. Mitochondrial POLG mutation, mtDNA depletion, and cardiomyopathy. *Lab Invest*. 2007 Apr;87(4):316.
14. Lasota J. TGF-beta regulates glucoseinduced senescence of mesothelial cells in dialysis patients. *Lab Invest*. 2007 Apr;87(4):316.
15. Miettinen M, Kraszewska E, Sobin LH, Lasota J .A nonrandom association between gastrointestinal stromal tumors and myeloid leukemia. *Cancer*. 2007 Nov 26; [Epub ahead of print]
16. Steigen SE, Eide TJ, Wasag B, Lasota J, Miettinen M. Mutations in gastrointestinal stromal tumors: a population-based study from Northern Norway. *APMIS*. 2007 Apr;115(4):289-298.
17. Moosavi C, Jha P, Fanburg-Smith JC. An update on plexiform fibrohistiocytic tumor and addition of 66 new cases from the Armed Forces Institute of Pathology, in honor of Franz M. Enzinger, MD. *Ann Diagn Pathol*. 2007 Oct;11(5):313-319.
18. Murphey MD, Vidal JA, Fanburg-Smith JC,Gajewski DA.Imaging of synovial chondromatosis with radiologic-pathologic correlation. *Radiographics*. 2007 Sep-Oct;27(5):1465-1488.

### *Projects*

1. Classification of unusual vascular tumors.
2. Peripheral and visceral smooth muscle and stromal tumors
3. Fibromyxoid neoplasms.
4. Fibrosarcomatous transformation of dermatofibrosarcoma protuberans.
5. Vascular tumors of bone
6. Fibmymyxoid neoplasms of soft tissue and bone
7. Epithelial tumors of soft tissue.
8. Molecular pathologic analysis of soft tissue tumors.
9. Triton tumors.
10. Malignant peripheral nerve sheath tumors arising in neurofibroma.
11. Pathology of fibromas.

### *Collaborators*

#### Civilian

1. Christopher Corless, Oregon Health Sciences University, Portland, OR
2. Maria Debiec-Rychter, Catholic University, Leuven, Belgium
3. Andrea Deyrup, Emory University, Atlanta, GA
4. Jorge Dotto, Yale University, New Haven, CT
5. Sonja Erikson-Steigen, University of Tromso, Norway
6. Zoran Gatalica, Creighton University, Omaha, NE
7. Matthew Hurford, Temple University, Philadelphia
8. Dhanpat Jain, Yale University, New Haven

9. William B. Laskin, Northeastern University, Chicaco, Ill (Visiting Scientist)
10. Janusz Limon, Medical Academy of Gdansk, Poland
11. Timothy O'Leary, Department of Veterans Affairs
12. Michal Michal, Faculty Hospital, Pilsen, Czech Republic
13. Fabrizio Remotti, College of Physicians and Surgeons, New York
14. Janusz Rys, Oncology Hospital, Krakow, Poland
15. Maarit Sarlomo-Rikala, University of Helsinki, Finland
16. Brian Rubin, University of Washington, Seattle
17. Jerzy Stachura, Jagellonian University, Krakow, Poland
18. Eva Wardelmann, University of Bonn, Germany
19. Bartosz Wasag, Medical Academy of Gdansk, Poland
20. Sharon W. Weiss, Emory University, Atlanta, GA

#### Interdepartmental

1. Department of Dermatopathology
2. Department of Gastrointestinal Pathology
3. Department of Genitourinary Pathology
4. Department of Gynecological and Breast Pathology
5. Department of Endocrine Pathology
6. Department of Hematologic and Lymphatic Pathology
7. Department of Hepatic Pathology
8. Department of Molecular Pathology
9. Department of Neuropathology
10. Department of Pulmonary and Mediastinal Pathology
11. Department of Radiologic Pathology
12. Department of Veterinary Pathology

## PROFESSIONAL ACTIVITIES

### *Editorial*

Department members reviewed 57 manuscripts for peer-reviewed scientific journals during 2007 and held the following editorial board memberships or editorships:

1. *American Journal of Surgical Pathology*, M Miettinen
2. *Applied Immunohistochemistry and Molecular Morphology*, M Miettinen
3. *Annals of Diagnostic Pathology*, JC Fanburg-Smith, M Miettinen
4. *Archives of Pathology*, Section Editors for Soft Tissue, J Fetsch, M Miettinen
5. *Human Pathology*, J Lasota, M Miettinen
6. *Virchows Archiv,* M Miettinen

### *Training*

Dr. Jerzy Lasota attended training for in-situ hybridization for one month in the Department of Human Genetics (Dr. Maria Debiec-Rychter) in Catholic University of Leuven, Belgium.

Robert D. Foss, CAPT, DC, USN
Chair
Date of Appointment — 16 September 2004

# DEPARTMENT OF ORAL AND MAXILLOFACIAL PATHOLOGY

## MISSION

The Department of Oral and Maxillofacial Pathology provides expert diagnostic consultation, education and research in diseases of the oral mucosal and soft tissues, the jaws, and the major and minor salivary glands. The department also supports the Office of the Armed Forces Medical Examiner through expertise in forensic dental identification and provides on- and off-site training in forensic odontology for the US Army, US Air Force, US Navy and other government agencies.

## STAFF

*Dental:*

Robert D. Foss CAPT, DC, USN, Chair
Christopher G. Fielding, COL, DC, USA
Duane R. Schafer, CAPT, DC, USN
Lisa A. Franklin, MAJ, DC, USA
Jose Colon, DMD
Michael Gardner, Maj, USAF, DC (resident)
Bradley Jones, LT, DC, USN (resident)

*Administrative:*

Patricia Ashburn, Secretary

## DIAGNOSTIC CONSULTATION

| ***Cases*** | ***Completed*** |
|---|---|
| Military | 403 |
| Army (177) | |
| Navy (137) | |
| Air Force (89) | |
| Fmil (0) | |
| Federal | 332 |
| VA (329) | |
| USPHS (3) | |
| OFA (0) | |
| Civilian | 559 |
| Interdepartmental | 112 |
| Total | 1405 |

Our Department consults on the wide variety of pathologic processes that affect the oral mucosa, jaws, major and minor salivary glands and associated structures in the maxillofacial

region. These processes include, but are not limited to, odontogenic cysts and tumors, fibro-osseous lesions, salivary gland neoplasia, lymphoid processes, soft tissue tumors and metastatic disease. We perform consultative services for US Army, Navy and Air Force medical treatment facilities, Veterans Affairs medical centers, and US Public Health Service medical treatment centers, as well as civilian facilities in the US and the world.

Our department received 1293 outside consultation cases in 2007. Major changes in diagnosis were made in 15 cases, minor changes in 231 cases, and no change in the contributor diagnosis in 930 cases. We received 78 cases with no contributor diagnosis; 32 cases were recorded without coding. Turnaround time averaged 3.87 days.

## IMPACT:

1. Deployments of members of the Department of Oral and Maxillofacial Pathology on Operation Iraqi Freedom forensic missions in support of the Office of the Armed Forces Medical Examiner included a number of high profile mass disasters and support of Operation Iraqi Freedom. These forensic missions provide rapid, accurate identification of disasters victims that result in the timely return of remains to next of kin.

In 2007:

a) 1149 postmortem dental examinations were performed on 1171 sets of remains processed at the Carson Mortuary at Dover AFB, DE. This figure includes active duty OIF or OEF casualties, civilian deaths in theater, Iraqi enemy prisoners of war and other military current deaths worldwide.

b) 941 antemortem records were compiled from military and civilian dental records (413), Corporate Dental Application electronic images (437), and the Central Panorex Storage Facility in Monterey, CA (91) resulting in:

1) 898 “positive” dental identifications (78%)

2) 21 “consistent with” dental identifications (1.8%)

3) 22 could not be identified by dental evidence comparison (1.9%)

4) 156 did not have antemortem dental records available (13.6 %)

5) 52 remains classified as “other than U.S. military” were not identified

2. Departmental off-site forensic dental identification training laboratories were deployed to 22 military commands and provided 7,020 man-hours of readiness training for future mass casualty disasters. These laboratory exercises represent a major source of forensic dental identification training in the US Armed Forces.

3. At the annual meeting of the American Academy of Oral and Maxillofacial Pathology, the AFIP Slide Seminar continues to be the most popular continuing education course and it is always fully subscribed. In its 28th year, the seminar promotes the Department and Registry of Oral and Maxillofacial Pathology as a world leader in the specialty of Oral and Maxillofacial Pathology.

4. The third year of the residency program in oral and maxillofacial pathology, Naval Postgraduate Dental School, conducted at the AFIP, is structured to provide opportunities for research, slide and case review with staff, both individually and collectively. Presentation of a research project by the residents at the annual meeting of the American Academy of Oral and Maxillofacial pathology promotes our missions of education and research.

5. The department chair is Associate Director, Navy, AFIP, overseeing 48 assigned Navy personnel. CG Fielding is the Army Surgeon General’s Consultant for Oral Maxillofacial Pathology and Forensic Dentistry. DR Schafer is the Consultant to the Surgeon General of the Navy for Oral and Maxillofacial Pathology and for Forensic Odontology.

### *Deployments:*

Members of the Department of Oral and Maxillofacial Pathology maintain a readiness status, prepared to deploy within 4 hours of notification. In 2007, the Department had 174 deployments to support the Office of the Armed Forces Medical Examiner with rapid, accurate and reliable dental identification. This figure represents a 114% increase in deployments from the previous year. Using state of the art digital technology, the identification process was complete within hours of the postmortem examination. This vital service facilitates the rapid return of remains to the family.

1. CAPT Duane Schafer - 13 JAN 07 to 29 DEC 07; 59 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE
2. COL Christopher Fielding - 02 FEB 07 to 27 DEC 07; 36 Forensic Missions, Operation

Iraqi Freedom, Port Mortuary, Dover, DE
3. MAJ Lisa Franklin - 23 JAN 07 to 22 DEC 07; 36 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE
4. CAPT Robert Foss - 02 FEB 07 to 27 DEC 07: 23 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE
5. Dr. Jose Colon - 02 FEB 07 to 27 DEC 07: 20 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE

## EDUCATION

### *Presentations and Seminars:*

The Department of Oral and Maxillofacial Pathology provide programs that range from national and international meetings to in-house professional development. Further, portable forensic dental identification workshop kits were deployed 22 times for 7,020 man-hours of training of military personnel.

### *Courses:*

Department staff participated in 12 AFIP/ARP courses, including the department's major course offerings, Forensic Dental Identification and Emerging Technologies, Surgical Oral and Maxillofacial Pathology and Clinical Oral and Maxillofacial Pathology, for a total of 12,000 man-hours of training. The staff participated in 13 non-AFIP courses, providing an additional 1,809 man-hours of education.

### *Trainees:*

The department had 2 third-year residents in oral and maxillofacial pathology during 2007. The department had 9 visiting residents, including Donald W. King fellows, for 210 man-days of training.

### *Educational Aids:*

The Registry of Oral and Maxillofacial Pathology Case of the Month course is a web accessible online continuing education program that is available by subscription. It is utilized by pathologists for peer review and education, and is recognized by the American Board of Oral and Maxillofacial Pathology for fulfillment of the continuing competency requirements for maintenance of board certification. Each case is originally presented as an unknown and then followed up with a presentation of participant diagnoses, AFIP diagnosis and a discussion. Twelve new cases are posted each year. Older cases are archived on the Web site and are available for study. Three deployable forensic dental identification training laboratories are available and were deployed to 22 military commands and provided 7,020 man-hours of training in 2006.

## RESEARCH

### *Publications:*

Members of the department were authors of six journal articles and one published abstracts.

### *Active Projects:*

1. UBKH - Atypical chondroid neoplasia of the jaws
2. UBDZ - Mesenchymal Lesions of Oral Region
3. UBIG - Diagnosis of Malignant Salivary Gland Tumors
4. UB5H - Reticular Myoepithelioma
5. UB5L - Lymphoepithelial-like Carcinoma of the Skin from the Head and Neck.
6. UBXL - Benign Fibroblastic Tumors

### *Collaborators:*

**Civilian:**

J Hunt, MD, genotyping of odontogenic tumors

**Interdepartmental:**

1. J Fanburg-Smith, MD, soft tissue tumors of the head and neck
2. J Fetsch, MD, benign fibroblastic lesions

**Committees:**

1. Executive Committee AFIP, RD Foss
2. Institutional Review Board, AFIP, J Colon
3. Institutional Animal Care and Use Committee, RD Foss

4. Quality Assurance Committee, RD Foss
5. Safety Committee, DR Schafer
6. AFIP Oral and Maxillofacial Department Logistic Officer, J Colon
7. Credentials Committee, CG Fielding
8. AFIP Research Committee Member, J Colon
9. Library Committee, DR Schafer
10. Faculty, George Washington University Forensic Sciences Master's Program, CG Fielding
11. Faculty, Uniformed Services University Department of Pathology, DR Schafer.
12. Deputies Management Council, RD Foss,
13. Pathology Management Office Committee, DR Schafer.

***Offices/Committee Memberships other than AFIP:***

1. Consultant to the Surgeon General (Army) in Oral and Maxillofacial Pathology, CG Fielding
2. Consultant to the Surgeon General (Army) in Forensic Dentistry, CG Fielding
3. Consultant to Navy Surgeon General in Oral and Maxillofacial Pathology, DR Schafer
4. Consultant to Navy Surgeon General in Forensic Dentistry, DR Schafer

***Official Trips:***

1. January 2007: US Forces / Republic of Korea Military Forensic Dentistry Conference, Yongsan and Daegu, South Korea, Course Director for the first joint US Forces/Republic of Korea Military Forensic Dentistry Course, CG Fielding (DENTAC)
2. February 2007: American Academy of Forensic Sciences, Annual Meeting, San Antonio, TX, DR Schafer, L Franklin, J Colon (Armed Forces Institute of Pathology)
3. March 2007: Naval Medical Clinic Great Lakes, Great Lakes, IL, served as Course Director for Forensic Dentistry Course, DR Schafer (NMC GREAT LAKES)
4. April 2007: Teaching Chiefs Conference, Bethesda, MD. CG Fielding, DR Schafer. Activities include planning curriculum and support strategies for Army and Navy postgraduate dental education, CG Fielding. (AMEDD), DR Schafer (NMETC)
5. May 2007: American Academy of Oral and Maxillofacial Pathology, Kansas City, MO. RD Foss, CG Fielding, DR Schafer, L Franklin, D Flint, J Colon (Armed Forces Institute of Pathology)
6. May 2007: Wilford Hall Medical Center Forensic Dentistry Course San Antonio, TX, served as faculty for annual U.S. Air Force Forensic Dentistry Course, CG Fielding (USAF)
7. June 2007: Home Land Defense Medical Executives Course, Reno, NV, 5-day course designed to train senior medical department officers for command and senior staff positions in support of the National Response Plan to the challenges and complexities of a Chemical, Biological, Radiological, Nuclear, High-yield Explosives event or natural disaster in the United States and its territories, DR Schafer (AFIP) and CG Fielding (AFIP)
8. July 2007: Indian Health Services Dental Updates, Denver, CO, served as faculty and assistant Course Director for Forensic Dentistry Course, CG Fielding (USPHS- HIS)
9. July 2007: Indian Health Services Dental Updates, Denver, CO, served as Course Director for Forensic Dentistry Course. DR Schafer (USPHS- HIS)
10. October 2006: American Board of Oral and Maxillofacial Pathology, Tampa, FL, L Franklin (Armed Forces Institute of Pathology).

***Continuing Education:***

Department staff attended the following training courses during 2007:

1. Annual Meeting of the American Academy of Oral and Maxillofacial Pathology (AFIP)
2. Weekly Professional Staff Conference (AFIP)
3. Oral and Maxiollofacial Pathology/Otolaryngologic and Endocrine Pathology Conference (AFIP)
4. Oral and Maxillofacial Pathology/Radiology Pathology Conference (AFIP)
5. Triservice Dental Educators Conference (DENCOM)
6. Naval Postgraduate Dental School Oral and Maxillofacial Pathology Conference, Bethesda, MD (NNMC)
7. WRAMC Oral and Maxillofacial Pathology Conference, Washington, DC (WRAMC)

## PRESENTATIONS

1. January 2007: Washington, DC, AFIP, "Oral and maxillofacial pathology for radiologists," CG Fielding.
2. January 2007: Rockville, MD, George Washington University's Principles of Forensic Science Course Introduction to forensic dentistry "Personal identification and bite mark analysis," CG Fielding.
3. January 2007: Bethesda, MD, Naval Postgraduate Dental School "Bone pathology of the craniofacial skeleton," CG Fielding.
4. January 2007: Bethesda, MD, Naval Postgraduate Dental School, "Soft tissue tumors," RD Foss.
5. January 2007: Bethesda, MD, Naval Postgraduate Dental School, "Mimics of periodontal and endodontic lesion," RD Foss.
6. February 2007: Washington DC, AFIP, "Oral and maxillofacial pathology for radiologists," CG Fielding
7. February 2007: Bethesda, MD, Naval Postgraduate Dental School, "Bone pathology of the craniofacial skeleton," CG Fielding.
8. February 2007: Bethesda, MD, Naval Postgraduate Dental School, "Syndrome of the head and neck," DR Schafer
9. February 2007: Bethesda, MD, Naval Postgraduate Dental School, "Benign and malignant epithelial lesions," DR Schafer.
10. February 2007: Washington, DC, George Washington University, "Malignant salivary gland neoplasm," Pathology Residents, Dr. Colon
11. February 2007: Alexandria, VA, West Potomac Academy, "Introduction to forensic odontology," J Colon
12. March 2007: Bethesda, MD AFIP 43rd Annual Forensic Dental Identification and Emerging Technologies Workshop, "Introduction to forensic dentistry," J Colon.

13 March 2007: Faculty and Course Director for AFIP 43rd Annual Forensic Dental Identification and Emerging Technologies Course, CG Fielding

14. April 2007: Washington, DC, DC Medical Examiners Office, "Introduction to forensic odontology," J Colon
15. April 2007: Washington, DC, WRAMC Post Professional Short Course in Oral Pathology, Oral Medicine, and Oral Diagnosis: Benign and Malignant Bone Lesions of the Jaws, CG Fielding.
16. April 2007: Supported the Washington County Dental Society of Maryland's Continuing Dental Education Program. CG Fielding.
17. April 2007: Washington DC, AFIP, "Oral and maxillofacial pathology for radiologists," CG Fielding.
18. April 2007: Washington, DC, WRAMC Post Professional Short Course in Oral Pathology, Oral Medicine, and Oral Diagnosis, "Syndromes of the head and neck," DR Schafer.
19. May 2007: Kansas City, MO, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, "Benign fibrous histiocytoma of bone, dedifferentiated epithelial-myoepithelial carcinoma," RD Foss
20. May 2007: Kansas City, KS, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, Case Presentations, J Colon
21. May 2007: Washington, DC, Armed Forces Institute of Pathology Anatomic Pathology Course, "Salivary gland tumors," RD Foss.
22. May 2007: Washington, DC, Armed Forces Institute of Pathology Anatomic Pathology Course, "Odontogenic cysts and tumors," RD Foss.
23. May 2007: Rockville, MD, George Washington University's Principles of Forensic Science Course Introduction to Forensic Dentistry, "Personal identification and bite mark analysis," J Colon.
24. July 2007: Rockville, MD, George Washington University's Principles of Forensic Science Course Introduction to Forensic Dentistry, "Personal identification and bite mark analysis," CG Fielding.
25. September 2007: Rockville, MD, George Washington University's Principles of Forensic Science Course Introduction to Forensic Dentistry "Personal identification and bite mark analysis," CG Fielding.
26. October 2007: LSA Anaconda, Balad, Iraq, "Introduction to forensic odontology," J Colon.
27. October 2007: TF 62nd Multifunctional Medical Brigade Conference Room, Camp Victory, Iraq, "Forensic odontology" and "Bone pathology of the oral and maxillofacial region," J

Colon.
28. November 2007: Fort Campbell, KY, "Forensic odontology workshop," One-Year AEGD Residents, L Franklin.
29. November 2007: Fort Campbell, KY, "Common dental lesions," Fort Campbell USA DENTAC, L Franklin.
30. November 2007: Clarksville, TN, "Case files for the Us Army Forensic Identification Laboratory," 7th District Tennessee Dental Association, L Franklin.
31. November 2007: Richmond, VA, "Forensic odontology workshop," Central Virginia Dental Society, DR Schafer.
32. November 2007: Bethesda, MD, "Oral pathology," Uniformed Services University of Health Sciences General Pathology Course, DR Schafer.

### *RESEARCH*

### *Publications*

#### *Journal Articles:*

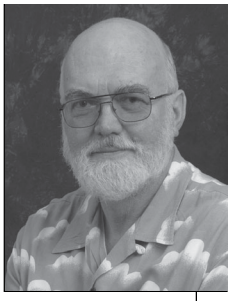
1. Folk GS, Williams SB, Foss RD, Fanburg-Smith JC. Oral and maxillofacial sclerosing epithelioid fibroscarcoma: report of five cases. *Head and Neck Pathol*. 2007;1;6 pages online.
2. Foss RD, Fielding CG. Glandular odontogenic cyst. *Head and Neck Pathol*. 2007;1; 2 pages online.
3. Foss RD, Fielding CG. Juvenile psammomatoid ossifying fibroma. *Head and Neck Pathol*. 2007;1; 2 pages online.
4. Howard SN, Bond WR, Hong IS, Foss RD. Right maxillary sinus sarcomatoid carcinoma (sarcomatoid/spindle cell carcinoma). *Otolaryngol Head Neck Surg*. 2007;137:355-357.
5. Tavora F, Rassaei N, Shilo K, Foss RD, Galvin JR, Travis WD, Franks TJ. Occult primary parotid gland acinic cell adenocarcinoma presenting with extensive lung metastasis. *Arch Pathol Lab Med*. 2007;131:970-973.
6. Whitt JC, Schafer DR, Callihan MD. Multiple malignant salivary gland neoplasms: mucoepidermoid carcinoma of palate and adenoid cystic carcinoma of floor of mouth. *Head and Neck Pathol*. Dec 2007, 5 pages online.

#### *Abstracts*

D Flint, L Franklin, R Foss, C Fielding. Epstein-Barr virus modulated dedifferentiation of basal cell adenocarcinoma to lymphoepithelial carcinoma: report of a case. American Academy of Oral and Maxillofacial Pathology Annual Meeting. Kansas City, Missouri, May 2007

## GOALS

Our department supports the goals and missions of the AFIP. In addition, we aim to increase the number of military and other government agency contributors and military and other government agency attendees at our short courses and thereby increase our military value.



Dennis K. Heffner, MD
Chair
Date of Appointment — 1 September 1984

# DEPARTMENT OF ENDOCRINE AND OTORHINOLARYNGIC/HEAD-NECK PATHOLOGY

## STAFF

*Medical:*

Clara S. Heffess, MD, Chief, Division of Endocrine Pathology
Jacqueline A. Wieneke, MD, Chief, Division of Otorhinolaryngic/Head-Neck Pathology

*Administrative:*

Frank Flannery, Administrative Assistant

## IMPACT

Approximately 30% of consultation cases resulted in a change of diagnosis from the contributors' impressions and most changes had a significant (and sometimes crucial) effect on patient treatment decisions. The quality and impact of our diagnostic consultation is seen most clearly in those rare or difficult cases where our diagnostic experience could not have been matched anywhere in the world.

## CONSULTATION

The department consults on difficult or controversial histopathologic diagnostic cases received from US military medical commands or facilities, VA medical centers, US Public Health centers, and nongovernmental civilian hospitals in the United States and abroad. The vast majority of cases are active surgical pathology cases with patient treatment decisions awaiting the consultative diagnostic evaluation. Our staff deals with a broad spectrum of pathologic conditions, consisting of a multitude of disease entities affecting the upper respiratory tract, ear, and adjacent or related anatomic areas of the head and neck, and diseases of the pancreas, adrenal, thyroid and parathyroid glands.

| ***Cases*** | ***Completed*** |
|---|---|
| Military | 534 |
| Army (251) | |
| Navy (147) | |
| Air Force (135) | |
| Federal | 462 |
| VA (461) | |
| USPHS (1) | |
| Civilian | 701 |
| Interdepartmental | 150 |
| Total | 1847 |

## EDUCATION

### *Presentations:*

1. January 2007: Washington, DC, Georgetown University Medical Center, medical student pathology course, "Adrenal, thyroid, and parathyroid pathology," JA Wieneke.
2. February 2007: Washington, DC, Walter Reed Army Medical Center, Guest faculty speaker, Pathology Residency Program, JA Wieneke.
3. May 2007: Washington, DC, AFIP, 17th Annual Anatomic Pathology Review Course, "Otolaryngic-head & neck pathology," JA Wieneke.
4. September 2007: Washington, DC, George Washington University Medical Center, Guest speaker in ENT and Endocrine Pathology, JA Wieneke.
5. October 2007: Washington, DC, George Washington University Medical Center, Surgical resident training, Department of ENT-Head and Neck Surgery, "Clinico-pathologic correlation," JA Wieneke

## RESEARCH

### *Journal Articles:*

1. Heffner DK. The cause of sarcoidosis: the centurial enigma solved. *Ann Diagn Pathol*. 2007;11:142-152
2. Heffner DK. Explaining sarcoidosis of bone. *Ann Diagn Pathol*. 2007;11:464-476.

Three articles are in press.

### *Book Chapters:*

Wenig BM, Heffess CS. Thyroid and parathyroid. In: Wenig BM, ed. *Atlas of Head and Neck Pathology. 2nd Edition.* New York, NY: Saunders Elsevier; 2008:Chapters 26-34, pages 813-1042.

Three book chapters are in press.

## PROFESSIONAL ACTIVITIES

### *Official trips:*

October 30–November 4, 2005: 13th International Thyroid Congress, Buenos Aires, Argentina, CS Heffess (ARP).

### *Editorial Work:*

The staff reviewed numerous professional articles for suitability for publication in peer reviewed professional journals.

1. Associate Editor, *Endocrine Pathology Journal*, CS Heffess.
2. Editorial Board, *Ear, Nose, & Throat Journal*, JA Wieneke.
3. Section Editor (Radiology-Pathology Correlation Clinics), *Head & Neck Pathology Journal*, JA Wieneke.
4. American Joint Committee on Cancer: Genitourinary Task Force Co-chairman: Tumor Staging System, Adrenal Section, JA Wieneke.
5. Institutional Review Board, AFIP, JA Wieneke.
6. Editorial Board, *Annals of Diagnostic Pathology*, DK Heffner.

# ADVANCED PATHOLOGY

# GROUP 3

## HEMATOPATHOLOGY

## VETERINARY PATHOLOGY

## ENVIRONMENTAL & INFECTIOUS DISEASE SCIENCES

Nadine S. Aguilera, MD
Chair
Date of Appointment – March 2005

# DEPARTMENT OF HEMATOPATHOLOGY

## STAFF

*Medical:*

Nadine S. Aguilera, MD, Chair
Aaron Auerbach, MD, Staff
Bong Kim, MD, Part time staff* (Dr. Kim changed from full time staff)
(D) Ellina Kalandarova, MAJ, MC, USA, Fellow

*Administrative:*

Tasha Portee, Administrator

## IMPACT

The Department of Hematopathology makes available to the DoD, VA and Civilian hospitals expert consultations in lymph node, spleen and bone marrow. We provide comprehensive consultation in conjunction with other departments at the AFIP and use up-to-date technology for the best possible diagnosis. We provide Hematopathology training to all three branches of the military (Army, Navy and Air Force) and civilian pathologists. We also contribute to the education of military residents through lectures to the residents of the National Capital Consortium and rotations in the Department. Our active research is of benefit to military, VA and civilian health care.

## CONSULTATION

The Department of Hematopathology renders expert consultation on cases involving the pathology of the hematopoietic system including lymph node, spleen and bone marrow. Cases are submitted by the Departments of Defense and Veterans Affairs, and by civilian hospitals worldwide. Staff members participate in various local and national educational and research endeavors involving topics related to hematopathology.

| ***Cases*** | ***Completed*** |
|---|---|
| Military | 204 |
| Army (114) | |
| Navy (47) | |
| Air Force (43) | |
| Federal | 510 |
| VA (510) | |
| Other (0) | |
| Civilian | 161 |
| Interdepartmental | 912 |
| Total | 1787 |

## EDUCATION:

### *Courses taught by staff as faculty*

April 2007, Crystal City VA, Armed Forces Institute of Pathology Anatomic Pathology Review Course- 5 lectures

### *Trainees*

The department educated one military fellow. One from January 1, 2007 to July 10, 2007. We also had 3 residents rotating for one month from National Capital Consortium. In 2007 we completed 186 training days with responsibilities involving service work (under the constant supervision of a credentialed staff pathologist), research and lecturing.

The department was accredited by the Accreditation Council for Graduate Medical for a Hematopathology fellowship program, but was closed to new fellows in July 2007.

### *Educational Aids*

The department maintains slide study sets (under protocol), kodachrome sets, and a Web site maintained by a staff member. All study sets and tools were updated to the WHO classification in 2002 and are updated in an ongoing fashion.

### *Faculty Appointments*

Uniformed Services University of the Health Sciences, Adjunct Associate Professor-- NS Aguilera

### *Presentations*

1. January 11, 2007: Washington DC, Armed Forces Institute of Pathology, Grand rounds Video-teleconferences, “Dealing with gastrointestinal tract infiltrates in 2007: a trip to the stars,” A Auerbach.
2. March 12, 2007: Raleigh NC, Duke University Grand Rounds, “Clinicopathologic correlation of reactive and neoplastic lymphoid infiltrates in the gastrointestinal tract,” A Auerbach.
3. April 11, 2007: Washington DC, Armed Forces Institute of Pathology Professional Staff Conference “Paracortical diffuse large B-cell lymphoma,” NS Aguilera.
4. May 15, 2007: Crystal City VA, Armed Forces Institute of Pathology Anatomic Pathology Review Course "T and NK-cell lymphomas,” NS Aguilera.
5. May 15, 2007: Crystal City VA, Armed Forces Institute of Pathology Anatomic Pathology Review Course “Hodgkin lymphoma” NS Aguilera.
6. May 15, 2007: Crystal City VA, Armed Forces Institute of Pathology Anatomic Pathology Review Course “Benign reactive lymphadenopathy,” NS Aguilera.
7. May 15, 2007: Crystal City VA, Armed Forces Institute of Pathology Anatomic Pathology Review Course “Small B-cell neoplasms,” A Auerbach.
8. May 15, 2007: Crystal City VA, Armed Forces Institute of Pathology Anatomic Pathology Review Course “Large cell lymphomas,” A Auerbach.
9. June 20, 2007: Washington DC, National Capital Consortium Pathology Resident lectures, “Perplexing cases in anatomic pathology,” A Auerbach.
10. August 9, 2007: Washington DC, Armed Forces Institute of Pathology, Grand rounds Video-teleconferences, “Diffuse large B cell lymphoma and variants,” A Auerbach.
11. August 14, 2007: Washington DC, George Washington University Grand Rounds, “Common pitfalls in cardiovascular pathology,” A Auerbach.
12. September 24, 2007: Silver Spring MD, Armed Forces Institute of Pathology 16th Annual Gastrointestinal Pathology Course, “Interesting lymphoproliferative lesions in the gastrointestinal tract,” A Auerbach.
13. October 4, 2007: Armed Forces Institute of Pathology, Grand rounds Video-teleconferences, “Lymphoplasmacytoid lymphoma,” NS Aguilera.
14. October 17, 2007: Society of Hematopathology/American Society of Clinical Pathologists Meeting, New Orleans LA, “Lymphoplasmacytoid/ic B-cell lymphoma,” NS Aguilera.

## RESEARCH

### *Publications*

### *Abstracts*

1. Kalandarova E, Kim B, Auerbach A, Aguilera NSI. Plasmacytoid dendritic cell expressing CD123 in histiocytic necrotizing lymphadenitis (Kikuchi-Fujimoto disease). *Mod Pathol*. 2007; Suppl 2:247A#1132

2. Sargent RL, Aguilera NI, Cook JR, Surti U, Abbondanzo SL, Gollin SM, Swerdlow SH. Fluorescence immunophenotypic and interphase cytogenetic characterization (FICTION) of nodal/extramedullary lymphoplasmacytic lymphoma (LPL). *Mod Pathol*. 2007; 20; Suppl 2: 259A#1187

***Projects***

The department has the following active research protocols as of December 31, 2007 and several ongoing research projects, including the following:

1. Atypical follicular hyperplasia in children
2. Splenic non-lymphomatous neoplasms
3. Lymphoplasmacytoid lymphoma/immunocytoma
4. Diffuse large B-cell lymphoma, two unusual subtypes.
5. Castleman lymphadenopathy with monoclonal plasma cells
6. T-cell expression in Hodgkin lymphoma
7. Follicular lymphoma, grade 3, composed of large centrocytes
8. Plasmacytoid dendritic cell expressing CD123 in histocytic necrotizing lymphadenitis

***Collaborators:***

**Military/Federal:**

Elaine S. Jaffe, MD, National Institutes of Health, Histiocytic Neoplasms.

**Civilian:**

1. Steven H. Swerdlow, MD, University of Pittsburgh. Immunocytoma, interfollicular small lymphocytic lymphoma and lymphoplasmacytoid lymphoma/immunocytoma.
2. Frank Bauer, MD, St. Francis Hospital, Hartford CT. Cutaneous follicle center lymphoma.

**Interdepartmental:**

A Levy, Department of Radiologic Pathology

**Military:**

We have a collaborative education mission with NNMC and WRAMC as well as an education mission with the National Capital Consortium Pathology Residency.

## PROFESSIONAL ACTIVITIES

***Official Trips:***

1. March 2007: United States and Canadian Academy of Pathology; San Diego CA, NS Aguilera, A Auerbach.
2. October 2007: Clinical Cytometry Society, Washington DC, B Kim.
3. October 2007: American Society for Dermatopathology, Baltimore MD, B Kim.
4. November 2007: Society for Hematopathology, Indianapolis IN, B Kim, NS Aguilera.

***Editorial Work:***

*Human Pathology* Submitted Article Review

***Committees (Intramural):***

1. Internal Review Board, NS Aguilera (Chair).
2. Graduate Medical Education Committee, NS Aguilera.
3. Research committee, B Kim.

***Committees (extramural)***

House of Delegates for College of American Pathology

***Continuing Education:***

The department staff attended the following training courses during 2007:

1. Annual US and Canadian Academy of Pathology
2. AFIP Weekly Professional Staff Conference
3. AFIP Annual Anatomic Pathology Review and Update Course
4. Society for Hematopathology
5. Clinical Cytometry Society
6. American Society of Dermatopathology

Terrell W. Blanchard, COL, VC, USA
Chair
Date of Appointment — 1 January 2007

# DEPARTMENT OF VETERINARY PATHOLOGY

**STAFF**

*Medical*
Bruce Williams, DVM

*Administrative:*
(D) Dale G. Dunn, COL, VC, Chair Emeritus
(D) Duane A. Belote, LTC, VC, USA, Special Projects Officer
(D) Krista S. Spellum, MSG, USA, NCOIC
Chanda L. Sutton, SFC, USA, NCOIC
(D) Amelia R. Simms, Department Secretary
(A) David Vargas, Administrative Officer

## LABORATORY ANIMAL MEDICINE DIVISION

(A) Michael Bonhage, MAJ, VC
Chief
Date of Appointment – 1 September 2007

**STAFF**

*Medical:*
(D) Norman D. Wiltshire, LTC, VC, USA

*Scientific:*
(D) Monique E. Barnes, SGT, USA, Animal Care Specialist
Adam F. Bajorek, PV2, USA, Animal Care Specialist
Chrishaundi N. Butler, SPC, USA, Animal Care Specialist
Angela M. Noble, SPC, USA, Animal Care Specialist
(A) Christine Wilde, SPC, USA, Animal Care Specialist
(D) Cheryl C. Legg, PV2, USA, Animal Care Specialist
Steven P. McNair, Surgery Technician
Greeley A. Stones, Caretaker Supervisor
Michael B. Cannon, Animal Caretaker
Rashaan O. Jackson, Animal Caretaker
James P. Pollock, Animal Caretaker

## RESEARCH AND EDUCATION DIVISION

Jo Lynne W. Raymond, LTC, VC, USA
Chief
Date of Appointment – 2 October 2006

### STAFF

*Medical:*

Bridget S. Lewis, MAJ, VC, USA, Chief, Education Branch (PROFIS to 9th AML)

*Administrative:*

Michael Sean Hahn, Communications Director

*Scientific/Technical:*

Henry John Jenkins, Electron Microscopist and Laboratory Technician
Scott R. Shaffer, Computer Technology Education Specialist

*Residents:*

Neel I. Aziz, CPT, VC, USA
Erica E. Carroll, MAJ, VC, USA
Taylor B. Chance, CPT, VC, USA
William E. Culp, MAJ, VC, USA
Michelle E. Thompson, CPT, VC, USA
William L. Wilkins, MAJ, VC, USA
(A) Cary Honnold, MAJ, VC, USA
(A) Gwynne Kinley, MAJ, VC, USA
(A) Gerri Fletcher, MAJ, VC, USA
(A) Todd Bell, CPT, VC, USA

## CONSULTATION AND TRAINING DIVISION

Todd O. Johnson, LTC, VC, USA
Chief
Date of Appointment - 2 October 2006

### STAFF

*Medical:*

Shelley P. Honnold, MAJ, VC, USA, Chief, Training Branch
Sarah L. Hale, MAJ, VC, USAR (DIMA)
Michelle L. Fleetwood, DVM, Chief, Consultation Branch
Thomas P. Lipscomb, DVM, Consultant Pathologist
F. Yvonne Schulman, DVM, Consultant Pathologist

*Administrative:*

(D) Rita D. Prioleau, Secretary
(A) Ann Brown, Secretary

*Residents:*

(D) Carl I. Shaia, MAJ, VC, USA
(D) Ammon W. Brown, MAJ, VC, USA
(D) James R Dwyer, MAJ, VC, USA
Christine L. Christensen, MAJ, VC, USA
Paul R. Facemire, MAJ, VC, USA
Margaret A. Hanson, CPT, VC, USA
Eric D. Lombardini, CPT, VC, USA

## IMPACT:

The most significant program in the department is the DoD Veterinary Pathology Residency. With only one exception, the Army veterinary pathologists now on active duty completed their postgraduate training in this program at the AFIP. Army veterinary pathologists are directly involved in critical DoD biomedical research efforts to protect the warfighter. Army veterinary pathologists are also trained in the detection and recognition of foreign animal diseases, many of which are potential biological weapons and of great importance to the nation's global war on terrorism. In the face of a worldwide shortage of veterinary pathologists, the Veterinary Pathology Residency Program at the AFIP continues to be a cost-effective and efficient source of trained pathologists for all DOD research, investigative and diagnostic pathology needs. Currently, 14 officers are enrolled in the program.

The operation of the laboratory animal facility at AFIP provided for important animal-model based research on human diseases for the AFIP, the Walter Reed Army Medical Center, Department of Clinical Investigation, and the National Naval Medical Center. The facility is fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care, International (AAALAC).

The department provided critical diagnostic pathology services for military working animals and other federal animal programs. Members also provided consultation services to the National Marine Fisheries Service on several issues involving marine mammal deaths.

The department continued to maintain and expand the Veterinary Systemic Pathology Online program. This resource contains case manuscripts with digital photomicrographs and virtual slide images of more than 675 disease entities, including most of the high consequence zoonotic and foreign animal diseases of importance in the Global War on Terrorism. All department online programs are freely available 24/7 to military medical professionals. This resource enables the forward positioning of critical disease information without the need for deploying specialists.

The department conducted a 25-week histopathology ("Wednesday") slide conference (WSC) with 135 participating institutions in 22 countries. This conference has an enormous impact on training programs and on hundreds of veterinary pathologists and residents worldwide. The WSC has been the signature program of this department for 55 years and is the only one of its kind in the world.

The WHO Collaborating Center continued to publish the first updates in 25 years of the Histologic Classification of Tumors in Domestic Animals. These fascicles are an important reference used worldwide in diagnostic and research pathology. The final fascicle in the series is nearing completion.

Annual pathology courses provided essential training for military medical research specialists and are key core components of the DoD Residency Program. These courses are also unique to the specialty of veterinary pathology.

## CONSULTATION

The department provides essential diagnostic pathology services for the DoD Military Working Dog program and other federal working animal programs, including the Navy Marine Mammal Program and those conducted by the Customs Service, Border Patrol, National Security Agency and Secret Service. Veterinary pathology consultation is vital to maintaining the health and deployability of these important force protection assets in the global war on terrorism. It is also important in maintaining disease surveillance measures in military communities. The importance of surveillance has substantially increased with the threat of bioterrorism. All of the known potential biological weapons, with the exception of smallpox, are zoonotic diseases. Members of the department also provide consultation and investigative services to the National Marine Fisheries Service on issues of military importance.

The department completed 2,112 consultation cases, which originated primarily from the DoD and other federal agencies. Over 70% of cases reported represent complete necropsies in which wet tissue was received. The majority of these cases are military working dogs and marine mammals, which generate a continuous high demand for histopathologic assessment of tissues. Five cases received a diagnosis agreement code of "4" representing a major disagreement with the contributor's diagnosis, and 58 were code "3" (minor disagreement). Department staff members and residents conducted 377 necropsies. Histopathology was performed on almost all necropsy cases. The National Zoological Park (NZP) and the Maryland State Diagnostic Laboratory (MDX) necropsy cases are not included with AFIP consulta-

tion case totals, since they are assessed by AFIP residents with NZP or MDX staff pathologists at those institutions.

| *Cases* | *Completed* |
|---|---|
| Military | 1126 |
| Army (549) | |
| Navy (226) | |
| Air Force (351) | |
| Federal | 52 |
| VA (0) | |
| OFA (51) | |
| PHS (1) | |
| Civilian | 688 |
| Interdepartmental | 246 |
| Total | 2112 |

***Necropsies Conducted:***

| | |
|---|---|
| Division of Laboratory Animal Medicine, AFIP | 41 |
| National Zoological Park (NZP) | 86 |
| Maryland State Diagnostic Lab (MDX) | 99 |
| National Institutes of Health | 151 |
| Other (marine mammals/military working dogs) | 0 |
| Total | 377 |

***Appointments outside the AFIP***

1. President and member of Board of Directors, CL Davis Foundation, BL Williams
2. Course Director, CL Davis Foundation Continuing Education Symposium at the 2007 American College of Veterinary Pathologists Annual Meeting, SL Hale
3. Head, WHO/PAHO Collaborating Center for Worldwide Reference on Comparative Oncology, FY Schulman
4. Pathologist, Marshfield Clinic Laboratories, Veterinary Diagnostic Services, 1000 North Oak Ave, Marshfield, WI 54449, FY Schulman and TP Lipscomb
5. Chair, Diagnostic Pathology Specialty Group, American College of Veterinary Pathologists, FY Schulman
6. Lymphoid Leukemias and Lymphomas Subcommittee of the Oncology Committee, American College of Veterinary Pathologists, FY Schulman
7. Credentialing Committee, American College of Veterinary Pathologists, TW Blanchard
8. Examination Committee, American College of Veterinary Pathologists, SL Hale
9. Oncology Committee, American College of Veterinary Pathologists, TP Lipscomb
10. 9th Army Medical Laboratory, Aberdeen Proving Grounds, MD, BS Lewis (PROFIS)
11. Joint Working Group on Unusual Marine Mammal Mortality Events, Departments of Commerce and Interior, ML Fleetwood

***Deployments***

1. January 9-12, 2007: San Antonio, TX, Veterinary Executive Council meeting, T Blanchard.
2. January 2007: Silver Spring, MD, Present lecture "Histology review for laboratory animal medicine veterinarians," for US Army's Laboratory Animal Medicine Residency Program Seminar Series, S Hale.
3. April 15-19, 2007: San Antonio, TX, Army Veterinary Consultants' Meeting and USAREC Educators Tour, T Blanchard.
4. May 3-12, 2007: Kortrijk, Belgium, Veterinary Executive Council meeting and 53rd International Military Veterinary Medical Symposium, T Blanchard.
5. May 8-12, 2007: Ft. Knox, Kentucky, Participate in AMEDD Accessions Board, S Honnold.
6. May 8-16, 2007: Alexandria, VA, Participate in FY 2007 Army Command and Staff College

Selection Board, JL Raymond.
7. June 25-29, 2007: Tripler Army Medical Center, Honolulu, HI, Pacific Regional Veterinary Command Change-of-Command and Junior Officer Council meeting, T Blanchard.
8. July 2007: Ft Sam Houston, TX, Basic Non-Commissioned Officer Course, A Noble.
9. July 2007: Silver Spring, MD, Annual Meeting of the Joint Working Group on Marine Mammal Unusual Mortality Events, M Fleetwood.
10. August 4-8, 2007: Louisville, KY, Force Health Protection Conference and Veterinary Executive Council meeting, T Blanchard.
11. September 4-7, 2007: Ft Knox, KY, Participate in AMEDD Accessions board, T Blanchard
12. Oct 21–Nov 3, 2007: San Antonio, TX, Manhattan, NY & Washington, DC, Medical Strategic Leadership Program, T Blanchard.
13. Oct 27–Nov 2, 2007: Aberdeen Proving Ground-Edgewood, MD, 9th Area Medical Laboratory (AML) Field Training Exercise, B Lewis.
14. December 1, 2007: Iraq, Operation Iraqi Freedom, A Noble.

## EDUCATION

***Presentations and Seminars:***

In 2007, the Department of Veterinary Pathology taught in five courses and two seminars. The Department also conducted regular conferences and workshops on a daily, weekly, and quarterly basis.

***Courses:***

1. CL Davis Foundation Gross Morbid Anatomy of Domestic Animals Course
2. Descriptive Veterinary Pathology Course
3. Northeastern Veterinary Pathology Conference
4. Pathology of Laboratory Animals/Current Laboratory Animal Science Seminar Course
5. Wednesday Slide Conference

***Seminars:***

US Army Laboratory Animal Medicine Seminar Series

***Trainees:***

14 Full-time DoD residents:

1 National Zoological Park resident

20 visiting residents and veterinary medical students

***Presentations:***

1. January 2007: Blacksburg, VA, Virginia-Maryland Regional College of Veterinary Medicine, "Opportunities in the Army Veterinary Corps," C Christensen.
2. January 2007: Washington, DC, AFIP Weekly Professional Staff Conference, "Domoic acid toxicity in California sea lions," M Thompson.
3. January 2007: Washington, DC, AFIP Weekly Professional Staff Conference, "Malignant pilomatricoma in an Airedale terrier," EE Carroll.
4. January 2007: Washington, DC, AFIP Weekly Professional Staff Conference, "Coccidioidomycosis in an eastern indigo snake," TB Chance
5. April 2007: San Antonio, TX, USAREC Educators Tour, "Overview of opportunities in Army veterinary pathology," T Blanchard.
6. May 2007: Kortrijk, Belgium, 53rd International Military Veterinary Medical Symposium, "Overview of opportunities in Army veterinary pathology," T Blanchard.
7. June 2007: Silver Spring, MD, Descriptive Veterinary Pathology Course, Case presentation "Toxoplasmosis in a cat," SP Honnold.
8. June 2007: Silver Spring, MD, Descriptive Veterinary Pathology Course, Case presentation "Mycoplasmosis in an ox," SP Honnold.
9. June 2007: Silver Spring, MD, Descriptive Veterinary Pathology Course, "Examination Review," TO Johnson, TW Blanchard, BL Lewis, ML Fleetwood, SL Hale, BL Williams.
10. June 2007: Silver Spring, MD, Descriptive Veterinary Pathology Course, "Diagnostic immunohistochemistry," JW Raymond.
11. June 2007: Honolulu, HI, Pacific Regional Veterinary Command Change-of-Command and Junior Officer Council meeting, "Overview of opportunities in Army veterinary pathology," T Blanchard.

12. August 2007: Bethesda, MD, Pathology of Laboratory Animals Course, "Diseases of rabbits," JW Raymond.
13. August 2007: Bethesda, MD, Pathology of Laboratory Animals Course, "Diseases of ferrets," BL Williams.
14. August 2007: AFIP, "Histology of the honey bee (Apis mellifera)," E Lombardini
15. September 2007: Ames, IA, Iowa State University College of Veterinary Medicine, "A career in the US Army Veterinary Corps," T Bell.
16. October 2007: Cobleskill, NY, Northeastern Veterinary Pathology Conference, "Leptospirosis in a juvenile northern elephant seal," E Lombardini.
17. October 2007: Cobleskill, NY, Northeastern Veterinary Pathology Conference, "Erythema multiforme in a ferret," MA Hanson.
18. October 2007: Cobleskill, NY, Northeastern Veterinary Pathology Conference, "Kochia toxicity in an ox," P Facemire.
19. October 2007: Cobleskill, NY, Northeastern Veterinary Pathology Conference, "Peripheral nerve sheath tumor in a pygmy killer whale," C Christensen.
20. October 2007: Frederick, MD, US Army Laboratory Animal Medicine Seminar Series, "Unique anatomical features of laboratory animals," MR Bonhage.

## RESEARCH

### *Publications*

#### *Journal Articles*

1. Hoffman D, Lombardini E, Mishra O, Delivoria-Papadopoulos M. Effect of resuscitation with 21% oxygen and 100% oxygen on NMDA receptor binding characteristics following asphyxia in newborn piglets. *Neurochemical Research*. 2007;32:1322-1328.
2. Honnold SP, Iyampillai A, Saturday G, McLeod C. Epitheliotropic lymphoma in a squirrel. *J Zoo and Wildlife Med*. 2007;38(3):479-482.
3. Li Q, Xie L, Johnson T, Si Y, Haeberle A, Weina P. Toxicity evaluation of artesunate and artelinate in Plasmodium berghei-infected and uninfected rats. *Trans Royal Soc Trop Med Hygien*. 2007;101:104-112.
4. Reed DS, Lackemeyer MG, Garza NL, Norris S, Gamble S, Sullivan LJ, Lind CM, Raymond JL. Severe encephalitis in cynomolgus macaques exposed to aerosolized Eastern equine encephalitis virus. *J Infect Dis*. 2007;196(3):331-350.
5. Si Y, Li Q, Xie L, Bennett K, Weina PJ, Mog S, Johnson TO. Neurotoxicity and toxicokinetics of artelinic acid following repeated oral administration in rats. *Int J Toxicol*. 2007;26:401-410.
6. Smith M, Schulman FY. Subcutaneous neoplasms of the ventral abdomen with features of adrenocortical tumors in two ferrets. *Vet Pathol*. 2007:44:951-955.
7. Suykerbuyk P, Vleminckx K, Pasmans F, Stragier P, Ablordey A, Tran HT, Hermans K, Fleetwood M, Meyers WM, Portaels F. Mycobacterium liflandii infection in a European colony of Silurana tropicalis. *Emerg Infect Dis*. 2007;13:743-746.

#### *Abstracts*

1. Aziz NA, Baze WB, McArthur MJ, Lewis BS. Polyarteritis nodosa in a rhesus macaque. *Vet Pathol*. 2007;44:756.
2. Carroll EE, Fossey S, Mangus L, Wilson C, McLeod CG, Johnson TO, Blanchard TW. Malignant pilomatricoma in two dogs. *Vet Pathol*. 2007:44:740.
3. Chance TB, Hale SL, Johnson TO, McLeod CG, Mattix ME. Angiomatoid melanoma in two dogs. *Vet Pathol*. 2007;44:745.
4. Culp WE, Johnson TO, Dunn DG, Wallace SM, Armstrong M, Larue SL, Tobias S. Heterotopic pancrease as the cause of duodenal obstruction in a cat. *Vet Pathol*. 2007;44:755.
5. Wilkins WL, Schulman FY, Raymond JW, Sesterhenn IA, Fabrizius R. Ovarian mixed germ cell tumor in a dog. *Vet Pathol*. 2007;44:752.

#### *Other Publications*

Thompson ME. Wednesday Slide Conference 2006-2007 Proceedings. Johnson TO, Ed. Washington, DC: Armed Forces Institute of Pathology; 2007.

#### *Projects*

1. Web-based distance learning in veterinary pathology
2. Feline pathology gross kodachrome study set

3. Lafora body disease in a Fennec fox
4. Ectopic adrenocortical tumors in ferrets
5. Feline C cell tumors and thyroid follicular cell tumors
6. The effects of teriparatide and calcitonin on posterolateral fusion maturation in a rabbit model
7. Pulmonary endometriosis in nonhuman primates
8. DOD Veterinary Pathology Residency BRAC organization.
9. Investigation of causes of mortality in bottlenose dolphins stranded along the South Carolina coast from 1993 to 2006
10. Investigation of genital herpesvirus infection in a Pacific white-sided dolphin
11. Malignant pilomatricoma in dogs
12. Effect of subatmospheric pressure dressings and high-pressure pulsatile lavage on formation of heterotopic ossification in a rabbit model.
13. Histologic, immunohistochemical and clinical characterization of peripheral nerve sheath tumors in cats.
14. Effects of bone morphogenetic protein-7 (OP-1) when combined with risedronate therapy on posterolateral fusion maturation in a rabbit model.
15. Safety evaluations of bolus epidural injections of enbrel in the beagle dog.
16. Use of a GnRH antagonist to preserve ovarian function in mice receiving cyclophosphamide.
17. Monensin toxicology in bovine hearts.
18. Characterization of melamine-containing and calcium oxalate crystals in dogs with suspected pet food-induced nephrotoxicosis.
19. Review of nocardiosis in marine mammals.

***Collaborators:***

**Military:**

1. DOD Military Working Dog Veterinary Service
2. Walter Reed Army Institute of Research
3. Walter Reed Army Medical Center
4. US Army Research Institute of Infectious Diseases
5. Uniformed Services University of the Health Sciences
6. Naval Medical Research Center

**Civilian:**

1. National Zoological Park, Washington, DC
2. Maryland State Diagnostic Laboratory, Frederick, MD
3. National Marine Fisheries Service
4. US Fish and Wildlife Service
5. National Institutes of Health
6. Marine Mammal Center, Sausalito, CA
7. CL Davis DVM Foundation for the Advancement of Veterinary and Comparative Pathology
8. University of Pennsylvania, School of Veterinary Medicine, New Bolton, PA
9. New Jersey Marine Mammal Stranding Center, Brigantine, NJ
10. Southwest Foundation for Biomedical Research
11. National Ocean Service
12. IDEXX Veterinary Services
13. Sea World
14. Johns Hopkins University
15. University of California at San Diego
16. Antech Diagnostics
17. The Ohio State University
18. Iowa State University
19. The Hospital for Sick Children, Toronto, Canada

## PROFESSIONAL ACTIVITIES

### *Official Trips*

1. January 2007: Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA, C Christensen (USAREC)
2. January 2007: WRAIR/NMRC Principles of Aseptic Techniques DoD Laboratory Animal Care Workshop, Washington, DC, A Bajorek (AFIP).
3. January 2007: WRAIR/NRMC Lagomorph Handling Techniques DoD Laboratory Animal Care Workshop, Washington, D, A Bajorek, C Sutton (AFIP).
4. January 2007: WRAIR/NRMC Non-Human Primates Handling Techniques DoD Laboratory Animal Care Workshop, Washington, DC, A Bajorek (AFIP).
5. February 2007: Society of Armed Forces Medical Laboratory Scientists (SAFMLS) Conference, Boston, MA, A Noble, C Butler (AFIP).
6. March 2007: CL Davis Foundation Gross Morbid Diseases of Animals Course, Bethesda, MD, T Chance, W Culp, E Carroll, N Aziz, M Thompson, W Wilkins, P Facemire, C Christensen, M Hanson, E Lombardini, C Honnold, S Honnold, G Kinley, G Fletcher, T Bell, B Williams (AFIP)
7. March 2007: Foreign Animal Disease Diagnostician Course, Plum Island, NY, M Hanson (AFIP)
8. May 2007: 43rd International Symposium of Diseases of Zoo and Wild Animals, Edinburgh, Scotland, M Fleetwood (Registry of Veterinary Pathology)
9. June 2007: Descriptive Veterinary Pathology Course, Silver Spring, MD, T Chance, W Culp, E Carroll, N Aziz, M Thompson, P Facemire, C Christensen, M Hanson, E Lombardini, C Honnold, S Honnold, G Kinley, G Fletcher, T Bell, B Lewis, J Raymond, T Blanchard, S Hale, M Fleetwood, B Williams (AFIP)
10. June 2007: Society of Toxicologic Pathology Annual Meeting, Rio Grande, Puerto Rico, S Hahn, S Shaffer (Registry of Veterinary Pathology)
11. July 2007: American Veterinary Medical Association (AVMA) Convention, Washington, D.C.,C Butler, C Wilde, A Bajorek (AFIP)
12. July 2007: Annual Meeting of the Working Group on Marine Mammal Unusual Mortality Events, Silver Spring, MD, M Fleetwood (NMFS)
13. July 2007: Pathology of Laboratory Animals Course, Bethesda, MD, T Chance, W Culp, E Carroll, N Aziz, M Thompson, W Wilkins, P Facemire, C Christensen, M Hanson, E Lombardini, C Honnold, S Honnold, G Kinley, G Fletcher, T Bell, B Lewis, J Raymond (AFIP)
14. August 2007: European Society of Veterinary Pathology Annual Meeting, Munich, Germany, S Hahn, S Shaffer (Registry of Veterinary Pathology)
15. September 2007: National Capital Area Branch Laboratory Animal Technologist (NCAB/LATG) Review Course, Gaithersburg, MD, S McNair, R Jackson (AFIP)
16. September 2007: ACVP Board Certification Examination, Ames, IA, C Shaia, A Brown, J Dwyer (AFIP)
17. October 2007: American Association for Laboratory Animal Science Meeting, Charlotte, NC, C Sutton
18. October 2007: Northeastern Veterinary Pathology Conference, Cobleskill, NY, S Honnold, C Christensen, M Hanson, E Lombardini, P Facemire (AFIP)
19. November 2007: American College of Veterinary Pathologists Annual Meeting, Savannah, GA, TO Johnson, TW Blanchard, B Lewis, S Honnold, J Raymond, N Aziz, T Chance, E Carroll, W Culp, W Wilkins, M Thompson (AFIP)
20. November 2007: American College of Veterinary Pathologists, Savannah, GA, S Hahn, S Shaffer, TP Lipscomb, FY Schulman (Registry of Veterinary Pathology)

### *Editorial Work:*

1. Johnson TO, Reviewed manuscript for *Veterinary Pathology*.
2. Schulman, FY, Editor, *WHO International Histological Classification of Tumors of Domestic Animals*.
3. Schulman FY, Editorial review board, *Journal of the American Animal Hospital Association*.
4. Schulman FY, Reviewed manuscripts on small animal diagnostic pathology for the *Journal of the American Animal Hospital Association*, *Veterinary Pathology* and the *Journal of the American Veterinary Medical Association*.

Florabel G. Mullick, MD, ScD (Hon), FCAP, SES
Chair
Date of Appointment — 27 June 1996

# DEPARTMENT OF ENVIRONMENTAL AND INFECTIOUS DISEASE SCIENCES

The Department of Environmental and Infectious Disease Sciences, established in 2004 by merging the Department of Environmental and Toxicologic Pathology with the Department of Infectious and Parasitic Diseases Pathology, brought together experts in infectious and tropical diseases, microbiology, molecular pathobiology, AIDS and emerging infections, environmental pathology, environmental toxicology, and biophysical toxicology. In 2006, the department added the Division of Chemical Microscopy. The Department conducts consultation, education, and research in global diseases; studies environmental factors causing negative health effects and organisms that cause a specific illness; and studies threats and diseases that affect our deployed soldiers and their health upon return.

## ORGANIZATION

- Office of the Chair
- Division of Environmental Pathology, Michael R. Lewin-Smith, MD, Chief
- Division of Environmental Toxicology, Victor F. Kalasinsky, PhD, Chief
- Division of Biophysical Toxicology, Jose A. Centeno, PhD, Chief
- Division of Chemical Microscopy, Hazel Marie Jenkins, HT, ASCP, Chief
- Division of Infectious and Tropical Diseases Pathology, Peter L. McEvoy, COL, MC, USA, Chief
- Division of Microbiology, Robert Crawford, PhD, Chief
- Division of Molecular Pathobiology, Shyh-Ching Lo, MD, PhD, Chief
- Division of AIDS Pathology and Emerging Infectious Disease, Ann M. Nelson, MD, Chief

## STAFF – OFFICE OF THE CHAIR

***Medical***

Florabel G. Mullick, MD, ScD, FCAP, Chair
Douglas J. Wear, MD, Associate Chair for Research and Education
(D) Linda Murakata, Lt Col, USAF, MC

***Administrative***

Ridgely L. Rabold, AAS, Department Administrator, PGI Program Manager
Kim Knight, Administrative Officer
Ana Erica Revelo, Administrative Assistant

Individual division reports cover achievements in consultation, education and research.

The creation of the INTOX Data Center consolidates all our military-related databases, facilitating the follow-up of war-related diseases in military personnel.

In 2006, Dr. Mullick assisted in the consultation, education and research missions of the department by signing 462 cases, publishing 6 peer reviewed articles, and presenting 5 lectures.

For further activities please see the section under Principal Deputy Director.

# DIVISION OF ENVIRONMENTAL PATHOLOGY

Michael R Lewin-Smith, MD
Chief
Date of Appointment – 1 November 2001

## STAFF

*Medical:*

Michael R Lewin-Smith, MD, Chief
(A) Gary L Cohen, MD, PhD, LtCol, USAF, MC, Pathologist

*Scientific & Administrative:*

Albin L Moroz, MS, Analyst/Programmer
Tain-Lin Huang, MS, ME, Programmer, level 2
(D) Lolita L Johnson, Medical Research Technician, level 2
(A) Roderick F Herring, Medical Research Technician, level 2
(A) Katherine Tiong, Medical Data Clerk

## IMPACT

The Division of Environmental Pathology conducts consultation, education, and research in environmental pathology, environmental toxicology, and drug-induced pathology. It studies ways to develop, and apply toxicological techniques for analyzing human and animal tissue, to determine causes of injury and disease. Pathology consultations for the identification of unknown materials in tissue are performed by Division staff working in close collaboration with the Division of Environmental Toxicology. The Division provides medical/pathology support to the Divisions of Environmental Toxicology, Chemical Microscopy, and Biophysical Toxicology, within the Department of Environmental and Infectious Disease Sciences, and provides intramural consultative support to the other Departments of the AFIP.

The overwhelming majority of the Division's work in 2007 involved military-related consultation, education, and research. Consultative activity involved support of military pathologists deployed overseas, and support of military pathologists and clinicians in the United States. The bulk of the remaining consultations were performed for the Department of Veterans Affairs, for patients whose specimens have been submitted for inclusion in the AFIP's military-related registries which are maintained by the Division. Consultation reports were issued for these patients when requested, in collaboration with the relevant expert sub-specialty departments of the AFIP. Despite losing a retiring pathologist in October 2006, the Division Staff completed 4,973 cases in 2007, an increase of 1,686 cases (51%) over 2006. In addition 250 cases were co-signed by Dr. Lewin-Smith in the Divisions of Chemical Microscopy and Environmental Toxicology, an increase of 89 (55%) over 2006.

In February 2007, Division staff (MR Lewin-Smith) voluntarily resigned his appointment as Chair, AFIP Research Committee, due to increase in the Division of Environmental Pathology's workload in spite of reduction in medical staff in the Department of Environmental & Infectious Disease Sciences which occurred in October 2006. In recognition of Dr. Lewin-Smith's contributions to the AFIP Research Committee as a member between 1998 and 2004, and as Chair from 2004 to 2007, the Director AFIP awarded Dr. Lewin-Smith the Commander's Award for Civilian Service.

In March 2007, a massive pet food recall was announced, because of acute renal failure arising in domestic cats and dogs. Melamine contamination of wheat gluten, a component of the pet food was identified as one of the possible contaminants leading to the nephrotoxicity. Dr. Lewin-Smith and Dr. Kalasinsky (Division of Environmental Toxicology), received renal tissue

specimens from both dogs and cats from the Department of Veterinary Pathology and characterized melamine-containing crystals by infrared spectroscopy and scanning electron microscopy with energy dispersive X-ray analysis. The crystals may be confused with calcium oxalate crystals. However, a simple histochemical panel proposed by Division Staff can make the distinction of melamine-containing crystals from calcium oxalate crystals more straight forward. The Division staff's contribution to this emerging topic was illustrated in an article accepted for publication in Veterinary Pathology in 2007.

Working in collaboration with the Division of Environmental Toxicology, Division staff (Dr. Lewin-Smith) analyzed tissue received from wounded soldiers who had developed a particular complication associated with use of a certain suture material. As a result of this work the suture is no longer used for the surgical indication involved. Thus AFIP directly contributed to an improvement in the surgical care of wounded soldiers. This work was prepared for publication in the Journal of Bone and Joint Surgery by staff from the Department of Orthopedic Surgery, Walter Reed Army Medical Center (WRAMC).

Since the early days of Operation Iraqi Freedom in 2003, staff from the Divisions of Environmental Pathology and Environmental Toxicology have been assisting the Department of Dermatopathology, WRAMC in the analysis of retained fragments removed from combat wound sites. A paper summarizing this work was accepted for publication in Dermatologic Surgery in 2007.

Consultation work from the National Institutes of Health for the characterization of materials present in sections of brain in patients suffering from specific types of speech pathology was performed by Division Staff (Dr. Lewin-Smith), Dr. Kalasinsky of the Division of Environmental Toxicology, and staff from the Department of Neuropathology. This work resulted in an article published in Brain in 2007, (see publications).

New research projects were established in 2007 in collaboration with the Department of Orthopedic Surgery, Walter Reed Army Medical Center, relating to combat wound care, and with the Centers for Disease Control in Atlanta, GA, involving the elucidation of the cause or causes of the condition referred to as Morgellons. In addition a new research protocol investigating the AFIP's experience with squamous cell carcinoma of the tonsil with particular reference to Vietnam Veterans was submitted.

The Division staff had 1 paper published and one scientific abstract published in 2007.

The Division maintains several Registries of anatomic pathology material from military and militarily-related cohorts including former Prisoners of War, Vietnam War/Agent Orange veterans, and 1990-1991 Kuwait/Persian Gulf War veterans. In 2003, new registries for military personnel deployed to Iraq, and Afghanistan were initiated and continued to grow during 2007. In 2004 an AFIP Registry was developed in collaboration with the Division of Tropical and Infectious Disease Pathology for Leishmaniasis, which also added cases in 2007.

Division staff, (AL Moroz) directs the Division's medical informatics activities. He is the architect of the AFIP International Toxicology Data Center (ITDC). This is designed to support the military medical mission, it includes Registries, Special Studies, reference databases and over 30,000 indexed reports. He established data hygiene methodologies that validate and update data as new or missing information becomes available. This yields the most accurate and complete information possible. As an adjunct to the AFIP Pathology Information System (PIMS), the ITDC contains detailed information which is cohort focused. This makes it an invaluable tool for research, ad hoc queries and Veterans Administration inquires.

Division staff, (TL Huang) continued development of the Division's ITDC. He improved quality control and added numerous management reports. He added a Depleted Uranium module that generates laboratory worksheets, automates importing of results to the database, produces billing invoices, and summaries. He also modernized the entire database system. Applying current "best practices" he set up database mirroring and automated e-mail notification of server problems.

## CONSULTATION

In addition to Division staff, (Dr. Lewin-Smith and Dr. Cohen), Dr. Mullick and Dr. Kalasinsky signed out cases for the Division of Environmental Pathology in 2007.

The Division maintains the Registry for Former Prisoners of War (POWs), which contains histopathologic specimens dating back to 1945. The Registry was established in 1980 in a Veterans Administration (VA) circular. Since then, approximately 32,000 accessions from 15,000 former POWs have been received at the AFIP. During 2007, 698 new POW accessions were received including those with no report required. The Division received 12 more POW

accessions in 2007 than in 2006.

The Division also maintains the Kuwait/Persian Gulf Registry for pathology specimens from veterans of the 1990-1991 Persian Gulf War. This Registry is supported by funding from the Department of Defense, and contains pathologic material contributed by Military Medical Treatment Facilities and VA Medical Centers. During 2007, 1,494 new Kuwait/Persian Gulf Registry accessions were added to the Registry including those with no report required. The Division received 115 fewer Kuwait/Persian Gulf accessions in 2007 than in 2006.

A special study conducted in the 1980s for Vietnam War veterans formed the basis for the AFIP Registry for Agent Orange, which is maintained by the Division. Additional cases have been received since then. Autopsy contributions, received mainly from VA Medical Centers, are periodically received for dioxin evaluation, which has been performed as part of a research protocol by the Division of Environmental Toxicology. In 2007, 776 new Agent Orange Registry accessions were received including those with no report required. The Division received 423 more Agent Orange Registry cases in 2007 than 2006.

The Afghanistan Service Registry and the Operation Iraqi Freedom Registry are geographically-based registries for patients from the OIF and OEF theaters of operations. These registries receive voluntary contributions form US Military and Veterans Administration medical facilities. The Division added 944 new accessions to these registries in 2007, an increase of 328 accessions compared to 2006.

The Leishmaniasis Registry is a disease specific registry. It was established in collaboration with the Division of Tropical and Infectious Disease Pathology to monitor leishmaniasis cases from Southwest Asia from Operation Enduring Freedom (OEF), and Operation Iraqi Freedom (OIF). It includes patients from Afghanistan, Iraq and countries in the Arabian Peninsula.

There were no new accessions for the Ionizing Radiation /Radiation Biology Registry in 2007. Since 2002, the AFIP has been without a radiation biology pathologist.

The Division also supports the Veterans Administration Claims process. Division staff received one Veterans Administration Claims case in 2007, relating to Agent Orange.

The Department of Environmental & Infectious Disease Sciences has developed the International Toxicology Data Center (ITDC). The former INTOX database was re-named as the ITDC and now is an umbrella for several databases, which have been separated to more easily identify related cases. Division staff have been actively involved with the development of the new data center, and in re-designing the computerized records for the Tissue Reaction to Drugs (TRD) Registry. The registries for Agent Orange, Former Prisoners of War, Kuwait/Persian Gulf and Radiation Pathology are databases in the ITDC. Division staff have also worked on the material for the Breast Explant Registry, Depleted Uranium Registry and Chronic Arseniasis Registry. A new database for Environmental Agents has been created for cases previously included in the TRD registry but which are not recognized as conventional drugs, diagnostic or therapeutic agents or alternative therapies. The reorganization continued in 2007 to improve the utility of the data for future research, and for collaborative work particularly with military and other government agencies.

## DIAGNOSTIC CONSULTATION

| *Cases* | *Completed* |
|---|---|
| Military | 925 |
| Army (923) | |
| Navy (1) | |
| Air Force (1) | |
| Federal | 3,934 |
| VA (3,934) | |
| Civilian | 11 |
| Interdepartmental | 103 |
| Total | 4,973 |

Division staff (MR Lewin-Smith) also co-signed 250 cases with the Division of Chemical Microscopy, (167 Army, 36 Air Force, 47 VA), in 2007.

Division Staff, (MR Lewin-Smith) reviewed 139 quality assurance cases for the Divisions of Environmental Pathology, Environmental Toxicology, and Chemical Microscopy in 2007.

## EDUCATION

### *Trainees:*

Division staff (MR Lewin-Smith) assisted in mentoring two AFIP/ARP Summer Intern Program students.

Department Staff (MR Lewin-Smith) earned 59 hours of AMA PRA category 1/ACCME credit for continuing medical education in 2007.

### *Faculty Appointments:*

1. The George Washington University, Assistant Clinical Professor of Pathology, Department of Pathology, (MR Lewin-Smith).
2. Georgetown University, Adjunct Assistant Professor, Department of Pathology, (MR Lewin-Smith).

### *Presentations and Seminars:*

1. January, 2007: Division staff (MR Lewin-Smith) presented one HQAP case.
2. October, 2007: Dr. Lewin-Smith presented a lecture entitled "Characterization of materials of medical origin in tissue specimens combining histopathologic, spectroscopic and ancillary techniques" at a combined FDA/George Washington University research collaboration meeting, Washington DC.

## RESEARCH

### *Publications:*

### *Paper:*

K Simonyan, F Tovar-Moll, J Ostuni, M. Hallett, VF Kalasinsky, MR Lewin-Smith, EJ Rushing, AO Vortmeyer, CL Ludlow. Focal white matter changes in spasmodic dysphonia. *Brain*. 2008; 131(2):447-459. Brain Advance Access originally published online on December 14, 2007.

### *Abstract:*

Specht CS, Katus MC, Kalasinsky VF, Lewin-Smith MR, Amato RSS, Rushing EJ, Mullick FG. Macrophagic myofasciitis-Histochemical, immunohistochemical and spectroscopic findings in a pediatric case. *J Neuropathol Exp Neurol*. 2007;66:450 (558.6)

### *Projects:*

The Division maintained the following AFIP approved research projects in 2007.

#### MR Lewin-Smith, Principal Investigator:

1. A histopathologic study of hematologic specimens from Persian Gulf War military veterans.
2. The timing of Hepatitis C seroconversion in a cohort of U.S. Military Gulf War veterans (GWVs).
3. Pathology of the lung in a cohort of former Prisoners of War.
4. A review of gynecologic histopathology in a group of Gulf War veterans, (closed in 2007).
5. Update of Skin pathology in Gulf War Veterans.
6. Birefringence of helminths in hematoxylin & eosin-stained human tissue sections.
7. Squamous cell carcinoma of the tonsil, the Armed Forces Institute of Pathology Experience 1970-2005, with reference to military service in the Vietnam War.
8. Evaluation of exogenous material in debrided tissue from wound sites of US military personnel treated with vacuum-assisted dressings.

#### CS Specht (Department of Neuropathology & Ophthalmic Pathology), Principal Investigator:

A review of the neuromuscular pathology of Gulf War veterans.

### *Other Projects:*

Collaborator for CDC/Kaiser Permanente Morgellons research project.

### *Collaborators:*

#### Military:

1. KC Holtzmuller, COL (ret.), USA, MC, Hepatic disease in US Military Gulf War Veterans (GWVs).
2. Kurt L Maggio, LTC, USA, MC, WRAMC, Identification of material from wound sites in US military personnel.
3. LJ Nesti, B Freedman, A Aragon, USA, MC, WRAMC, Evaluation of wound sites treated with vacuum-assisted dressing.

4. AW Mack, CPT, USA, MC, WRAMC, Analysis of orthopedic suture material.

**Other Federal Agencies:**

1. ML Pearson, MD, Centers for Disease Control and Prevention, Atlanta, GA, Morgellons research.
2. K Simonyan, MD, PhD, National Institutes of Health, Bethesda, MD, Neuropathology of spasmodic dysphonia.

**Civilian:**

C Watkins, S Stofko, Prisoner of War Information System (POWIS), Pathology of the lung in former Prisoners of War.

**Interdepartmental:**

1. E Rushing, COL, USA, MC, Neuromuscular pathology of Gulf War Veterans.
2. L Rabin, MD, Hepatic disease in US Military Gulf War Veterans.
3. J Hallman, MD, Dermatopathology in Military Gulf War Veterans.
4. G Lupton, MD, Dermatopathology, Morgellons research.
5. D Heffner, MD, Squamous cell carcinoma of the tonsil in Vietnam Veterans.
6. R Neafie, MS, Birefringence of helminths pathogenic to humans.
7. N Rassaei, MD, pulmonary zygomycosis with calcium oxalate.
8. M Thompson, CPT, USA, VC, Melamine nephrotoxicity in dogs.
9. E Carroll, MAJ, USA, VC, Melamine nephrotoxicity in cats.

## PROFESSIONAL ACTIVITIES

***Official Trips:***

1. October, 2007: Food and Drug Administration/George Washington University, Washington, DC, MR Lewin-Smith.
2. November, 2007: Centers for Disease Control and Prevention, Atlanta, GA, MR Lewin-Smith (AFIP).

***Offices/Committee Memberships in National or International Societies:***

**Intramural:**

1. Research committee, AFIP, Chair, (MR Lewin-Smith). (Resigned 2007)
2. Ash Library committee, AFIP, member, (MR Lewin-Smith).

***New Missions:***

- A new endeavor started in 2006 to accession archived histopathological material from overseas military medical treatment facility(s) for inclusion in the AFIP Operation Iraqi Freedom Registry got underway in 2007. Almost 900 accessions were added to the OIF Registry from this source in 2007.
- A collaboration with the CDC and Kaiser Permanente in their investigation of Morgellons was established.
- A research collaboration with the Department of Orthopedic Pathology, WRAMC evaluating specific aspects of wound care was established.

# DIVISION OF ENVIRONMENTAL TOXICOLOGY

Victor F. Kalasinsky, PhD
Chief
Date of Appointment – 25 September 1989

## STAFF

*Scientific*

Victor F. Kalasinsky, PhD, Chief
Natalya Merezhinskaya, PhD, Research Biologist
(D) Noel D. Gravina, HMC, USN, NCOIC
(A) Lynn M. Blubaugh, BS, Laboratory Technician
(A) Laura E. Burry, BS, Laboratory Technician
(D) Karen M. Pizzolato, MS, Laboratory Manager
(D) Michelle L. Amerson, BS, Laboratory Technician
(D) Mild T. Esmino, HM2, USN, Laboratory Technician
Stacy L. Strausborger, MS, Laboratory Manager
Albin L. Moroz, MS, Computer Program Analyst
Jesse O. Tristan, BS, Computer Applications Specialist

*Administrative*

Kim M. Knight-Ries, Administrative Officer

## IMPACT

- Identified white powders suspected of being biological agents and other unknowns using infrared and Raman spectroscopy and scanning electron microscopy with energy-dispersive x-ray analysis.
- Supported USACHPPM, WRAMC, the OAFME, and in-theater combat support hospitals by analyzing specimens from patients serving in Iraq.
- Maintained the on-line database, the AFIP-DoD-GEIS Directory of Public Health Laboratory Services. Monthly newsletters were prepared highlighting important news related to emerging infections, and a "flat file" of pertinent data on CD was prepared for distribution.
- Worked with USACHPPM to secure approval from OASD(HA) to add military environmental laboratory capabilities to an online database.
- Assisted military crime investigators by identifying materials found in specimens.
- Optimized the immunohistological identification of West Nile virus in cultured cells.
- Prepared AMPD stain for immunohistological analysis.
- Identified melamine-containing crystals in kidney tissue from dogs and a cat exposed to recalled, contaminated pet foods.
- Began a collaboration with CDC to identify foreign materials associated with the condition known as Morgellons.
- Identified unknown materials, which are likely adjuvants, in tissue biopsies taken from patient vaccination sites.
- Working with the Division of Environmental Pathology, identified suture materials and coatings in tissue received from wounded soldiers being treated at WRAMC. As a result, this suture is no longer being used for this procedure in the Department of Orthopedic Surgery, WRAMC. An article describing these findings has been submitted for publication.
- Identified unknown blast fragments removed from patients in the Department of Dermatology, WRAMC. An article describing these results has been accepted for publication.
- Working with the Department of Veterinary Pathology, identified unknown crystals in tissue specimens from tortoises and sea turtles.

## CONSULTATION

By using gas chromatography, mass spectrometry, liquid chromatography, Fourier transform infrared and Raman spectrometry, and scanning electron microscopy with energy-dispersive x-ray analysis, it was possible to identify or characterize unknown chemical substances in 68 cases. These included plastics, therapeutic drugs, melamine crystals, tattoo materials, talc, inhaled particulates, and physiological deposits.

The Division performed satisfactorily in College of American Pathologists (CAP) Proficiency Tests in 2007 and under went a successful CAP inspection on October 11, 2007.

| ***Cases*** | ***Received*** |
|---|---|
| Military | 616 |
| Army (506) | |
| Navy (0) | |
| Air Force (110) | |
| Federal (VA) | 159 |
| Civilian | 4 |
| Interdepartmental | 66 |
| Total | 846 |

## EDUCATION

### *Trainees:*

Four high school students received training in our division during summer 2007.

### *Scientific Appointments:*

Guest Researcher, National Institute of Diabetes, Digestive, and Kidney Diseases, NIH, VF Kalasinsky.

### *Continuing Education*

1. January 2007: Washington, DC, Leica Workshop: Applications of Confocal Microscopy, N Merezhinskaya.
2. April 2007: Gaithersburg, MD, Invitrogen Genetic and Molecular Toxicology Workshop, N Merezhinskaya.
3. July 2007: Agilent Training Workshop: Headspace Analysis, Dover, DE, KM Pizzolato.
4. August 2007: Agilent Training Workshop: Gas Chromatography-Mass Spectrometry, Atlanta, GA, SL Strausborger.
5. November 2007: Centers for Disease Control and Prevention, Atlanta, GA, N Merezhinskaya.

### *Presentations*

1. February 2007: Boston, MA, Meeting of the Society of Armed Forces Medical Laboratory Scientists, "DoD Directory of Public Health Laboratory Services Internet-Accessible Database," SL Strausborger, ML Amerson.
2. August 2007: Louisville, KY, Force Health Protection conference, "Internet Accessible DoD Directory of Public Health Laboratory Services Database," VF Kalasinsky.
3. October 2007: San Diego, CA, Meeting of the Infectious Disease Society of America, "DoD Public Health Laboratory Services Internet-Accessible Databases," SL Strausborger.

## RESEARCH

### *Publications*

### *Journal Articles:*

Two articles were published, two articles were accepted, and three others were submitted.

1. Kalasinsky KS, Hadfield T, Shea AA, Kalasinsky VF,Nelson MP, Neiss J, Drauch AJ, Vanni GS. Raman chemical imaging spectroscopy reagentless detection and identification of pathogens: signature development and evaluation. *Anal Chem*. 2007April;79(7):2658-2659.
2. Simonyan K, Tovar-Moll F, Ostuni J, Hallet M, Kalasinsky VF, Lewin-Smith MR, Rushing EJ, Vortmeyer AO, Ludlow CL. Focal white matter changes in spasmodic dysphonia. *Brain*. 2008;131(2):447-459. Brain Advance Access originally published on-line on December 14, 2007.

***Abstracts:***

1. Kalasinsky VF, Tristan JO, Pizzolato KM, Amerson ML, Strausborger SL, Gaydos JC, MacIntosh VH, Rumm PD, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database. Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, Boston, MA, February 26–March 1, 2007.
2. Specht CS, Katus MC, Kalasinsky VF, Lewin-Smith MR, Amato RSS, Rushing EJ, Mullick FG. Macrophagic myofasciitis – Histochemical, immunohistochemical, and spectroscopic findings in a pediatric case. *J Neuropathol Exp Neurol.* 2007;66:450 (558.6).
3. Kalasinsky VF, Tristan JO, Pizzolato KM, Amerson ML, Strausborger SL, Gaydos JC, MacIntosh VH, Rumm PD, Mullick FG. DoD Public Health Laboratory Services Internet-Accessible Databases. Book of Abstracts of the meeting of the Infectious Disease Society of America, San Diego, CA, October 3–7, 2007.

***Projects:***

1. Military working dogs deployed to Southwest Asia as sentinels for human environmental exposure during the Persian Gulf War.
2. The timing of hepatitis C seroconversion in a cohort of Gulf War military veterans.
3. A histopathologic study of biopsy specimens from Persian Gulf War military veterans.
4. A review of the neuromuscular pathology of Gulf War veterans.
5. A histopathologic study of Gulf War veterans potentially exposed in Khamisiyah.
6. Histopathologic review and chemical analysis of autopsy material from the Agent Orange Registry.
7. Monoclonal antibodies as immunohistochemical aid in the diagnosis of amniotic fluid embolism and West Nile fever.
8. The use of confocal microscopy in the characterization of monoclonal antibodies.

In Gulf War-related studies, the division is participating in the DoD's Comprehensive Clinical Evaluation Program (CCEP). AFIP is charged with the long-term storage of blood and serum specimens collected from Gulf War veterans and their families who are reporting symptoms that might be related to service in the Gulf region.

***Collaborators:***

**Military/Federal**

1. IW Levin, NIH: Vibrational imaging of tissue samples.
2. KL Maggio, WRAMC: Blast injuries in military personnel.
3. RL Erickson, JC Gaydos, VH MacIntosh, Global Emerging Infections System, Silver Spring, MD: DoD Directory of Public Health Laboratory Services.
4. DA Johnston, U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen, MD: DoD Environmental Laboratory Compendium.
5. JM Heller, U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen, MD: Deployment surveillance of active duty U.S. troops.
6. R Crawford, Division of Microbiology, AFIP: Infrared and Raman spectroscopic characterization of microorganisms.
7. M Fleetwood, TO Johnson, Department of Veterinary Pathology, AFIP: Identification of unknown materials in animal tissue.
8. AW Mack, WRAMC: Analysis of orthopedic suture material.
9. LJ Nesti, B Freedman, A Aragon, WRAMC: Evaluation of wound sites treated with vacuum-assisted dressing.
10. S Zaki, Centers for Disease Control and Prevention, Atlanta, GA: Detection of West Nile virus in pathology specimens using PCR and immunohistochemistry.

**Civilian:**

11. O Chiry, Max Planck Institute for Brain Research, Frankfurt, Germany: Preparation of polyclonal antibodies against monocarboxylate transporters.
12. J Pouysegur, Institute of Signaling, Developmental Biology and Cancer Research, Nice, France: Preparation of polyclonal antibodies against monocarboxylate transporters.

## PROFESSIONAL ACTIVITIES

***Official Trips:***

1. February 2007: Society of Armed Forces Medical Laboratory Scientists Conference, Boston, MA, ML Amerson, SL Strausborger (ARP).

2. March 2007: Joint Environmental Surveillance Work Group, Hampton, VA, VF Kalasinsky.
3. April 2007: Annual meeting for Experimental Biology, Washington, DC, N Merezhinskaya
4. July 2007: Agilent Training Workshop: Headspace Analysis, Dover, DE, KM Pizzolato.
5. August 2007: Agilent Training Workshop, Dover, DE, KM Pizzolato (ARP).
6. August 2007: Force Health Protection Conference, Louisville, KY, VF Kalasinsky.
7. August 2007: Agilent Training Workshop, Atlanta, GA, SL Strausborger (ARP).
8. November 2007: Joint Environmental Surveillance Work Group, San Antonio, TX, VF Kalasinsky.
9. November 2007: Centers for Disease Control and Prevention, Atlanta, GA, N Merezhinskaya.

### *Manuscripts Reviewed*

**VF Kalasinsky:**

1. *Applied Spectroscopy* (2)
2. *Spectrochimica Acta* (3)
3. *Vibrational Spectroscopy* (1)

**N. Merezhinskaya:**

*Molecular Pharmaceutics* (2)

### *Committees:*

**Intramural**

1. Safety Committee, AFIP, VF Kalasinsky
2. Biosafety Committee, AFIP, VF Kalasinsky
3. Institutional Animal Care and Use Committee (IACUC), AFIP, VF Kalasinsky

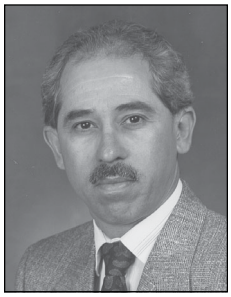
**Extramural**

1. JRO Mobile Analytical Laboratory Integrated Concept Team (ICT), VF Kalasinsky
2. Joint Environmental Surveillance Work Group, Tri-Service Laboratory Sub-Group (JESWG/TSLSG), VF Kalasinsky (Chair, Nov 2007)
3. Department of Veterans Affairs (DVA) Research Proposal Review Panel, VF Kalasinsky
4. Defense Threat Reduction Agency (DTRA) Research Proposal Review Panel, VF Kalasinsky

## NEW MISSIONS

- Along with the Division of Environmental Pathology, a collaboration was established with the CDC and Kaiser Permanente in their investigation of the condition known as Morgellons.
- The Division will be collaborating with the Division of Environmental Pathology and WRAMC's Department Orthopedic Surgery to evaluate specific aspects of wound care.
- Characterization of protein deposits in pathology specimens using mass spectrometry.

# DIVISION OF BIOPHYSICAL TOXICOLOGY



José A. Centeno, MSc, PhD, FRSC
Chief
Date of Appointment: October 2001

## STAFF

*Scientific*

José A. Centeno, MSc, PhD, FRSC, Chief , Supervisory Research Scientist
Ling Zhang, PhD, Research Chemist and Technical Laboratory Manager
Gijsbert van der Voet, PhD, Fellow in Toxicology (ARP)
Simina Lal, BS, MS, Environmental Chemistry Technician, ARP
Hanna Xu, BS, MS, Environmental Chemistry Technician, ARP
(D) Andrey Sarafanov, PhD, Postdoctoral Fellow (ARP)
(A) Correa, Larry L. HMC, Research Assistant and NCIO, US Navy
(A) Esmino, Mild T. HM2, Research Assistant, US Navy

## IMPACT:

The Division of Biophysical Toxicology conducts consultation, education, and research in environmental and biophysical toxicology, environmental health, and bio-inorganic analysis of toxic metals, and foreign materials. The division is tasked with the development of chemical and biophysical techniques for the characterization of inorganic and foreign materials in human and other animal tissues, with particular emphasis on elemental composition, chemical and toxicological speciation of trace and toxic metals. This year, the division accomplished the following tasks and objectives:

1. Concerning the division's research, consultation and analytical toxicology programs on Depleted Uranium (DU):
   - The division continues to provide analytical and archival support as part of the AFIP Depleted Uranium (DU) Registry. This DU Registry consists of archival materials, the development of central analytical laboratory core facility dedicated to the analysis of total and isotopic uranium ratio in biological tissues and fluids, and a biological surveillance program to monitor potential cases of DU exposure within the three Services. The DU Registry was established in collaboration with the DU Program at the Baltimore VAMC, and it provides archival and chemical analysis for all the services of the US Armed Forces including Army, Navy, Air Forces and US Marines. In 2007, the DU Registry consisted of over 3550 archived samples from the DU Biological Surveillance Program. The Registry is maintained by funds obtained from the VA Baltimore DU Program and USCHPPM. This year the division completed the analysis of uranium for over 540 samples.
   - This year the division provided support and information on different topics related to depleted uranium, including measurements techniques, environmental monitoring, soldier biomonitoring, epidemiology, and histopathologic evaluations. The division's laboratory on DU analysis provided analytical support to USCHPPM, WRAMC-Health Physics and Preventive Medicine Programs, and to the DoD Force Health Protection and Readiness Programs (Health Affairs).
2. In close collaboration with the DoD Force Health Protection and Readiness Programs (Health Affairs), division staff (Dr. Jose A. Centeno) have been actively involved as members of the DHSD Biomonitoring Working Group. Through participation on these committees, the division staff has contributed to the development of guidelines for a policy on Biomonitoring of Nerve Agent Exposures and the Analysis of Metal Fragments Removed from Department of Defense Personnel (HA Policy 01-029). The division has established registry procedures on Depleted Uranium (Registry Code 110), on Chemical Warfare Agents (Registry Code RG06), and has developed the AFIP Metal Fragment Analysis Program.
3. The division provided consultation and analytical toxicological support to the Office of the Armed Forces Medical Examiner, US Center for Health Promotion and Preventive

Medicine, DoD Force Health Protection and Readiness Programs (Health Affairs), Walter Reed Army Medical Center, Navy Bureau of Medicine and Surgery, Brooke Army Medical Center, Navy Criminal Investigative Services, Navy Health Research Center, Depleted Uranium Program at the Baltimore VAMC, and Army Criminal Investigative Division, in several cases concerning potential exposure to environmental agents and toxic trace metals including mercury, arsenic, lead, and depleted uranium.

4. The division has successfully established the Center for Analysis and Quality Assurance for the study of remedies and complementary medicine preparations of military relevant (MIL-CAM). This Center is aimed at establishing laboratory procedures and analytical toxicological assays to elucidate the chemical properties and health effects of remedies and supplements which may be used by Service Members.
5. The division has developed and maintains the ONLY DoD Registry on Military Medical Geology, with collaboration from DoD, national and international organizations including the Navy Bureau for Medicine and Surgery, Navy Health Research Center – Environmental Health Effects Laboratory in Wright Patterson Air Force Base, Ohio, the Army Corps of Engineers – Environmental Lab, the US Geological Survey, UNESCO and the International Union of Geological Sciences. This Registry is aimed at the study and characterization of geological (minerals, trace elements) and environmental factors and their distribution on the development of health problems. Health problems associated with exposure to lead, mercury, fluoride, cadmium, arsenic and other toxic metals are been studied. The division is collaborating with the Navy Bureau of Surgery and Medicine and the Navy Environmental Health Effects Laboratory to access the health risks associated with exposure to airborne dust, particularly dust from OIF and other regions. The division has also developed a teaching and training unit on Medical Geology which is based on a three-day course titled "Metals, Health and the Environment."
6. The Division of Biophysical Toxicology maintains the Breast Explant Registry and conducts a research program on the archiving, consultation, and biophysical studies of silicone breast explants and bioimplantable materials database. This Registry has an extensive collection of published literature, CDs, and a list of patents on materials used in the manufacture of silicone breast implants and other biomedical devices.
7. The division has developed and maintains the International Tissue and Tumor Repository for Chronic Arseniasis, with the partial support of two other US Federal agencies (US Environmental Protection Agency and National Cancer Institute). This Repository continued to serve as a centralized facility for collecting, archiving, and studying tissue specimens from populations chronically exposed to arsenic. In 2007, the Repository provided key forensic analytical support in diagnostic cases of suspected acute arsenic poisoning.
8. In collaboration with other federal agencies including the US Geological Survey and the US Environmental Agency, Division' staff (JA Centeno) continue to collaborate with scientists from the Ukraine in studying potential health effects associated with environmental exposure to mercury in the city of Gorlovka, Ukraine.

## CONSULTATION:

The Division of Biophysical Toxicology is charged with the task of providing analytical toxicology support for the study of toxic metals and the identification and quantification of environmental and chemical agents in tissues and other biological specimens. In 2007, the division was involved on over 540 cases requiring total uranium and/or depleted uranium analysis. In addition, division staff worked closely with the Office of the Armed Forces Medical Examiner and the Navy and Army Criminal Investigative Criminal Divisions in several suspected cases of toxic metal poisoning.

| *Cases* | *Completed* |
|---|---|
| Military | 27 |
| Army (15) | |
| Navy (8) | |
| Air Force (4) | |
| Federal | 504 |
| VAH (504) | |
| USPHS | |
| OFA | |
| Civilian | 5 |
| Interdepartmental | 4 |
| Total | 540 |

***Deployments (Official Trips):***

1. February 1, 2007: University of Maryland School of Medicine, Department of Toxicology and Environmental Medicine, Baltimore, MD. Invited Seminar Speaker, JA Centeno.
2. February 8–9, 2007: NIH-Gene and Drug Delivery Study Section, Center for Scientific Review, GDD, JA Centeno.
3. February 23, 2007: Jackson State University Distinguished Lecture Series, Jackson, Miss. Invited Speaker, JA Centeno.
4. February 27–March 1, 2007; Earth Science and Public Health Conference, US Geological Survey, Reston, VA. Plenary Speaker, JA Centeno.
5. April 2007: Committee Member, National Research Council, Committee on Research Priorities on Earth Sciences and Public Health; April 2006 – April 2007, JA Centeno.
6. May 24, 2007: Baltimore VA Medical Center, DU Follow-Up Program Meeting, JA Centeno.
7. July 17-18, 2007:; DHSD-HA Metal Fragment Meeting, Skyline, VA (Dr. Jose A. Centeno).
8. September 10–14, 2007: XXVIII Mining Convention EXTEMIN 2007, Arequipa, Peru; Invited Plenary Speaker, JA Centeno.
9. September 17–19, 2007: Fourth International Symposium on Recent Advances in Environmental Health Research, Jackson State University, Jackson, Miss. Invited Speaker, JA Centeno.
10. October 21–25, 2007: XIII Brazilian Congress on Geochemistry, Atibaia, Brazil. Invited Speaker and Course Convener, JA Centeno.

***Quality Assurance:***

1. The division successfully participated on 3 proficiency testing programs from the College of American Pathologists and 4 proficiency testing programs sponsored by the American Hygiene Association on environmental lead, and other proficiency testing programs on blood-lead and trace metals sponsored by the Wadsworth Center-New York Department of Health.
2. The division conducted toxic metals quality assurance analyses of water in support of the quality assurance program for the AFIP DLAM facilities and the AFIP Safety Office.

## EDUCATION

***Presentations and Seminars:***

Members of the division presented 12 invited lectures, seminars and conference abstracts representing over 665 man-hours. Dates and titles are listed at the end of this report.

***Courses:***

In collaboration with national and international organizations, division staff organized 4 AFIP short courses, and gave a total of 13 lectures. These activities had a total of 120 attendees for about 530 man-hours. The following short courses organized by the Division of Biophysical Toxicology were offered in 2007:

1. In 2007, the AFIP Short Course on environmental medicine entitled “Medical Geology: Metals, Health and the Environment” was held in three different countries. Full financial support for these courses was obtained from national, international and local organizations where the courses were held. Dates, location and sponsorship are listed below:

   a. May 7–8, 2007: Workshop and short course on New Advances in Environmental

Toxicology and Medical Geology, University of the Republic of Uruguay, Chemistry Faculty, Montevideo, Uruguay. Sponsorship by: AFIP, University of the Republic of Uruguay, International Union of Geological Sciences (IUGS), International Medical Geology Association (IMGA), JA Centeno, Course Co-Director and Lecturer.

b. June 11–14, 2007: University of San Luis de Potosi, Mexico. Sponsorship: AFIP, University of San Luis Potosi, IUGS, IMGA, JA Centeno, Course Co-Director and Lecturer.
c. October 21, 2007: 2nd Hemispheric Conference on Medical Geology. Sponsorship by: AFIP, IUGS, IMGA, JA Centeno, Course Co-Director and Lecturer.

***Trainees:***

In 2007, division staff provided training to the following personnel:

1. One postdoctoral fellow under the DoD Prostate Cancer Research Program of the Office of the Congressionally Directed Medical Research Programs.
2. One Clinical Toxicologist, University of Leiden-Medical School, The Netherlands.
3. Two high-school students (two months internship on environmental and biophysical toxicology).

***Faculty and Professional Appointments:***

1. Professorial Lecturer in Environmental and Occupational Health, The George Washington University-School of Public Health and Health Services, JA Centeno, July 1, 2006 – June 30, 2007; July 1, 2007.
2. Distinguished Visiting Professor, University of Turabo, School of Sciences and Technology, Caguas, Puerto Rico, JA Centeno, 2004–present.
3. Adjunct Professor of Environmental Sciences, Jackson State University, College of Engineering, Science and Technology (CSET), Environmental Science PhD Program, Jackson, Miss., JA Centeno, 2005–present.
4. Adjunct Professor of Chemistry, Chemistry Faculty, Universidad de la Republica de Uruguay, Montevideo, Uruguay, JA Centeno, 2007–Present.
5. Visiting Professor, Hope University School of Medicine, Belize, JA Centeno, 2005–Present.
6. Guest Professorship, China University of Mining and Technology, Beijing, China, JA Centeno.
7. Fellow, Royal Society of Chemistry, London, UK (Dr. Jose A. Centeno; June 2007 – Present.
8. Senior Advisor, International Year of Planet Earth, JA Centeno, 2007-2009.
9. Officer, International Union of Geological Sciences – Commission on Geosciences for Environmental Management (IUGS-GEM), JA Centeno, 2006–Present.

***Presentations:***

Invited lectures and presentation of research abstracts at national and international conferences:

1. February 1, 2007: Department of Toxicology and Environmental Medicine, University of Maryland, School of Medicine, Baltimore, MD, "Chronic arsenic poisoning: natural history, toxicology and analysis," Invited Speaker, JA Centeno.
2. February 1, 2007: National Council For Science and the Environment, Panel Discussion on "Medical geology: an emerging discipline," Discussant, JA Centeno.
3. February 23, 2007: Jackson State University Distinguished Lecture Series. "Medical geology: the missing link between environmental medicine and earth sciences," Invited Speaker, JA Centeno.
4. February 28, 2007: 2nd National Conference on USGS Health-Related Research, "Integrating earth sciences and public health," Invited Plenary Speaker, JA Centeno.
5. May 10–11, 2007: International Conference in Chemical Toxicology and Safety, Santiago, Chile, "Environmental and chemical toxicology of metals and metalloids," Invited Speaker, JA Centeno.
6. August 9, 2007: 10th Annual Force Health Protection Conference, Louisville, Kentucky, "Analysis of metal fragments by laser ablation ICP-MS," GB van der Voet, oral presentation.
7. August 10, 2007: 10th Annual Force Health Protection Conference, Louisville, Kentucky, "Complementary and alternative medicine: a case report of metal toxicology," GB van der Voet, oral presentation.
8. September 13, 2007: XXVIII Mining Convention, Arequipa, Peru, "Medical geology: an emerging discipline in environmental medicine and public health," Invited Keynote Speaker, JA Centeno.

9. September 18, 2007: Fourth International Symposium on Recent Advances In Environmental Health Research, "Health effects of airborne dust: the role of trace elements and compounds," Invited Speaker, JA Centeno.
10. October 23, 2007: 13th Brazilian Congress on Geochemistry and 2nd Hemispheric Conference on Medical Geology, Atibaia, Brazil," Invited Speaker, JA Centeno.

## RESEARCH

### *Publications:*

Division staff published 10 journal articles, one book chapters, two research abstracts, and participated as a co-author of and NRC Special Report. Four other manuscripts were submitted and accepted for publication, and several research abstracts were published in conferences' book of abstracts and/or book of proceedings.

### *Journal Articles:*

1. Centeno JA, Tseng CH, van der Voet GB, Finkelman RB. Global impacts of geogenic arsenic: a medical geology research case. *Ambio*. 2007;36(1):78-81.
2. Tseng CH, Chong CK, Tseng CP, Centeno JA. Blackfoot disease in Taiwan: its link with inorganic arsenic exposure from drinking water. *Ambio*. 2007;36(1):82-84.
3. Centeno JA, Finkelman RB. Global impacts of geogenic arsenic: a medical geology perspective. *Geosciences*. 2007;5:64-65.
4. Selinus O, Finkelman RB, Centeno JA. The medical geology revolution. *Geosciences*. 2007;5:108-109.
5. van der Voet GB, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG. Metals and health: a clinical and toxicological perspective on tungsten and review of the literature. *Military Medicine*. 2007;172:1002-1005.
6. Lem KE, Brinster LR, Tjurmina O, Lizak M, Lal S, Centeno JA, Liu P-C, Godwin SC, Kaler SG. Safety of intracerebroventricular copper histidine in adult rats. *Molecular Genetics and Metabolism*. 2007;91:30-36 (Epub 2007 March 1).
7. Chesnick I, Todorov TI, Centeno JA, Newbury DE, Small JA, Potter K. Manganese-enhanced magnetic resonance microscopy of mineralization. *Magnetic Resonance Imaging*. 2007;25:1095-1104.
8. Finkelman RB, Centeno JA, Selinus O. Medical geology: the emergence of a new discipline. *Terrae*. 2007;2(2):3-8.
9. Bunnell JE, Finkelman RB, Centeno JA, Selinus O. Medical geology: a discipline emerging globally. *Geological Acta*. 2007;5(3):273-281.
10. Selinus O, Finkelman RF, Centeno JA. The medical geology revolution: the evolution of and IUGS initiative. *Episodes*. 2007;30(3);1-5.

### *Book Chapters and Special Reports:*

1. Todorov TI, Ejnik JW, Mullick FG, Centeno JA. Chemical and histological assessment of depleted uranium in tissues and biological fluids. In: *Depleted Uranium – Properties, Uses, and Health Consequences*. Miller AC, ed. Boca Raton, Florida, USA: CRC Press-Taylor & Francis Group; 2007: ISBN 0-8493-3047-5.
2. Centeno JA. Contributing author and Committee Member. Earth Materials and Health – Research Priorities for Earth Science and Public Health. National Academies 2007, National Research Council, Washington, DC, ISBN: 978-0-309-10470-8.

### *Manuscript Submitted and Accepted:*

1. Andrey G. Sarafanov AG, Todorov TI, Kajdacsy-Balla A, Gray MA, Virgilia Maciaa V, Centeno JA. Analysis of iron, zinc, selenium and cadmium in paraffin-embedded prostate tissue specimens using inductively coupled plasma mass-spectrometry. *J Trace Elements in Medicine and Biology* (Accepted, 2007).

Two manuscripts are in press.

### *Research Abstracts Published in Books of Abstracts and/or Conference Proceedings:*

1. Todorov TI,, Ejnik JW, Squibb K, McDiarmid M, and Centeno JA. Uranium analysis in blood by inductively coupled plasma mass spectrometry. European Plasma Conference, Italy, January 2007.
2. Todorov TI, Gray M, Sarafanov A, Kadjacsy-Balla A, Centeno JA. Comparison between the cadmium, zinc, selenium, iron and arsenic content in fresh and paraffin embedded tissue specimen. European Plasma Conference, Italy, January 2007.
3. van der Voet GB, Sarafanov A, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG.

Clinical and analytical toxicology of dietary supplements: a case study. 10th Force Health Protection Conference, Louisville, Kentucky, August 10, 2007.

***Research Projects:***

In 2007, division staff was engaged on the following AFIP approved research projects.

**Principal Investigator: JA Centeno**

1. Depleted Uranium Follow-up Program: Biological Surveillance, Chemical Analysis and Repository of Specimen.
2. Dietary and Occupational Risk Factors for Prostate Disease.
3. Reliability of the Determination of Cd, Zn and Se Levels in Paraffin-Embedded Prostate Tissue.
4. Histopathology and Laser Raman Microprobe Analysis of Regional Lymph Nodes from Patients with Silicone Breast Implants.
5. Development of the International Tissue and Tumor Repository for Chronic Arseniasis.

***Collaborative Research Projects Developed/Continued During 2006:***

1. Uranium-Spiked Control Semen Study Statement of Work. In collaboration with Dr. Melissa McDiarmid and Dr, Katherine Squibb, VA-Baltimore Center and University of Maryland, Departments of Toxicology and Occupational Medicine.
2. The Chemical and Biological Analysis of Airborne Dust from OIF and Kuwaiti Theaters. In collaboration with CDR Mark Lyles, Navy Bureau of Medicine and Surgery, BUMED.
3. Microbial Ecology and Geochemistry of Iraqi Airborne Dust. In collaboration with Dr. Terry Sobecki, US Army Corps of Engineers, US Army Engineer Research and Development Center; CDR Mark Lyles, BUMED.
4. Chemical Analysis and Microspectroscopy Studies of Tungsten Metal Alloys and fine Particulate Desert Sand. In collaboration with the Naval Health Research Center, Environmental Health Effects Laboratory, Wright Patterson Air Force Base, Dayton, Ohio; CDR Gail Chapman, PI.
5. Fernald Workers' Medical Monitoring Program: Renal Biomarkers of Workplace Uranium Exposure. In collaboration with Dr. Susan Pinney, University of Cincinnati, Medical Center.
6. Bone Formation Studies by Magnetic Resonance Microscopy. In collaboration with Dr. Kimberlee Potter, AFIP.
7. Feasibility of Assessing Health Risks from Long-Term Mercury Exposure in Gorlovka, Ukraine. In collaboration with USGS.

In Operation Iraqi Freedom (OIF) related studies, division staff collaborated with the VA Baltimore Center, the Department of Toxicology-University of Maryland, Baltimore, MD, the Inorganic Laboratory Section at the Center for Disease Control and Prevention, USCHPPM, DoD Force Health Protection and Readiness Programs (Health Affairs), and the Navy Bureau of Medicine and Surgery (BUMED). The division is participating on a research program to study low levels of depleted uranium in tissues and body fluids from potentially exposed service personnel. In addition, the division is engaged on studies concerning the chemical and microspectroscopic characterization of airborne dust with PM<10-40 and PM<2.5. and the chemical characterization of embedded metal fragments removed from Department of Defense Active Duty Personnel.

***Collaborators:***

**Military/Federal:**

1. MA McDiarmid, K Squibb, University of Maryland, Baltimore and VA Baltimore Center, Follow-up and Monitoring of Gulf War Veterans with Fragments of Depleted Uranium and Other Sources of Depleted Uranium Exposure.
2. A Kolker, US Geological Survey, H Gibb, Science International, Feasibility of Assessing Health Risks from Lontg-term Mercury Exposure in Gorlovka, Ukraine.
3. WF Regnault, Food and Drug Administration (FDA), Rockville, MD, Mechanistic Determination of Stress-Induced Dystrophic Calcification in Cardiovascular Materials and Devices.
4. WF Regnault, Food and Drug Administration (FDA), Rockville, MD, Assessment of Calcium Phosphate Deposition Mechanisms in Dental and Orthopedic Applications.

**International Collaborators:**

1. Prof. Philip Weinstein, Dr. Angus Cook, University of Western Australia, School of Public Health Research Assessing and Preventing the Disease Burden From Geogenic Dusts.

2. Dr. Olle Selinus, Geological Survey of Sweden, research collaboration on Medical Geology.
3. Prof. Dr. Sergio Caroli, Institute Nationale di Sanita, Rome, Italy, Research collaboration on speciation of trace elements and depleted uranium analysis.
4. Prof. Dr. Enrico Sabbioni, European Centre for the Validation of Alternative Methods. Joint Research Centre, Ispra, Italy, research collaboration on toxicology of heavy metals, metalloids (arsenic), and nanomaterials.
5. Prof. Dr. Chin-Hsiao Tseng, National Taiwan University Hospital, Taipei, Taiwan, research collaboration on environmental-clinical toxicology, epidemiology and arsenic health effects.

***Funds Received through Interagency and Defense Sharing Agreements:***

In 2007, non-AFIP research funds were received as part of interagency and defense sharing agreements developed through collaborative projects including:

1. Statement of Work between the AFIP and the US Center for Health Promotion and Preventive Medicine to support the analysis of depleted uranium cases and archival of samples at the AFIP DU Registry.
2. VA/Department of Defense Sharing Agreement to support Depleted Uranium Follow-up, Surveillance and Archival Program.
3. DoD Center for Prostate Research, Fort Detrick, Maryland. Funds to support Postdoctoral Training Fellowship in Prostate Research.

## PROFESSIONAL ACTIVITIES

***Editorial Work (JA Centeno):***

**Manuscripts Reviewed for:**

1. *Biological Trace Element Research*
2. *Journal of Environmental Monitoring*
3. *International Journal of Environmental Research and Public Health*
4. *Science for Total Environment*
5. *Interciencia*

**Editorial Board Appointments:**

1. *Journal of Environmental Monitoring, JA Centeno*
2. *Biological Trace Element Research, JA* Centeno
3. *International Journal of Environmental Research and Public Health*, JA Centeno
4. *Environmental Health Focus*, JA Centeno
5. *Environmental Toxicology,* JA Centeno

***Committees (2007):***

**Intramural:**

AFIP-Research Committee (1995-Present), JA Centeno

**Extramural:**

1. Member, DoD Force Health Protection and Readiness Programs (Health Affairs), Biomonitoring Working Group, 2005–Present, JA Centeno.
2. Member, National Academy of Science – National Research Council, Committee on Research Priorities on Earth Sciences and Public Health, April 2007, JA Centeno.
3. Co-Chairman and Co-Founder, International Medical Geology Association, 2000–Present, JA Centeno.
4. Officer, Commission on Geoscience for Environmental Management (GEM), International Union of Geological Sciences, 2005–present, JA Centeno.
5. Chair, External Advisory Committee, National Science Foundation –STARGE Program at Jackson State University, Jackson, Mississippi, 1999–Present, JA Centeno.
6. Chair, External Advisory Board-National Institutes of Health MBRS-RISE Program for Universidad del Este, Carolina, Puerto Rico, 2004–present, JA Centeno.
7. Member, External Advisory Committee-National Institutes of Health Research Centers for Minority Institutions, Jackson State University, Jackson, Mississippi (1997-Present) – JA Centeno.
8. Member, US Presidential Advisory Board on Health, Sciences, Math and Engineering, Ana G. Mendez University System of Puerto Rico, San Juan, Puerto Rico, 1995–Present, JA Centeno.
9. Member, External Advisory Board, National Science Foundation-Minority Institutions of

Excellence Program, Metropolitan University, San Juan, PR, 1999–Present, JA Centeno.

10. Member, International Scientific Committee, International Conference on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, GSF, Germany, 2001–Present, JA Centeno.
11. Member, International Parent Scientific Committee, International Symposium on Metal Ions in Biology and Medicine, 1998–Present, JA Centeno
12. Member, Federation of European Societies on Trace Elements and Minerals, GMS Society, 2004–present, JA Centeno.

# DIVISION OF CHEMICAL MICROSCOPY

H. Marie Jenkins, HT, ASCP, Histochemical Technologist Chief

## IMPACT

- The laboratory conducts analyses on more calculi than any other laboratory in the military.
- The laboratory provides scanning electron microscopy with energy-dispersive x-ray analysis for the AFIP and DoD.

## CONSULTATION

Military installations submitted 619 specimens for identification, and 148 were received from VA medical centers.

***Cases***

| | |
|---|---|
| Military | 619 |
| Army (508) | |
| Air Force (111) | |
| Federal (VA) | 148 |
| Civilian | 0 |
| Interdepartmental | 2 |
| Total | 769 |

## EDUCATION

***Trainees:***

Provided training in Scanning Electron Microscopy and FTIR for two summer interns.

Trained members the AFIP and WRAIR staff in SEM and FTIR techniques.

***Continuing Education:***

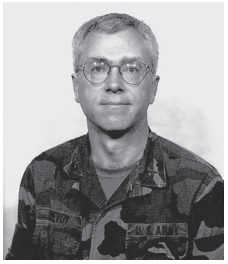
December 2007: Gaithersburg, MD, Hitachi Scanning Electron Microscopy Workshop, HM Jenkins.

## RESEARCH

***Projects:***

Evaluation of the composition of urinary calculi in military personnel.

# DIVISION OF INFECTIOUS AND TROPICAL DISEASES PATHOLOGY



Peter L. McEvoy, COL, MC, USA
Chief
Date of Appointment – 14 April 1997/2001
Departed – 30 September 2007

Mary Klassen-Fischer
Chief
Date of Appointment – 1 October 2007

## STAFF

*Medical:*

Peter L. McEvoy, COL, MC, USA, (D) 30 September 2007
Mary K. Klassen-Fischer, MD, Chief, Fungal Diseases Branch
Ronald C. Neafie, MS, Chief Parasitology Branch
Wayne M. Meyers, MD, PhD, Red Cross Volunteer
Douglas J. Wear, DS, ARP, Associate Chairman
Ann M. Nelson, MD

*Administrative:*

Darlene Wilson, Office Manager, ARP

## IMPACT

Operation Iraqi Freedom produced significant numbers of cutaneous leishmaniasis that began arriving in the division. A Leishmania Registry was established to capture patient data and allow for long term follow-up. As of December 31, 2007, 1337 patients were enrolled, 1143 Army, 31 Air Force, 46 Navy, 73 unknown, and 87 civilians. Of these, 839 patients were positive, 770 Army, 5 Air Force, 17 Navy, 22 unknown, and 44 civilians. Four patients with visceral leishmaniasis are included. Our division is the military's gold standard for the diagnosis of leishmaniasis.

## CONSULTATION

Infectious diseases are a major cause of morbidity in the military and a significant possible cause of mortality, as judged by DHS. Our division is the only group of pathologists in the world dedicated to the pathology of infectious diseases. Glass slides and paraffin blocks of tissues suspected to contain lesions caused by infectious disease agents are stained with a number of special stains to capture gram-positive or gram-negative bacteria, fungi, mycobacteria, or immunostains for viruses. Our many years of experience observing infectious agents' destructive footprints in tissue, and the tissue's reaction, help us judge whether a lesion is due to an infectious agent and which is the most likely etiologic agent.

| ***Cases*** | ***Completed*** |
|---|---|
| Military | 190 |
| Army (120) | |
| Navy (41) | |
| Air Force (29) | |
| Federal | 71 |
| VA (62) | |
| Other (9) | |
| Civilian | 149 |
| Interdepartmental | 1,015 |
| Total | 1,425 |

***Clinical Appointments outside AFIP:***
Visiting Pathologist WRAMC, PL McEvoy.

***Deployments:***
Monthly: WRAMC, sign out pathology cases, PL McEvoy.

## EDUCATION

***Courses:***
Division staff participated as faculty to one AFIP course in 2006 and the Military Tropical Medicine Course at USUHS

***Trainees:***
The division hosted 1 Red Cross volunteer in 2007.

***Presentations:***
1. February 2007: Washington DC, AFIP, "Malaria video presentation (1hr)," RC Neafie.
2. March 2007: Rockville, Md, AFIP 17th Annual Anatomic Pathology Course, "Review of infectious disease pathology," PL McEvoy.
3. April 2007: Baltimore, Md, Johns Hopkins Medical Center, "Review of infectious disease pathology," PL McEvoy.
4. May 2007: Marion, IL, VA Medical Center, "Infectious disease submissions from the department of Veterans Affairs: the AFIP Experience," DJ Wear.
5. July 2007: Silver Spring, USUHS, Military Tropical Medicine Course, "Loiasis and Dracunculiasis," RC Neafie.
6. August 2007: Washington DC, WRAMC, "Nematode infections," RC Neafie.
7. August 2007: Washington, DC, WRAMC, "Other worms," RC Neafie.
8. October 2007: Washington, DC, AFIP Weekly Staff Conference, "Larval Enterobiasis," RC Neafie.
9. October 2007: Washington, DC, AFIP Weekly Staff Conference, "Cryptosporidium vs. Isospora: diagnosis by light microscopy," DJ Wear.
10. October 2007: Washington, DC, AFIP Weekly Staff Conference, "A worm as treatment for Crohn disease," MK Klassen-Fischer.

## RESEARCH

***Publications***

***Journal Articles:***
1. Kibadi K, Aujoulat I, Meyers WM, Mokassa L, Muyembe T, Portaels F. Study of names and folklore associated with Mycobacterium ulcerans infection in various endemic countries in Africa. *Med Trop (Mars)*. 2007 Jun;67(3):241-248. French.
2. Ohrt C, Obare P, Nanakorn A, Adhiambo C, Awuondo K, O'Meara WP, Remich S, Martin K, Cook E, Chretien JP, Lucas C, Osoga J, McEvoy P, Owaga ML, Odera JS, Ogutu B. Establishing a malaria diagnostics centre of excellence in Kisumu, Kenya. *Malar J*. 2007 Jun 12;6:79.
3. Phanzu DM, Ablordey A, Imposo DB, Lefevre L, Mahema RL, Suykerbuyk P, Meyers WM, Portaels F. Short report: edematous Mycobacterium ulcerans infection (Buruli ulcer) on the face: a case report. *Am J Trop Med Hyg*. 2007 Dec;77(6):1099-1102.
4. Suykerbuyk P, Vleminckx K, Pasmans F, Stragier P, Ablordey A, Tran HT, Hermans K, Fleetwood M, Meyers WM, Portaels F. Mycobacterium liflandii infection in European colony of Silurana tropicalis. *Emerg Infect Dis*. 2007 May;13(5):743-746.
5. Torrado E, Fraga AG, Castro AG, Stragier P, Meyers WM, Portaels F, Silva MT, Pedrosa J. Evidence for an intramacrophage growth phase of Mycobacterium ulcerans. *Infect Immun*. 2007 Feb;75(2):977-987. Epub 2006 Dec 4.
6. Walsh DS, Dela Cruz EC, Abalos RM, Tan EV, Walsh GP, Portaels F, Meyers WM. Short report: clinical and histological features of skin lesions in a cynomolgus monkey experimentally infected with Mycobacterium ulcerans (Buruli ulcer) by intradermal inoculation. *Am J Trop Med Hyg*. 2007;76:132-134.

***Abstracts:***
Zelazny A, Li L, Fischer S, Wortmann G, Hochberg L, Weina P, Mendez J, Klassen-Fischer M, Aronson N (2007). Comparison of Different Leishmania PCR Assays for the Identification of

Old World Leishmania. 107th General Meeting of the American Society for Microbiology, Toronto, Canada, May 21-25.

***Book Chapters:***
Procop GW, Neafie RC. Less common helminthes. In: Murray PR, ed. *Manual of Clinical Microbiology*. 9th edition. ASM Press; 2007: pp 2188-2198.

***Other Publications:***
McEvoy PL. Basidiobolomycosis HQAP-1-4, 2007. AFIP.

***Collaborators:***

**Military:**

1. WRAMC, Infectious Disease Department: Leishmaniasis.
2. WRAIR, Leishmaniasis Diagnostic Laboratory.
3. WRAIR, Department of Entomology: Leishmaniasis.
4. USAF, Team studying leishmaniasis in USAF.
5. GEIS, Reporting infectious diseases in active duty military personnel.

**Civilian:**

1. American Leprosy Mission.
2. Institut Médical Evangélique, Kimpese, D. R. Congo.
3. Institute of Tropical Medicine, Antwerp, Belgium.
4. Centre Sanitaire et Nutritionnel (Gbemoten), Zagnanado, Republic of Benin.
5. Imunobiologia, Instituto de Biologia Molecular e Celular, Porto, Portugal.
6. Life and Health Sciences Research Institute, School of Health Sciences, Campus de Gualtar, Braga, Portugal.

## PROFFESSIONAL ACTIVITIES

***Official trips:***

1. January, June 2007: Bellmore, NY, Board Meeting, Damien-Dutton Society for Leprosy Aid, Inc., WM Meyers.
2. March 2007: San Diego, CA, USCAP, RC Neafie, WM Meyers.
3. May, November 2007: Greenville, SC, Board Meeting, Leonard Wood Memorial.
4. May, November 2007: Greenville, SC, Board Meeting, American Leprosy Missions.

***Editorial:***

1. Reviewed of 6 manuscripts for professional journals , WM Meyers.
2. Member of Jury for the defense of PhD thesis by doctoral candidate, Mr. Anthony Ablordey, University of Ghent, Antwerp, and the Institute of Tropical Medicine, Antwerp, Belgium, WM Meyers.
3. Editor-in-Chief of the AFIP book, *Pathology of Infectious Diseases, Volume 2: Protozoan and Invasive Arthropod Diseases*, WM Meyers.

# DIVISION OF MICROBIOLOGY

Robert Crawford, PhD
Division Chief
Date of Appointment – November 1, 2003

## MISSION

The Division of Microbiology provides microbial laboratory testing and consultation for federal government laboratories and is a part of Laboratory Response Network. It also provides education and research for DoD organizations worldwide for these areas of pathology.

## ORGANIZATION

The division is organized into 9 branches and the office of the chief.

Science Operations - Patrick Kennedy, Maj, USAF, BSC
Laboratory Operations – Michael Dobson, PhD
Bacteriology – Stephen Francesconi, PhD
Molecular Biology – Ketan Patel, PhD
Immunology and Therapeutics – Mina Izadjoo, PhD
Optical Spectroscopy – Kathryn S. Kalasinsky, PhD
Virology – Sue Cross, PhD
Special Projects - Binxue Zhang, PhD
Quality Assurance – Avis D. Bullard, MS, CQA(ASQ)

## STAFF

*Scientific:*

Robert Crawford, PhD, Division Chief
James Hanson, Maj, USAF, Deputy Division Chief
Patrick Kennedy, Maj, USAF, BSC, Chief, Science Operations
Michael Dobson, PhD, Chief, Laboratory Operations
Stephen Francesconi, PhD, Chief, Bacteriology
Ketan Patel, PhD, Chief, Molecular Biology
(D) Mark Chrustowski, Chief, Molecular Genomics
Mina Izadjoo, PhD, Chief, Immunology and Therapeutics
Kathryn S. Kalasinsky, PhD, Chief, Optical Spectroscopy
Sue Cross, PhD – Chief, Virology
Binxue Zhang, PhD, Chief, Special Projects
(A) Avis D. Bullard, MS, CQA(ASQ) Chief, Quality Assurance
Ukkubandage Gunasinghe, PhD, Senior Research Scientist
(D) Curtis M. Sharkey, PhD, Research Virologist
(D) Louis R. Corbin, HM2, USN, Laboratory Technician
(A) Joval Gapuz, HM1, Laboratory Technician
Lalaine Anova, Animal Research Associate
Robert Burgess, Microbiology Research Associate
Katie G. Caldwell, Microbiology Research Associate
Jill Cullen, Molecular Research Associate
Jennifer Engle, Molecular Research Associate
Haven L. Hull, Molecular Research Associate
(A) Victoria Kalasinsky, Microbiology Research Associate
Elizabeth Kurrle, Molecular Research Associate

Justin Jay, Molecular Research Associate
(D) Rachael Jeanty, Virology Molecular Research Associate
Ellen LaMorena, Molecular Research Associate
Vanessa Marcel, Molecular Research Associate
(A) Pamela Motloch, Microbiology Research Associate
(A) Meagan Parrott, Microbiology Research Associate
Adrein Ravizee, Research Technician
(A) Sharon Seelman, Microbiology Research Associate
April Shea, Spectroscopy Research Associate
Heidi St. John, Microbiology Research Associate
Wendell Thomas, Microbiology Research Associate
Joe Thompson, Animal Research Associate
(D) Kimberly Wahowski, Microbiology Research Associate
Elizabeth Wallace, Microbiology Research Associate

*Administrative:*

Levi Horton, Administrative Assistant, Division of Microbiology

## DIAGNOSTIC CONSULTATION

The Division of microbiology analyzed 29 cases in 2007

| *Type of Case* | | *Source of Case* | |
|---|---|---|---|
| Environmental | 29 | FBI | 14 |
| | | CSS | 14 |
| | | HHS | 1 |
| Clinical | 0 | | |
| TOTAL | 29 | TOTAL | 29 |

Our division developed one (1) new method for microbial analysis:

Use of Real-Time RT-PCR analysis developed by BinXue Zhang and Ketan Patel to identify alphaviruses, poxviruses, bunyaviruses, and viruses from other families.

***National/International Consultations:***

1. Federal Bureau of Investigation, Washington, DC
2. Edgewood Chemical and Biological Command, Aberdeen, MD
3. Ministry of Health, Republic of Azerbaijan
4. Ministry of Agriculture, Republic of Azerbaijan

***Quality Assurance:***

**Inspection Teams:**

1. AFIP's Biosurety program was reviewed by the MEDCOM Surety Management Review Team.
2. The Division of Microbiology was audited by the College of American Pathologist.

***Proficiency Exams:***

Our Division successfully completed 5 proficiency surveys provided by the College of American Pathologists: these include three Bacteriology and two Laboratory Preparedness surveys.

***Quality Initiatives:***

Implementation of ISO Guide 34 and A2LA accreditation to support CBMS Critical Reagent Program. This will be accomplished by an on-site Quality Manager who will develop a quality plan and address items cited in an earlier gap assessment.

## EDUCATION

***Presentations and Seminars:***

The Division of Microbiology presented 7 papers/posters at scientific conferences this year. The titles can be found at the end of the division report. Continuing education seminars were given throughout the year by external and internal professionals for the scientific staff of the division.

## RESEARCH

### *Publications:*

The Division produced 2 manuscripts in refereed journals in 2007. A list is included at the end of the division report.

### *Projects:*

The Division maintained 28 research projects in 2007. Two Official Research Protocols were open as of December 31, 2007.

1. Use of Real-Time RT-PCR analysis developed by BinXue Zhang and Ketan Patel to identify alphavirus poxviruses, bunyaviruses, and viruses from other families. (K Patel)
2. Production, purification, nucleic acid extraction, and characterization of poxviruses (S Cross)
3. Production of viable virus and nucleic acids from alphaviruses flaviviruses and other viruses for Bioforensic Analysis Center (S Cross).
4. Repository for poxviruses, alphaviruses, flaviviruses, and other viruses of value to DOD. (S Cross).
5. Laboratory Response Network Reference Laboratory competency testing and sample analysis (M Dobson and K Patel)
6. Raman Chemical Imaging Biothreat Database (KS Kalasinsky)
7. Optical Measurements of Threat Antigens (KS Kalasinsky)
8. Raman Detection of Leishmania in Clinical Samples (KS Kalasinsky)
9. Bioforensic Analysis Center microbial nucleic acid and cell production (S Francesconi)
10. Ecological and Socio-economic Factors of Anthrax Foci Activity and Improvements of its Diagnosis and Prophylaxis in Kazakhstan (S Francesconi)
11. Assessment of Plague, Anthrax, and Tularemia in Selected Regions in Uzbekistan (S Francesconi)
12. Delivery and training of Ruggedized Advanced Pathogen Identification Device (RAPID) and associated training in FSU (S Francesconi, E Wallace)
13. Mobile Outbreak Response Unit (MORU) operations and trials in Azerbaijan. (S Francesconi, E Wallace)
14. Preparation and Monitoring of Proficiency Testing in Uzbekistan and Azerbaijan: Validating the detection of Avian Influenza and Bacterial Pathogens. (S Francesconi, E Wallace)
15. Repository for Especially Dangerous Pathogens isolated in the FSU (S Francesconi)
16. Clinical Specificity of the Joint Biological Agent Identification and Diagnostic System (JBAIDS)-Plague and Tularemia Detection System. (S Francesconi)
17. Bioforensic Analysis Center microbial nucleic acid and cell production (S Francesconi)
18. Proteomics for differentiation of Yersinia pestis, its biovars, and Y. pseudotuberculosis (R Crawford, S Francesconi)
19. Microarry(Nanogen) Application for Biothreat Agents Detection: Array Design, Test and Optimization (B Zhang)
20. Whole Genome Amplification for Biothreat Agents Identification(Binxue Zhang)
21. Genetic Characterization of CRP Threat Microorganisms using Riboprinter (M Dobson)
22. Establishment of an “Evaluation Center” for Next Generation Diagnostics (M Izadjoo).
23. Biological Threat Agents Identification in Clinical Specimens Using Real-Time Fluorescent Polymerase Chain Reaction (M Izadjoo).
24. Real-time PCR assay testing and optimization using the RAZOR pathogen detection system (K Patel, H Hull)
25. Use of liposome or formulation with CpG DNA to enhance protective efficacy of lipopolysaccharide-based brucella subunit vaccine in BALB/c mice (M Izadjoo)
26. Multi Center evaluation of sample processing methods for nucleic acid extraction (M Izadjoo)
27. Use of RNA technology to inhibit expression of virulence genes from biowarfare agents (M Izadjoo)
28. Efficacy testing of novel antiviral drugs extracted from marine microorganisms (M Izadjoo)

### *Research Funds Received:*

1. DTRA: Use of RNA technology to inhibit expression of virulence genes from biowarfare agents ($1,369,761)
2. DTRA: Efficacy testing of novel antiviral drugs extracted from marine microorganisms

($325,000)
3. DTRA: Multi Center evaluation of sample processing methods for nucleic acid extraction ($235,000)
4. WRAIR: Use of liposome or formulation with CpG DNA to enhance protective efficacy of lipopolysaccharide-based brucella subunit vaccine in BALB/c mice ($60,000)
5. Establishment of an Evaluation Center for "Next Generation" Diagnostics ($350,000)
6. Development of multiagent bacteriaphage vaccine for anthrax, plague and botulinum neurotoxin ($119,495)
7. Defense Standardization Program - $470,000 from Patrick Air Force Base
8. Biosenors - $25,000 from ECBC-APG
9. Salmonella Species - $237,587 from Andrews Air Force Base
10. Proficiency Testing Support Rapid Program - $265,600 from Langley Air Force Base
11. Genomic Amplification of Micro Agents - $144,000 from USAMRAA
12. Genomic Repository - $109,970 from CBMS
13. JBAIDS Program - $227,460 from CBMS
14. Science & Technology Directorate - $2,898600 – from Homeland Security
15. Veterinary & Human Clinical Cases - $280,000 from DTRA
16. Nucleic Acid Assays - $359,000 from DTRA
17. Proteomic–ID of Proteins - $250,000 from DTRA
18. Genomic Repository - $50,000 from CBMS
19. Biodefense Research - $490,000 from DTRA
20. Critical Reagents Program - $500,000 from CBMS
21. ECT-Razor Assay optimization - $200,000 from DTA
22. Biological Agents - $30,000 from ECBC-APG
23. Bacillus Anthracis - $48,928 from CBMS-JPMO

## OTHER ACCOMPLISHMENTS

### *Collaborators:*

**Military/Federal:**
Dr. Alan Samuels, Edgewood Chemical Biological Command, Optical Detection of Threat Antigens.

**Civilian:**
1. Pat Treado, ChemImage Corporation, Pittsburgh, PA, Raman Chemical Imaging Biothreat Detection.
2. Dr. Trevor Castor, Aphios Corporation, Boston, MA, Development of novel antiviral drugs.
3. Dr. Sidney Altman (Nobel Prize Winner), Yale University, New Haven, CT, Inactivation of biowarfare agents using an RNA technology.
4. Dr. Steve Hinrichs, Dr. Paul Fey, and Dr. Pete Iwen, University of Nebraska Medical Center, DNA preparation and Proteomics.
5. Dr. Andy Benson, University of Nebraska, Lincoln, Comparative Genomic Hybridization (CGH) Microarrays.
6. Dr. Aurba Bhattacharjee, Walter Reed Army Institute of Research, Silver Spring, MD. Brucella vaccine research.
7. Dr. Shanmuga Sozhamannan, Naval Medical Research Center, Rockville, MD.
8. Dr. Hal Siegel, Vice President and Chief Scientific Officer ImmuneRegen Biosciences, Scottsdale, AZ.
9. Dr. Anil Diwan, President NanoViricides, West Haven, CT.
10. Dr. Andres Salazar, Chairman and CEO Oncovir, Washington, DC.

**International:**
1. Dr. Amijon Nematov, Director, Center for Quarantine and Prophylaxis of Most Hazardous Infections, Ministry of Health, Tashkent, Uzbekistan.
2. Dr. Alim Aikimbayev, Deputy Director, Kazakhstan Scientific Center for Quarantine of Zoonotic Diseases, Ministry of Health, Almaty, Kazakhstan.

### *Honors:*

Defense Threat Reduction Agency U.S. Collaborating Scientist of the Year (2007). Awarded at the Annual Science Review in Garmish, Germany 06 April 2007 - Dr. Stephen Francesconi

***Committees (Extramural):***

**Military:**

1. USAF Laboratory Bio-defense Steering Committee, S Francesconi, Maj P Kennedy.
2. Integrated Consortium of Laboratory Networks (Proficiency Test Subcommittee, P Kennedy, J Cullen.
3. Critical Reagents Program – Reference Material Integrated Process Team, R Crawford, S Francesconi, S Cross, P Kennedy.
4. Critical Reagents Program – AOAC Validation Integrated Process Team, R Crawford, K Patel, P Kennedy.
5. Critical Reagents Program – Quality Integrated Process Team, R Crawford, A Bullard, P Kennedy.
6. Critical Reagents Program – PCR IPT member, K Patel.

***Editorial Boards:***

1. *Spectroscopy* –K Kalasinsky
2. *Spectrochimica Acta Part A: Molecular Spectroscopy*, K Kalasinsky.

***Committees (Intramural):***

AFIP Institutional Review Board for Human Subjects, K Kalasinsky.

***Official Trips:***

1. January 29–February 19, 2007: Initial RAPID delivery and Training in Baku, Azerbaijan, responding to concerns of another Avian Influenza Outbreak. Flew to Almaty, Kazakhstan to continue work on KZ-1 anthrax project, S Francesconi.
2. March 16–23, 2007: Tashkent and desert field expedition site in Uzbekistan. Collaborative research at natural plague, tularemia, and anthrax foci. Return to Baku for step two in the Molecular Diagnostic Training in support of RAPID diagnostics for Avian Influenza, S Francesconi.
3. March 28–April 8, 2007: Attended European Conference for Clinical Microbiology in Munich, continued to Garmisch for DTRA Annual Program Review, S Francesconi.
4. April 24–25, 2007: Salt Lake City, Utah, Training on Repair and Refitting RAPIDs in the field, S Francesconi.
5. May 1–May 3, 2007: Critical Reagents Program Symposium (CRP) in San Antonio, P Kennedy, V Marcel, K. Caldwell, H. Hull, M Parrott.
6. May 1–7, 2007: Strain Transfer from Almaty Kazakhstan to Ft Collins, CO, S Francesconi.
7. May 18–31, 2007: Collaborative research in the laboratories of the Institute Pasteur, Paris, Validation of PCR assay specific for *Yersinia pestis*, S Francesconi.
8. June 2007: To attend Chemical, Biological and Radiological Defense Cooperative Program in Edgewood, Maryland. Dr. R. Crawford and Capt P Kennedy
9. June 2007: Air Force PT Update, JBAIDS table top exercise. CBRNE – Orlando, FL, K Patel.
10. June 10–15, 2007: Six Sigma Training in Indianapolis, IN, P Kennedy.
11. July 15–18, 2007: Critical Reagents Program Syposium (CRP) in San Antonio, TX, S Cross.
12. July 29–August 1, 2007: Dugway Proving Grounds, S Francesconi, K Kalasinsky, A Shea.
13. August 2007: Biomedical Advanced Research Development Authority, Washington, DC, M Izadjoo.
14. August 11–24, 2007: Republic of Georgia for initial RAPID training, responding to ongoing outbreaks of African Swine Fever and Classical Swine Fever, S Francesconi.
15. August 30- September 12, 2007: Kuala Lumpur. Delivered an invited talk about Biological Toxins and their medical effects, S Francesconi.
16. September 12–13, 2007: To attend export licensing class presented by the Bureau of Industry and Security in Pittsburgh, PA, K Caldwell.
17. September 30–October 21, 2007: Baku responding to request for assistance in diagnosing outbreak of anthrax. Tashkent and desert field expedition site in Uzbekistan. Collaborative research at natural plague, tularemia, and anthrax foci. Bacillus meeting in Oslo, S Francesconi.
18. November 4–7, 2007: Biodefense Research Conference in Philadelphia, PA, S Cross, M Izadjoo.
19. November 2007: CRP PCR IPT, Baltimore, MD, K Patel.
20. November 5–7, 2007: Philadelphia, PA, Tropical Medicine Meeting, S Francesconi.
21. November 7–8, 2007: Training on Leishmania detection by Raman from ChemImage

Corp. at Allegheny General Hospital in Pittsburgh, PA, K Kalasinsky, A Shea.
22. December 2–5, 2007: Omaha, Nebraska. Site visit to collaborators at University of Nebraska Medical Center, S Francesconi.
23. December 9–16, 2007: Salt Lake City, Dugway Proving Grounds. Delivered equipment and trained researchers in the use of the equipment, S Francesconi, K Kalasinsky, A Shea.

## PRESENTATIONS

1. March 2007: Boston, MA, Society of Armed Forces Medical Laboratory Scientists, "Science and technology career track at the AFIP," J Hanson.
2. March 2007: Chicago, IL, Pittsburgh Conference on Analytical Chemistry and Spectroscopy, "Raman biological database key to biothreat identification," K Kalasinsky, AA Shea, PJ Treado, MP Nelson.
3. June 2007: San Antonio, TX, Critical Reagents Program, "Genomic repository present and future," P Kennedy.
4. August 2007: Boston, MA, American Chemical Society Meeting, "Raman chemical imaging spectroscopy for reagentless pathogen detection," PJ Treado, KS Kalasinsky, MP Nelson.
5. October 2007: Anaheim, CA, AABB Annual Meeting and TXPO, "A statistical approach to process control and improvement for cryoprecipitate manufacturing," AD Bullard.
6. October 2007: Memphis, TN, Federation of Analytical Chemistry and Spectroscopy Societies, "Forensic investigation of biological threats," KS Kalasinsky. (Invited Speaker)
7. November 2007: Somerset, NJ, Eastern Analytical Symposium, "White powders: biological threat? What can infrared and raman tell us," KS Kalasinsky, AA Shea. (Invited Speaker)

### *Lectures:*

Staff members of the Division of Microbiology presented the following lectures as parts of courses organized and directed by the AFIP or other agencies.

1. December 2007: Washington, DC, AFFIP Professional Staff Conference, "Raman chemical imaging biothreat detection," KS Kalasinsky.
2. December 2007: Washington, DC, AFFIP Professional Staff Conference, "Field studies in central Asia," S Francesconi.
3. December 2007: Washington, DC, AFFIP Professional Staff Conference. "Immunology and therapeutics by the Division of Microbiology," M Izadjoo.

### *Publications:*

### *Journals:*

1. Fey PD, Dempsey MP, Olson ME, Chrustowski MS, Engle JL, Jay JJ, Dobson ME, Kalasinsky KS, Shea AA, Wickert RC, Francesconi SC, Crawford RM, Hinrichs SH. Molecular analysis of *Francisella tularensis* subspecies tularensis and holartica. *Amer J Clin.* 2007;128(6), 926-935.
2. Kalasinsky KS, Hadfield T, Shea AA, Kalasinsky VF, Nelson MP, Neiss J, Drauch AJ, Vanni GS, Treado PJ. Raman chemical imaging spectroscopy reagentless detection and identification of pathogens: signature development and evaluation. *Anal Chem*. 2007: 79, 2658-2673.

# DIVISION OF MOLECULAR PATHOBIOLOGY

Shyh-Ching Lo, PhD
Chief
Date of Appointment — 2 May 1991

## STAFF

*Medical*

Shyh-Ching Lo, MD, PhD, Division Chief

*Scientific*

Shaw-Huey Feng, PhD, Immunologist/Scientist, ARP
Hyung-Yong Kim, PhD, Research Scientist, ARP
Bing-Jie Li, MD, Molecular Microbiologist, ARP
(D) Hong, Ge, MD, PhD, Research Scientist, ARP
Shien Tsai, PhD, Senior Research Scientist, ARP
Shimin Zhang, MD, PhD, Senior Research Scientist, ARP
(D) Nianxiang Zou, PhD, Research Scientist, ARP
José Rodriguez, Research Technician, ARP
Parmesh Dutt, PhD, Research Scientist, ARP

## IMPACT

1. The division continued to develop and characterize monoclonal antibodies that could differentiate between closely related *Burkholderia pseudomallei* and *Burkholderia mallei* and from other non-pathogenic Burkholderia bacteria.
2. The division has been actively conducting studies on developing human monoclonal antibodies against various viral agents by directly immortalizing human B memory cells in the peripheral blood. This is a highly innovative approach of developing valuable human monoclonal antibodies.
3. The division has published the study results of developing human single-chain antibody (scFv) monoclonal antibody against *Burkholderia pseudomallei* and *Burkholderia mallei*.
4. The division has successfully constructed human IgGs from scFv monoclonal antibodies selected from phage-displayed combinatorial human single-chain antibody (scFv) libraries. The recombinant human IgGs specifically recognize complex whole cell antigens of Burkholderia bacteria.
5. The division has prepared more mouse ascitic fluids monoclonal antibodies that could specifically recognize bacteria with major biothreat concerns—*Bacillus anthracis, Yersinia pestis* and *Franciscella tularensis*. These reagents are critical in diagnosis or detection of infections by these biothreat agents.
6. The laboratory presented our study results on Measuring and Ranking of Antibodies' binding affinity against pathogenic Burkholderia bacteria using surface plasmon resonance (SPR) at the 2007 Biodefense Research Conference.
7. The laboratory presented our study results on examination and comparison of in vitro Monoclonal Antibodies' bactericidal effects against pathogenic Burkholderia bacteria at the 2007 Biodefense Research Conference.
8. The division has submitted the study results of classification and characterization of more than 100 monoclonal antibodies reacting against *Burkholderia pseudomallei* and *Burkholderia mallei*. The paper is accepted for publication.
9. The division has collaborated with scientists of 2 different universities and published a

study revealing a novel brain pathology that could be associated with a direct mycoplasmal infection. The study was published in the Journal of Neuropathology and Experimental Neurology.

10. In collaboration with outside scientists, we have also submitted the findings of BMP-2 expression in cells induced by mycoplasmal infections for publication. The paper is in press.
11. Our laboratory has continued to study other unknown factors that may affect the disease progress of chronic debilitating illnesses of human, including AIDS.

## MISSION

The Division of Molecular Pathobiology provides consultation services to the AFIP, other federal agencies, civilian institutions, clinicians, and research scientists on the pathology of unusual infections, especially by mycoplasmas, chlamydias, and viruses. The Division provides consultation on electron-microscopic diagnosis and studies of bacteria, viruses, and mycoplasmas, on various disease processes related to infections by microorganisms, and on molecular techniques in diagnosis and research. The laboratory of the Division also conducts molecular studies of the submitted cases needed for microbial identification and speciation by amplifying the highly conserved ribosomal sequences from the genetic material retrieved from the paraffin-blocks followed by sequencing. The molecular study information could often complement histopathology findings for the final consultation report.

The Division has expanded its service to the military beginning in 2003 through its efforts for the Department of Homeland Security and the Defense Threat Reduction Agency (DTRA) of DoD. Both the military and Homeland Security urgently need reagents to rapidly detect and differentiate biowarfare agents, specific antibodies for human therapeutic use, and vaccines against these agents of biothreat. The Division has been preparing from mouse ascitic fluids monoclonal antibodies that could specifically recognize *Bacillus anthracis, Yersinia pestis* and *Franciscella tularensis*. In addition, the Division has developed a series of monoclonal antibodies that could differentiate between closely related 2 Category B priority pathogens of biothreat, *Burkholderia pseudomallei* and *Burkholderia mallei*, and from other nonpathogenic Burkholderia bacteria. The laboratory under the Division has been using phage-displayed combinatorial human single chain antibody (scFv) libraries to develop human monoclonal antibodies against complex antigens, specifically whole Burkholderia bacteria antigens. This represents a new approach in the development of monoclonal antibodies, based on the conformation (shape and charge) of protein antigens. Moreover, the Division is actively developing human monoclonal antibodies against pox viruses as potential therapeutics in human. Both the projects of developing monoclonal antibodies specific to pathogenic Burkholderia bacteria and pox viruses are supported by grants from the DTRA. The laboratory continues to study the AIDS-associated mycoplasmas originally discovered in this laboratory and continues to search for the unusual microbes as potential etiologic agents of various human chronic illnesses.

The Division supports the AFIP's educational program by providing lectures, courses, and training for visiting scientists, fellows, and students. The scientists of the Division present their scientific findings at the National and International Conferences. The Division also actively participates in scientific education and training for high school and college students in every summer.

## CONSULTATION

***Presentations and Studies:***

In addition to consultation support in electron microscopic and immunohistochemical diagnosis of unusual microbes for the Institute, division staff conduct molecular studies by amplifying ribosomal genes of bacteria and fungi for molecular identification and speciation. All consultations rendered by this division are reported with the Division of Infectious and Tropical Disease Pathology.

## EDUCATION

***Presentations and Seminars:***

Division staff gave 4 presentations in 2007, for a total of 300 man-hours. The division trained 4 high students in the 2007 AFIP summer program.

## RESEARCH

### *Publications:*

Division staff published 3 articles in 2007. Two additional papers are accepted for publication (in press).

### *Journal Articles*

1. Shimin Z, Jonklaas J, Danielsen M. The glucocorticoid agonist activities of mifepristone (RU486) and Progesterone are dependent on glucocorticoid receptor levels but not on EC50 values. *Steroids*. 2007;72:600-608.
2. Zou N, Newsome T, Li B, Tsai S, Lo S-C. Development of human single chain (scFv) antibodies against *Burkholderia mallei* and *Burkholderia pseudomallei*. *Experimental Biology and Medicine*. 2007; 232(4): 550-556.
3. Zu-Rhein GM, Lo S-C, Hulette CM, Powers JM. A novel cerebral microangiopathy with endothelial cell atypia and multifocal white matter lesions: a direct mycoplasmal infection? *J Neuropath Exp Neurol*. 2007;66(12): 1100-1117.

### *Projects*

1. Production of mouse ascitic fluid with monoclonal antibodies specifically against various biological warfare agents. (UBWA)
2. Effect of mycoplasmas on steroid receptor functions. (UBUY)
3. Development of Mabs as therapeutics against *Burkholderia pseudomallei* and *Burkholderia mallei*. (UB5O)
4. Mycoplasmal infection and immortalization of human peripheral blood mononuclear cells. (UBIM)

### *Summary of Research Program. Thru 2007:*

1. The laboratory continued to develop and characterize specific monoclonal antibodies to *Burkholderia pseudomallei* and *Burkholderia mallei*, category B biological warfare agents (A 3-year project supported by DTRA).
2. The laboratory developed techniques of screening phage-displayed combinatorial human single-chain antibody (scFv) libraries against complex whole bacteria antigens of *B. pseudomallei* and *B. mallei*.
3. We continued to prepare monoclonal antibodies from mouse ascitic fluids for detection and diagnosis of infections of *Bacillus anthracis, Yersinia pestis* and *Franciscella tularensis*.
4. The laboratory published the study results of developing human scFv monoclonal antibodies that can differentiate pathogenic and non-pathogenic Burkholderia sp, using phage displayed scFv libraries.
5. The laboratory submitted the study results of classifying and characterizing specific human monoclonal antibodies to pathogenic *Burkholderia pseudomallei* and *Burkholderia mallei*. The paper is in press.
6. The laboratory reported our results of in vitro assays that compare inhibitory and killing effects against pathogenic Burkholderia bacteria by specific monoclonal antibodies our lab has developed in the annual meeting of 2007 Biodefense Research Conference.
7. The laboratory presented our study results on measuring and ranking of monoclonal antibodies' binding affinity against pathogenic Burkholderia bacteria using surface plasmon resonance (SPR) in the annual meeting of 2007 Biodefense Research Conference.
8. We have successfully secured the continuing support (another 3 year study) of an external grant support to develop "affinity-improved" therapeutic monoclonal antibodies against pathogenic *Burkholderia pseudomallei* and *Burkholderia mallei*.
9. We have successfully secured the continuing support (the 2nd year study) of an external grant support from the Medical Chemical and Biological Defense Science and Technology Program (DTRA) of the US Army Research and Material Command and successfully to develope human monoclonal antibodies against pox viruses.
10. We have published our study finding of a novel brain pathology that could be associated with a direct mycoplasmal infection. The study was conducted in collaboration with 2 different university pathology groups.
11. In collaboration with outside research scientists, we have also submitted the findings of BMP-2 expression in cells induced by mycoplasmal infections for publication. BMP-2 expression has been associated with cancer cell formation. The paper is in press.
12. The laboratory continues to conduct molecular studies of the submitted cases needed for microbial identification and speciation by amplifying the highly conserved ribosomal

sequences from the genetic material retrieved from the paraffin blocks followed by sequencing.

13. Our laboratory continued to develop and assess highly sensitive and specific techniques to identify and clone genetic materials of previously unknown organisms that fail to grow in our current culture systems.

### *Collaborators:*

**Military:**
Naval Medical Research Institute, Silver Spring, Md

**Civilian:**
Clinical Center, National Institutes of Health, Bethesda, Md

### *Committees: (Intramural)*

**Shimin Zhang**

1. AFIP safety committee (Radiation Protection Officer)
2. Member of the Radiation Safety Control Committee
3. Member of the Safety Committee of the AFIP
4. Walter Reed Army Medical Center radiation control committee
5. AFIP Library Committee

### *Committees: (Extramural)*

**Shyh-Ching Lo**
Member, Institutional Biosafety Committee (IBC), Walter Reed Army Medical Center, Washington, DC.

### *Editorial Board:*

*Methods in Cell Science*, Shyh-Ching Lo

# DIVISION OF AIDS PATHOLOGY AND EMERGING INFECTIOUS DISEASE

Ann M. Nelson, MD,
Chief
Date of Appointment — 2004

## STAFF

*Medical*
Ann M Nelson, MD

## IMPACT

The Division of AIDS Pathology and Emerging Infectious Diseases supports the United States Department of Defense and serves the American people by providing medical expertise in HIV-related and emerging infections in diagnostic consultation, education, and research to enhance the health and well-being of the people we serve.

## CONSULTATION

The division has developed the world's largest repository (>7,000 cases) of the pathology of HIV infection and AIDS. The collection dates back to the 1970s and includes material for original cases reported to the CDC, and autopsy, surgical, and cytology material from the US, Africa, Central and South America, Europe, and Asia. Material from the repository has been used for 2 books and courses on the pathology of emerging infections and for contributions to the NCI HIV-malignancy bank. New collaborations in Telepathology consultation with Makarere Medical School in Uganda are under development.

| ***Cases*** | ***Completed*** |
|---|---|
| Military | 6 |
| Army (1) | |
| Navy (3) | |
| Air Force (2) | |
| Federal | 46 |
| VA (45) | |
| USPHS (1) | |
| Civilian | 26 |
| Interdepartmental | 13 |
| Total | 91 |

## EDUCATION

***Trainees:***
The Division hosted a Public Health Service Pathologist.

***Presentations (AM Nelson):***

1. February 2007: Washington DC, AFIP, VTC Grand Rounds, "Granulomas: the differential."
2. March 2007: San Diego, CA, USCAP, "Case discussion: Herpes virus immune restoration inflammatory syndrome."
3. June 2007: Recife, Brazil, FIO Cruz Hospital, "The pathology of antiretroviral therapy. Department of Infectious Diseases."

4. June 2007: Rio de Janiero, Brazil, Department of Pathology, Federal University of Rio de Janiero, "The pathology of antiretroviral therapy."
5. July 2007: Baltimore, Md, Johns Hopkins School of Tropical Medicine and Hygiene Summer Institute, "AIDS in the Tropics."
6. July 2007: Baltimore, Md, Johns Hopkins School of Tropical Medicine and Hygiene Summer Institute, "The Pathology of AIDS."
7. September 2007: Kampala, Uganda, Department of Pathology, Makerere University, "The pathologist's view of the immunology of AIDS."
8. September 2007: Kampala, Uganda, Faculty of Medicine, Makerere University, "The pathology of antiretroviral therapy."
9. September 2007: Kampala, Uganda, Department of Pathology, Makerere University, "Granulomas: the differential."
10. November 2007: Chandigarh, India, Indian Association of Pathologists and Microbiologists, "The pathology of antiretroviral therapy (keynote address)."
11. November 2007: Chandigarh, India, IAP – India Division, "Immune restoration inflammatory syndrome".
12. November 2007: Aurangabad, India, Department of Pathology, Aurangabad Government Medical College, "AIDS in the time of HAART."
13. November 2007: Pune, India, Armed Forces Medical College, "AIDS in the time of HAART."
14. November 2007: Mumbai, India, ARCON, Sir JJ Medical College, "AIDS in the time of HAART."

## RESEARCH

### *Abstracts:*

Nelson AM, Tetuja A, Man Y-G. Inflammatory cells and membrane disruption in prostate carcinoma: do they have a role in tumor invasion. 96th Annual Meeting USCAP, San Diego, CA, March 2007.

### *Collaborators:*

#### Military

WRAIR, HIV Program in Uganda. Telepathology project.

#### Civilian

1. American Society of Clinical Pathology Institute, Advisory Group
2. HealthNet, Satellife
3. International Pathology and Laboratory Medicine Initiative

## PROFESSIONAL ACTIVITIES

### *Official Trips*

1. USCAP 96th Annual Meeting, San Diego, CA March 2007.
2. Makarere Medical School, Kampala Uganda, September, 2007.
3. Mumbai, Pune, Aurangabad and Chandigahr India. Lectures at various universities and at the IAP-India Division Annual Meeting.

### *Editorial Boards.*

1. Clinical Infectious Diseases, Histopathology Editor, Reviewed photomicrographs for various articles. AM Nelson
2. Reviewed 6 articles for various journals. AM Nelson
3. Pathology – Research and Practice, Editorial Board 2002-present, AM Nelson
4. Reviewed abstracts for Global Health Council

### *Honors:*

Commencement Speaker, Medical School Graduation, International Program, Universidad Autonoma de Guadalajara, December 2007.

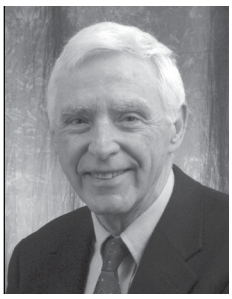
# ADVANCED PATHOLOGY

# GROUP 4

## Hepatic & Gastrointestinal Pathology

## Pulmonary & Mediastinal Pathology

Zachary D. Goodman, MD, PhD
Co-Chair
Date of Appointment — May 2004



Leslie H. Sobin, MD, SES
Co-Chair
Date of Appointment — May 2004

# DEPARTMENT OF HEPATIC AND GASTROINTESTINAL PATHOLOGY

## DIVISION OF HEPATIC PATHOLOGY

### STAFF

*Medical:*

Zachary D. Goodman, MD, PhD, Chief
Lionel Rabin, MD, Staff Pathologist
Anupamjit K. Mehrotra, MD, Staff Pathologist
Hala Makhlouf, MD, PhD, Research Staff Pathologist, ARP
Janet Shaw, Lt Col, USAF, MC, Staff Pathologist
(A) Leonard Howard, LTC, MC, USA, Staff Pathologist
(A) Kathryn Johnson, CPT, USA, MC
Prakash Jha, MD, Research Fellow, ARP
(D) Zhiping Liu, MD, Callender-Binford Fellow

*Scientific:*

(D) Jiaqiang Wu, Director of Morphometry Laboratory, ARP
(A) Michelle Parks, Director of Morphometry Laboratory, ARP
(D) Hala Abdul-Al, MD, PhD, Research Associate, ARP

*Administrative:*

Fanny X. Revelo, Administrative Officer
(D) Tara Butler, Office Assistant

### IMPACT

In 2007 the division continued its tradition of collaboration with other federal agencies, academic medical centers, and industry to maximize our impact on the medical community. Participation in multicenter clinical trials sponsored by NIH and pharmaceutical companies has led to ever-increasing numbers of fruitful collaborations and publications, and has provided funding for intramural research. In education, the annual Hepatic Pathology Course was again highly successful, and members of the staff are frequently invited to speak at national and international meetings. The continuing flow of cases submitted for consultation shows that the division's reputation for diagnostic expertise remains undiminished.

## CONSULTATION

| *Cases* | *Completed* |
|---|---|
| Military | 422 |
| Army (206) | |
| Navy (147) | |
| Air Force (69) | |
| Federal | 539 |
| VA (535) | |
| USPH (4) | |
| Civilian | 644 |
| Interdepartmental | 72 |
| Total | 1,780 |

Most cases submitted to the division pose diagnostic problems for the contributing pathologist, particularly those that deal with medical diseases of the liver, such as chronic cholestatic disorders and steatohepatitis. Neoplasms represent only about 20% of consultation material.

## EDUCATION

***Courses:***
Members of the division participated in 4 non-AFIP courses, 1 nondepartmental AFIP course, and the 27th Annual Course in Hepatopathology, attended by 110 participants for 330 training days.

***Departmental Conferences:***
Division staff conducted daily microscopic pathology conferences for the staff and rotating fellows and residents.

***Trainees:***
The division provided training to 14 civilian and military pathologists and gastroenterology fellows, for a total of 427 training days.

***Faculty Appointments***
1. Clinical Professor, USUHS, ZD Goodman.
2. Adjunct Associate Professor, Georgetown University, ZD Goodman.
3. Adjunct Professor, Temple University, Philadelphia, PA, L Rabin.
4. Professor, Ain Shams University School of Medicine, Cairo, Egypt, HR Makhlouf.

***Committees (Intramural):***
AFIP Credentials Committee, L Rabin

***Presentations***
1. March 2007: Washington, DC, "Introduction to liver disease" (4 lectures), Sophomore Pathology Course, Georgetown University School of Medicine, ZD Goodman.
2. May 2007: Lyon, France, "Patterns of liver fibrosis," annual meeting of International Liver Study Group, ZD Goodman.
3. May 2007: Alexandria, VA, "Diseases of the liver," AFIP course, Anatomic Pathology Review and Update," ZD Goodman.
4. June 2007: Tunis, Tunesia, "Current issues in hepatopathology: tutorial," the 3rd IBN Sina Meeting of Pathology, Faculty of Medicine of Tunis and the Arab School of Medicine (IAP Arab Division), HR Makhlouf.
5. July 2007: Cairo, Egypt, "Fibrosis, cirrhosis, and preneoplastic lesion," "Vascular diseases of the liver" Ain Shams University, School of Medicine, HR Makhlouf.
6. July 2007: "More about glypican-3," annual meeting of the Laennec Liver Pathology Society," Chester Basin, Nova Scotia, Canada, ZD Goodman.
7. September 2007: Alexandria, VA, "Liver Histopathology," Board Review in Gastroenterology, sponsored by Washington Hospital Center, ZD Goodman.
8. September 2007: Silver Spring, MD, AFIP/ARP Hepatopathology Course, "Introduction to liver pathology," "Biopsy diagnosis of hepatitis," "Biopsy diagnosis of cholestatic liver disease," "Drug-induced liver disease," ZD Goodman.
9. September 2007: Silver Spring, MD, AFIP/ARP Hepatopathology Course, "Fibrosis,

cirrhosis and pre-neoplastic lesions," HR Makhlouf.
10. September 2007: Silver Spring, MD, AFIP/ARP Hepatopathology Course, "Tumors of the liver," AK Mehrotra.
11. November, 2007: Boston, MA, "Fibrosis in chronic hepatitis C: evaluation by liver biopsy," annual postgraduate course of the American Association for the Study of Liver Diseases," Boston, MA
12. December 2007, Aleppo, Syria "Chronic hepatitis and its sequels" 19th Congress of the IAP Arab Division, HR Makhlouf

## RESEARCH

### *Publications*

#### *Journal Articles*

1. Abdul-Al HM, Makhlouf HR, Goodman ZD. Expression of estrogen and progesterone receptors and inhibin-alpha in hepatobiliary cystadenoma: an immunohistochemical study. *Virchows Arch*. 2007; 450:691-697.
2. Bondini S, Kleiner DE, Goodman ZD, Gramlich T, Younossi ZM. Pathologic assessment of non-alcoholic fatty liver disease. *Clin Liver Dis*. 2007;11:17-23.
3. Calvert VS, Collantes R, Elariny H, Afendy A, Baranova A, Mendoza M, Goodman Z, Liotta LA, Petricoin EF, Younossi ZM. A systems biology approach to the pathogenesis of obesity-related nonalcoholic fatty liver disease using reverse phase protein microarrays for multiplexed cell signaling analysis. *Hepatology*. 2007; 6:166-172.
4. Goodman ZD. Grading and staging systems for inflammation and fibrosis in chronic liver diseases. *J Hepatol*. 2007; 47:598-607.
5. Goodman ZD. Neoplasms of the liver. *Mod Pathol*. 2007; 20:S49-S60.
6. Goodman ZD, Becker RL, Pockros PJ, Afdhal NH. Progression of fibrosis in chronic hepatitis C: Evaluation by morphometric image analysis. *Hepatology*. 2007; 45:886-894.
7. Kakar S, Gown AM, Goodman ZD, Ferrell LD. Best practices in diagnostic immunohistochemistry: hepatocellular carcinoma versus metastatic neoplasms. *Arch Pathol Lab Med*. 2007;131:1648-1654.
8. Lai CL, Gane E, Liaw YF, Hsu CW, Thongsawat S, Wang Y, Chen Y, Heathcote EJ, Rasenack J, Bzowej N, Naoumov NV, Di Bisceglie AM, Zeuzem S, Moon YM, Goodman Z, Chao G, Constance BF, Nathaniel A. Brown NA. Telbivudine versus Lamivudine in Patients with Chronic Hepatitis B. *New Engl J Med*. 2007; 357:2576-2588.
9. Makhlouf HR, Goodman ZD. Globular hepatic amyloid: an early stage in the pathway of amyloid formation: a study of 20 new cases. *Am J Surg Pathol*. 2007; 31:1615-1621.
10. Pockros PJ, Jeffers L, Afdhal N, Goodman ZD, Nelson D, Gish RG, Reddy KR, Reindollar R, Rodriguez-Torres M, Sullivan S, Blatt LM, Faris-Young S. Final results of a double-blind, placebo-controlled trial of the antifibrotic efficacy of interferon-gamma1b in chronic hepatitis C patients with advanced fibrosis or cirrhosis. *Hepatology*. 2007; 45:569-578.
11. Sherman KE, Goodman ZD, Sullivan ST, Faris-Young S. Liver biopsy in cirrhotic patients. *Am J Gastroenterol*. 2007; 102:789-793.

#### *Abstracts:*

1. Terrault N, Kim R, Schalm S, Papatheodoridis G, Alberti A, Yuen M, Goodman Z, Vaughan J, Wilber R, Kreter B. Presence of biopsy-proven histologic damage (necroinflammation and fibrosis) is common even when ALT is less than 2X ULN in patients with chronic hepatitis B (CHB). *J Hepatol*. 2007; 46 (Suppl 1):S184.
2. Simsek S, Schiff E, Goodman Z, Brett-Smith H, Klesczewski K, Kreter B. Efficacy of entecavir and lamivudine in chronic hepatitis B patients with advanced fibrosis/cirrhosis. *J Hepatol*. 2007; 46 (Suppl 1):S197.
3. Jarrar M, Renard B, Stepanova M, Nugent C, Elariny H, Bennett C, Collantes RS, Goodman Z, Chandhoke V, Baranova A, Younossi ZM. Hepatic manifestation of metabolic syndrome (MS): Nonalcoholic fatty liver disease (NAFLD) and serum adipokines. *J Hepatol*. 2007; 46 (Suppl 1):S271.
4. Terrault N, Kim W, Lim S, Papatheodoridis GV, Alberti A, Yuen M, Goodman ZD, Vaughan J, Wilber R, Kreter B. Presence of biopsy-proven histologic damage (necroinflammation and fibrosis) is common even when ALT is less than 2X ULN in patients with chronic hepatitis B (CHB). *Gastroenterology*. 2007; 132 (Suppl 2):A729.
5. Jarrar M, Elariny HA, Collantes RS, Nugent C, Fang Y, Stepanova M, Kopparti N, Goodman ZD, Chandhoke V, Baranova A, Younossi ZM. Is visfatin a protective

adipokine in patients with non-alcoholic fatty liver disease (NAFLD)? *Gastroenterology*. 2007; 132 (Suppl 2):A819.
6. Calvert V, Collantes RS, Elariny HA, Afendy A, Deng J, Baranova A, Nugent C, Fang Y, Goodman ZD, Liotta LA, Petricoin EF, Younossi ZM. Can phosphoproteomic analysis of white adipose tissue (wat) predict presence of insulin resistance (IR) and resolution of diabetes mellitus (DM) in non-alcoholic fatty liver disease (NAFLD)? *Gastroenterology*. 2007; 132 (Suppl 2):A819.
7. Benhamou Y, Di Bisceglie AM, Goodman ZD, Lampertico P, Manns MP, Vig P, Qiao XJ, Galil K. On-treatment virologic suppression at week 24 decreases the risk of histologic progression at 1 year; data from the Globe trial. *Hepatology*. 2007; 46 (Suppl): 681A.
8. Haber B, Balistreri WF, Barton B, Gonzalez-Peralta R, Goodman ZD, Jonas MM, Lobritto SJ, Mohan P, Molleston JP, Murray KF, Narkewicz M, Robuck PR', Rosenthal P, Schwarz KB. HCV autoimmunity in a U.S. multi-center cohort of treatment naive children. *Hepatology*. 2007; 46 (Suppl):722A.
9. Baranova A, Jarrar M, Nugent C, Afendy A, Quigley C, Stepanova M, Elariny H, Goodman Z, Chandhoke V, Younossi ZM. Non-invasive diagnostic biomarkers for non-alcoholic steatohepatitis (NASH). *Hepatology*. 2007; 46 (Suppl): 733A.
10. Calvert VS, Nugent C, Collantes R, Elariny H, Afendy A, Baranova A, Fang Y, Deng J, Goodman Z, Liotta LA, Petricoin EF, Younossi ZM. Phosphoproteomic biomarkers predicting weight loss after bariatric surgery in patients with non-alcoholic fatty liver disease (NAFLD). *Hepatology*. 2007; 46 (Suppl): 747A.
11. Patel K, McHutchison JG, Goodman ZD, Theodore D, Webster A, Schultz M, Stancil B, Gartland M, Gardner S. Correlation between liver biopsy and Fibrosure during screening for a phase II study to assess the antifibrotic activity of farglitizar in chronic hepatitis C infection. *Hepatology*. 2007; 46 (Suppl):827A.

### *Book Chapter:*

Goodman ZD, Terraccciano L. Tumours and tumour-like lesions of the liver. In: Burt AD, Portmann BC, Ferrell LD, eds. *MacSween's Pathology of the Liver*, 5th edition. Philadelphia, Churchill Livingstone Elsevier, 2007; pp. 761-814.

### *Projects:*

1. The HALT-C Trial: a randomized controlled trial to evaluate the safety and efficacy of long-term peginterferon alfa-2a for treatment of chronic hepatitis C in patients who failed to respond to previous interferon therapy.
2. Morphometric analysis of progression of fibrosis in advanced chronic hepatitis C.
3. Evaluation of liver histology in clinical trials of entecavir for treatment of chronic hepatitis B infection.
4. Evaluation of liver histology in clinical trials of telbivudine for treatment of chronic hepatitis B infection.
5. Evaluation of liver histology in the PEDS-C Trial: pegylated interferon +/- ribavirin for children with hepatitis C.
6. Evaluation of liver histology in a multicenter study of the epidemiology of nonalcoholic fatty liver disease (Epi-NAFL) with genomic and proteomic correlations.
7. The role of STATS activation in interferon alpha-mediated signaling in hepatitis C patients.
8. Evaluation of liver histology in multicenter assessment of liver disease in persons with chronic hepatitis B and HIV infection in the era of highly active antiretroviral therapy.
9. Evaluation of liver histology in "Suppressive long-term management of hepatitis C virus (HCV) and HIV-1 coinfected subjects (SLAM-C)"
10. Evaluation of liver histology in clinical trials of the antifibrotic activity of GI262570 in chronic hepatitis C subjects with hepatic fibrosis who have failed prior antiviral therapy.
11. Proteomics in fibrolamellar hepatocellular carcinoma: a pilot study and comparison with conventional hepatocellular carcinoma
12. Liver enzyme abnormalities and nonalcoholic fatty liver disease among HIV-infected persons

### *Collaborators:*

#### Military/Federal

1. NIH, NIDDK Liver Unit and NCI Laboratory of Pathology: HALT-C Trial.
2. San Diego Naval Hospital Division of Gastroenterology and Uniformed Services Univer-

sity of the Health Sciences Division of Infectious Disease: Liver enzyme abnormalities and nonalcoholic fatty liver disease among HIV-infected persons

**Civilian (and Civilian/Military)**

1. New England Research Institutes, University of Washington Laboratory of Virology, University of Massachusetts, Massachusetts General Hospital, St Louis University, University of Colorado, University of California at Irvine, University of Texas Southwestern, University of Southern California, University of Michigan, Medical College of Virginia Divisions of Gastroenterology/Hepatology and Departments of Pathology: HALT-C Trial.
2. Johns Hopkins University, University of Florida, Harvard University, University of Cincinnati, Georgetown University, Indiana University, Columbia University, University of California San Francisco, University of Pennsylvania, University of Washington: PEDS-C Trial.
3. Bristol-Meyers Squibb Pharmaceutical Research Institute: Entecavir for treatment of chronic hepatitis B infection.
4. Idenix Pharmaceuticals and Novartis Pharmaceuticals: Telbivudine for treatment of chronic hepatitis B infection.
5. GlaxoSmithKline Company: GI262570 in chronic hepatitis C subjects with hepatic fibrosis who have failed prior antiviral therapy.
6. Inova Fairfax Hospital (Georgetown University) Center for Liver Disease and George Mason University: Multicenter study of the epidemiology of nonalcoholic fatty liver disease (Epi-NAFL).
7. Johns Hopkins University, Divisions of Gastroenterology and Infectious Diseases: Multicenter assessment of liver disease in persons with chronic hepatitis B and HIV infection in the era of highly active antiretroviral therapy.
8. University of Cincinnati and Massachusetts General Hospital (Harvard University): The SLAM-C Trial

## PROFESSIONAL ACTIVITIES

***Editorial Board :***

*Annals of Diagnostic Pathology*, ZD Goodman

# DIVISION OF GASTROINTESTINAL PATHOLOGY

Leslie H. Sobin, MD, SES
Chief
Date of Appointment – 1 January 1991

## STAFF

*Medical*

Leslie H. Sobin, MD, FRCPath, Chief; Director, Center for Scientific Publications
Nancy S. Dow, LTC, MC, USA, Staff Pathologist
(A) Leonard Howard, LTC, USA, MC, Staff Pathologist
(A) Kathryn M. Johnson, CPT, MC, USA, Staff Pathologist
Anupamjit K. Mehrotra, MD, Staff Pathologist
(D) Zhiping Liu, MD, Callender-Binford Fellow
Janet C. Shaw, Lt Col, USAF, MC, Staff Pathologist

*Administrative*

Nawera Haque, Secretary, ARP

## IMPACT

The division's impact was impressive.

- 41 lectures
- Continued success of the Annual Gastrointestinal Surgical Pathology Course: Endoscopic Biopsies of the Gastrointestinal Tract, which had the highest attendance in its history
- The Virtual Gastrointestinal Endoscopic Biopsy Course, which provides CME credits
- Gastrointestinal lecture series for medical students and graduate staff at USUHS and Georgetown University
- Research collaborations with AFIP departments of Soft Tissue Pathology and Radiologic Pathology
- Regular participation in WR/NNMC gastroenterology conferences

## CONSULTATION

The total number of consultation cases was about 2% less than in 2006 with a 9% decrease in military cases, a 3% increase in VA cases, and a 4% decrease in civilian cases.

Cases received represented primarily neoplastic and precancerous lesions, as well as inflammatory diseases. Among the neoplastic lesions that are unusually prominent in the division's accessions are carcinoids, gastrointestinal stromal tumors, lymphomas, and appendiceal mucinous tumors. Surveillance biopsies for dysplasia or invasion in colorectal polyps and evaluation of dysplasia in cases of ulcerative colitis and Barrett esophagus were prominent, Barrett esophagus lesions accounting for about 15% of accessions. The last of these is particularly frequent because of its diagnostic difficulties. Staff members also participate in the review of consultation cases in the Division of Hepatic Pathology. A GI radiology-pathology

sign-out conference is held monthly.

| *Cases* | *Completed* |
|---|---|
| Military | 898 |
| Army (385) | |
| Navy (261) | |
| Air Force (252) | |
| Federal | 1,378 |
| VA (1,371) | |
| USPHS (7) | |
| Civilian | 722 |
| Interdepartmental | 136 |
| Total | 3,134 |

***Trainees:***
The division provided training to 14 civilian and military pathologists and gastroenterology fellows, for a total of 427 training days.

## EDUCATION

***Conferences:***
A daily divisional conference is held to review all gastrointestinal cases accessioned within the previous 24 hours. The conference serves as the major educational forum and is part of the quality assurance program. A gastrointestinal radiology-pathology conference is held monthly. The staff also attends the daily hepatic pathology review conference and the weekly hepatic clinical-pathologic conference. A monthly gastroenterology pathology correlation conference is held at WRAMC with AFIP staff and members of the WRAMC/NNMC gastroenterology and pathology programs.

***Courses:***
Staff members participated in the following courses in 2007:

1. 17th Annual Anatomic Pathology Review Course.
2. 18th Annual Course on Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, LH Sobin, Director. This course registered the highest number of participants in its history, namely 130, a 24% increase over 2006.
3. The Virtual Gastrointestinal Endoscopic Biopsy Course provides CME credit for 40 cases on the AFIP website, http://www.afip.org/Departments/edu/webed/vgi/hgss01/frameset3.html

***ASCP Check sample:***
Giblen G, Dow N: "Epithelioid Schwannoma of the Colon." Surgical Pathology II No. 07-6 (SPII 314). August 2007.

***Faculty Appointments:***

1. Professor of Pathology, USUHS, Bethesda, Md, LH Sobin.
2. Adjunct Professor of Pathology, Georgetown University Medical School, Washington, DC, LH Sobin.

***Committees (Intramural):***

1. Chair, Committee on Graduate Medical Education – LH Sobin
2. Coordinator, WRAMC – AFIP Gastroenterology-Pathology Correlation Conference – N Dow
3. Quality Assurance Committee – J Shaw
4. Tissue Micro Array Project – J Shaw

***Committees (Extramural):***

**LH Sobin:**

1. Chair, TNM Prognostic Factors Project of the International Union Against Cancer
2. Member, WHO Expert Advisory Panel on Cancer

***Presentations***

**LH Sobin:**

1. January 2007: Washington, DC, WRAMC Pathology Department Conference (with video

transmission to NNMC, Bethesda). "Intestinal polyps, pitfalls in diagnosis."
2. April 2007: Washington, DC, Georgetown University Medical College. "Pathology of the gastrointestinal tract" (6 lectures to second-year medical students).
3. May 2007: Arlington, VA, 17th AFIP Anatomic Pathology course. 1) "Pitfalls in the diagnosis of intestinal polyps," and 2) "Gastrointestinal unknowns."
4. September 2007: Arlington, VA, Washington Hospital Center, Gastroenterology Board Review. "Pathology Rounds."
5. September 2007: Washington, DC, AFIP Grand Rounds Video Teleconference. "Intestinal polyps, pitfalls in diagnosis."
6. September 2007: Silver Spring, MD, AFIP/ARP Course, Gastrointestinal Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract. 1)"Precancerous lesions of the GI tract and their imitators," 2) "Intestinal polyps, pitfalls in diagnosis," and 3)"Gastrointestinal unknowns."
7. October 2007: Washington, DC, George Washington University Medical Center, Department of Pathology Staff Lecture, "Intestinal polyps, pitfalls in diagnosis."
8. November 2007: Bethesda, MD, Uniformed Services University of the Health Sciences. "Pathology of the gastrointestinal tract," (3 lectures to second-year medical students).

**NS Dow:**

1. January 2007: Washington, DC, Walter Reed Army Medical Center Department of Pathology (with video transmission to NNMC, Bethesda), "Gastrointestinal Stromal Tumors."
2. March 2007: Washington, DC, Walter Reed Army Medical Center, Monthly Gastroenterology-Pathology Correlation Conference, "Esophageal Pathology."
3. May 2007: Arlington, VA, 17th Annual Anatomic Pathology Review Course, "Barrett Esophagus/Dysplasia, Gastritis/Gastropathy, and Gastric Carcinoma."
4. May 2007: Washington, DC, AFIP Professional Staff Conference, "Gastric Polyps: Problems in Differential Diagnosis."
5. August 2007: Washington, DC, Walter Reed Army Medical Center, Monthly Gastroenterology-Pathology Correlation Conference, "Esophageal Pathology."
6. September 2007: Bethesda, MD, AFIP/ARP 17th Annual Review, Gastrointestinal Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, "GI Carcinoid Tumors: Overview."
7. September 2007: Bethesda, MD, AFIP/ARP 17th Annual Review, Gastrointestinal Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, "GI Stromal Tumors: Pitfalls in Diagnosis."

**AK Mehrotra:**

1. January 2007: Washington, DC, Georgetown University Medical Center, Pathology Department, "Histology and Pathology of Esophagus."
2. February 2007: Washington, DC, Georgetown University Medical Center, Pathology Department, "Approach to Liver Biopsy."
3. March 2007: Washington, DC, Georgetown University Medical Center, Pathology Department, "Common diagnoses on Liver Biopsy."
4. March 2007: Crystal City VA, 17th AFIP Anatomic Pathology course, "Non Neoplastic Diseases of the Lower Gastrointestinal Tract."
5. April 2007: New Jersey, Osler Pathology Board Examination Preparatory Course, "Gastrointestinal Pathology for the Board Examinations."
6. April 2007: Washington, DC, Georgetown University Medical Center, Pathology Department, "Liver Biopsy."
7. May 2007: Washington, DC, Armed Forces Institute of Pathology-Staff Conference, "Sessile Serrated Adenoma."
8. September 2007: Washington, DC, George Washington University Medical Center, Pathology Department, "Histology and Pathology of Esophagus."
9. September 2007: Silver Spring, MD, AFIP/ARP Course, Hepatic Surgical Pathology, "Tumors of Liver."
10. September 2007: Tampa, FL, Osler Pathology Board Examination Preparatory Course, "Gastrointestinal Pathology for the Board Examinations."
11. September 2007:, Tampa, FL, Osler Pathology Board Examination Preparatory Course, "Hepatic Pathology for the Board Examinations."
12. October 2007: Washington, DC, Georgetown University Medical Center, Pathology

Department Grand Rounds, "Sessile Serrated Adenoma."
13. December 2007: Washington, DC, George Washington University Medical Center, Pathology Department, "Approach to Liver Biopsy."
14. December 2007: Washington, DC, Georgetown University Medical Center, Pathology Department, "Approach to Liver Biopsy."

**JC Shaw:**

1. June 2007: Washington, DC, AFIP Professional Staff Conference, "Excerpts from the Guinness Book – Interesting Case Reviews".
2. September 2007: Washington, DC, Walter Reed Army Medical Center, Monthly Gastroenterology-Pathology Correlation Conference, "Gastric Pathology."
3. Fall and Winter 2007: Bethesda, MD, Uniformed Services University of the Health Sciences. Pathology Small Group Facilitator for second year pathology course at USUHS, (four sessions each semester).

## RESEARCH

### *Publications:*

### *Journal Articles:*

1. Goldstraw P, Crowley J, Chansky K, Giroux DJ, Groome PA, Rami-Porta R, Postmus PE, Rusch V, Sobin L. International Association for the Study of Lung Cancer International Staging Committee; Participating Institutions. The IASLC Lung Cancer Staging Project: proposals for the revision of the TNM stage groupings in the forthcoming (seventh) edition of the TNM Classification of malignant tumors. *J Thorac Oncol*. 2007;2:706-714.
2. Groome PA, Bolejack V, Crowley JJ, Kennedy C, Krasnik M, Sobin LH, Goldstraw P. IASLC International Staging Committee; Cancer Research and Biostatistics; Observers to the Committee; Participating Institutions. The IASLC Lung Cancer Staging Project: validation of the proposals for revision of the T, N, and M descriptors and consequent stage groupings in the forthcoming (seventh) edition of the TNM classification of malignant tumors. *J Thorac Oncol*. 2007;2:694-705.
3 Hou L, El-Omar EM, Chen J, Grillo P, Rabkin CS, Baccarelli A, Yeager M, Chanock SJ, Zatonski W, Sobin LH, Lissowska J, Fraumeni JF Jr, Chow WH. Polymorphisms in Th1-type cell-mediated response genes and risk of gastric cancer. *Carcinogenesis*. 2007;28:118-123.
4. Levy AD, Sobin LH. Gastrointestinal carcinoids: imaging features and clinicopathologic comparison. *RadioGraphics*. 2007;27:237-257.
5. Miettinen M, Kraszewska E, Sobin LH, Lasota J. A nonrandom association between gastrointestinal stromal tumors and myeloid leukemia. *Cancer*. 2007 Nov 26; [Epub ahead of print]

One journal article was in press.

### *Abstracts*

1. Makhlouf HR, Dow N, Sobin LH, Miettinen M. Synovial sarcoma of the stomach -a clinicopathologic, immunohistochemical and molecular genetic study of 6 cases with a long-term follow-up. *Modern Pathol*. 2007; 20;122A (abstract 547)
2. Rassaei N, Tavora F, I Ozbudak I, Chu W-S, Jaynes E, Sobin L, Travis WD, Jen J, Shilo K, Franks TJ. Thyroid transcription factor-1 (TTF-1) expression in pulmonary neuroendocrine carcinomas: clone-based variability. *Modern Pathol*. 2007; 20;329A (abstract 1515)
3. Bassett JT, Perry JL, Osgard EM, Maydonovitch CL, Sobin LH, Wong RH. Prevalence of esophageal dysmotility in a cohort of patients with biopsy proven eosinophilic esophagitis: a prospective study. Amer College Gastroenterol Poster, Philadelphia, October 2007.

### *Projects*

1. Gastrointestinal stromal tumors (GISTs), clinicopathologic studies.
2. Neurogenic tumors of the GI tract, clinicopathologic study.
3. Gastrointestinal carcinoids, radiologic-pathologic correlations.
4. Benign fibrous tumors and tumor-like lesions of the mesentery: radiologic pathologic correlations.
5. Primary peritoneal tumors: imaging features with pathologic correlation.
6. Eosinophilic esophagitis and dysmotility.
7. Differentiating primary gastric and colorectal signet ring cell carcinoma by mucin protein expression.

***Collaborators:***

**Military/Federal**

1. National Cancer Institute: Surveillance, Epidemiology, End Results (SEER) Program: International Classification of Diseases for Oncology and TNM/Prognostic Factors Classifi-cation and Cancer Staging.
2. CDC: TNM/Prognostic Factors Classification and Cancer Staging.
3. Naval Medical Center, San Diego: Differentiating primary gastric and colorectal signet ring cell carcinoma by mucin protein expression.
4. WRAMC, Division of Gastroenterology: Gastroenterolology-pathology correlation conference (monthly).
5. WRAMC/NNMC: Eosinophilic esophagitis and dysmotility

**International**

1. WHO: International Classification of Diseases for Oncology (ICD-O).
2. International Union Against Cancer (UICC): TNM/Prognostic Factors Classification and Cancer Staging.

## PROFESSIONAL ACTIVITIES

***Official Trips (funding agency in parentheses):***

1. March 2007: International Association for the Study of Lung Cancer (IASLC) Staging meeting, Indianapolis, IN, LH Sobin (IASLC)
2. May 2007: TNM Prognostic Factors Project Meeting, International Union Against Cancer (UICC), Geneva, Switzerland, LH Sobin (UICC)
3. August 2007: WHO consultation on integration of TNM Classification with the International Classification of Diseases, Geneva, Switzerland, LH Sobin (UICC)
4. September 2007: American Joint Committee on Cancer (AJCC), Annual meeting, Chicago, Ill, LH Sobin (American College of Surgeons)

***Editorships:***

**LH Sobin**

1. Associate Editor, AFIP Atlas of Tumor Pathology, 4th Series
2. Associate Editor, AFIP/ARP Atlas of Nontumor Pathology
3. TNM Classification of Malignant Diseases, 7th edition

Teri J. Franks, MD
Chair
Date of Appointment – 8 March 2005

# DEPARTMENT OF PULMONARY AND MEDIASTINAL PATHOLOGY

## STAFF

*Medical*

Teri J. Franks, MD
Konstantin Shilo, MD
Dennis L. Hayden, COL, MC, USA
Negar Rassaei, MD
Allen Burke, MD (Visiting Scientist, University of Maryland)
Thomas Stocker, COL, MC, USA (Visiting Federal Scientist, USUHS)

*Scientific*

Fabio Tavora, MD, Callender-Binford Fellow, Pulmonary Pathology

*Administrative:*

Tammie Winters, Administrative Officer
Kim Jones, Administrative Assistant

## IMPACT

The Department of Pulmonary and Mediastinal Pathology is one of the world's foremost authorities on thoracic pathology. We provided key leadership in the 2002 ATS/ERS Classification of Idiopathic Interstitial Pneumonias, and the 2004 World Health Organization Classification of Tumours, Pathology and Genetics: Tumours of the Lung, Pleura, Thymus and Heart published by the International Association for Research on Cancer in Lyon, France. Our department played a key role in the diagnosis of acute eosinophilic pneumonia cases that were part of a cluster of cases of severe respiratory illness observed in active duty military personnel in the Southwest Asia Theater of War. Dr. Franks developed the AFIP Hot Topic on Acute Eosinophilic Pnenumonia that was distributed on the World Wide Web and served to provide up-to-date information for diagnosis to military physicians in the Southwest Asia Theater of War. We have continued to monitor lung pathology in military personnel and their dependents trying to obtain support from the Army Surgeon General and Department of Health Affairs for this work.

## CONSULTATION

Approximately 60% of our consultation cases are tumors and about 40% are non-neoplastic thoracic disorders. We provide state of the art consultative work for pathologists worldwide in pulmonary, pleural, and mediastinal pathology, and work very closely with a world-class thoracic radiologist and pulmonologist to provide complete clinical-pathologic and radiologic consultation opinions. Our work is highly military relevant as our international stature achieved in the civilian realm is brought to bear on all of our military consultations.

Number of changes in contributor diagnoses: Our department made a minor change in diagnosis in 677 cases, a major change in diagnosis in 100 cases and no change in the contributor diagnosis in 236 cases. We received 321 cases with no contributor diagnosis.

| *Cases* | *Completed* |
|---|---|
| Military | 267 |
| Army (142) | |
| Navy (85) | |
| Air Force (40) | |
| Federal | 666 |
| VA (666) | |
| USPHS | 1 |
| Civilian | 523 |
| Interdepartmental | 142 |
| Radiology Class Cases | 129 |
| Total | 1728 |

## EDUCATION

**Presentations and Seminars**: 21 total

### *Trainees*

Our department is well recognized as an international center for training in pulmonary pathology. Our resources provide a unique opportunity for fellowship training, which is a major priority of the department. During 2007, we had 7 physicians rotate in the department from Walter Reed Army Medical Center, 2 from Howard University, 1 from University of MN, 1 from Brooke Army Medical Center, TX, 1 from MA General Hospital, 5 from University of MD, 3 from NIH, 1 from Stoney Brook Hospital, NY, 1 from Germany and 1 from Turkey.

### *Educational Aids*

Our department has one of the most extensive slide teaching collections in the world for pulmonary and mediastinal pathology cases. Over 5,500 cases are accessioned into this study set. Departmental fellows, staff, and visiting physicians are able to utilize this invaluable resource for education, teaching, and publications.

### *Presentations*

#### Lectures

Dr. Teri Franks

1. February 22, 2007: "SARS: renin-angiotensin cascade and diffuse alveolar damage," Medical Staff Conference, Armed Forces Institute of Pathology.
2. February 22, 2007: "SARS: update, lung pathology and the differential diagnosis of Masson bodies" Grand Rounds Video Teleconference, Armed Forces Institute of Pathology.
3. March 24-30, 2007: San Diego, California, "Silicone embolism," Invited Panelist, Evening Speciality Conference, 96th Annual Meeting, United States and Canadian Academy of Pathology.
4. April 11, 2007: Washington, DC, "Mediastinal pathology: a compartmental approach," Visiting Professor, Walter Reed Army Medial Center and National Naval Medical Center Departments of Pathology, WRAMC.
5. April 16, 2007: Washington, DC, "Anatomy and pathology of the pleura," Visiting Professor, Walter Reed Army Medical Center and National Naval Medical Center Departments of Pathology, WRAMC.
6. April 19, 2007: Washington, DC, "Lung tumors: the WHO classification," Visiting Professor, Walter Reed Army Medical Center and National Naval Medical Center Departments of Pathology, WRAMC.
7. May 7, 2007: Washington, DC, "Idiopathic interstitial pneumonia: radiologic-pathologic correlation," Visiting Professor, Walter Reed Army Medical Center and National Naval Medical Center Departments of Pathology, WRAMC.
8. May 14-20, 2007: Crystal City, Virginia, "Mediastinal pathology: a compartmental approach," 17th Annual Anatomic Review Course, Armed Forces Institute of Pathology.
9. May 14-20, 2007: Crystal City, Virginia, "Idiopathic interstitial pneumonia: the ATS/ERS classification," 17th Annual Anatomic Review Course, Armed Forces Institute of Pathology.
10. June 10-13, 2007: Santorini, Greece, "COPD: pathology correlation for CT phenotypes," Invited Speaker, Fleischner Society for Thoracic Imaging and Diagnosis Members Meeting.
11. June 20-22, 2007: Santa Fe, New Mexico, "The radiologic-pathologic continuum of visualization," Invited Speaker, Pulmonary Pathology Society Biennial Meeting.

12. September 17-18, 2007: Bethesda, MD, "Radiologic-pathologic correlation: anthrax and SARS," Invited Speaker, 2nd Annual Workshop on Experimental Imaging of Infectious Disease, Integrated Research Facility, Division of Clinical Research, National Institutes of Allergy and Infectious Disease/National Institutes of Health.
13. September 19, 2007: Bethesda, Maryland, "The radiologic-pathologic continuum of visualization: discordant cases," Invited Speaker, DC Pulmonary Journal Club.
14. October 5-7, 2007: New York City, New York, "Mediastinum and pleura: unusual tumors," Invited Speaker, Thoracic Pathology Course, Memorial Sloan-Kettering Cancer Center and Massachusetts General Hospital.
15. October 30, 2007: Washington, DC, "Lung tumors: the WHO classification," Visiting Professor, George Washington University School of Medicine.
16. October 30, 2007: Washington, DC, "Mediastinal tumors and cysts: a compartmental approach to differential diagnosis," Visiting Professor, George Washington University School of Medicine.
17. November 6, 2007: Washington, DC, "Pleural pathology: tumors and diagnostic dilemmas," Visiting Professor, George Washington University School of Medicine.
18. November 6, 2007: Washington, DC, "Idiopathic interstitial pneumonia: the ATS/ERS classification," Visiting Professor, George Washington University School of Medicine.
19. November 25-30, 2007: Chicago, Illinois, "Web-based distance consultation," Demonstration created by the Department of Radiology, University of Maryland School of Medicine, the AFIP Department of Pulmonary and Mediastinal Pathology and the Health Care Division of General Electric, Radiologic Society of North America 93rd Scientific Assembly and Annual Meeting.

**Dr. Konstantin Shilo**
May 19, 2007: Arlington, VA, "Tumors of Pleura" 17th Annual AFIP Anatomic Pathology Course.

**Dr. Dennis Hayden**
May 19, 2007: Crystal City, Virginia, "Classification of lung tumors," 17th Annual Anatomic Review Course, Armed Forces Institute of Pathology.

### *Panels:*

**Dr. Teri Franks:**
March 24-30, 2007: San Diego, California, "Pulmonary pathology," Evening Specialty Conference, 96th Annual Meeting, United States and Canadian Academy of Pathology.

### *Chaired/moderated sessions*

**Dr. Teri Franks**
1. July, 9-10, 2007: Workshop on Normal Cells of the Lung: Needs and Opportunities for Research, Moderator, National Heart Lung and Blood Institute/National Institutes of Health, Bethesda, Maryland.
2. September 17-18, 2007: Imaging Pulmonary Infection and Inflammation, Co-moderator, 2nd Annual Workshop on Experimental Imaging of Infectious Disease, Integrated Research Facility, Division of Clinical Research, National Institute of Allergy and Infectious Diseases/ National Institutes of Health, Bethesda, Maryland.

### *Web-based Material*

**Dr. Teri Franks**
1. Editor and Co-founder, Hot Topics Series (Web based modules on emerging diseases), Armed Forces Institute of Pathology, 5/2003-present. http://www.afip.org/hot-topics.html.
2. Co-founder and Consultant for development, AskAFIP Online Database, Armed Forces Institute of Pathology, 9/2003-present. https://www.askafip.org.

### *Monthly Conference*

**Dr. Dennis Hayden**
Pulmonary pathology monthly conference for Pulmonary Medicine Fellows, Walter Reed Army Medical Center, 2001-present.

## RESEARCH

### *Journal Articles*

#### Dr. Teri Franks

1. Frazier AA, Franks TJ, Mohammed TL, Ozbudak IH, Galvin JR Pulmonary veno-occlusive disease and pulmonary capillary hemangiomatosis. *Radiographics*. 2007 May-Jun;27(3):867-882.
2. Hartel PH, Fanburg-Smith JC, Frazier AA, Galvin JR, Lichy JH, Shilo KS, Franks TJ. Primary pulmonary and mediastinal synovial sarcoma: a clinicopathologic study of 60 cases and comparison with five prior series. *Mod Pathol*. 2007 Jul;20(7):760-9. Epub 2007 Apr 27.
3. Mani H, Shilo K, Galvin JR, Stocker JT, Franks TJ. Spectrum of preinvasive and invasive neoplastic lesions in type 1 congenital pulmonary airway malformation: case report and review of the literature. *Histopathology*. 2007 Oct;51(4):561-565.
4. Rosas IO, Ren P, Avila NA, Chow CK, Franks TJ, Travis WD, McCoy JP, May RM, Wu HP, Nguyen DM, MacDonald SD, Gochuico BR. Early Interstitial Lung Disease in Familial Pulmonary Fibrosis. Am J Respir Crit Care Med. 2007 Jul 19; [Epub ahead of print]
5. Shilo K, Dracheva T, Mani H, Fukuoka J, Sesterhenn IA, Chu WS, Shih JH, Jen J, Travis WD, Franks TJ. Alpha-methylacyl CoA racemase in pulmonary adenocarcinoma, squamous cell carcinoma, and neuroendocrine tumors: expression and survival analysis. *Arch Pathol Lab Med*. 2007 Oct;131(10):1555-1560.
6. Tavora F, Rassaei N, Shilo K, Foss RD, Galvin JR, Travis WD, Franks TJ. Occult primary parotid gland acinic cell adenocarcinoma presenting with extensive lung metastasis. *Arch Pathol Lab Med*. 2007 Jun;131(6):970-973
7. Tavora F, Shilo K, Ozbudak IH, Przybocki JM, Wang G, Travis WD, Franks TJ. Absence of human herpesvirus-8 in pulmonary inflammatory myofibroblastic tumor: immunohistochemical and molecular analysis of 20 cases. *Mod Pathol*. 2007 Sep;20(9):995-959. Epub 2007 Jul 20.

#### Dr. Konstantin Shilo

1. Hartel PH, Fanburg-Smith JC, Galvin J, Frazier A, Lichy JH, Shilo K, Franks TJ. Primary pulmonary and mediastinal synovial sarcoma: a clinicopathologic study of 60 cases and comparison with five prior series. *Mod Pathol*. 2007 Jul;20(7):760-769. Epub 2007 Apr 27
2. Mani H, Shilo K, Galvin JR, Stocker JT, Franks TJ. Spectrum of precursor and invasive neoplastic lesions in type 1 congenital pulmonary airway malformation: case report and review of the literature. *Histopathology*. 2007 Oct;51(4):561-565.
3. Shilo K, Colby TV, Travis WD, Franks TJ. Exuberant type 2 pneumocyte hyperplasia associated with spontaneous pneumothorax: secondary reactive change mimicking adenocarcinoma. *Mod Pathol*. 2007 Mar;20(3):352-356. Epub 2007 Feb 2
4. Shilo K, Dracheva T, Mani H, Fukuoka J, Sesterhenn IA, Chu W-S, Shih J, Jen J, Travis WD, Franks TJ. Alpha-methylacyl CoA racemase (AMACR) in pulmonary adenocarcinoma, squamous cell carcinoma and neuroendocrine tumors: expression and survival analysis. *Arch Pathol Lab Med.* 2007 Oct;131(10):1555-1560.
5. Tavora F, Rassaei N, Shilo K, Foss RD, Galvin JR, Travis WD and Franks TJ. Occult primary parotid gland acinic cell adenocarcinoma presenting with extensive lung metastasis. *Arch Pathol Lab Med*. 2007 Jun;131(6):970-3
6. Tavora F, Shilo K, Ozbudak IH, Przybocki JM, Wang G, William D Travis WD, Franks TJ. Absence of human herpesvirus-8 in pulmonary inflammatory myofibroblastic tumors: immunohistochemical and molecular study of 20 cases. *Mod Pathol*. 2007 Sep;20(9):995-9. Epub 2007 Jul 20

#### Dr. Negar Rassaei

Tavora F, Rassaei N, Shilo K, Foss RD, Galvin J, Travis WD, Franks TJ. Occult primary parotid gland acinic cell adenocarcinoma presenting with extensive lung metastasis. *Arch Pathol Lab Med*. 2007 Jun;131(6):970-973

### *Abstracts*

#### Dr. Teri Franks

1. Burke AP, Tavora F, Ozbudak IH, Franks TJ, Miettinen M. Pediatric cardiac sarcomas: a series of 16 new cases and review of the literature. (European Congress of Pathology, Istanbul, Turkey, September 8-13, 2007).
2. Frazier AA, Cook E, Franks TJ, Pugatch RD, Galvin JR. Radiologic-pathologic correlation in pulmonary alveolar proteinosis: the AFIP collection of 98 cases. Radiologic Society of North

America 93rd Scientific Assembly and Annual Meeting, Chicago, Illinois, November 25-30, 2007.

3. Hartel PH, Shilo K, Galvin JR, Franks TJ. Granulomatous reaction to pneumocystis jirovecii: clinicopathologic review of 16 cases. *Mod Pathol.* 2007;20(Suppl 2):322A.
4. Kamatani H, Kumagai N, Tanaka T, Kawamura S, Hewitt SM, Franks TJ, Travis WD, Jen J, Fukuoka J. Lack of desmoglein 2 is an indicator of cancer progression and a poor prognostic factor in stage 1 non-small cell lung cancer. *Mod Pathol.* 2007;20(Suppl 2):324A.
5. Mani H, Stocker JT, Shilo K, Galvin JR, Franks TJ. Clinicopathologic study of type 4 congenital pulmonary airway malformation (CPAM): evidence for distal acinar origin. *Mod Pathol.* 2007;20(Suppl 2):326A.
6. Ozbudak IH, Tavora F, Rassaei N, Shilo K, Chu W-S, Fukuoka J, Jen J, Travis WT, Franks TJ. Glucose transporter-1 expression in pulmonary neuroendocrine carcinoma. (European Congress of Pathology, Istanbul, Turkey, September 8-13, 2007).
7. Ozbudak IH, Shilo K, Galvin JR, Franks TJ. Pulmonary Angiomyolipoma: Clinicopathological description of 2 new cases and 10 previously reported cases. (European Congress of Pathology, Istanbul, Turkey, September 8-13, 2007).
8. Ozbudak IH, Shilo K, Miettinen M, Franks TJ. Extramedullary hematopoiesis in pulmonary spindle cell tumors: rare and unusual association. (European Congress of Pathology, Istanbul, Turkey, September 8-13, 2007).
9. Puttaswamy S, Fukuoka J, Fujii T, Shilo K, Franks TJ, Travis WD, Hewitt SM, Jen J. p27kip1 loss correlates with poor prognosis in lung adenocarcinoma. *Mod Pathol.* 2007;20(Suppl 2):329A.
10. Rassaei N, Tavora F, Ozbudak I, Chu W-S, Jaynes E, Sobin L, Travis WD, Jen J, Shilo K, Franks TJ. Thyroid transcription factor-1 (TTF-1) expression in pulmonary neuroendocrine carcinomas: clone-based variability. *Mod Pathol.* 2007;20(Suppl 2):329A.
11. Roh M-S, Yoshizawa A, Fukuoka J, Shilo K, Franks TJ, Fujii T, Hewitt SM, Jen J, Travis WD. High ERCC1 expression correlates with poor survival in lung adenocarcinoma. (IASLC, 12th World Conference on Lung Cancer, Seoul, Korea, September 2-6, 2007).
12. Shakoori A, Fukuoka J, Dracheva T, Shilo K, Gill R, Jeon H, Nwosu U, Clifford R, Zhang H, Franks T, Hewitt S, Travis W, Jen J. Computer-aided scoring and analysis of immunohistochemistry staining using lung tissue microarray. American Association for Cancer research, 98th Annual Meeting, April 14-18, 2007, Los Angeles, CA.
13. Shakoori A, Fukuoka J, Dracheva T, Shih JH , Shilo K, Nwosu U, Zhang H, Gill R, Jeon H, Clifford R, Franks TJ, Hewitt S, Travis WD, Jen J. Computer-aided scoring and analysis (CASA) of lung tissue microarray identifies that c-Myc and p16 expression levels jointly predict patient survival in non-small cell lung cancer. American Association for Cancer Research, 99th Annual Meeting, April 12-16, 2007, San Diego, CA.
14. Tavora F, Ozbudak IH, Shilo K, Przybocki JM, Wang G, Travis WD, Franks TJ. Inflammatory myofibroblastic tumors of the lung are negative for HHV-8. (European Congress of Pathology, Istanbul, Turkey, September 8-13, 2007).
15. Tavora F, Shilo K, Liang Q, Chu W-S, Foss RD, Fukuoka J, Travis WD, Franks TJ. Mutation and expression analysis of EGFR in primary pulmonary salivary gland type carcinomas. *Mod Pathol.* 2007;20(Suppl 2):333A.
16. Yoshizawa A, Fukuoka J, Shilo K, Franks TJ, Hewitt SM, Fujii T, Jen J, Travis WD, Cordon-Cardo C. Clinical significance of p-AKT pathway in non-small cell lung cancer. *Mod Pathol.* 2007;20(Suppl 2):335A.
17. Yoshizawa A, Fukuoka J, Shilo K, Franks TJ, Hewitt SM, Jen J, Travis WD, Cordon-Cardo C. Clinical significance of the AKT pathway in small cell lung cancer and other neuroendocrine tumors. (IASLC, 12th World Conference on Lung Cancer, Seoul, Korea, September 2-6, 2007).

**Dr. Konstantin Shilo**

1. Ozbudak IH, Tavora F, Rassaei N, Shilo K, Chu W-S, Fukuoka J, Jen J, Travis WD, Franks TJ. Glucose transporter-1 expression in pulmonary neuroendocrine carcinoma. 21st European Congress of Pathology, Istanbul, Turkey, September 8-13, 2007.

**Dr. Negar Rassaei**

1. Rassaei N, Tavora F, Chu WS, Jaynes E, Sobin L, Travis WD, Jen J, Ozbudak I, Shilo K, Franks TJ. Thyroid transcription factor-1 expresson in pulmonary neuroendocrine carcinomas: clone based variability, USCAP, 2007 March; Annual Meeting.
2. Ozbudak I, Tavora F, Rassaei N, Shilo K, Chu WS, Fukuoka J, Jen J, Travis WD, Franks TJ. Glucose transporter-1 is frequently expressed in pulmonary neuroendocrine carcinomas,

European Congress of Pathology, 2007 September; Annual Meeting.

### *Projects*

In 2007 the department maintained 10 research protocols, as listed below:

1. Pulmonary Artery Sarcomas
2. Correlation of Pulmonary w/Radiological Studies
3. Localized Fibrous Timor of the Pleura
4. Lung Disease in Military, Veterans & Civilians
5. Neuroendocrine Tumors of the Lung
6. Analysis of Lung Cancer Using Tissue Microarray
7. Inflammatory Pseudotumor of the Lung
8. Immunohistochemistry in Determining Primary Sites
9. Histologic Anaylsis of Pleuropulmonary Blastoma
10. Presence of the SV40 Virus in Human Mesothelioma

### *Collaborators in research projects*

#### Military/Federal

1. National Institutes of Health/National Heart Lung and Blood Institute, Lymphoangioleiomyomatosis and Interstitial Lung Disease
2. National Institutes of Health/Office of Rare Diseases, Hermansky-Pudlock Syndrome
3. National Institutes of Health/National Cancer Institute, Molecular Biology of Lung Cancer

#### Civilian

1. Brompton Hospital, London, England, Neuroendocrine Lung Tumors
2. University of Grenoble, France, Molecular Biology of Lung Cancer, Neuroendocrine Lung Tumors
3. Memorial Sloan Kettering Cancer Center, New York, NY, Neuroendocrine Tumors
4. Toyama University Hospital, Toyama, Japan, Neuroendocrine and Non-Small Cell Carcinoma
5. University of Wurzburg, Wurzburg, Germany, Thymic Neuroendocrine Tumors
6. Mayo Clinic, Molecular Biology of Lung Cancer, Neuroendocrine Lung Tumors, Interstitial Lung Disease
7. University of Southern California, Los Angeles, Interstitial Lung Disease
8. University of California, San Francisco, Interstitial Lung Disease
9. University of Iowa, Interstitial Lung Disease
10. University of Colorado, Interstitial Lung Disease
11. Kyoto University, Kyoto Japan, Interstitial Lung Disease
12. University of Michigan, Ann Arbor, Michigan, Interstitial Lung Disease
13. Brigham and Women's Hospital, Boston, MA, SV-40 Virus

## PROFESSIONAL ACTIVITIES

### *Official Trips*

#### Dr. Teri Franks

1. Workshop on CT Phenotypes of COPD, Fleischner Society for Thoracic Imaging and Diagnosis, Société Française de Radiologie, Paris, France, March 18-19, 2007.
2. Workshop on Normal Cells of the Lung: Needs and Opportunities for Research, National Heart Lung and Blood Institute/National Institutes of Health Bethesda, Maryland, July, 9-10, 2007.
3. 2nd Annual Workshop on Experimental Imaging of Infectious Disease, Integrated Research Facility, Division of Clinical Research, National Institute of Allergy and Infectious Disease/ National Institutes of Health, Bethesda, MD, September 17-18, 2007.

### *Editorial Boards*

#### Dr. Teri Franks

1. United States and Canadian Academy of Pathology, abstract review board, 2002–present.
2. Archives of Pathology and Laboratory Medicine, abstract review board, 2006–present.
3. Journal of Thoracic Imaging, editorial board, 2006 to present.
4. Archives of Pathology and Laboratory Medicine, section editor, 2006 to present.
5. Journal of Thoracic Imaging, editorial board, 2006 to present.

### *Appointments Inside the AFIP*

**Dr. Teri Franks**

1. Chairman, Department of Pulmonary and Mediastinal Pathology, Armed Forces Institute of Pathology, Washington, DC, 3/7/2005–present
2. Director, American Registry of Pathology Callender-Binford Pulmonary Pathology Fellowship Training Program, Armed Forces Institute of Pathology, Washington, DC, 3/2005–present
3. Chairman, Oversight committee for continuing medical education, Armed Forces Institute of Pathology, 7/2007-present

**Dr. Konstantin Shilo**

Associate Chairman, Department of Pulmonary and Mediastinal Pathology, Armed Forces Institute of Pathology, Washington, DC, 06/2005–present.

### *Faculty and Clinical Staff Appointments Outside the AFIP*

**Dr. Teri Franks**

1. Adjunct Assistant Professor of Medicine (Pulmonary and Critical Care Medicine Division), University of Maryland School of Medicine, Baltimore, Maryland, 7/15/2005 to present
2. Consultant, Pulmonary Pathology, Pulmonary and Critical Care Medicine Branch, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD, 1/2006 to present.

**Dr. Konstantin Shilo**

Consultant, Laboratory of Population Genetics, National Cancer Institute, Bethesda, Maryland, 01/2005-present.

### *Committees–Intramural*

**Dr. Teri Franks**

1. Oversight committee for continuing medical education, Armed Forces Institute of Pathology, 4/2003-6/2007.
2. Advisory committee to the Director on Distance Learning Activity, Armed Forces Institute of Pathology, 6/2003-present.
3. Information management support council, Armed Forces Institute of Pathology, 10/2003 to present.
4. Task Force 8 Project Team – Database development for Distance Learning and Education, Armed Forces Institute of Pathology, 3/2004-present.
5. Graduate Medical Education Committee, 2005 to present.
6. Chairman, Oversight committee for continuing medical education, Armed Forces Institute of Pathology, 7/2007-present.

**Dr. Konstantin Shilo**

Research Committee, Armed Forces Institute of Pathology, 2005 to present.

### *Committees—Extramural*

**Dr. Teri Franks**

1. National Heart, Lung, and Blood Institute/National Institutes of Health, Protocol Review Committee for the Idiopathic Pulmonary Fibrosis Clinical Network, 2005 to present.
2. Archives of Pathology and Laboratory Medicine, abstract review board, 2006 to present.
3. Journal of Thoracic Imaging, editorial board, 2006 to present.
4. Archives of Pathology and Laboratory Medicine, section editor, 2006 to present.
5. Pulmonary Pathology Society/College of American Pathologists, Asbestos Guidelines Committee, 2007 to present.
6. Lymphangiomatosis and Gorham's Disease Alliance, Medical Advisory Council, 2006 to present.

**Dr. Hayden**

College of American Pathologists, Laboratory Inspector, 1988-present.

### *Course Directorship*

**Dr. Dennis Hayden**

Course Co-Director, Annual Anatomic Pathology Review Course, Armed Forces Institute of Pathology, 2005 to present.

# DIRECTORATE OF FIELD OPERATIONS

Charles W. Pemble III
Col, USAF, DC
Director, Field Operations

## BIOSURETY OFFICE

## OFFICE OF THE ARMED FORCES MEDICAL EXAMINER

Charles W. Pemble III, Col, USAF, DC
Director, Field Operations
Date of Appointment — 28 January 2002

# DIRECTORATE OF FIELD OPERATIONS

## STAFF

Eric Peipelman, Maj, USAF, MSC, Administrative Officer

## IMPACT

The directorate provides:

- Staff coordination for operational readiness planning, mobilization, and training.
- Facilitates delivery of maximum medicolegal and forensic science support from the AFIP to US Army and DoD operations.
- Enhancement of the OAFME and supporting pathology processes that contribute to medicolegal investigations, environmental and infectious disease threat assessment, and implementation of field-focused support and assistance through the departments of Veterinary Pathology and Telepathology.

The directorate also ensures regulatory compliance with the Institute's Biosurety program in the use and transfer of biological select agents and toxins, in support of basic and applied biologic research projects.

# OFFICE OF BIOSURETY

## MISSION

The Office of Biosurety is responsible to the Director of Field Operations for managing AFIP's Biosurety Program and ensuring all requirements are met as established by DoD directives, Code Of Federal Regulations, United States Army Medical Command (MEDCOM), and the Army Biosurety Program. The Biosurety Program is also responsible for meeting all Centers for Disease Control and Prevention (CDC), and United States Department of Agriculture (USDA) requirements for storage and use of all Biological Select Agents and Toxins (BSATs). The Office of Biosurety controls and monitors access to areas where BSATs are stored and used. While biological security is not new, the application of the Biosurety Program will help establish a safe, secure and reliable working environment for assigned personnel and visitors, and to safeguard the biological assets in support of AFIP's mission.

## ORGANIZATION

The Office of Biosurety is organized under the Directorate of Field Operations.

1. Biosurety Officer – Mark Haley
2. Responsible Official – Charles Pemble, Col, USAF, DC
3. Alternate Responsible Official – Mary Klassen-Fischer, MD

## ACCOMPLISHMENTS

1. Implemented a Biosurety Plan and Standard Operating Procedures for the AFIP IAW with DoD Directive 5210.88, DoD Directive 5210.89, draft AR 50-X, AR 190-17, 7 CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73.
2. Integrated the Biosurety Program into the Physical Security Committee, creating a Physical Security/Biosurety Committee to advise and inform the Institute on issues of biosurety and safeguarding BSATs, and to continually monitor activities of the Biosurety Program for full compliance with all regulations and guidelines.
3. Maintained AFIP's Biological Personnel Reliability Program (BPRP) IAW AR 50-X to ensure that all personnel meet all reliability and security checks before accessing BSATs.
4. Assured AFIP's import/transfer permit program continued to meet all regulations and guidelines set forth by the USDA and the CDC for the import and transfer of BSATs.
5. Passed a rigorous CDC inspection that led to renewal of the Registration Certificate authorizing the possession, use, and transfer, storage, of BSATs as part of the AFIP Biosurety Program.
6. Passed CDC laboratory inspections for re-approval of newly renovated laboratories N4504 as a Biosafety Level 3 and S5311 as an Animal Biosafety Level 3.
7. AFIP was the first DoD facility to undergo a Department of Army Inspector General unrated inspection of the Department's newly established Biosurety Program.
8. Implemented the Biosurety Quarterly Key-Card Inspection IAW 190-17 which requires the complete inspection of the inventories of all Electronic Access Cards (EACS) and BSAT Keys given to personnel permitted into restricted access areas where BSATs are used and/or stored.
9. Completed annual Biosurety/CDC training for all pertinent personnel (>60) and fulfilled the hours requirement for Drug and Alcohol Awareness Training for personnel (>40) enrolled in the BPRP.
10. Completed the drug screenings on all personnel (>40) enrolled in the BPRP IAW AR 50-X.

Craig T. Mallak, CAPT, MC, USN
Armed Forces Medical Examiner
Date of Appointment – 12 June 2002

# THE ARMED FORCES MEDICAL EXAMINER SYSTEM (AFMES)

## STAFF

*Medical Staff*

Craig T. Mallak, CAPT, MC, USN, Armed Forces Medical Examiner
Stephen L. Robinson, CAPT, MC, USN, Deputy Medical Examiner
Scott Luzi, CDR, MC, USN, Deputy Medical Examiner
(D) Jerry Hodge, CAPT, MC, USN, Deputy Medical Examiner
Abubakr Marzouk, Col, USAF, MC, FS, Deputy Medical Examiner
Timothy Monaghan, CDR, MC, USN, Deputy Medical Examiner
(A) Terrill Tops, CPT, USAF, MC, Deputy Medical Examiner
(A) Edward Mazuchowski, MAJ,USAF, MC, Deputy Medical Examiner
(A) Ladd Tremaine, LTC, USA, MC, Deputy Medical Examiner
(A) Mark Shelly, LCDR, MC, USN, Deputy Medical Examiner
(A) Philip Berran, MAJ, USA, MC, Deputy Medical Examiner
Carol Solomon, CDR, MC, USN, Deputy Medical Examiner
Susan L. Hanshaw, LtCol, USAFR, NC, Forensic Nurse Investigator
Louis N. Finelli, LTC, USA, MC, Chief Deputy Medical Examiner, DoD DNA Registry
Dzuy T. Nguyen, Maj, USAF, MC, Associate Medical Examiner
Michael E. Smith, LTC, USA, MC, Regional Medical Examiner (Ft. Gordon, GA)
Elizabeth Rouse, LtCol, USAF/FS, MC, Regional Medical Examiner (USUHS, MD)
Eric Berg, COL, USA, MC, Regional Medical Examiner (Fort Campbell, KY)
James Feig, LtCol, USAF, MC, Regional Medical Examiner (San Antonio)
(D) Jimmy W. Green, CAPT, MC, USN, Regional Medical Examiner (Portsmouth, VA)
James L. Caruso, CAPT, MC, USN, Regional Medical Examiner (Okinawa)
Kathleen Ingwersen, COL, USA, MC, Regional Medical Examiner (Landstuhl, Germany)
Mark Labovich, LTC, MC, USA, Associate Medical Examiner (Landstuhl, Germany)
Steven Campman, LtCol, USAFR, MC, Reserve Regional Medical Examiner (West Coast)
Donna Stewart, LtCol, KYANG, MC, Reserve Regional Medical Examiner (Midwest)
Gerald Liuzza, LTC, USAR, MC, Reserve Regional (Southwest)
Kent Harshbarger, LTC, USAR, MC, Reserve Regional (Midwest)

*Scientific Staff*

William C. Rodriguez, III, PhD, Chief Deputy Medical Examiner, Special Investigations, Forensic Anthropology, Distinguished Scientist
Laura Regan, MAJ, USAF, PhD, Chief Deputy Forensic Anthropologist

*Administrative Staff*

Mark Vojtecky, CIV, Administrator
Janet D. Clements, SMSGT, USAF, Administrative Superintendent
(D) Julia Andrews, LTJG, Operations Officer
(A) Gina L. Morosky, LT, USN, Operations Officer
Robert Veasey, Chief of Operational Investigations
Shawn Christian, SA, USA, CID
Jean Marie Sentell, SA, NCIS

Fred Upchurch, Operation Specialist
Penny Rodriguez, Operation Specialist
(A) Elizabeth Fuqua, Executive Administrator Assistant
(D) Barbara Dunlap, Executive Administrator Assistant
Yvonne Rodgers, Secretary
Robin Howard, Administrative Assistant, (ARP)
(A) Wakeya Thompson, Administrative Assistant, Anteon
Monique Williams, Administrative Assistant, Anteon
(A) Richard Rosser, MC1, USN, Chief Forensic Photographer
Michelle Papineau, HM2, USN, Forensic Photographer
(A) Michele Lecarda, Sgt, USAF, Forensic Photographer
William Ramsey, MC2, USN, Forensic Photographer
(D) Tiffany D. McCorkle, SSgt, USAF, Forensic Photographer
Paul Mason, HM2, USN, Forensic Photographer
(D) Kimberly E. Meadows, HM2, USN, Histology Tech
(A) Clifford Bernard, SSgt, USAF, Histology Tech

## MISSION

The department is primarily responsible for multidisciplinary forensic (medicolegal) investigations of unnatural or violent deaths due to known or suspected accidents, homicide, suicide, or undetermined means. In these cases, the AFMES must establish positive identity by scientific means, determine the cause and manner of death, and certify the death. This responsibility normally applies to:

1. Members of the Armed Forces on active duty or on active duty for training.
2. Civilians, including dependents of military members, whose deaths come under exclusive Federal jurisdiction.

Deaths to be investigated include, but are not limited to, the following categories:

a. Unnatural or violent deaths from known or suspected accidents, homicide, suicide, or undetermined means.
b. Deaths related to the occupation or employment of the deceased and deaths of individuals enrolled in the Personnel Reliability Program.
c. Deaths related to vehicular, aircraft, or vessel accidents.
d. Sudden and unexpected deaths in which the cause of death is not readily apparent.
e. Deaths potentially related to diseases that might constitute a threat to the public health.
f. Deaths occurring in an individual who is in the custody of law enforcement officials.
g. When the commander of a Military Medical Treatment Facility (MMTF) where the death occurred or the decedent's commander in the grade of 0-4 or higher notifies the AFMES that a medico-legal investigation on a military member is necessary for reasons of U.S. national security or for the protection of the military community.

The department reviews cases in consultation and conducts on-site medicolegal investigations, providing consultative as well as diagnostic services to the Department of Defense and other federal and nonfederal agencies. In addition, when requested and approved by higher authority, these services may be extended to foreign governments.

## ORGANIZATION

The Armed Forces Medical Examiner (AFMES) performs the executive functions of the AFMES. Administrative and fiscal functions are provided as well as oversight of the six OAFME divisions, and regional and associate medical examiner functions and responsibilities under the AFMES.

a. **Medicolegal Investigations and Operations (OPS)** — Edward A. Reedy, CDR, MC, USN (SWMDO). This division is responsible for day-to-day AFMES Death Investigation operations to support worldwide forensic consultations and on-site investigations, including aircraft accidents.
b. **Education and Research** — Scott Luzi, CDR, MC, USN. This division coordinates and facilitates all departmental education and research efforts. This includes fellowship and residency programs sponsored by military and civilian education institutions.
c. **Special Investigations** — William C. Rodriguez III, PhD and Major Laura Regan, USAF, PhD. This division is responsible for anthropological investigation and consultation for the AFMES. It also maintains the Trace Materials Analysis Laboratory for the purposes of aiding the AFMES in identification of materials associated with medicolegal investigations.
d. **Forensic Toxicology** — Marilyn Past, CAPT, MSC, USN. This division provides toxicology

laboratory testing and consultation for AFMES investigations and for the Department of Defense Drug-testing Quality Assurance Program. It also provides education and research for this discipline. The division is organized into four branches: the DoD Drug Testing Branch; the Forensic Toxicology Branch; the Research and Education Branch; and the Quality Assurance Branch.

e. **Department of Defense DNA Registry** — Louis Finelli, LTC, USA, MC. This division encompasses the Armed Forces DNA Identification Laboratory (AFDIL), which is responsible for DNA-based identification of human remains for the Office of the Armed Forces Medical Examiner, and for performing consultation, education, and research in the area of forensic DNA analyses. The division also maintains the Armed Forces Repository of Specimen Samples for the Identification of Remains for the Department of Defense.

f. **Mortality Surveillance Division** — Lisa Pearse, CDR, MC, USN of the Office of the Armed Forces Medical Examiner directs this division. The primary goal of the DoD Mortality Surveillance Division (MSD) is to perform active surveillance to monitor all Active Duty deaths. Active surveillance is necessary to quickly identify those deaths that require autopsy by the AFMES, those that could require a public health response or those that could be the result of a bio-terrorist act. If a death has an infectious etiology, the MSD will take timely and appropriate steps to ensure that the agent or agents responsible are identified. As information is collected, it is stored in the Medical Mortality Registry for analysis and reporting of medical cause-specific mortality data, to include trends. The Division has also had an operational role in tracking and trending OIF related deaths, GWOT workload and autopsy specimen identifications. Finally, the Division produces Death Certificates for all fatalities autopsied by AFMES staff at Dover AFB.

## IMPACT:

The six divisions of the Medical Examiners System, Operations, Education and Research, Special Investigations, DNA, Toxicology, and Mortality Surveillance, successfully carried out their mission that encompassed an unprecedented workload and challenges. The entire staff is justifiably proud of their accomplishments in fully accounting for those who have died while serving the United States. Just as important, the System has made significant contributions to the ongoing efforts to make the US service member of today and tomorrow safer and more effective on the battlefield and in garrison. Data gathered and research undertaken has had a direct impact on medical care and the design of the next generation of personal protective equipment. The Mortality Surveillance Division continued to expand in recognition with the vital information they provide to all levels of the Department of Defense and federal Government. The motto of this Division, "honoring the dead, protecting the living," continues to be guiding principle for the entire medical examiner system.

### *Regional and Associate Medical Examiners:*

AFME appointed (with the concurrence of the service surgeons general) Regional Medical Examiners (RME), Reserve Regional Medical Examiners, and Associate Medical Examiners (AME), who continued to significantly expand our geographic scope. The RMEs and AMEs conducted over 200 medicolegal investigations this CY under the guidance of the AFMES, which is directly reflected in immense savings in travel dollars and man-hours for the government. The RMEs and AMEs are located at Lackland AFB, Brook Army Medical Center, Ft. Campbell, KY; Eisenhower Army Medical Center, Fort Gordon, GA; Bethesda, MD (USUHS); NMC San Diego, CA; Tripler ARMC, HI; Landstuhl ARMC, Germany; and Camp Lester, Okinawa, Japan.

### *Special Investigation Division of AFMES:*

Consultations have continued to be provided by the Special Investigation Division to all military investigative agencies as well as numerous federal agencies including the FBI, ATF, US Secret Service and the CIA. The Special Investigations Division has continued to conduct casework involved with overseas terrorist bombings and investigation of the deaths of detainees. The division has provided major support to AFMES during the ongoing war in Iraq by providing examination and identifications on thousands of disassociated tissue specimens, in addition to examination of the remains of local Iraqi nationals who were murdered or who died while in United States Custody. The entire system has continued to be instrumental in the development of new generation body armor and research related to battlefield ballistic injuries.

### *Quality Assurance:*

The Office of the Armed Forces Medical Examiner Quality Assurance program has maintained its quality peer review of 100% of the consultation cases. The forensic pathologists participate

in the American Society of Clinical Pathologists surveys and the biannual College of American Pathologists anatomic pathology education programs in autopsy and forensic pathology.

***Noteworthy Missions for 2007 include:***

2007 proved to be another formidable year for the Armed Forces Medical Examiner System. The commitment made by the staff of the system to fully account for every military member who died while in service to their country required the staff to undertake over 1000 death investigations. The AFMES continued to provide outstanding support of DoD and other federal agencies with regard to death investigations. During 2007, the autopsy examinations and written consultations were invaluable in promoting real-time force protection, especially for troops deployed to Operation Iraqi Freedom. In addition, several autopsy examinations and consultations were of great value in promoting aviation safety and administration of justice. Most noteworthy missions in 2007 included the following:

- The investigation of over 1000 deaths from Operations Iraqi Freedom and Operations Enduring Freedom
- Deployment to Baghdad, Iraq to assist the Iraqi Medical Examiner System in re-establishing their system and practice
- The investigation, by request from NASA, of the death of an astronaut who served in the Mercury, Gemini, and Apollo space programs for possible long term effects of space travel
- The recovery and subsequent identification of the remains found in Greece, of three United States citizens missing since 1978
- The forensic pathology anthropologic support to the Peace Corps investigation of homicide of a volunteer in the Philippines and the death of another Peace Corps Volunteer in Suriname
- Remains recovery and forensic pathology support to The Immigration and Customs Enforcement Agency outside Mexico City

## DIAGNOSTIC CONSULTATION

| *Cases* | *Completed* |
|---|---|
| Military | 1779 |
| Federal | 47 |
| Civilian | 10 |
| Interdepartmental | 36 |
| Total | 1872 |

***DEPLOYMENTS:***

In addition to the cases investigated at Dover Air Force base that involved over 200 deployment days, AFMES teams performed over 237 medicolegal additional investigations. Many involved deloyments with on-site scene investigation..

***List of Non OIF/OEF Deployments:***

1. January 4, 2007, Ft. Still, OK, Dr. James Fieg
2. January 8, 2007, Camp Lejeune, NC, Dr. Timothy Monaghan
3. January 10, 2007, Ft. Leonard Wood, MO, Dr. David Hause
4. January 17, 2007, Vicenza, Italy, Dr. Marc Labovich
5. January 18, 2007, Camp Lejeune, NC, Dr. Timothy Monaghan
6. January 23, 2007, San Diego, CA, Dr. Steven Campman
7. January 24, 2007, Naples NMC, Naples, Italy, Dr. Kathleen Ingwersen
8. January 26, 2007, Ft. Polk,LA, Dr. James Fieg
9. January 29, 2007, San Diego, CA, Dr. Steven Campman
10. January 30, 2007, WRAMC, Washington, DC, Dr. Ladd Tremaine
11. January 31, 2007, Portsmouth, VA, Dr. Jimmy Green
12. February 1, 2007, Ft. Leonard Wood, MO, Dr. David Hause
13. February 1, 2007, Elmendorf AFB, AK, Dr. Carol Solomon
14. February 5, 2007, Brooke AMC, Ft. Sam Houston, Dr. James Feig
15. February 5, 2007, Ft. Bragg, NC, Dr. Ladd Tremaine
16. February 6, 2007, Okinawa, Japan, Dr. James Caruso

17. February 6, 2007, Ft. Bragg, NC, Dr. Ruth Reardon
18. February 8, 2007, Vicenza, Italy, Dr. Marc Labovich
19. February 8, 2007, Elmendorf AFB, AK, Dr. Donald Trummel
20. February 9, 2007, Portsmouth, VA, Dr. Jimmy Green
21. February 9, 2007, Portsmouth, VA, Dr. Jimmy Green
22. February 12, 2007, San Diego, CA, Dr. Steven Campman
23. February 12, 2007, Ft. Bragg, NC, Dr. Ruth Reardon
24. February 13, 2007, Ft. Bragg, NC, Dr. Ruth Reardon
25. February 14, 2007, Ft. Carson, Co, Dr. James Feig
26. February 16, 2007, Portsmouth, VA, Dr. Jimmy Green
27. February 17, 2007, Okinawa, Japan, Dr. James Caruso
28. February 17, 2007, Okinawa, Japan, Dr. James Caruso
29. February 17, 2007, San Diego, CA, Dr. Stephen Robinson
30. February 17, 2007, San Diego, CA, Dr. Stephen Robinson
31. February 17, 2007, San Diego, CA, Dr. Stephen Robinson
32. February 20, 2007, Other State Dr. Kent Harshbarger
33. February 22, 2007, Camp Lejeune, NC, Dr. Michael Smith
34. February 23, 2007, Ft. Benning, GA, Dr. Eric Berg
35. February 23, 2007, Ft. Benning, GA, Dr. Eric Berg
36. February 26, 2007, San Diego, CA, Dr. Steven Campman
37. February 26, 2007, Okinawa, Japan, Dr. James Caruso
38. February 26, 2007, Portsmouth, VA, Dr. Jimmy Green
39. February 26, 2007, Ft. Bragg, NC, Dr. Timothy Monaghan
40. February 26, 2007, Indiana, Dr. Carol Solomon
41. February 27, 2007, Ft. Sam Houston, TX, Dr.
42. February 28, 2007, Ft. Leonard Wood, MO, Dr. Dzuy Nguyen
43. March 1, 2007, Ft. Campbell, KY, Dr. Eric Berg
44. March 1, 2007, Vicenza, Italy, Dr. Kathleen Ingwersen
45. March 2, 2007, Ft. Campbell, KY, Dr. Eric Berg
46. March 4, 2007, Ft. Campbell, KY, Dr. Eric Berg
47. March 8, 2007, Ft. Leonard Wood, MO, Dr. Eric Berg
48. March 8, 2007, Houston, TX, Dr. Seung Kim
49. March 8, 2007, Rockville, MD, Dr. Laura Regan
50. March 8, 2007, Rockville, MD , Dr. Laura Regan
51. March 8, 2007, Rockville, MD, Dr. Laura Regan
52. March 9, 2007, Tripler AMC, Hawaii, Dr. Christina Belnap
53. March 13, 2007, Okinawa, Japan, Dr. James Caruso
54. March 13, 2007, Portsmouth, VA, Dr. Robert Stabley
55. March 15, 2007, Ft. Sam Houston, TX, Dr. James Feig
56. March 16, 2007, Okinawa, Japan, Dr. James Caruso
57. March 22, 2007, WRAMC, Washington DC,Dr. Elizabeth Rouse
58. March 23, 2007, Camp Lejeune, NC, Dr. Craig Mallak
59. March 26, 2007, Portsmouth, VA, Dr. Jimmy Green
60. March 26, 2007, Ft. Bliss, TX, Dr. Jimmy Green
61. March 29, 2007, Ft. Carson, CO, Dr. Dzuy Nguyen
62. March 29, 2007, Camp Lejeune, NC, Dr. Ladd Tremaine
63. March 30, 2007, Korea, Dr. Steven Caruso
64. April 3, 2007, San Diego, CA, Dr. Steven Campman
65. April 4, 2007, NNMC Bethesda, MD, Dr. Timothy Monaghan
66. April 6, 2007, Ft. Bragg, NC, Dr. Georgina Murray
67. April 6, 2007, Ft. Lewis, WA, Dr. Paul Uribe
68. April 10, 2007, Ft. Polk, LA, Dr. James Feig
69. April 13, 2007, Okinawa, Japan, Dr. James Caruso
70. April 14, 2007, Sheppard AFB, TX,Dr. James Feig
71. April 15, 2007, Ft. Leonard Wood, MO, Dr. David Hause
72. April 15, 2007, NNMC Bethesda, MD, Dr. Ladd Tremaine
73. April 16, 2007, Portsmouth, VA, Dr. Robert Stabley

74. April 17, 2007, Portsmouth, VA, Dr. Robert Stabley
75. April 19, 2007, Ft. Campbell, KY, Dr. Eric Berg
76. April 21, 2007, Ft. Campbell, KY, Eric Berg
77. April 21, 2007, Philippines, Dr. Ladd Tremaine
78. April 21, 2007, Elmendorf AFB, AK, Dr. Donald Trummel
79. April 22, 2007, Ft. Campbell, KY, Dr. Eric Berg
80. April 23, 2007, Arizona, Dr. James Feig
81. April 23, 2007, NNMC Bethesda, MD, Dr. Edward Mazuchowski
82. April 25, 2007, Lackland AFB, TX, Dr. James Feig
83. April 26, 2007, Vicenza, Italy, Dr. Marc Labovich
84. April 30, 2006, Okinawa, Japan, Dr. James Caruso
85. May 1, 2007, San Antonio, TX, Dr. Seung Kim
86. May 1, 2007, Ft. Carson, CO, Dr. Carol Solomon
87. May 2, 2007, Bethesda, MD, Dr. Elizabeth Rouse
88. May 5, 2007, Ft. Campbell, KY, Dr. Eric Berg
89. May 7, 2007, San Diego, CA, Dr. Steven Campman
90. May 7, 2007, San Diego, CA, Dr. Steven Campman
91. May 8, 2007, Okinawa, Japan, Dr. James Caruso
92. May 8, 2007, Ft. Bliss, TX, Dr. Stephen Robinson
93. May 9, 2007, Okinawa, Japan, Dr. James Caruso
94. May 10, 2007, Brooke AFB, TX, Dr. Seung Kim
95. May 13, 2007, Okinawa, Japan, Dr. James Caruso
96. May 13, 2007, Okinawa, Japan, Dr. James Caruso
97. May 14, 2007, Okinawa, Japan, Dr. James Caruso
98. May 14, 2007, Portsmouth, VA, Dr. Robert Stabley
99. May 15, 2007, Lackland AFB, TX, Dr. James Feig
100. May 15, 2007, Camp Lejeune, NC, Dr. Timothy Monaghan
101. May 17, 2007, Okinawa, Japan, Dr. James Caruso
102. May 18, 2007, Portsmouth, VA, Dr. Robert Stabley
103. May 23, 2007, Ft Sam Houston, TX Dr. James Feig
104. May 25, 2007, Vicenza, Italy, Dr. Kathleen Ingwersen
105. May 25, 2007, Ft. Bragg, NC, Dr. Edward Mazuchowski
106. May 25, 2007, Camp Lejeune, NC, Dr. Timothy Monaghan
107. May 25, 2007, NNMC Bethesda, MD, Dr. Stephen Robinson
108. May 27, 2007, Ft. Stewart, GA, Dr. Timothy Monaghan
109. May 29, 2007, Ft. Campbell, KY, Dr. Eric Berg
110. May 30, 2007, Ft. Campbell, KY, Dr. Eric Berg
111. May 31, 2007, NNMC Bethesda, MD, Dr. Mark Shelly
112. June 1, 2007, WRAMC, Washington DC, Dr. Philip Berran
113. June 1, 2007, Guantanamo Bay, Cuba, Dr. Edward Reedy
114. June 1, 2007, Elmendorf AFB, AK, Dr. Michael Smith
115. June 1, 2007, Elmendorf AFB, AK, Dr. Michael Smith
116. June 2, 2007, Okinawa, Japan, James Caruso
117. June 4, 2007, Brooke AFB, TX, Dr. Seung Kim
118. June 7, 2007, Ft. Gordon, GA, Dr. Michael Smith
119. June 7, 2007, Ft. Bliss, TX, Dr. Ladd Tremaine
120. June 8, 2007, Ft. Still, OK, Dr. Ladd Tremaine
121. June 12, 2007, Ft. Campbell, KY, Dr. Eric Berg
122. June 13, 2007, Ft. Bragg, NC, Dr. Philip Berran
123. June 15, 2007, Brooke AFB, TX, Dr. Seung Kim
124. June 16, 2007, Ft. Lewis, WA, Dr. AbuBakr Marzouk
125. June 20, 2007, Ft. Bliss, TX, Dr. Richard Mondragon
126. June 20, 2007, Jacksonville, Fl, Dr. Dzuy Nguyen
127. June 22, 2007, Ft. Bragg, NC, Dr. Mike Smith
128. June 23, 2007, Heidelberg MC, Germany, Dr. Marc Labovich
129. June 24, 2007, Korea, Dr. Michael Benson
130. June 25, 2007, Portsmouth, VA, Dr. Robert Stabley

131. June 25, 2007, Portsmouth, VA, Dr. Robert Stabley
132. June 29, 2007, Ft. Bragg, NC, Dr. Mike Smith
133. July 1, 2007, Elmendorf AFB, AK, Dr. Timothy Monaghan
134. July 2, 2007, Ft. Gordon, GA, Dr. Michael Smith
135. July 2, 2007, Other State, Dr. Ladd Tremaine
136. July 3, 2007, Elmendorf AFB, AK, Dr. Timothy Monaghan
137. July 9, 2007, Ft. Campbell, KY, Dr. Eric Berg
138. July 10, 2007, Ft. Gordon, GA , Dr. Michael Smith
139. July 10, 2007, Portsmouth, VA, Dr. Carol Solomon
140. July 11, 2007, Vicenza, Italy, Dr. Kathleen Ingwersen
141. July 13, 2007, Ft. Polk, LA, Dr. Mark Shelly
142. July 14, 2007, Ft. Bliss, TX, Dr. Edward Mazuchowski
143. July 17, 2007, Ft. Bragg, NC, Dr. AbuBakr Marzouk
144. July 17, 2007, Ft. Stewart, GA, Dr. Michael Smith
145. July 18, 2007, Portsmouth, VA, Dr. Scott Luzi
146. July 23, 2007, Ft. Rucker, AL, Dr. Eric Berg
147. July 28, 2007, Ft. Carson, CO, Dr. James Feig
148. July 30, 2007, Ft. Campbell, KY, Dr. Eric Berg
149. July 30, 2007, WRAMC, Washington DC, Dr. Mark Shelly
150. July 30, 2007, Ft. Gordon, GA, Michael Smith
151. July 31, 2007, Ft. Leonard Wood, MO, David Hause
152. August 6, 2007, San Diego, CA, Dr. Steven Campman
153. August 8, 2007, Lackland AFB, TX, Dr. James Fieg
154. August 9, 2007, Lackland AFB, TX, Dr. James Fieg
155. August 9, 2007, Okinawa, Japan, Dr. Tiffany Nelson
156. August 11, 2007, Korea, Dr. Mark Shelly
157. August 13, 2007, Ft. Stewart, GA, Dr. Michael Smith
158. August 18, 2007, San Diego, CA, Dr. Steven Campman
159. August 18, 2007, San Diego, CA, Dr. Steven Campman
160. August 18, 2007, San Diego, CA, Dr. Ladd Tremaine
161. August 18, 2007, San Diego, CA, Dr. Ladd Tremaine
162. August 19, 2007, Korea, Dr. James Caruso
163. August 21, 2007, San Diego, CA, Dr. Steven Campman
164. August 21, 2007, Ft. Sam Houston, TX, Dr. James Feig
165. August 23, 2007, Ft. Riley, KS, Dr. Eric Berg
166. August 27, 2007, Camp Lejeune, NC, Dr. Timothy Monaghan
167. August 29, 2007, San Diego, CA, Dr. Steven Campman
168. August 31, 2007, Ft. Bliss, TX, Dr. Eric Feig
169. September 3, 2007, Okinawa, Japan, Dr. James Caruso
170. September 5, 2007, Other State, Dr. Stephen Robinson
171. September 7, 2007, Elmendorf AFB, AK, Dr. Philip Berran
172. September 7, 2007, Ft. Sam Houston, TX, Dr. Seung Kim
173. September 10, 2007, Camp Lejeune, NC, Dr. Scott Luzi
174. September 14, 2007, Ft. Gordon, GA, Dr. Michael Smith
175. September 18, 2007, Rockville, MD, Dr. Scott Luzi
176. September 18, 2007, Ft. Bragg, NC, Dr. AbuBakr Marzouk
177. September 18, 2007, Portsmouth, VA, Dr. Robert Stabley
178. September 19, 2007, Tripler AMC, Hawaii, Dr. Craig Mallak
179. September 24, 2007, Ft. Knox, KY, Dr. Timothy Monaghan
180. September 24, 2007, Ft. Gordon, GA, Dr. Michael Smith
181. September 24, 2007, Ft. Gordon, GA, Dr. Michael Smith
182. September 25, 2007, Okinawa, Japan, Dr. James Caruso
183. September 26, 2007, Ft. Sam Houston, Dr. James Feig
184. September 27, 2007, Ft. Sam Houston, Dr. James Feig
185. September 27, 2007, Ft. Stewart, GA, Dr. Jason Kentelhardt
186. September 27, 2007, Ft. Sam Houston, Dr. Seung Kim
187. September 28, 2007, Portsmouth, VA, Dr. Tiffany Nelson

188. October 3, 2007, Ft. Carson, CO, Dr. Carol Solomon
189. October 5, 2007, Okinawa, Japan, Dr. James Caruso
190. October 5, 2007, Camp Lejeune, NC, Dr. Timothy Monaghan
191. October 8, 2007, Ft. Gordon, GA, Dr. Michael Smith
192. October 10, 2007, San Diego, CA, Dr. Ladd Tremaine
193. October 13, 2007, Ft. Stewart, GA, Dr. Michael Smith
194. October 15, 2007, Okinawa, Japan, Dr. James Caruso
195. October 15, 2007, Ft. Stewart, GA, Dr. Michael Smith
196. October 16, 2007, WRAMC, Washington DC, Dr. Edward Mazuchowski
197. October 17, 2007, Elmendorf AFB, AK, Dr. Tops, Terrill
198. October 18, 2007, Ft. Campbell, KY, Dr. Eric Berg
199. October 20, 2007, Eglin AFB, FL, Dr. Ladd Tremaine
200. October 23, 2007, Okinawa, Japan, Dr. James Caruso
201. October 25, 2007, Ft. Riley, KS, Dr. Dzuy Nguyen
202. October 26, 2007, Ft. Sill, OK, Dr. James Fieg
203. October 29, 2007, Camp Lejeune, NC, Dr. Timothy Monaghan
204. October 29, 2007, Portsmouth, VA, Dr. Robert Stabley
205. October 30, 2007, Okinawa, Japan, Dr. James Caruso
206. October 30, 2007, MMNC Bethesda, MD, Dr. Scott Luzi
207. October 30, 2007, MMNC Bethesda, MD, Dr. Scott Luzi
208. October 30, 2007, San Diego, CA, Dr. Mark Shelly
209. October 30, 2007, San Diego, CA, Dr. Mark Shelly
210. November 2, 2007, Tripler AMC, Hawaii, Dr. Christina Belnap
211. November 2, 2007, Portsmouth, VA, Dr. Robert Stabley
212. November 5, 2007, Ft. Benning, GA, Dr. Carol Solomon
213. November 6, 2007, Fort Bragg, NC, Dr. Edward Mazuchowski
214. November 11, 2007, Ft. Riley, KS, Dr. Mark Shelly
215. November 13, 2007, Ft. Stewart, GA, Dr. Michael Smith
216. November 15, 2007, Ft. Sam Houston, TX, Seung Kim
217. November 16, 2007, Okinawa, Japan, Dr. James Caruso
218. November 19, 2007, San Diego, CA, Dr. Steven Campman
219. November 23, 2007, Clarksburg, WV, Dr.Dzuy Nguyen
220. November 25, 2007, Patrick AFB, Fl, Dr. Scott Luzi
221. November 27, 2007, Ft. Campbell, KY, Dr. Eric Berg
222. December 3, 2007, Ft. Campbell, KY, Dr. Eric Berg
223. December 4, 2007, Ft. Campbell, KY, Dr. Eric Berg
224. December 5, 2007, Arizona, Dr. Terrill Tops
225. December 6, 2007, Ft. Gordon, GA, Dr. Michael Smith
226. December 13, 2007, Ft. Riley, KS, Dr. Eric Berg
227. December 13, 2007, Okinawa, Japan, Dr. James Caruso
228. December 18, 2007, Okinawa, Japan, Dr. James Caruso
229. December 18, 2007, WRAMC, Washington DC, Dr. Ladd Tremaine
230. December 22, 2007, Camp Lejeune, NC, Dr. Timothy Monaghan
231. December 22, 2007, Ft. Knox, KY, Dr. Edward Reedy
232. December 26, 2007, Okinawa, Japan, Dr. James Caruso
233. December 27, 2007, Ft. Bragg, NC, Dr. Edward Reeedy
234. December 27, 2007, San Diego, CA, Dr. Carol Solomon
235. December 29, 2007, Lackland AFB, TX, Dr. James Fieg
236. December 29, 2007, Other state, Dr. Carol Solomon
237. December 30, 2007, Guantanamo Bay, Cuba, Dr. Timothy Monaghan

## EDUCATION

***Courses:***

- The OAFME staff conducted the George Washington University Basic Forensic Pathology course in the Spring and Fall of 2007. The total attendee for this course was 55.
- The OAFME staff conducted the Basic Forensic Pathology Course in the Fall of 2007. The total attendee for this course was 71.

***Trainees:***
Maj Ladd Tremaine, USA, Maj Edward Mazuchowski, USAF and LCDR Mark Shelly, USN completed the Forensic Pathology Fellowship program, earned their board certification in Forensic Pathology, and transitioned to OAFME permanent staff.

Additionally, the OAFME had several medical student and pathology residents complete rotational clerkships in Forensic Pathology during CY 2007.

***Clinical Appointments:***
1. Consulting Associate Professor, Department of Anesthesiology, Duke University Medical Center, Durham, NC, CAPT J. Caruso.
2. Adjunct Faculty for the Uniformed Services University of the Health Sciences, Bethesda, MD, CAPT J. Caruso and CDR Edward Reedy.
3. Adjunct Assistant Professor, Division of Physician Assistant Education, School of Allied Health Professions, University of Nebraska College of Medicine, COL E. Berg.
4. Armed Forces Institute of Pathology, Course Director, Basic Forensic Pathology, CDR Scott Luzi
5. George Washington University/AFIP Masters of Forensic Sciences Program, Adjunct Faculty and Course Director, Principles of Forensic Pathology, CDR Scott Luzi.
6. George Washington University, Adjunct Professor, Dept. of Forensic Sciences, WC Rodriguez, III

***Presentations and Seminars:***
The OAFME staff gave twenty-one Presentations, Seminars and Lectures during CY 2007. Additionally the OAFME provided several classified presentations to a variety of DoD and Federal audiences in support of collaborative efforts.

1. January 2007: "Introduction to Forensic Pathology," St. Mary's College, MD, CDR Reedy
2. January 2007: Lectures to US Department of State, Bangkok, Thailand on Jurisdictional issues and Autopsy Procedures, and Forensic Anthropology, COL Hanshaw, MAJ Regan, MAJ Berran
3. March 2007: Lectures to US Department of State, Rome, Italy on Jurisdictional issues and Autopsy Procedures, and Forensic Anthropology, CAPT Robinson, CDR Reedy, CDR Monaghan, and Dr. Rodriguez
4. March 2007: American Academy of Forensic Sciences, "Isotopic Determination and Region of Origin in Modern Peoples: Applications for identification of US war-dead from the Vietnam conflict II," MAJ Regan
5. March 2007: NORTHCOM Mass Fatality Management Seminar, CAPT Mallak
6. March 2007: "Aviation Pathology" for the Naval Flight Surgeons course, CAPT Hodge
7. March 2007, NDMS Training Seminar on Mass Casualty Management, MAJ Berran
8. March 2007: Forensic Dental Identification and Emering Technologies, MAJ Regan and Dr. Rodriguez
9. April 2007: Cook County Medical Examiners Seminar; "CT-assisted autopsies," CDR Reedy
10. April 2007: Presentation on Forensic Anthropology to Harvard Fellows, MAJ Regan and Dr Rodriguez
11. April 2007: "Blast Injuries, the OIF/OEF Experience," Society of Army Physician Assistants, Ft Bragg, NC, CDR Reedy
12. June 2007: Air Force Sustainment Team Training, COL Hanshaw, MAJ Nguyen
13. July 2007: American University National Student Leadership Conference, "Introduction to Forensic Pathology," CDR Reedy
14. July 2007: Arizona Department of Health Services, "Mass Fatality Services," CAPT Mallak
15. July 2007: Presentations to the FBI Laboratory- Explosives Unit, Dr Rodriguez
16. July 2007: Colby College, New England Society of Forensic Sciences, CAPT Mallak
17. July 2007, Air Force Sustainment Team Training, COL Hanshaw, MAJ Nguyen
18. August 2007: Air Force Sustainment Team Training, COL Hanshaw, MAJ Nguyen
19. October 2007: "High Yield DNA Sampling Techniques for Burnt, fragmented, and decomposed remains," National Association of Medical Examiners Annual Meeting, Dr. Rodriguez
20. November 2007: Presentation on Forensic Anthropology to Harvard Fellows, Dr Rodriguez and MAJ Regan
21. November 2007: Presentation on Forensic Anthropology at US Naval Academy, Dr. Rodriguez

## RESEARCH

The AFMES Mortality Surveillance Division received four grants for research in various different areas of research:

- 110K for research into recovered Army armor and Army combat injury patterns from PEO Soldier
- 130K for real-time surveillance of all DOD active duty deaths, with specimen collection of identification protocols for identification of infectious disease agents from DOD-Global Emerging Infectious System
- 127K for testing of surface wound mapping software and protocol from Technical Support Working Group
- 650K for Fragmentation Analysis from the Joint Trauma Analysis Program

### *Mortality Surveillance Division published five Studies in 2007*

1. Hammett M; Pearse L; Naito N; Hooper T. Drowning Deaths of U.S. Service Personnel Associated With Motor Vehicle Accidents Occurring In Operation Iraqi Freedom and Operation Enduring Freedom, 2003-2005; *Military Medicine*. 2007: 172 (8): 875-8.
2. Levy AD, Mallak CT, Getz JM, Harcke HT, Pearse L., et al. Virtual Autopsy: two- and three-dimensional multidetector findings in drowning with autopsy comparison. *Radiology*. 2007; 243 (3): 862-8.
3. Harcke HT, Levy AD, Abbott RM, Mallak CT, Getz JM, Champion HR, Pearse L. Autopsy Radiography: Digital Radiographs (DR) vs Multidetector CT (MDCT) in High Velocity Gunshot Wound Victims. *American Journal of Forensics in Medicine and Pathology*. 2007;28 (1): 13-19.
4. Levy AD, Harcke HT, Getz JM, Mallak CT, Caruso JL, Pearse L, Frazier AA, Galvin JR.,et al. Chest wall thickness in Military Personnel: Implications for Needle Thoracentesis in tension Pneumothorax. *Military Medicine*. 2007; 172 (12).
5. Holcomb JB, McMullin NR, Pearse LA, Caruso J, Wade CE, Oetjen-Gerdes L, Champion HR, Lawnick M, Farr W, Rodriguez S, Butler FK. Causes of Death in U.S. Special Operations Forces in the Global War on Terrorism: 2001-2004; *Ann Surgery*. 2007; 245 (6) :986-91.

### *Collaborators:*

OAFME works closely with the Military Services Safety Centers in aircraft accident investigations, safety issues and educational endeavors for their respective aeromedical communities. We also provide aviation pathology training to the Canadian aeromedical community.

### *Committees:*

The following staff held committee or board memberships and offices:

1. College of the American Pathologist, Forensic Pathology Committee, CAPT C. Mallak, LTC L. Finelli
2. US Navy LCDR (0-4) Promotion Board, CDR C. Mallak
3. Board of Governors, National Association of Medical Examiners, CAPT C. Mallak
4. Member of College of American Pathologists Delegation to the American Medical Association, CDR James Caruso

### *Editorial Boards:*

*American Journal of Forensic Medicine and Pathology*, CAPT Craig Mallak

### *Manuscripts Reviewed:*

Members of the department reviewed articles for the following journals.

1. *American Journal of Forensic Medicine*
2. Duke University Medical Center
3. Naval Undersea Medical Institute
4. Undersea and Hyperbaric Medical Society
5. ASCP Check Samples, Forensic Pathology (Gunshot Wound of the Head with Brain Pulmonary Embolus)

### *Other Accomplishments*

OAFME staff testified as expert witnesses in several homicide trials and assault cases. OAFME has had multiple media appearances including national television.

***Consultants:***

**Dr. James Caruso**

Associate Consulting Professor of Pathology and anesthesiology at Duke University Medical Center,Durham, NC

**Dr. William Rodriguez**

1. Chief consultant FBI Forensic Science Training Unit, and the FBI's Child Abduction and Serial Killer Unit.
2. Co-Director of the FBI's yearly Evidence Response Team -Field Course: Search and Recovery of Decomposed and Skeletonized Remains Evidence Response Team. FBI National Training Academy, Quantcio, VA.

***Continuing Education:***

Department staff attended the Basic Forensic Pathology course during 2007.

## GOALS

The Office of the Armed forces Medical Examiner has several goals for the upcoming year, including:

1. Continue the full accounting mission for fallen service members in Iraq, Afghanistan, and elsewhere.
2. Continued implementation of AFMETS, a system wide data-tracking program.
3. Continued collaboration with NORTHCOM and Homeland Security to develop a national mass disaster response plan.
4. Assist with the transition and return of jurisdiction for investigation of deaths of Iraqi's to the National Medical Examiner System.
5. Continued formalization of a combat trauma registry with emphasis on body armor and other protector gear evaluation and improvement.

Louis N. Finelli, LTC, MC, USA
Chief Deputy Medical Examiner and Director,
Department of Defense DNA Registry
Date of Appointment—1 June 2006

# DEPARTMENT OF DEFENSE DNA REGISTRY

## STAFF

*Administration Section:*
James J. Canik, Deputy Director (ARP)
Brion C. Smith, Deputy Director Forensic DNA Services (ARP)
(D) Deborah R. Roberts, Administrative Officer (ARP)
(A) Maria Nightingale, Administrative Officer (ARP)
Krystal N. Harris, Administrative Assistant (ARP)
Richard Lewis, BS, RMT, QA/QC and Safety Officer (GS)
Michael A. Fasano, BA, Laboratory Support Manager (ARP)
Mauricio M. Rivera-Lopez, Inventory Manager (ARP)
(D) George A. Galapon, Inventory Management Specialist (ARP)
(A) Lee Brandenburg, Inventory Management Specialist (ARP)

*Information Technology Section:*
James P. Ross, Chief Information Officer (ARP)
Aaron S. Waldner, Deputy Chief Information Officer (ARP)
Peter Grey, Systems Ops Specialist (SD)
Richard Coughlin, Network Administrator (FTI)
Vinh Lam, Project Manager (FTI)
Jon Norris, Software Developer (FTI)
David Bergman, Software Developer (FTI)
Linda Huang, Software Developer (FTI)
(D) Svetlana Cheshmedjieva, Software Developer (FTI)
(D) Joel Galloway, Software Developer (FTI)
Eric Rubenstein, Software Developer (FTI)
Phuong Phan, Software Developer (FTI)
Iosif Gurevich, Software Developer (FTI)
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Edwin Molina, Helpdesk Technician (FTI)

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Marjorie Q. Bland, BS, DNA Program Coordinator (GS)
Vacant, Secretary (GS)
(D) Lisa A. Gallman, Supply Clerk (GS)

*AFDIL Mitochondrial DNA Section:*
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(A) Sarah Linke, DNA Technician I (ARP)
(A) Colleen Dunn, DNA Technician I (ARP)
(A) Jonathan Jarry, DNA Technician I (ARP)
(A) Timothy Herbert, DNA Technician I (ARP)
(A) Erin Bishop, DNA Technician I (ARP)
(A) Sarah Hager, DNA Technician I (ARP)
(A) Jennifer Goss, DNA Technician I (ARP)
(A) Allison Fain, DNA Technician I (ARP)
(A) Michael O'Rourke, DNA Technician I (ARP)
(A) Walter Graf, DNA Technician I (ARP)

*AFDIL Nuclear DNA Section:*

Demris A. Lee, MFS, Technical Leader (ARP)
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(D) Robin L. Yaghmour (McDowell), MS, DNA Analyst II (ARP)
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(D) Jarrett N. Roth, BS, DNA Analyst I (ARP)
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(A) Rachel Demara, QC Technician (ARP)
(A) Morgan Manning, QC DNA Technician (ARP)
(A) Houda Kamoun, DNA Technician (ARP)
(D) Cassandra Campbell, BS, Validation Technician (ARP)
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(A) Danyel Donovan, DNA Technician (ARP)
(A) Melinda Hung, DNA Technician (ARP)
(A) Teresa Cheromcha, DNA Technician (ARP)

*AFDIL Training and Education:*

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Richon E. Tate, BS, Assistant Training & Education Manager (ARP)

*AFDIL Research Section:*

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(A) Morgan Falk, DNA Analyst Assistant (ARP)
(A) Erin Gordan, DNA Analyst Assistant (ARP)
(A) Brittany Box, DNA Analyst Assistant (ARP)
(D) Leslie C. Mounkes, Ph.D., DNA Analyst Assistant (ARP)
(D) Naila Bhatri, MFS, DNA Analyst Assistant (ARP)

*Armed Forces Repository of Specimen Samples for the Identification of Remains (AFRSSIR):*

(A) Lawrence Drayton, MFS, Director of Operations (ARP)
(D) Lawrence Drayton, MFS, Repository Supervisor (ARP)
(A) Michelle Scott, Repository Supervisor (ARP)
Herbert Simms, Inventory Management Specialist (GS)
Tonya Summers, Admin Assistant (ARP)
Marie Reese, Lead QC Technician (ARP)
Arvin Solis, Sr. Specimen Processor Team Leader (ARP)
Mariafe Vance, Sr. Specimen Processor Team Leader (ARP)
Diane Giampetroni, Sr. Specimen Processor (ARP)
Gloria Lindmark, Sr. Specimen Processor (ARP)
(D) Ernie Costes, Specimen Processor (ARP)
Michael Rhoades, QC Technician (ARP)
Danielle Shepherd, Administrative Assistant
Rene Malones, Network Administrator (FTI)
(D) Matt Widiger, Network Administrator (EDS)
(A) Roger Rudder, Network Administrator (EDS)

## MISSION

The Department of Defense DNA Registry (Forensic DNA Division) supports the ongoing missions of the Armed Forces Medical Examiner System (AFMES) and the Armed Forces Institute of Pathology (AFIP) through consultation, education, and research. This division is the global leader in human remains identification; forensic DNA analysis; mass-fatality incident management; bioinformatics development and scientific data management; as well as DNA reference specimen collection and storage. Furthermore, the DNA Registry provides mtDNA casework analysis, data management, and research support to the Joint POW/MIA Accounting Command's Central Identification Laboratory (JPAC CIL) to assist in their mission of service member remains recovery and identification. A full 100% of DoD funded resources are applied in direct support of the DoD.

## VISION

Dedicated people providing global leadership in consultation, education, and research in the fields of human remains identification; forensic DNA analytical services; bioinformatic analysis and management services; mass-fatality specimen collection and management services; and human reference specimen collection, cataloging, archival, and retrieval repository services.

## VALUES

**Quality:** Uncompromising quality is what distinguishes us from other laboratory organizations. It is the foundation on which the DoD DNA Registry is built and we will not sacrifice it for the sake of expense or expediency. We do this by dedicating ourselves to the relentless pursuit of excellence in all services we provide.

**Integrity:** Trust, both among us and with colleagues external to our organization, is the cornerstone of our success. All of our processes, decisions, and actions are driven by personal and organizational integrity.

We are honest and forthright in all our dealings with those we provide services for and with each other. We are responsible participants in the forensic scientific community and we exemplify steadfast principles in honest discourse and production.

**Innovation:** We constantly seek innovative ways to enhance the services we provide. We support the creativity, courage, and persistence that transform ideas, thoughts, and dreams into knowledge and knowledge into insights and insights into action. We seek continuous learning through the adaptation of existing knowledge, and through experimentation and research, with the full understanding progress can be made through thoughtful trial and error.

**Accountability:** We accept full responsibility for our performance and acknowledge our accountability for the ultimate outcome of all we do. We strive for continuous improvement, and believe competence, reliability, and rigorous adherence to sound scientific principles and discipline are the keys to excellence. We look for others to do the same.

**Collaboration:** We believe in teamwork and the limitless possibilities of professional synergies. We, as an organization, achieve excellence by putting collective goals ahead of personal interests. We support and encourage open communication and meaningful participation in relevant scientific discourse among colleagues from various personal and professional backgrounds. We respect individual differences and we value the power of diversity when directed with unity of purpose.

**Leadership:** We strive to be the best at what we do. We embrace the foundations of personal leadership—courage, competence, confidence and a passion for surpassing expectations. The Department of Defense DNA Registry fosters an environment of mutual respect, both professional and personal. One in which the contributions of each employee are held in the highest regard; where integrity, trust, and an uncompromising commitment to excellence and innovation guide our success in the mission of consultation, research, and education through the understanding and application of DNA technology.

## DIAGNOSTIC CONSULTATIONS

| Cases | Cases Accessioned | Cases Final Reported |
|---|---|---|
| CIV | 145 | 646 |
| IH | 2,517 | 1,366 |
| USA | 811 | 363 |
| USAF | 6 | 5 |
| USN | 41 | 57 |
| VA | 3 | 3 |
| OFA | 6 | 1 |
| Total | 3,529 | 2,441 |

## IMPACT

The Department of Defense (DoD) DNA Registry (the Registry) is a division of the Armed Forces Medical Examiner System (AFMES), and an operational element of the Armed Forces Institute of Pathology (AFIP). The Office of the Surgeon General (OTSG) provides Army Executive Agency. The Registry has two subordinate branches, the Armed Forces DNA Identification Laboratory (AFDIL) and the Armed Forces Repository of Specimen Samples for the Identification of Remains (AFRSSIR).

The DNA Registry is charged with the missions of DNA identification of human remains, information technology development, mass fatality management, and DNA reference specimen collection, archival, storage, and retrieval services for the Department of Defense.

In addition to routine AFMES casework, the Registry established a three person Outside Casework and Mass Fatality Contingency Section that was authorized to perform reimbursable casework for other Federal and non-Federal clients until they were required to support current military operations around the globe. This core mission is funded through the Defense Health Program (DHP). DHP funding levels had been flat lined over the last few fiscal years resulting in a net decrement of approximately 12%, while the demand for DoD forensic DNA casework and reference card collections continues to grow, particularly in relation to Operations Enduring and Iraqi Freedom and the continuing Global War on Terrorism. This budgetary trend is starting to reverse, with a nominal increase in DHP funding during the past fiscal year.

The Joint POW/MIA Accounting Command (JPAC) is a field-operating agency of the United States Pacific Command (PACOM). JPAC is the lead organization in the search, recovery, and identification of US service members missing from prior military conflicts. Although JPAC meets most mission requirements with internal assets (forensic anthropology, odontology, data analysis, recovery teams), it has become increasingly reliant upon the use of mitochondrial DNA (mtDNA). Year 2006 statistics showed AFDIL mtDNA support is required for more than 80% of JPAC CIL casework. As the recognized world leader in this technology, AFDIL has provided this DNA support to JPAC since 1994, when the US Army G-1, the executive agency for JPAC's predecessor, the Central Identification Laboratory, Hawaii (CILHI), first requested it. The G-1 continues to fund AFDIL for the costs of these DNA services. A five-year Memorandum of Agreement (MOA) between the AFIP, the Casualty and Memorial Affairs Operations Center (CMAOC), as the EA for DoD mortuary affairs, and JPAC is still under negotiations. Due to the lack of a budget for FY 2007 and the lack of the signed 5 year MOA, current personnel vacancies have remained unfilled.

The DoD DNA Registry continued to support the Service Casualty Offices (SCOs) and the Defense Prisoner of War/Missing Personnel Office (DPMO) in support of family members of unaccounted for service members from all conflicts by participating in 10 monthly family updates and the Annual Government Briefings in Washington DC for Vietnam War families and Korea/Cold War families.

In conjunction with the other governmental and non-governmental organizations responsible for the personnel accounting mission, the DoD DNA Registry provided numerous briefings and tours for family members and presentations at monthly family member updates. In support of the Defense Prisoner of War Missing Personnel Office monthly family updates, AFDIL staff members collected 165 family reference specimens from eligible donors. At these monthly updates, over 3,000 family members were briefed on current recovery operations of missing American service members from the Vietnam War, Korean-Cold War, World War II, and World War I.

## RESOURCE AND CONTRACT MANAGEMENT SECTION (ORCM)

The Office of Resource and Contract Management (ORCM) is comprised of a core group of United States Government employees. This office is responsible for all functions considered inherently governmental. These activities include processing and procurement of all requests for reagents, laboratory supplies, equipment, maintenance services, facility management, and Memoranda of Agreement (MOA) development, monitoring, and execution. Other activities included human resource (HR) functions, budget formulation, execution, monitoring and reporting, inventory and supply stock management, and equipment inventory and accountability. Additional activities include management of all contracts and acquisition of services to support AFDIL efforts.

In June 2007, the ORCM was re-structured to include a new position titled Laboratory Support Manager. This Position was specifically created to help manage the needs of the scientific laboratory staff and bridge those needs with the expertise of the members of the ORCM. The Laboratory Support Manager directly oversees the duties of the Inventory Manager and the Inventory Management Specialist and is responsible for making sure that the various sections of the DNA Registry have everything required to complete their missions efficiently and effectively. The Laboratory Support Manager assesses the needs of the organization as a whole and affects positive change to keep the DNA Registry on the cutting edge of the scientific field of DNA identification of human remains.

Specific accomplishments during calendar year 2007:

1) Managed all facilities for the organization ensuring the leases, utilities, renovations, security, and maintenance were provided and/or accomplished.
2) Managed $350,000 of maintenance and service contracts on laboratory equipment to include cold storage units, DNA thermal cyclers, DNA sequencers and the calibration of pipettes. Responsible for the timely procurement of approximately five million dollars worth of laboratory supplies, reagents and consumables necessary for the continued mission of DNA identification of human remains.
3) Acquired, administered and managed the Information Technology (IT) service contracts for software development, network support, database management, hardware maintenance, and bench-level desktop support.
4) The ORCM is responsible for oversight of the development, testing, and deployment of the DNA Registry Inventory Management Systems (DRIMS), a comprehensive module within the Laboratory Information Systems Application (LISA) operating system of the Laboratory Information Management System (LIMS). This program allows for the automated scheduling of laboratory replenishment, equipment failure notification, comprehensive manufacturer, supply, and distribution information collection, and other integrated inventory management functions.
5) Managed the DNA portion of the ARP contract which encompasses approximately 100 administrative, managerial, scientific, and technical positions at the AFDIL and AFRSSIR.
6) Orchestrated the acquisition of new instrumentation which streamlines the processes of DNA extraction, amplification and reagent preparation. The first of these instruments, the BIOMEK FXP, is a robotics workstation able to extract multiple DNA samples, quantify the DNA obtained and then amplify those samples on the same platform. The second instrument, the TECAN Liquid Handling Robot - Freedom EVO-2 system, is a robotic workstation that will dispense reagents in a biosafety enclosure allowing for faster, more accurate and contamination free dispensing of reagents to be used in the sensitive DNA analysis procedures performed at the DNA Registry.

## THE ARMED FORCES DNA IDENTIFICATION LABORATORY (AFDIL)

## AFDIL MITOCHONDRIAL DNA (MTDNA) SECTION

The primary mission of the AFDIL's Mitochondrial DNA section is to work with the Joint POW/MIA Accounting Command – Central Identification Laboratory (JPAC-CIL) to identify the remains of soldiers missing from past American military conflicts, primarily those from Southeast Asia, the Korean War, and World War II. In CY2007, we also tested 16 samples from soldiers lost during the War of 1812, all of which we were able to report with full mtDNA profiles.

The mtDNA section continues to be a leader in the world-wide forensics community for the implementation of new techniques that may increase the number of identifications. In CY2006, AFDIL's Research Section developed a new extraction methodology that greatly multiplies the amount of DNA that can be recovered from osseous materials by completely

dissolving the bone. The 'demineralization' technique was fully implemented amongst all casework teams in CY2007. The rate of cases reported to JPAC-CIL as inconclusive has decreased markedly with its usage. In CY2006, 26% of the samples reported were reported as inconclusive. In CY2007, only 8% were. We are understandably satisfied, and are continuing work with the Research Section in order to further improve extraction techniques.

Through a Memorandum of Agreement (MOA) with the US Army Casualty and Memorial Affairs Operations Center (CMAOC, as the Executive Agent (EA) for the human remains repatriation activities of the Department of Defense (DoD), the mtDNA section processed, analyzed and reported 836 biological (skeletal) specimens in CY2007. This is 12% increase over the number of samples reported in CY2006. In support of the Family Outreach Program of CMAOC, we received 1,420 new family reference samples (FRS) in CY2007; however, we completely processed only 454 family references. In support of the JPAC-CIL mission, we were able to generate 115 identification reports for unknown service members in CY2007.

In addition to the work being done for JPAC-CIL and CMAOC, CY2007 was the first year of a Memorandum of Agreement (MOA) with the National Institutes of Justice (NIJ) for the processing of human remains for inclusion in the National Missing Persons DNA Database. We accomplished the initial goal of processing 60 samples for mtDNA analysis, and have entered into an agreement for CY2008 for the processing of an additional 80 samples in both the mitochondrial and nuclear DNA analysis.

In CY2007, the mitochondrial DNA section has increased it's interactions with other sections at AFDIL, making the laboratory increasingly integrated in the tasks we perform. The Research Section and the Validation Group (part of the Nuclear DNA Section) have been invaluable in determining and testing new protocols that have vastly increased our output and overall success rate. In CY2008, we will be working more closely with the nuclear DNA Section in the completion of the new MOA with NIJ for producing nuclear DNA profiles from the missing persons samples. In addition, scientists from the mtDNA section have given presentations and created posters for professional conferences across the United States and around the world. This scientific outreach has improved our profile and stature in the national and international communities. Our scientists have been invited to participate in workshops, project partnerships with other laboratories, and the preparation of books and journal articles, creating a worldwide network of cooperation, understanding, and collaboration. Our scientists also actively participate in projects within our local community. Many of our scientists have given their own time to speak with both community and educational groups, including presentations for school-age children. We have given career day lectures, judged science fairs, and given facility tours to local students in order to encourage and foster scientific education within the curriculum of the local school systems. Our support of the local community has grown in the past year and will continue in FY2008.

CY2007 was a very successful year for the mtDNA section. We have continued to integrate our activities with the other sections, increasing as a whole AFDIL's scientific profile in the world-wide community. Interactions between AFDIL's scientists and JPAC-CIL's anthropologists have been reinforced, not only in day to day communications, but in the collaborative production of scientific literature currently in progress or in press. In CY2008, we intend to strengthen these global bonds and to continue to be a leader in the forensic ancient DNA community, which can only serve to improve our efforts to repatriate the remains of missing US service members to their families and a grateful nation.

## AFDIL NUCLEAR DNA SECTION

The Nuclear DNA Section is equipped with autosomal Short Tandem Repeat (auSTRs), Y Short Tandem Repeats (Y-STRs) and mitochondrial DNA sequencing technologies. Each system has its' own unique advantages which allow the scientists to utilize one technology or a combination of these technologies in identifying human remains. In 2007, the Nuclear DNA Section processed close to 5500 evidence and reference specimens associated with Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). Greater than 1000 of the evidence samples received were the result the increasing number of improvised explosive devices (IEDs) in the theatre of operations. CY2006 marked nearly a 600% in work from the same time in CY2002. Being able to identify all individuals involved in an IED or similar event is challenging when the remains are highly fragmented and indistinguishable by traditional methods such as fingerprints, anthropology, dental, or other forensic techniques. DNA plays a major role in the identification and re-association of these types of cases. The section has been able to successfully generate auSTR profiles from 99% of the evidence samples received. The Nuclear DNA team is dedicated to providing closure to families as well as trying to maintain

the safety of forces on the ground. The sooner an identification can be made the sooner the family can be notified and forces can be retrieved from hostile areas attempting recovery of remains.

Three civilians were killed in Iraq during an IED and small arms attacks. None of the victims could be identified by conventional scientific methods and as a result all 3 samples were submitted for "stat" DNA analysis. Reference bloodstain cards were available at the AFRSSIR for two of the three victims. A reference card was not available for the third victim and the only reference available was a brother. Autososmal and Y-STRs were generated from all 3 victims. However, it was the addition of the Y-STRs that provided the strongest scientific identification for the third set of remains. All three victims had unique Y-STR profiles and only one of the victim's Y-STR profiles matched the reference from the brother. All three individuals were identified via DNA within 24 hours of receipt of samples.

MtDNA and autosomal analysis were integral in identifying remains from an Air Force Sergeant, an airman and her brother who had been missing for almost 30 years. The three were presumed drowned in September 1978 after never returning from scuba diving in underwater caves in Greece. Initially one set of remains was discovered in 2006 by Greek Divers while searching for a missing photographer. Two additional sets of remains were later recovered. None of the remains were those of the Greek photographer. Circumstantial evidence led the Greek Government to believe the remains were the three Americans and in 2007, the remains were turned over to the Office of the Armed Forces Medical Examiner.

Three femurs were submitted for DNA analysis as well as a reference from the brother of the Sergeant and the mother of the airman and her brother. The bones were degraded but attempts were made to obtain auSTRs and mtDNA sequencing information. The autosomal results revealed that there were two male and one female set of remains. The first set of male remains and the "brother" reference were consistent with each other suggesting a common maternal lineage. Likewise, the autosomal results supported a sibling relationship. The second set of the male remains and the female set of remains shared the same mtDNA sequence and were also consistent with the sequence from the "mother" suggesting a common maternal lineage. Partial autosomal profiles were obtained from both sets of remains. Only the male sample yielded enough STR loci for comparison. The results strongly suggested that the remains were the offspring of the "mother". The combined autosomal STR and mitochondrial results allowed for the identification of all three individuals and finally bring closure to two families.

The Nuclear casework section also provides DNA analysis to other DOD Agencies, primarily for criminal paternity cases from military investigative agencies (e.g. CID, NCIS etc.) and biopsy specimens submitted form Veteran Hospitals. In the summer of 2007, AFDIL was contacted by the Army Criminal Investigative Division (CID) to assist in suspected "shaken baby case" from 2001. The baby had been buried in an unmarked grave. The baby's remains were exhumed for autopsy and a femur was submitted to AFDIL for nuclear DNA analysis. Buccal swabs were taken from the alleged mother and alleged father who was also the suspect. Complete autosomal STR profiles were obtained from the remains and the buccal swab references. The remains were consistent with being a male and being the offspring of the alleged parents. Once the identity of the baby was verified it was coupled with the autopsy findings in order to support the homicide charge against the father.

AFDIL partnered with the Federal Bureau of Investigations' Terrorist Explosive Device Analytical Center (TEDAC) for another year to help combat the Global War on Terrorism. The explosive devices are evaluated for fingerprints, tool marks, and trace evidence such as hairs by the TEDAC. Most hairs are extremely small and contain no roots and as a result are not suitable for nuclear DNA analysis. AFDIL generated mitochondrial DNA profiles from 150 hairs recovered from explosive devices. Six hairs actually contained a viable root and yielded nuclear auSTR profiles. The nuclear and mitochondrial DNA profiles are valuable pieces of evidence for linking terrorist activity as well as ultimately identify the terrorists.

Previously, AFDIL scientists used organic extraction methods to isolate DNA from challenging tissue and bone specimens. Due to the increase in work load and the rapid turn-around time required for a primary DNA identification AFDIL evaluated the Promega DNA IQ™ and the Invitrogen ChargeSwitch® Kit Systems to extract autopsy tissue and bone samples. Benefits of these kits over organic extraction methods include avoidance of harsh chemicals, less sample transfers, process time reduction and adaptability to automated liquid handling systems already in use.

The DNA IQ‘ extraction system is a paramagnetic bead based extraction platform. Once

bound to the membrane, the DNA remains in a native or partially denatured state (single stranded) and cannot be eluted from the silica until rehydrated. Similar to the silica-gel based system the DNA IQ‘, utilizes a Guanidinium HCL lysis solution containing 1M Dithiothreitol (DTT). The DTT is used to help denature the protein away from the DNA and the Guanidinium HCL dehydrates the DNA and exposes the phosphate groups, which bind the DNA reversibly to the magnetic beads. The resuspension steps help break up non-specific interaction between the DNA and inhibitors thus preventing inhibitors from copurifying with the eluted DNA. The DNA IQ‘ system uses TE-4 to rehydrate the Phosphate Backbone and release the DNA from the magnetic beads.

Various incubation times and lysis buffers were investigated during the validation of the tissue and bone protocol. Two and half hours were identified as the minimum incubation time. Increasing the incubation time to four hours did not produce an increase in DNA yield. The in-house demineralization buffer which contains a higher concentration of EDTA produced the best results. The demineralization samples generated full profiles with out additional manipulations and lacked the cloudy carbohydrate layer and precipitation after addition of the DNA IQ lysis buffer. The DNA IQ purification system coupled with Promega’s Tissue and Hair Incubation buffer for tissues or the AFDIL’s in-house Demineralization buffer for bone powder has proven an effective strategy for extracting and purifying DNA from typical specimens received at the AFDIL. Greater than 1ng/µl quality DNA could be obtained in as little as 4 hours. In addition, the DNA IQ‘ extraction system is amenable to automation and will be evaluated on a the BIOMEK FX to increase throughput of evidence and reference samples.

AFDIL is recognized as the leader in mtDNA sequence analysis for forensic remains identification. In April 2007, AFDIL sponsored the Extraction of DNA from Aged Skeletal Remains and Forensic Mitochondrial DNA Sequence Analysis Course. The Training and Education Section hosted 11 students from throughout the United States and Santiago, Chile. The one week course included lectures from AFDIL staff, lab demonstrations as well as hands on involvement. The course was expanded this year to cover emerging techniques such as Single Nucleotide Polymorphisms (SNPs) and Low Copy Number (LCN) analysis.

## AFDIL RESEARCH SECTION

The Research Section consists of fifteen scientists—eight full-time and seven part-time employees. In CY2007 the Research Section collaborated with two visiting scientists—one from Sweden, and another from Holland. The section also mentored nine student interns from George Washington University and Ohio Northern University for the year.

One of the main objectives of the Research Section is to support the casework sections of AFDIL. We have identified six major categories that the section has undertaken to enhance the AFDIL mission:

- Improved protocols to recover DNA from challenged samples.
- Assisting casework in challenging cases when requested.
- Increased size and quality of forensic mtDNA databases.
- Investigation of “new” genetic loci to improve discrimination.
- Genetic/Statistical analyses of nuclear and mtDNA.
- Evaluation of new commercial kits to improve the processing of forensic DNA samples.

In CY2007, the Research Section published a protocol for a new DNA extraction buffer (demineralization buffer) that continues to positively impact the forensic community within the US and European labs that have tested the buffer. Both the mtDNA and nucDNA casework sections are now using the demineralization buffer in their extraction protocol for skeletal remains. The protocol was published in March 2007 – and has been the most downloaded paper from the journal, *Forensic Science International:Genetics* (according to Associate Editor John Butler, personal communication). The mtDNA casework section has observed a dramatic improvement in the recovery of DNA from bone material, saving both time and reagent costs to the Laboratory.

Over the past few years, a number of mitochondrial control region databases have been generated by the AFDIL Research Section and confirmed by the European Mitochondrial DNA Population (EMPOP) Database group. In CY2007, the Research Section focused on the completion of a two year, $1.89M grant from the National Institutes of Justice to increase the size and quality of the current mtDNA database of US populations. The recent result of these efforts is a significantly enlarged population database against which mtDNA profiles from CIL samples are searched. In CY2007, the standard comparison database of 4839 samples

(SWGDAM component) was expanded to 10428 samples with over 70% of the additional profiles generated by the Research Section.

In the last year we have completed a number of databases for both autosomal and Y-chromosome nuclear STRs. Much of our focus in this area has been for Other Government Agencies (OGAs) from which the Research Section received $200K in outside funding to support this effort.

We have also examined a number of novel STR markers (such as non-CODIS miniSTRs) that have the potential to increase forensic discrimination in AFDIL casework (especially among common mtDNA haplotypes).

We also strive to advance the capabilities of forensic DNA testing across the U.S. and international communities. In CY2007 the Research Section also participated in two international collaborations through the European DNA Profiling Group (EDNAP) to examine the use of mtDNA coding region SNPs and the new ABI miniFiler STR kit on degraded samples.

We have established and continue to foster a number of collaborations with several highly regarded organizations and individuals in the forensic community that share our goals. These include: the National Institute of Standards and Technology (NIST – John Butler); The Bureau of Alcohol, Tobacco and Firearms DNA Laboratory (ATF – Todd Bille); Institute of Legal Medicine at the University of Innsbruck (ILM – Walther Parson); The George Washington University (GWU – Daniele Podini); The European DNA Profiling Group (EDNAP); Antonio Salas (Instituto de Medicina Legal Universidad de Santiago de Compostela, Spain); and Claudio Bravi (Instituto Multidisciplinario de Biología Celular – IMBICE, Argentina).

Through our publications and presentations, the section has maintained a high profile within the US and internationally providing recognition for AFDIL as one of the world's most innovative forensic DNA laboratories.

## LABORATORY AUTOMATION & BIOMETRICS (LAB) SECTION

During 2007, the AFDIL LAB Section maintained its position as the premier provider of comprehensive high-throughput DNA typing services for the Department of Defense DNA Registry. The LAB Section performed autosomal and Y-chromosomal short tandem repeat (STR) DNA typing as well as mitochondrial (mt) DNA control region sequencing on high-quality, single-source reference specimens for a variety of military and government consumers, including the Joint Prisoners of War – Missing in Action Accounting Command and the Joint Federal Agencies Intelligence DNA Database (JFAIDD) Working Group.

The primary focus of the LAB Section in 2007 was the continued development and administration of the JFAIDD – a DNA database that increased four-fold in size, containing over 72,000 autosomal STR profiles by the end of CY2007. This remarkable increase was the direct result of a concerted effort to eliminate a backlog of approximately 30,000 previously-untested specimens. By the end of CY2007, the JFAIDD also contained over 18,000 mt DNA base composition profiles. These profiles were developed in collaboration with an external partner laboratory. The increasing value of the JFAIDD to the defense, law enforcement and intelligence communities was evidenced by the surge in the number of inquiries made of the database by the JFAIDD Working Group members and their affiliates.

In addition, the LAB Section positioned itself for future success at the forefront of the high-throughput DNA biometric community. First, two additional DNA Technicians were hired. Second, an enhanced laboratory instrument (Beckmann BIOMEK FX Robotic Workstation) was procured. Third, an extensive validation study was completed on the Forensic Science Service i3 Expert System software package. This software is designed to assist in the technical analysis of STR data, the goal being to reduce the amount of time an analyst must spend performing data analysis while maintaining the highest possible quality of data interpretation.

Finally, the LAB Section continued to fulfill its advisory role in the development of field-deployable DNA technology and its leadership role in the strategic planning of human identification DNA testing in forensic science and biometrics.

## THE ARMED FORCES REPOSITORY OF SPECIMEN SAMPLES FOR THE IDENTIFICATION OF REMAINS (ARMED FORCES REPOSITORY – AFRSSIR)

In 2007, the AFRSSIR accessioned 265,904 DNA reference specimens from 1,598 separate collection sites (Army – 131,851, Air Force – 41,519, Navy – 46,913, Marine Corps – 37,503,

Coast Guard – 5,649, Civilian – 2,469).

The Director of Repository Operations conducted collection site inspections at two facilities to provide informational briefings and to evaluate collection procedures and compliance with applicable directives.

Accessioned DNA reference specimen inventory at the end of the year totaled 5,239,534. Total service members on file at the AFRSSIR represent about 97% of total military population. In the past year the repository processed 15 donor requests for destruction of donor DNA samples and 29 requests for release of specimens. The repository released 1,323 DNA specimens to AFDIL for human remains identification.

The 2006 AFRSSIR and AFDIL study of DNA blood stain references collected on untreated filter paper and stored at room temperature continues. The study initially evaluated duplicate DNA samples stored at room temperature since 1997 by comparing 500 samples with matching samples collected from the same location on or about the same date and stored at -20º C. Results suggest room temperature samples have a slightly higher DNA yield than frozen samples. Additional testing continues and the findings should be published in 2008.

***Presentations:***

1. January 2007: Ft. Worth, TX, "DNA In The Accounting Process," Defense prisoner of war missing personnel family update (Presentation and Family Reference Collections) JJ Canik, L Harvey, R Mudhar, N Givens.
2. February 2007: Rockville, MD, "DNA in the accounting process," Industrial College of the Armed Forces, Biotechnology Group, Ft McNair, DC (Presentation and Tour), JJ Canik.
3. February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, "Identifying the Iceman," SL Bettinger, DR Pierce, SM Barritt, AF Christensen, LN Finelli.
4. February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, "Laboratory quality and efficiency without robotic dependency (poster)," SE Patterson, SM Barritt, CM Ernst, JP Ross, LN Finelli.
5. February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, "Mitochondrial DNA analysis: the foundation and the fundamentals at the leading edge," SM Edson, MA Fasano (workshop co-chairs).
6. February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, "So you want to open a mitochondrial DNA lab? – the fundamentals," MA Fasano.
7. February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, "Choosing the best of skeletonized remains and determining appropriate references for mtDNA analysis," SM Edson.
8. February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, "High efficiency DNA extraction from bone by total demineralization," O Loreille.
9. February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, "The dichotomy of forensic samples in a high-throughput world," CM Ernst.
11. February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, "Unique validation and quality control challenges within the mtDNA section of the Armed Forces DNA Identification Laboratory," TP McMahon.
12. February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, "Present and future trends in mitochondrial and degraded DNA," MD Coble.
13 February 2007: San Antonio, TX, 59th American Academy of Forensic Sciences, AFDIL/JPAC-CIL mixer, "Validation of LCN-STR analysis and implementation of the technique for use on degraded skeletonized remains," SM Edson.
14. February 2007: San Antonio, TX, 59th Annual Meeting, American Academy of Forensic Sciences, "The use of a mitochondrial DNA-Specific qPCR assay to assess degradation and inhibition" (poster presentation), TM Diegoli, MD Coble, H Niederstaetter, OM Loreille, TJ Parsons.
15. February 2007: San Antonio, TX, 59th Annual Meeting, American Academy of Forensic Sciences, "A custom relational database application to assist in the interpretation of novel mtDNA sequence variation," (poster presentation) K Sturk, J Irwin, J O'Callaghan, J Saunier, M Coble, T Parsons.
16. February 2007: San Antonio, TX, 59th Annual Meeting, American Academy of Forensic Sciences, "The application of non-CODIS miniSTRs to highly degraded samples." (oral presentation) RS Just, KA Sturk, SM Barritt-Ross, JA Irwin, O Loreille, MD Coble.
17. February 2007: San Antonio, TX, 59th Annual Meeting, American Academy of Forensic

Sciences, “Development and expansion of high quality control region databases to improve forensic mtDNA evidence interpretation,” (oral presentation), MD Coble, JA Irwin, JL Saunier, KM Strouss, TM Diegoli, KA Sturk, MRK Scheible, RS Just, TJ Parsons.

18. February 2007: San Antonio, TX, 59th Annual Meeting, American Academy of Forensic Sciences Workshop, “Present and future trends in mitochondrial and degraded DNA,” (oral presentation) MD Coble.
19. February 2007: Tampa, FL, “DNA in the accounting process,” Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections), JJ Canick, J Demarest, M Narvaez, RT Gajewski.
20. March 2007: Harrisonburg, VA, Rotary Club, “The Armed Forces DNA Identification Laboratory,” SE Patterson.
21. March 2007: Washington, DC, USN Family Notification of MIA From WWII - DNA Results (Presentation), J McMahon.
22. March 2007: Sacramento, CA, “DNA in the accounting process,” Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections), JJ Canik, M Bruner, R Tate, J Roth.
23. March 2007: Online Presentation for the Forensic E-Symposium, 2007 series (http://www.forensic.e-symposium.com/humid/), "The Application of LCN STR typing to the identification of aged, degraded skeletal remains at the Armed Forces DNA Identification Laboratory," (Oral presentation) MD Coble.
24. March 2007: Boston, MA, USN family notification of MIA from WWII - DNA results (Presentation), J Spangler.
25. April 2007: Rockville, MD, 20th Support Group, Aberdeen Proving Grounds, MD (Presentation and Tour), LN Finelli, BC Smith, JJ Canik.
26. April 2007: Arlington, VA ART Course “DNA and its application to forensic science,” R Tate
26. April 2007: Boston, MA, “DNA in the accounting process,” Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections), JJ Canik, J Goss, J Spangler.
27. April 2007: Orlando, FL, SPIE's Defense and Security Symposium, “Spy versus spy: outsmarting tricky forensic samples and scenarios with novel assays and multiple marker systems,” (oral presentation) MD Coble, OM Loreille, RS Just, JA Irwin, TJ Parsons.
28. April 2007: Blue Mountain Lake, NY, Syracuse University Project Advance, Minnowbrook Conference Center, “Genetic analysis 1 and 2,” SM Edson.
29. May 2007: Rockville, MD, DOD DNA Quality Assurance Oversight Committee Meeting (Presentations), LN Finelli, BC Smith, JJ Canik.
30. May 2007: Arlington, VA, DOD Director of Development for Research and Engineering (Briefing), LN Finelli, BC Smith, JJ Canik.
31. May 2007: Cheyenne, WY, “DNA in the accounting process,” Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections), JJ Canik, C Miller, C Paintner.
32. May 2007: Washington, DC, Mid-Atlantic Association of Forensic Sciences, “Validation of LCN-STR analysis for effective sorting of large sets of commingled, degraded skeletonized remains,” SM Edson, KL Maynard, AR Desnoyers, RS Oliver, TP McMahon, TD Anderson, SM Barritt, J Irwin.
33. May 2007: Washington, DC, Mid-Atlantic Association of Forensic Scientists Annual Meeting, “Quality control applications for high-throughput mtDNA control region databasing” (poster presentation), M Scheible, J Irwin, J Saunier, K Sturk, T Diegoli, K Strouss, R Just, M Coble, T Parsons.
34. May 2007: Washington, DC, Mid-Atlantic Association of Forensic Scientists Annual Meeting, “The use of a mitochondrial DNA-specific qPCR assay to assess degradation and inhibition” (oral presentation), TM Diegoli, MD Coble, H Niederstaetter, OM Loreille, TJ Parsons.
35. May 2007: Washington, DC, Mid-Atlantic Association of Forensic Scientists Annual Meeting, “Automated analysis of entire mtDNA data to assist in the development of forensically relevant molecular assays,” (oral presentation), JL Saunier, MD Coble.
36. May 2007: Washington, DC, Mid-Atlantic Association of Forensic Scientists Annual Meeting, “Species identification of degraded bone fragments using the 12S rRNA gene,” (oral presentation) K Sturk, J Irwin.
37. May 2007: Washington, DC, Mid-Atlantic Association of Forensic Scientists Annual

Meeting, ""The application of mtDNA SNPs to forensic casework," (poster presentation) RS Just, MD Coble, MD Leney, SM Barritt, TJ Parsons.

38. May 2007: Captiva, FL, Fourth Annual Advanced DNA Technical Workshop, "Validation of the AB MiniFiler kit at AFDIL," (oral presentation) RS Just, AN White, KA Sturk, CA Campbell, JZ Bas, TP McMahon, MD Coble, DA Lee.
39. May 2007: Bethesda, MD, The National Institutes of Health, Mitochondrial Molecular Biology and Pathology Workshop, "Mitochondrial DNA SNPs in evolution and forensic analysis," (oral presentation) MD Coble, RS Just, JL Saunier, JE O'Callaghan, IH Letmanyi, CT Peterson, JA Irwin, TM Diegoli, BC Smith, PM Vallone, JM Butler, TJ Parsons.
40. May 2007: Rockville, Maryland, Department of Defense Quality Assurance Oversight Committee for DNA Analysis, "Research overview," (oral presentation) MD Coble.
41. May 2007: Bakersfield, CA, USMC Family Notification of MIA From the Vietnam War - DNA Results (Presentation), C. Miller.
42. June 2007: Ashburn, VA, AFIP/ARP Forensic Anthropology Course, "DNA analysis from skeletal remains," M Perella.
43. June 2007: Bangkok, Thailand, Central Institute of Forensic Science – Thailand, "MiniSTR workshop," (oral presentation) MD Coble.
44. June 2007: Singapore, Republic of Singapore, Health Sciences Authority, "When the bones do speak: interesting and challenging cases from the Armed Forces DNA Identification Laboratory," (oral presentation) MD Coble.
45. June 2007: Crystal City, VA, "DNA in the accounting process," 38th Annual meeting of the National League of Families for Prisoners of War (Presentation and Family Reference Collections,) JJ Canik, SM Barritt, L Finelli.
46. July 2007: Rockville, Maryland, DC Public Defender Service, "Mito 101" (oral presentation), MD Coble.
47. July 2007: Cincinnati, OH, "DNA in the accounting process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections), JJ Canik, K Maynard, M Perella, S Hagar.
48. July 2007: Washington, DC, The 6th Annual National Institutes of Justice DNA Grantees Meeting, "Development and expansion of high quality control region databases to improve forensic mtDNA evidence interpretation," (poster presentation) JA Irwin, JL Saunier, KM Strouss, TM Diegoli, KA Sturk, MRK Scheible, RS Just, TJ Parsons, MD Coble.
49. July 2007: Austin, TX, AB HID University Seminar Series: Future Trends in Forensic DNA Technology Seminar Series; "Evaluation of the Applied Biosystems AmpF_STR® MiniFiler™ Kit for use with challenging casework samples," (oral presentation) A White, K Sturk, R Just, C Campbell, M Coble, D Lee.
50. July 2007: Anaheim, CA Applied Biosystems HID University Future Trends in Forensic Technology series "Evaluation of the Applied Biosystems AmpF_STR® MiniFiler™ Kit for use with challenging casework samples," R Tate.
51. July 2007: Chicago Applied Biosystems HID University Future Trends in Forensic Technology series "Evaluation of the Applied Biosystems AmpF_STR® MiniFiler™ Kit for use with challenging casework samples," J Stevens.
52. July 2007: Nanjing, China, Promega's 2nd Annual Conference on Human DNA "Casework strategies and validations to meet challenges at the Armed Forces DNA Identification Laboratory," C Meyer.
53. July 2007: Madison, WI, Promega Working Group, "Validating FSS-i3 for use in AFDIL's Automation Section," JA Demarest.
54. July 2007: Rockville, MD, "DNA in the accounting process," Joint POW-MIA Accounting Command J-5 (Presentation and Tour), JJ Canik.
55. August 2007: Columbia, MD, Promega Technology Tour 2007, "AFDIL's Automation Section and the use of Promega's DNA IQTM," BD Ackermann.
56. August 2007: Columbia, MD, Promega Technology Tour 2007, "Validating FSS-i3 for use in AFDIL's Automation Section," JA Demarest.
57. August 2007: Washington, DC, National Museum of Health and Medicine, "The daughters of eve and sons of adam: genetic testing for forensic, anthropological & genealogical investigations," (oral presentation) MD Coble.
58. August 2007: Copenhagen, Denmark, International Society of Forensic Genetics, pre-Congress Workshop, "Reference databases for mtDNA casework: examples from Central Asia," (oral presentation) J Irwin.
59. August 2007: Copenhagen, Denmark, 22nd Annual Congress of the International Society

for Forensic Genetics, "Identification of degraded skeletal remains from the Korean War using a combination of improved DNA typing methods," (poster presentation) CW Los, JA Irwin, O Loreille, RS Just, SM Edson, JS Raskin-Burns, MJ Wadhams, AJ Christensen, SM Barritt, MD Coble, TJ Parsons.

60. August 2007: Copenhagen, Denmark, 22nd Annual Congress of the International Society for Forensic Genetics, "The application of mtDNA SNPs to forensic casework," (poster presentation) RS Just, MD Coble, MD Leney, SM Barritt, TJ Parsons.
61. August 2007: Atlanta, GA Applied Biosystems HID University Future Trends in Forensic Technology series "Evaluation of the Applied Biosystems AmpF_STR® MiniFiler™ Kit for use with challenging casework samples," Lauren Stagnitto.
62. August 2007: Kansas City, MO, "DNA in the accounting process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections) JJ Canik, J Stevens, E Chatfield, S Shunn.
63. September 2007: Arlington, VA, DOD Director, Biometric Task Force (Briefing) LN Finelli, BC Smith, JJ Canik.
64. May 2007: Shawnee, KS, USN Family Notification of MIA from the Vietnam War - DNA Results, (Presentation) D Haliniewski, K Maynard.
65. September 2007: Split, Croatia, 5th International Society for Applied Biological Sciences Conference in Forensic Genetics and Molecular Anthropology, "Validation of demineralization and low copy number autosomal and Y-chromosomal short tandem repeat typing and its application to the identification of aged skeletal remains associated with previous United States military conflicts," TD Anderson.
66. September 2007: Split, Croatia, 5th ISABS Conference in Forensic Genetics and Medical Anthropology, "Non-CODIS miniSTRs: assay development and applications," (oral presentation) RSJust, KA Sturk, SM Barritt, JA Irwin, MD Coble.
67. September 2007: Split, Croatia, 5th ISABS Conference in Forensic Genetics and Medical Anthropology, "Development of a multiplex single base extension assay for mtDNA haplogroup typing," (oral presentation) TM Nelson, RS Just, O Loreille, M Schanfield, D Podini.
68. September 2007: Split, Croatia, International Society for Applied Biological Sciences, "Validation of demineralization and low copy number autosomal and Y-chromosomal short tandem repeat typing and its application to the identification of aged skeletal remains associated with previous United States military conflicts," SM Edson, O Loreille, K Maynard, A Desnoyers, R Oliver, J Irwin, T Anderson, S Barritt-Ross, M Coble.
69. September 2007: Philadelphia, PA, Drexel University School of Medicine "Molecular Applications of Forensic DNA Analysis," Richon Tate.
70. September 2007: Harrisburg, PA, "DNA in the accounting process," National POW-MIA Recognition Day, Naval Support Activity, JJ Canik.
71. October 2007: Rockville, MD, Director, Field Operation Agencies, OTSG, (Briefing) LN Finelli, BC Smith, JJ Canik.
72. October 2007: Crystal City, VA, "DNA in the accounting process," 2006 Korea/Cold War Annual Government Briefings (Presentation and Family Reference Collections), JJ Canik, SM Barritt, L Finelli.
73. October 2007: Hollywood, CA, Promega 18th International Symposium on Human Identification, "Validation and use of LCN-STR analysis for the resolution of commingled sets of skeletonized remains," SM Edson, KL Maynard, AR Desnoyers, RS Oliver, J Irwin, TD Anderson, SM Barritt.
74. October 2007: Hollywood, CA, 18th International Symposium on Human Identification, "Storage of DNA samples at ambient temperature using DNA SampleMatrix®," (poster presentation) K Clabaugh, B Silva, K Odigie, S Guroff, R Fourney, J Stevens, G Carmody, M Coble, O Loreille, M Scheible, M Kline, T Parsons, A Pozder, A Eisenberg, B Budowle and S Lee.
75. October 2007: Hollywood, CA, 18th International Symposium on Human Identification, "The application of mtDNA SNPs to forensic casework," (poster presentation) RS Just, MD Coble, MD Leney, SM Barritt, TJ Parsons.
76. October 2007: Dubuque, IA, USMC family notification of MIA from the Vietnam War - DNA results (Presentation), S Edson, J O'Callaghan.
77. November 2007: Phoenix, AZ, "DNA in the accounting process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections), JJ Canik, C Los, J Steinitz, J Stevens, E Chatfield, S Shunn.
78. November 2007: Kuala Lumpur, Malaysia "The Armed Forces DNA Identification Labora-

tory (AFDIL) adapts its processes to meet the challenges of identifying unknown war remains," J Hickey.

Armed Forces Medical Examiner System79. November 2007: Hanoi, Vietnam, "Validations of Promega products for forensic casework by the Armed Forces DNA Identification Laboratory," J Hickey.

80. November 2007: Gaithersburg, MD, Gaithersburg Middle School, "Career day presentation for 7th grade science students on forensics and DNA," J Goss.
81. November 2007: Harrisonburg, VA, Harrisonburg Rotary Club, "The Armed Forces DNA Identification Laboratory," S Patterson.
82. December 2007: Rockville, MD, Federal DoD Laboratory Director's Meeting, (Briefing & Tour), LN Finelli, BC Smith, JJ Canik.
83. December 2007: Washington, DC, Council Of Federal Laboratory Director's Meeting, (Briefing), LN Finelli.
84. December 2007: Waltham, MA, Promega Technology Tour 2007, "Validation of a low copy number PowerPlex 16 (LCN-PP16) protocol for use on degraded skeletal remains," SM Edson.
85. December 2007: Rockville, Maryland, AFDIL Lunchtime Seminar, "The daughters of Eve and sons of Adam: genetic testing for forensic, anthropological & genealogical investigations," (oral presentation) MD Coble.
86. December 2007: Boston, MA, Promega Technology Tour 2007, "Validating FSS-i3 for use in AFDIL's Automation Section," JA Demarest.

***Publications:***


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2. Edson, SM. Romanov Family. In: *Encyclopedia of Life Sciences*. Chicester, UK: John Wiley & Sons. Electronic re-release of the encyclopedia – http://www.els.net/[doi:10.1002/9780470015902.a0005614]
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The Department also had 4 journal articles in press and one accepted.

**AUDITS/INSPECTIONS:**

1. January 2007: Montgomery County, Maryland Fire Marshall Hazardous Use Permit Department. Obtained new certification and new Hazardous Use Permit issued.
2. February 2007: AFIP Annual Threat Assessment & Security Audit of the AFIP Gaithersburg Annex and the Rockville Complex. No deficiencies noted.
3. May 14-17, 2007: Department of the Army Inspection General Security Inspection of the Main AFIP and Annexes. No deficiencies noted on inspection of neither Rockville nor Gaithersburg Annex.
4. June 4-6, 2007: Potomac Region DNA Audit (External). No deficiencies noted. Note: This audit used the FBI DNA Quality Assurance Standards checklist and fulfilled the audit requirements for the DOD DNA Quality Assurance Oversight Committee, The Potomac Group DNA Laboratory Annual External Audit, and the ASCLD/LAB Annual Laboratory Assessment (Internal).
5. May 2007: DOD DNA Quality Assurance Oversight Committee. No deficiencies noted.
6. June 2007: American Society of Crime Lab Directors/Laboratory Accreditation Board (ASCLD/LAB) audit and Annual Laboratory Report. No deficiencies noted (Lab accreditation retained).
7. June 2007: Montgomery County, Maryland Fire Marshall Inspection of the AFIP Rockville Annex Complex. No deficiencies noted.
8. October 11, 2007: College of American Pathologist's External Accreditation Audit/ Inspection. No deficiencies noted. AFDIL Accreditation retained.
9. October 11, 2007: With the successful completion of the CAP Audit the Armed Forces DNA Identification Laboratory (AFDIL) of the DNA Registry retained its CLIA-88 compliant accreditation.

Marilyn Past, CAPT, MSC, USN
Chief
Date of Appointment – 03 October 2006

# DIVISION OF FORENSIC TOXICOLOGY (OAFME)

## ORGANIZATION

The Division of Forensic Toxicology is organized into 3 sections:

1. Postmortem and Human Performance Testing Laboratory
2. Technical Services which includes the DoD Drug Detection Quality Assurance Laboratory Section and the Quality Assurance Section
3. Forensic Toxicology Research, Program Development and Education

## STAFF

***Scientific:***

Marilyn Past, PhD, CAPT, MSC, USN, Chief Deputy Medical Examiner, Forensic Toxicology
Timothy Lyons, PhD, LTC, MS, USA, Assistant Chief Deputy Medical Examiner, Forensic Toxicology
Barry S. Levine, PhD, D-ABFT, Chief Toxicologist, Postmortem and Human Performance Testing Laboratory
Buddha Paul, PhD, Chief, Drug Testing Research/Program Development and Education
John Jemionek, PhD, Special Projects Chemist
Eric T. Shimomura, PhD, Research Chemist
Michael Smith, PhD, D-ABFT, Chemist/Expert Witness
(D) Insook Kim, PhD, Research Chemist
(D) Karen McCart, PhD, MAJ, MS, USA, Chief, Quality Assurance
Matthew Jamerson, PhD, LT, MSC, USN, Chief, Technical Services and Quality Assurance
(A)(D) Louis Reda, MS, Quality Assurance Chemist
(A) Anne McKeague, PhD, LT, MSC, USN, Chief (in-coming), DoD Drug Detection QA Laboratory
(D) Christopher Dunkley, PhD, LT, MSC, USNR, Chief, DoD Drug Detection QA Laboratory
Joseph Magluilo, Jr., Chief, Laboratory Operations
Karoline Shannon, Deputy Chief, Laboratory Operations
Gregory Pierce, TSgt, USAF, NCOIC, Forensic Toxicology Services
Trisha Podsiadlo, SSgt, USAF, Assistant NCOIC, Forensic Toxicology Services
Shawn Vorce, Confirmation Section Supervisory Analytical Toxicologist
(D) Robert Jones, Analytical Toxicologist
Joseph Addison, Analytical Toxicologist
Adeyinka Babalola, Quality Assurance/Quality Control Analytical Toxicologist
Dawn Cox, Analytical Toxicologist
Justin Holler, DoD Quality Assurance Analytical Toxicologist
William E. Mayo, Analytical Toxicologist
Rebecca DeRienz, Analytical Toxicologist
Pamela McDonough, Analytical Toxicologist
Amber Rickard, Analytical Toxicologist
(D) Megan Manos, Analytical Toxicologist
Scott Larson, Analytical Toxicologist
Jenny Runkle, Analytical Toxicologist
Jon Moore, Analytical Toxicologist

(D) Daniel Trinidad, MSgt, USAF, Laboratory Technician
Sandra Zimiga, SSgt, USAF, Laboratory Technician
Audrey Sokol, SSgt, USAF, Laboratory Technician
Jason Werne, SSgt, USAF, Laboratory Technician
(D) Ephraim Escobar, HM1, USN, Laboratory Technician
Ngu Fon, HM2, USN, Laboratory Technician
(D) Venus Anglemeyer, SPC, USA, Laboratory Technician
Joan Driver, SPC, USA, Laboratory Technician
Andrea Hernandez, SPC, USA, Laboratory Technician
(A) Garland Hayward, SPC, USA, Laboratory Technician

*Administrative:*

Shairose Lalani, MSgt, USAF, Superintendent, Division of Forensic Toxicology
(D) Larry Correa, HMC, USN, Navy Senior Enlisted Advisor (Rockville annex)
(D) Curtis Young, HM1, USN, Administrative Assistant
Teresa Schaefer, Computer Specialist
(D) Marilyn Van Degrift, Executive Assistant
Jacqueline O. Jordan, Secretary

## IMPACT

The Division of Forensic Toxicology and its personnel play a key role in establishing the relationship that toxicological agents play in military readiness as relates to illness, accident, or death. The scope of operations for the Division of Forensic Toxicology is immense, providing toxicological services to over 1700 military, Federal, state, local, and non-governmental agencies worldwide.

The Division of Forensic Toxicology is divided into three sections: (1) Postmortem and Human Performance Testing Laboratory. (2) Technical Services which includes both the internal Quality Assurance (QA) Program and the DoD Drug Detection Quality Assurance (QA) Laboratory. (3) Forensic Toxicology Research, Program Development and Education.

The Postmortem and Human Performance Testing Laboratory offers toxicological services for the Armed Forces Medical Examiner System, all Armed Forces air, ground, and sea based mishap investigations, Armed Forces criminal investigations, Armed Forces fitness for duty investigations, and Armed Forces medicolegal determinations (e.g., DUI). Toxicological consultations have been provided to hundreds of military and Federal agencies in support of Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF).

Technical Services includes the Quality Assurance section whose staff members prepare and certify all internal standards and controls for the Division, write and revise all Division Standard Operating Procedures, oversee all external proficiency testing, produce monthly Quality Assurance Reports and manage all external accreditation including the College of American Pathologists and the American Board of Forensic Toxicology (ABFT) programs. The Division is one of only 23 forensic toxicology laboratories certified by ABFT and the only DoD laboratory with this elite designation. The other Technical Services section, DoD Drug Detection Quality Assurance, is integrally coupled with the DoD Drug Testing Program, providing laboratory certification procedures for six (1 Air Force, 2 Army, and 3 Navy) DoD Forensic Drug Testing Laboratories through proficiency testing and laboratory inspections. Over twenty-one thousand (21,000) open and blind proficiency specimens are annually prepared and sent by departmental personnel to the military laboratories to ensure that the over 4.4 million drug test results are reported with 100% accuracy. Continued laboratory certification for each Military Forensic Drug Testing Laboratory is maintained through vigorous triennial inspections conducted by division personnel and civilian toxicologists. Division personnel contribute immeasurably to the continuing success of the DoD Drug Testing Program and the decline of drug use by military personnel. This is accomplished by development of new procedures to analyze drugs (e.g., salvia divinorum and benzylpiperazine) at lower concentrations using cutting edge technology, conducting prevalence testing for abused drug threats in theater such benzodiazepines (e.g., valium), and conducting special testing for drugs of abuse that are not tested for by the military drug testing laboratories (psilocin, ketamine, various drugs associated with sexual assault cases including gamma-hydroxybutyrate (GHB) and rohypnol, benzodiazepines, dextromethorphan, zolpidem, methadone, mescaline, salvia divinorum, benzylpiperazine and others). This work is done in coordination with the Forensic Toxicology Research, Program Development and Education section.

The Forensic Toxicology Research, Program Development and Education section keeps Forensic Toxicology on the cutting edge of science through a dynamic continuing education program

and program development initiatives tailored to meet the varied needs of customers. This section also coordinates the overall research efforts of the Division.

The Division also provides expert witness testimony at military courts-martial and Federal court proceedings, along with expert consultation for customer commands and the legal community. The expertise of Forensic Toxicology personnel is often relied on for support for other aspects of the military drug testing program. This year, LT Jamerson provided staff support to the Navy Drug Screening Laboratory, Great Lakes during a critical staffing shortage at the lab. He spent 3.5 weeks at the laboratory to assist the incoming Commanding Officer with both training and production work during the laboratory's heavy testing period due to summer surges at Recruit Training Command, Great Lakes and the Military Entrance Processing Stations all over the United States.

During this past year, the Division presented exhibits at two military professional conferences (the Society of Armed Forces Medical Laboratory Scientists and the Army Force Protection Conference). Participation in these meetings provided critical sample submission information along with marketing the testing capabilities of the Division to our world-wide customers. Prior to the Army Force Protection Conference, the Division staff members developed and produced a full-color informational tri-fold pamphlet containing essential sample submission, testing information, and point of contact information targeted for customers. The Forensic Toxicology Division expanded the external formal education initiatives this past year by working with the Army Trial Counsel Assistance Program (TCAP) to provide experts in forensic toxicology for lectures in their Deployed JAGC courses around the United States. The Division formalized their curriculum for a 4-day Special Agent forensic toxicology course offered by request at the Rockville annex laboratory. In addition, the Division presented a well-received, half-day forensic toxicology workshop for military investigators for the Naval Criminal Investigative Service at Anacostia.

## ACCOMPLISHMENTS

***Research:***

The Division developed several new methods for toxicological analyses and worked on many projects, as listed below:

- Detection of drug testing adulterants in urine
- Adulteration of urine specimens with papain
- Detection of chemical markers in biological samples after the smoking of cocaine
- Clinical studies of drugs of abuse in humans
- Specimen validity testing for urine and saliva
- Analysis of MDMA immunoassay positive/confirmation negative specimens submitted from the DoD drug testing laboratories
- On-site consultation for method improvement of d-amphetamine and d-methamphetamine confirmation method (MTPA derivative) at Army Forensic Drug Testing Laboratories Tripler and Ft Meade
- Special drug testing including unit sweep testing for benzodiazepines, zolpidem, dextromethorphan/chorpheniramine, synthetic opiate compounds, compounds of interest in sexual assault cases (GHB & rohypnol) and psilocin
- Development of an assay for salvia divinorum
- Tested food product for THC after request from Army major command
- Study of drugs of abuse pre-employment testing in saliva for USMEPCOM
- Cocaine/BZE analysis in wastewater by GC/MS (collaboration with the Office of National Drug Control Policy)
- Study of illicit cocaine samples (collaboration with RTI International, Center for Forensic Science)
- Tested for mefloquine in all suicide/undetermined cause of death cases for AFMES
- Development of a method to detect psilocin directly from urine using HPLC/ fluorescence detection with minimal sample preparation
- Prevalence study for benzodiazepine abuse in theater (Army IG)
- 6-Acetylmorphine stability in urine specimens
- Hemp product testing in regards to positive urinalysis results
- Commercial product testing in regards to a positive urinalysis result
- Prevalence study for ketamine in military specimens

***Proficiency Testing/inspections***

1. Managed the DoD Quality Assurance Open and Blind Drug testing Proficiency Program worldwide with a total of 21,218 Quality Control (QC) specimens sent to and analyzed by the military drug testing laboratories in 2007: 3794 military open proficiency specimens, 17,424 military blind proficiency specimens. In addition, 336 civilian proficiency specimens were prepared and sent upon request. Out of these proficiency specimens, a total of 639 specimens were tested internally by Forensic Toxicology as a quality assessment measure.
2. Participated in College of American Pathology (CAP) and the United States Department of Transportation (USDOT) external proficiency testing: CAP T (toxicology-3x per year), CAP UT (urine toxicology-3x per year), CAP UDC (urine drug toxicology-4x per year), CAP AL1 (whole blood alcohol/volatiles-3x per year), CAP SO (carbon monoxide-3x per year), CAP FTC (whole blood forensic toxicology-2x per year), and USDOT (NHTSA blood alcohol-2x per year).
3. The Division of Forensic Toxicology had two on-site inspections: First Advantage (14-15 Feb 2007) and the College of American Pathologists (11 Oct 2007).

## DIAGNOSTIC CONSULTATION

8545 cases were reported in 2007. The average turnaround time for these cases was 2.7 days.

| Type of Case | Case Count | Avg Turnaround Time (Days) |
|---|---|---|
| Aircraft Incidents | 2890 | 1.4 |
| Air Fatalities | 82 | 3.3 |
| Criminal/Investigative | 3837 | 3.7 |
| Postmortem | 1336 | 3.1 |
| Quality Controls | 329 | 1.8 |
| Surveys | 71 | 4.2 |
| **Total** | **8545** | **2.7 days** |

## LEGAL SUPPORT

Military and civilian toxicologists are often asked to provide expert witness testimony in military and other Federal legal proceedings. The Quality Assurance section of Forensic Toxicology is responsible for preparing responses to requests for laboratory business records, Freedom of Information Act (FOIA) requests, discovery requests, and other special data requests (e.g., DoD Quality Assurance Laboratory (DoDQA) records). The number and types of requests are shown in the table below:

| Branch of Service | Certified Reports/ Summary Reports | Discovery Requests | Full Laboratory Record Packages | Total |
|---|---|---|---|---|
| Civilian | 1 | | 3 | 4 |
| Army | 4 | | 16 | 20 |
| Navy/USMC | 6 | 1 | 7 | 14 |
| Air Force | 25 | 12 | 25 | 62 |
| **Total** | **36** | **13** | **51** | **100** |

## OPERATIONS

***Expert Witness Testimony/Support/Consultation:***

The Division does not supply defense consultants per the DoDI 5154.30. Military/Federal/civilian expert witness testimony and legal support (includes cases scheduled and rescheduled for which expert witness testimony/consultation and/or other legal support were provided):

***January 2007***

Osan AFB, South Korea, M Smith
Miami Coast Guard, FL, M Smith
Marine Corps Base, Camp Pendleton, CA, T Lyons
Davis-Monthan AFB, AZ, J Jemionek

Mountain Home, AFB, ID, J Jemionek
Tinker AFB, OK, J Jemionek
Ft Wainwright, AK, J Jemionek
Davis-Monthan AFB, AZ, J Jemionek
United States District Court, DC, E Shimomura

***February 2007***

Schriever AFB, CO, E Shimomura
Eglin AFB, FL, M Smith
Robins AFB, GA, M Smith
Travis AFB, CA, M Smith
Ft Knox, KY, M Smith
Army, Weisbaden, Germany, T Lyons
Davis-Monthan AFB, AZ, J Jemionek

***March 2007***

Landstuhl Army Hospital, Germany, M Smith
Army Camp Pike, AR, M Smith
Army, Weisbaden, Germany, T Lyons
Army, Stuttgart, Germany, T Lyons
Marine Corps Recruit Depot, San Diego, CA, J Jemionek
Ft Stewart, GA, B Paul
Little Rock AFB, C Dunkley

***April 2007***

Marine Corps Base, Quantico, VA, M Smith
McGuire AFB, NJ, M Smith
Wright Patterson AFB, OH, M Smith
McChord AFB, WA, M Smith
USCG Base Mayport, FL, M Smith
Little Rock AFB, AR, J Jemionek
Brooks City-Base, TX, B Paul

***May 2007***

Ft Gordon, GA, M Smith
Washington Navy Yard, DC, M Smith
Robins AFB, GA, M Smith
Ft Lewis, WA, M Smith
McChord AFB, WA, C Dunkley
Ft Campbell, KY, J Jemionek

***June 2007***

Seymour Johnson AFB, NC, M Smith
Ft Bliss, TX, M Smith
Ft Knox, KY, T Lyons
Ft Bragg, NC, T Lyons
Marine Corps Base, Camp Foster, Okinawa, T Lyons
Marine Corps Recruit Depot, Parris Island, SC, J Jemionek
Fort Worth Naval Air Station, Joint Reserve Base, TX, J Jemionek

***July 2007***

Marine Corps Air Station, Miramar, CA, M Smith
Marine Corps Base, Kaneohe, HI, T Lyons
Ft Knox, KY, T Lyons
Patrick AFB, B Levine

***August 2007***

McChord AFB, WA, E Shimomura
Ft Bliss, TX, M Smith
Ft Jackson, SC, M Smith
Lajes Air Field, Azores, Portugal, M Smith
Marine Corps Base, Camp Pendleton, CA, T Lyons
Dyess AFB, TX, T Lyons

United States District Court, Alexandria, VA, J Jemionek
Washington Navy Yard, J Jemionek
Ft Jackson, SC, B Paul

***September 2007***

Patrick AFB, FL, M Smith
Holloman AFB, NM, M Smith
Marine Corps Base, Camp Pendleton, CA, T Lyons
Robins AFB, GA, T Lyons
United States District Court, DC, J Jemionek
United States District Court, Alexandria, VA, E Shimomura

***October 2007***

Seymour Johnson AFB, NC, M Smith
Whiteman AFB, MO, M Smith
Marine Corps Recruit Depot, Parris Island, SC, J Jemionek
Travis AFB, CA, J Jemionek
United States District Court, DC, J Jemionek
Bolling AFB, DC, J Jemionek

***November 2007***

Naval Station Norfolk, VA, M Smith
Marine Corps Base, Quantico, VA, M Smith
Davis-Monthan AFB, M Smith
Ft Polk, LA, T Lyons
Marine Corps Base, Camp Pendleton, CA, T Lyons
Marine Corps Base, 29 Palms, CA, T Lyons
United States District Court, Alexandria, VA, J Jemionek
United States District Court, DC, J Jemionek
Patrick AFB, J Jemionek
McChord AFB, WA, E Shimomura

***December 2007***

United States District Court, DC, B Levine and E Shimomura
Davis Monthan AFB, AZ, M Smith
Army Camp Pike, AR, M Smith
Hill AFB, UT, J Jemionek

***DoD Drug Detection Quality Assurance Laboratory Inspections:***

1. January 2007: Army Drug Testing Laboratory, Tripler, HI, M Smith
2. January 2007: Navy Drug Testing Laboratory, Jacksonville, FL, M Past
3. February 2007: DoD QA Laboratory, Rockville, MD, First Advantage, H McCurdy
4. March 2007: Navy Drug Testing Laboratory, San Diego, CA, M Jamerson, B Paul
5. March 2007: Navy Drug Testing Laboratory, Great Lakes, IL, M Past, C Dunkley
6. April 2007: Army Drug Testing Laboratory, Ft Meade, MD, T Lyons, C Dunkley
7. April 2007: AF Drug Testing Laboratory, Brooks City Base, TX, M Past, T Lyons
8. May 2007: Army Drug Testing Laboratory, Tripler, HI, T Lyons, M Jamerson
9. May 2007: Navy Drug Testing Laboratory, Jacksonville, FL, J Jemionek, J Holler
10. July 2007: Navy Drug Testing Laboratory, San Diego, CA, M Smith
11. July 2007: Navy Drug Testing Laboratory, Great Lakes, IL, J Jemionek
12. August 2007: Army Drug Testing Laboratory, Ft Meade, MD, C Dunkley, J Jemionek
13. August 2007: AF Drug Testing Laboratory, Brooks City Base, TX, M Smith, B Paul
14. September 2007: Army Drug Testing Laboratory, Tripler, HI, M Past
15. September 2007: Navy Drug Testing Laboratory, Jacksonville, FL, M Past, L Reda
16. October November 2007: Navy Drug Testing Laboratory, San Diego, CA, T Lyons, B Paul
17. November 2007: Navy Drug Testing Laboratory, Great Lakes, IL, M Jamerson, J Holler
18. November 2007: Army Drug Testing Laboratory, Ft Meade, MD, M Past, A McKeague, J Magluilo
19. December 2007: AF Drug Testing Laboratory, Brooks City Base, TX, T Lyons

***National/International Consultations/Collaborations:***

1. Research Triangle Institute, Center for Forensic Science, Research Triangle Institute, NC, analysis of illicit cocaine samples, B Paul.
2. Addiction Research Center, NIDA, NIH, Baltimore, MD, clinical studies of human cocaine metabolism, B Paul.
3. Office of National Drug Control Policy, wastewater analysis, J Holler, B Paul
4. Harris County Medical Examiner, Houston, TX, method for detection of carbon monoxide, B Paul.
5. Ameritox, Ltd, Midland, TX, mass fragmentation pattern analysis for therapeutic drugs in urine and blood, B Paul.
6. Clendo Reference Laboratory, Bayamon, Puerto Rico, methods for detection of amphetamines, heroin and opiates in urine, B Paul.

## EDUCATION

***Faculty Appointments***

Clinical Associate Professor, University of Maryland School of Medicine, Department of Pathology, B Levine.

***Lectures:***

1. January 2007, University of Maryland, Toxicology 607, "Criminal poisonings," B Levine.
2. January 2007, University of Maryland, Toxicology 607, "Postmortem forensic toxicology," B Levine.
3. January 2007, University of Maryland, Toxicology 607, "Human performance toxicology," B Levine.
4. February 2007, University of Maryland, Toxicology 607, "Forensic drug testing," B Levine.
5. February 2007, University of Maryland, Toxicology 607, "Pharmacokinetics," B Levine.
6. February 2007, University of Maryland, Toxicology 607, "Specimen preparation," B Levine.
7. February 2007, University of Maryland, Toxicology 607, "Spectrophotometry," B Levine.
8. February 2007, University of Maryland, Toxicology 607, "Chromatography," B Levine.
9. March 2007, University of Maryland, Toxicology 607, "Mass spectrometry," B Levine.
10. March 2007, University of Maryland, Toxicology 607, "Immunoassay," B Levine.
11. March 2007, University of Maryland, Toxicology 607, "Alcohol I," B Levine.
12. March 2007, University of Maryland, Toxicology 607, "Alcohol II," B Levine.
13. March 2007, University of Maryland, Toxicology 607, "Cannabinoids," B Levine.
14. March 2007, University of Maryland, Toxicology 607, "Cocaine," B Levine.
15. March 2007, University of Maryland, Toxicology 607, "Opiates," B Levine.
16. March 2007, National Obstetrics Gynecology Lecture, Helsinki, Finland, "Long-term developmental outcomes of children with gestational cannabis exposure," M Smith.
17. April 2007, University of Maryland, Toxicology 607, "Amphetamines/sympathomimetic amines," B Levine.
18. April 2007, University of Maryland, Toxicology 607, "Chirality," B Levine.
19. April 2007, University of Maryland, Toxicology 607, "Hallucinogens," B Levine.
20. April 2007, University of Maryland, Toxicology 607, "Drug-facilitated sexual assault drugs," B Levine.
21. April 2007, University of Maryland, Toxicology 607, "Therapeutic drugs I," B Levine.
22. April 2007, University of Maryland, Toxicology 607, "Therapeutic drugs II," B Levine.
23. April 2007, University of Maryland, Toxicology 607, "Therapeutic drugs III," B Levine.
24. April 2007, Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.
25. April 2007, AFIP Regularly Scheduled Conferences, "Forensic toxicology: vital component of unit readiness," T Lyons.
26. May 2007, University of Maryland, Toxicology 607, "Postmortem changes in chemistry and toxicology," B Levine.
27. May 2007, University of Maryland, Toxicology 607, "Carbon monoxide/cyanide," B. Levine.
28. May 2007, Harvard Associates for Police Science, "Use of toxicological information in the final diagnosis," B Levine.
29. May 2007, University of Maryland, Toxicology 607, "Chemical agents," B Levine.
30. June 2007, Navy Medicine, Manpower, Personnel, Training and Education Command,

Advanced Medical Department Officer Course, "Fitness report writing," M Past.
31. August 2007, Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.
32. September 2007, Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.
33. October 2007, University of Baltimore, "Forensic Toxicology," B Levine.
34. October 2007, Harvard Associates for Police Science, "Use of toxicological information in the final diagnosis," B Levine.
35. October 2007, USUHS, Department of Military and Emergency Medicine, Facilitator: Military studies II Mogadishu raid laboratory, A McKeague.
36. November 2007, University of Maryland, Toxicology 601, "Forensic toxicology I," B Levine..
37. November 2007, University of Maryland, Toxicology 601, "Forensic toxicology II," B Levine.
38. December 2007, Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.

***Workshops/other training:***

1. March 2007, AFIP/AFMES, 4 day Special agent forensic toxicology training course, 3 CID/OSI agents, M Past, T Lyons, J Jemionek, E Shimomura, J Magluilo.
2. July/August 2007, AFIP/AFMES, training for pathology residents, forensic pathology residents, and medical students, J Jemionek, J Magluilo, B Levine.
3. September 2007, AFIP/AFMES, WRAMC clinical laboratory officer course, 2 day Forensic Toxicology orientation, E Shimomura.
4. November 2007, Washington, DC, 4 hour Workshop: "Forensic toxicology testing and case studies," 31 NCIS special agents and Navy JAGC officers, M Past, J Magluilo, J Holler, S Vorce, K Shannon.
5. November 2007, 4 day Special agent forensic toxicology training course, 2 OSI agents, M Past, J Jemionek, E Shimoumura, J Magluilo, K Shannon, J Holler, S Vorce, M Jamerson.

***Presentations:***

1. January 2007, AFIP/AFMES, Navy Biochemistry/Toxicology Officer Community, "Fitness report writing," M Past.
2. February 2007, Kings Bay, GA, Federal Law Enforcement Training Center, "Drug-facilitated sexual assault," J Magluilo.
3. February 2007, Boston, MA, Society of Armed Forces Medical Laboratory Scientists, "Forensic toxicology: a vital role in unit readiness," S Zimiga, A Sokol, J Driver.
4. February 2007, San Antonio, TX, 59th American Academy of Forensic Sciences Meeting, "Alcohol, drugs and homicide," L Zhang, L Li, P Yan, B Levine, D Fowler.
5. February 2007, San Antonio, TX, 59th American Academy of Forensic Sciences Meeting, "Prevalence of diltiazem in cocaine-positive postmortem cases in Maryland," R Jufer, B Levine, D Fowler.
6. February 2007, San Antonio, TX, 59th American Academy of Forensic Sciences Meeting, "Cluster of fentanyl-tainted heroin deaths in a three-week period in Maryland," M Ripple, B Levine, R Jufer, E. Artigiani, S Doyon, D Fowler.
7. March 2007, Fort Worth, TX, Marine Corps Senior Leadership Conference, "Forensic toxicology testing," J Jemionek.
8. April 2007, Ft Gillem, GA, TCAP Evidence Course, "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," T Lyons.
9. May 2007, Ft Bragg, NC, TCAP Deployed Justice Course "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," M Past.
10. May 2007, AFIP/AFMES, Forensic nurse meeting, "Drug-facilitated sexual assault," J Magluilo.
11. June 2007, Ft Lewis, WA, TCAP Deployed Justice Course "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," T Lyons.
12. June 2007, Washington Navy Yard, Northeast Region Trial Counsel Meeting, "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," "Legal

defenses and case studies," M Past.

13. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Manager Meeting, "AFIP/AFMES counternarcotics testing update," M Past.
14. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "AFIP/AFMES inspection and steroid testing updates," T Lyons.
15. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "AFIP/AFMES QA program update," C Dunkley.
16. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Military drug testing: FY2005 and FY2006 analysis," J Jemionek.
17. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Courts martial case study: adderall ingestion and methamphetamine," J Jemionek.
18. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Stable isotopes as valid components for identification of drugs in biological specimens," B Paul.
19. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Estimating the time of last cannabis use from plasma THC and THCCOOH concentrations," M Smith.
20. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Inhalant death investigations," J Magluilo.
21. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Benzodiazepine prevalence study," J Holler.
22. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Screening and confirmation of urine samples adulterated with papain," S Larson.
23. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Estimating cocaine use by the analysis of wastewater: an ONCDP initiative," M Manos.
24. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Ketamine prevalence study," R DeRienz.
25. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "MDMA false positive study," A Rickard.
26. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Method validation for cocaine impurities," J Runkle.
27. June 2007, Jacksonville, Florida, Tri-Service Drug Testing Laboratory Managers' Meeting, "Quantitative analysis of salvinorin A by HPLC/ESI-MS," P McDonough.
28. August 2007, Bethesda, Maryland, Medical Service Corps Officer Association, "Fitness report writing," M. Past.
29. August 2007, NDSL, Great Lakes, IL, Training day lecture, "Overview of the AFIP/AFMES forensic toxicology mission," M Jamerson.
30. July 2007, Ft Stewart, GA, TCAP Deployed Justice Course , "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," J Jemionek.
31. August 2007, Louisville, KY, Army Force Health Protection Conference, "Forensic toxicology: a vital role in unit readiness," T Lyons, S Zimiga, J Werne, K Dunaway.
32. September 2007, Ft Gillem, GA, TCAP Deployed Justice Course , "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," T Lyons.
33. September 2007, Arlington, VA, TCAP Deployed Justice Course, "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," T Lyons.
34. October 2007, Raleigh-Durham-Chapel Hill, NC, Society of Forensic Toxicologists Meeting, "Distribution of propofol in two cases of self-administration deaths," J Addison, S Vorce, B Levine, C Mallak.
35. October 2007, Raleigh-Durham-Chapel Hill, NC, Society of Forensic Toxicologists Meeting, " Metabolism and distribution of strychnine in a fatal intoxication," R Jufer, S Sakinedzad, B Levine, A Rubio, D Fowler.
36. October 2007, Raleigh-Durham-Chapel Hill, NC, Society of Forensic Toxicologists Meeting, "Case report: death due to dichloromethane toxicity," S Larson, B Levine, R Jufer, C Allan, D Fowler.
37. October 2007, Raleigh-Durham-Chapel Hill, NC, Society of Forensic Toxicologists Meeting, "Age-related differences in blood alcohol concentrations in acute alcohol intoxication fatalities," S Sakinedzad, R Jufer, B Levine, D Fowler.

38. November 2007, Ft Meade, MD, TCAP Deployed Justice Course, "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," T Lyons.
39. December 2007, Ft Campbell, KY, TCAP Deployed Justice Course, "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Prosecuting alcohol-facilitated sexual assault," T Lyons.
40. December 2007, Tampa, FL, Special Operations Medical Conference, "Comparative evaluation of 10 hemostatic agents in two injury models, preliminary in-vivo and in-vitro results," A McKeague.

## RESEARCH

### *Publications*

#### *Book Chapters*

Levine B, Jufer-Phipps R. Abused and designer drugs and how they escape detection. In: Dasgupta A, ed. Handbook of Drug Monitoring Methods, Totowa, NJ, Humana Press, 2007, 365-377.

#### *Journal Articles:*

1. Barnes AJ, Smith ML, Kacinko SL, Schwilke EW, Cone EJ, Moolchan ET, Huestis MA. Excretion of methamphetamine and amphetamine in human sweat following controlled oral methamphetamine administration. *Clinical Chemistry*. 2007; 54:172-180. [Nov 2, 2007 Epub ahead of print].
2. Cox D, Jufer-Phipps RA, Levine B, Jacobs A, Fowler D. Distribution of phencyclidine into vitreous humor. *Journal of Analytical Toxicology*. 2007; 31, 539-541.
3. Huestis MA, Darwin WD, Shimomura E, Lalani SA, Trinidad DV, Jenkins AJ, Cone, EJ, Jacobs AJ, Smith ML, Paul BD. Cocaine and metabolites urinary excretion after controlled smoked administration. *Journal of Analytical Toxicology*. 2007; 31:462-468.
4. Huestis MA, Gustafson RA, Moolchan ET, Barnes A, Bourland JA, Sweeney SA, Hayes EF, Carpenter PM, Smith ML. Cannabinoid concentrations in hair from documented cannabis users. *Forensic Science International*. 2007; 169:129-136.
5. Huestis MA, Scheidweiler KB, Saito T, Fortner N, Abraham T, Gustafson RA, Smith ML. Excretion of delta(9)-tetrahydrocannabinol in sweat. *Forensic Science International*. May 2, 2007 [Epub ahead of print].
6. Levine, B, Cox, D, Jufer-Phipps, RA, Li, L, Jacobs, A, Fowler, D. A fatality from sevoflurane abuse. *Journal of Analytical Toxicology*. 2007; 31, 534-536.
7. McKinley SG, Snyder JJ, Welsh E, Kazarian CM, Jamerson MH, Klette KL. Rapid quantitation of urinary oxycodone and oxymorphone using fast gas chromatography-mass spectrometry. *Journal of Analytical Toxicology*. 2007; 31: 434-441.
8. Paul BD, Dunkley CS. REVIEW: Specimen validity testing (SVT) – Effects of oxidizing agents on drugs in urine and its detection procedures. *Forensic Science Review*. 2007; 19: 29-47.
9. Paul BD, Holler JM, Lyons TP, Past MR. Stable isotopes as valid components for identification of drugs in biological specimens. *Journal of Analytical Toxicology*. 2007; 31, 447-452.
10. Smith ML, Vorce SP, Holler JM, Shimomura E, Magluilo J, Jacobs AJ, Huestis MA. REVIEW: Modern instrumental methods in forensic toxicology. *Journal of Analytical Toxicology*. 2007; 31:237-253.

### *OTHER ACCOMPLISHMENTS:*

#### Editorial Boards:

1. *Journal of Analytical Toxicology*, B Levine
2. *American Journal of Forensic Medicine and Pathology*, B Levine

#### *Manuscripts/Research Proposals Reviewed:*

1. *Journal of Analytical Toxicology*, B Levine (5), M Smith (1)
2. *American Journal of Forensic Medicine and Pathology*, B Levine (4)
3. *Homicide Studies*, B Levine (1)
4. *American Academy of Forensic Sciences 2008 abstracts,* M Smith (12)
5. *Toxicology and Environmental Chemistry*, B Paul (1)

6. *Forensic Science Review*, B Paul (1)
7. *Medical Science Monitor*, B Paul (1)

***National Panels:***

1. College of American Pathologists, Toxicology Resource Committee, M Smith
2. DoD Biochemical Testing Advisory Board, M Past (Chair), T Lyons
3. DoD Laboratory Certification Inspection Program, M Past, T Lyons, C Dunkley, J Jemionek, M Smith, B Paul, J Holler, M Jamerson, A McKeague, J Magluilo

# DIRECTORATE OF CLINICAL SCIENCES

Christopher R. Owner, PhD
Director, Clinical Services

## ADVANCED MEDICAL EDUCATION (DME)
## TELEMEDICINE AND DISTANCE LEARNING
## SCIENTIFIC LABORATORIES
## RADIOLOGIC PATHOLOGY
## REPOSITORY SERVICES
## CENTER FOR SCIENTIFIC PUBLICATIONS

Carlos H. Moran, MS
Chair
Date of Appointment—July 28, 2007

# DEPARTMENT OF MEDICAL EDUCATION

## ORGANIZATION

The department is organized by function and comprises workshop and seminar design and development, residents-fellows programs, text-based education, Web-based instruction, meeting planning, marketing, art and graphics, study sets, audiovisual, and accounting. The chairperson of the department reports to the Director, Clinical Science Christopher Owner, Ph.D. The Oversight Committee for Continuing Medical Education oversees the Department's activities.

## STAFF --EDUCATIONAL DIVISION

Carlos H. Moran, MS Chairperson
Ricky H. Giles, Educational Coordinator (Pathology)
Mark L. Hovland, Educational Coordinator (Pathology)
Carl Williams, Educational Coordinator (Radiology)
Monte D. Grace, HM2, USN, Educational Coordinator (Radiology)
Virginia A. McMillan, Visual Information Specialist

*Administrative*

Lisa P. Holmes, Meeting Management
Christina V. McLean, Marketing Specialist
Kim L. Williams-Chasten, Office Management

*Other AFIP/ARP Staff in Support of Mission*

Frank Roberts, Histopath QA
Nicole Jenkins, Histopath QA
Estelle Page, Histopath QA

*Audiovisual*

Joseph W. Frederick, Audiovisual Support Technician
Isaac J. Miller, Jr., Audiovisual Support Technician

*Ash Library*

Prem Kalra, Library Consultant
Judith Paige, Library, Library Technician
Daniel Mulholland, Library Technician

## IMPACT

The educational mission of the Armed Forces Institute of Pathology [AFIP] and American Registry of Pathology [ARP] is to "carry out educational activities in partnership with government, academic, and private sector organizations and to develop and apply expert information for the benefit of individuals and their health care professionals (AFIP Strategic Plan, 1997). Specifically, we support continuing medical education in pathology and radiology and other related medical disciplines by providing specialized information and advanced research and technology in the study of the pathophysiology of disease.

## SCOPE

The AFIP uses numerous approaches to determine how courses are structured and what information to include. First, and foremost, is the material we glean from our secondary

consult service. The AFIP receives over 55,000 cases annually, many of which are difficult diagnostic cases that become resources for our educational activities. In the past 2 years, we have begun to obtain needs data from the Institute's Pathology Information System [PIMS]. Numerous strategies are employed to assess the needs of participants in AFIP's CME activities: The diagnostic agreement codes 1s, 3s, and 4s from the PIMS database are selected. This ongoing "dialogue" with the community of pathologists shapes the information selected for both our workshops and didactic programs to accurately reflect the informational needs of both the military and civilian physician. To augment these data, we also assess the scientific advances in the field of pathology and medicine, seek the consensus of expert pathologists and clinicians, solicit feedback from both potential and actual attendees at our programs, and monitor the media to determine issues and topics of importance to the public. The effectiveness of these "audience assessment" activities can be seen in the evaluation data. The courses we offer cover most of the subspecialties in pathology including dentistry, veterinary, forensics, and environmental medicine.

## AUDIENCE

Our primary audience includes military and civilian pathologists, radiologists, and related subspecialty clinicians in the United States and Canada, and Internationally. Secondary audiences include other physicians, health professionals, and interested ancillary medical support systems.

## PROFESSIONAL ACTIVITIES

In 2007, the AFIP and ARP offered 22 live courses, 1 regularly scheduled conferences, with 46 sessions, 20 Ground Rounds Video teleconferences [VTC], and 26 Weekly Professional Staff conferences, 4 web-based courses, 4 Journal Club and 1 Enduring Material Open File Legal Medicine to 2,548 pathologists, clinicians, legal medicine professionals, veterinary pathologists, radiologists, dentists, forensic anthropologists, military and civilian residents, and professionals in related disciplines.

### *Training*

The Department of Medical Education is responsible for coordinating all training/visits to the AFIP and for ensuring that all DOD guidelines and regulations are adhered to. The training office serves as the liaison between the AFIP and the Office of the Army Surgeon General (OTSG) and/or the U.S. Department of State as appropriate. The training office is responsible for ensuring all training initiatives comply with governing regulations and maintain compliance with approved international or applicable affiliation agreements.

In addition to services available through the Department of Medical Education, the AFIP also offers trainees/visitors an opportunity to participate in hand-on training/study programs. The AFIP offers many educational opportunities to those interested in training rotations, fellowships, etc., in the AFIP's specialized department and participate in a variety of staff conferences. We offer one-on-one instruction with staff pathologists and the opportunity to participate in AFIP activities, providing an optimal training environment.

The Training Office processed approximately 320 Foreign National requests for attending Department of Medical Education and Radiology courses and coordinated approximately 187 interdepartmental training requests.

### *Marketing*

In 2007, DOME marketed activities on behalf of 22 live CME courses and workshops. These marketing initiatives targeted anatomic and clinical pathologists, radiologists, and veterinarians either in practice or serving in residencies. In addition to the design and mailing of approximately 70,000 brochures, numerous advertisements were placed in journals, newsletters, and on related industry websites in addition to AFIP's. Through DOME's enhanced educational online platform, AskAFIP provided detailed course information and facilitated all online registrations. In fact, approximately 60% of our course registrations were submitted online. E-mail marketing also played an integral role in massively disseminating information to targeted individuals, while also optimizing time.

As we move into 2008, DOME is actively and aggressively increasing our marketing initiatives. This includes expanding our outreach to multiple regional and disciplinary target audiences, tapping into notably reputable advertising venues, strategically leveraging the media, and increasing course registration percentages to better attract corporate sponsorships and funding.

In order to accomplish these goals, DOME has begun an unprecedented nationwide outreach in lieu of limiting the scope primarily to the Mid Atlantic region. This will pave the way for

increased name recognition amongst medical professionals in the civilian and military medical community, thus yielding improved course attendance rates as AFIP simultaneously works to explore additional potential course sites across the country.

With regard to advertising venues, not only is DOME promoting our courses in nationally well-known publications with BPA-certified contacts that directly align with AFIP's aspired audience, we are also making better of use of valuable internal resources (MILPO, NMHM, and AKO) to spread the word about our upcoming courses. Television and radio venues are being closely examined for future broadcasts in order to strategically position the organization as "key experts" in the industry, and link AFIP to current events in pathology and radiology that the organization has a direct positive impact on.

Finally, as we stretch our marketing efforts and subsequently increase attendance numbers for our courses, we are validating our mission and initiatives in the sight of prospective commercial sponsors, in which we anticipate securing more educational grants to fuel the mission behind AFIP as a whole.

***Deployments***

1. January 2007, Washington, DC, State of the MHS 2007 Meeting (TRICARE), staff of AFIP exhibit. Rene Sutton
2. March 2007, San Diego, CA, United States and Canadian Academy of Pathology (USCAP), staff of AFIP exhibit. Rene Sutton
3. April 2007, Las Vegas, NV, Automated Cancer Tumor Registry (ACTUR), Marketing Specialist. Rene Sutton

## AUDIOVISUAL DIVISION

The 2007 year was very busy for the Audiovisual Section, supporting ten courses for AFIP medical education most were held in the Washington, DC area hotels. We transported a/v equipment and microscopes 30-140 to hotel and setup for use in course training. There were other AFIP activities in-house that we supported like (26) weekly staff conferences, (14) HIPAA training sessions, (16) NSPS training classes, (6) newcomers briefings, also Military training, EEO training, Warrior training, and Retirement and Promotion ceremonies in Dart, Russell, Owens, DCR and N1601 conference rooms.

There was an increase in the number of activities for Walter Reed – (WRAMC)

1. Medical management of Chemical and Biological Casualties Course. (MMBC)
2. Medical Emergency Ionizing Radiation Course (MEIR)
3. NSPS training
4. Warrior Training for the troops (WRAMC)

FY 2007 saw no increase in equipment other than LCD bulbs computer remotes.

1. Property Value - $204,000.00
2. Audiovisual budget FY 2008
   a. Equipment Replacement and New ..... $8300.00
   b. Supplies ..... $1250.00
   c. Maintenance and Repairs ..... $2000.00
   Total ..... $11,550.00
3. A/V Request for Support = 225

## ASH LIBRARY

## IMPACT

The mission of the Library is to maintain a customer-friendly environment and to help the AFIP staff find what they are looking for in the collection. Ash Library subscribes to 317 printed journals. For the library users who prefer to use our electronic resources via their PC's, we provide online access to 177 journals. In addition, we subscribe to ProQuest Health and Medical online database which gives access to 1306 online journals out of which 980 have full text. Our goal is always to resolve problems relating to inaccessibility of online journals, which usually happens when the publishers change the terms and conditions regarding online access to their publications, as quickly as possible. We also have 4,379 book titles in our collection. We encourage our users to give their suggestions regarding acquisition of new books and journals in the library if funds are available, we act upon their requests.

## ACCOMPLISHMENTS

Because of impending closure of the Library as of 9/30/07 on account of BRAC, submitted a detailed memo to Dr. Owner listing essential steps in closing of the Ash Library and disposing its collection Mr. Mulholland provided Dr. Owner a customized journal list of our holdings via email attachment so that he can send the list to various libraries who may be interested in absorbing our journal collection in their holdings.

Mr. Mulholland provided Dr. Owner and Mr. Todd Johnson a summary of veterinary materials being housed in the Ash Library and number of shelves it takes to hold all this material.

Because of space, discarded one year of older issues of each journal to make room for the incoming 2008 new issues.

Added online access to frequently requested journal titles through OVID and OCLC.

## INTERLIBRARY LOANS ASH LIBRARY STATISTICS

a. BOOK CIRCULATION
- Checked out ..... 130
- Checked in ..... 149
- Renewal ..... 89

b. INTERLIBRARY LOANS
- Borrowed ..... 1947
- Loaned ..... 21

c. ACQUISITIONS
- Book titles received ..... 57
- Serial titles deleted ..... 1
- Serial titles added ..... 0

d. COLLECTIONS
- Total book titles ..... 4436
- Current printed journals ..... 316
- Online journals available ..... 1325

## DEPARTMENTAL TRAINING STUDY

| | Federal Attendees | Non Federal Attendees | Intern'l Attendees | Training Fed | Training Non-Fed | Training International | Units |
|---|---|---|---|---|---|---|---|
| Armed Forces Medical Examiner | 1 | 0 | 0 | 20 | 0 | 0 | 160 |
| Dermatopathology | 8 | 26 | 2 | 191 | 516 | 30 | 5,896 |
| Directorate of Advanced Pathology | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Environmental & Toxicologic Pathology | 0 | 0 | 1 | 0 | 0 | 2 | 16 |
| GU Pathology & Nephropathology | 6 | 3 | 1 | 117 | 65 | 10 | 1,536 |
| Gynecologic & Breast Pathology | 2 | 3 | 1 | 22 | 79 | 44 | 1,160 |
| Hematopathology | 4 | 0 | 0 | 186 | 0 | 0 | 1,486 |
| Hepatic & Gastrointestinal Pathology | 5 | 9 | 0 | 137 | 290 | 0 | 3,416 |
| Infectious Dis, AIDS & Microbiology | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Molecular Pathology | 2 | 0 | 0 | 43 | 0 | 0 | 344 |
| Neuropathology & Ophthalmic Pathology | 3 | 14 | 4 | 306 | 346 | 86 | 4,848 |
| Oral Pathology | 3 | 1 | 0 | 284 | 1 | 0 | 2,280 |
| Orthopedic Pathology | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Otolaryngic Pathology | 0 | 3 | 0 | 0 | 45 | 0 | 360 |
| Pulmonary & Mediastinal Pathology | 9 | 5 | 1 | 159 | 83 | 23 | 2,120 |
| Radiologic Pathology | 2 | 0 | 0 | 136 | 0 | 0 | 1,088 |
| Scientific Laboratories | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Soft Tissue Pathology | 12 | 10 | 7 | 192 | 178 | 143 | 4,104 |
| Telepathology | 1 | 0 | 0 | 5 | 0 | 0 | 40 |
| Veterinary Pathology | 21 | 8 | 7 | 3,589 | 108 | 36 | 29,864 |
| SUBTOTAL | 79 | 82 | 24 | 5,387 | 1,711 | 374 | 58,718 |
| TOTAL | | | 185 | | 7,472 | | 58,718 |

## LONG COURSES

| | Federal Attendees | Non Federal & International Attendees | Federal Training Days | Non Federal & International Training Days | Units |
|---|---|---|---|---|---|
| Anatomic Pathology | 43 | 90 | 301 | 630 | 7,448 |
| Radiologic Pathology | 8 | 254 | 232 | 7,366 | 60,784 |
| Radiologic Pathology | 13 | 255 | 390 | 7,650 | 64,320 |
| Radiologic Pathology | 11 | 264 | 330 | 7,920 | 66,000 |
| Radiologic Pathology | 9 | 205 | 180 | 4,100 | 34,240 |
| Radiologic Pathology | 10 | 262 | 200 | 5,240 | 43,520 |
| SUBTOTAL | 94 | 1,330 | 1,633 | 32,906 | 276,312 |
| TOTAL | | 1,424 | | 34,539 | 276,312 |

## SHORT COURSES

| | Federal Attendees | Non Federal & International Training Days | Federal Training Days | Non Federal & International Training Days | Units |
|---|---|---|---|---|---|
| 22nd Annual Washington Neuroradiology | 26 | 111 | 52 | 222 | 2,192 |
| 45th Annual Neuropathology Review | 28 | 140 | 140 | 700 | 6,720 |
| 43rd Annual Forensic Identification & Emerging Technologies | 31 | 63 | 155 | 315 | 3,760 |
| Sexual Assault Response Team Training Program | 92 | 21 | 460 | 105 | 4,520 |
| 16th Descriptive Veterinary Pathology | 15 | 64 | 75 | 320 | 3,160 |
| 20th Annual Forensic Anthropology | 8 | 25 | 40 | 125 | 1,320 |
| Air Force Medical Forensic Sustainment Support Team Training | 6 | 0 | 30 | 0 | 240 |
| 41st Annual Urological Pathology & Radiology Course | 6 | 30 | 36 | 180 | 1,728 |
| Air Force Medical Forensic Sustainment Support Team Training | 12 | 0 | 60 | 0 | 480 |
| Air Force Medical Forensic Sustainment Support Team Training | 10 | 0 | 50 | 0 | 400 |
| 9th Annual Current Laboratory Animals Science Seminar | 19 | 63 | 38 | 126 | 1,312 |
| 50th Annual Pathology of Laboratory Animals | 35 | 128 | 140 | 512 | 5,216 |
| Air Force Medical Forensic Sustainment Support Team Training | 11 | 0 | 55 | 0 | 440 |
| Ophthalmic Pathology for Ophthalmologists | 23 | 89 | 115 | 445 | 4,480 |
| Ophthalmic Pathology for Ophthalmologists – Wednesday Only | 0 | 11 | 0 | 11 | 88 |
| 17th Annual GI Surgical Path & Endoscopic Biopsies of the GI Tract | 26 | 102 | 52 | 204 | 2,048 |
| 27th Annual Hepatopathology: The Interpretation of Liver Biopsies | 23 | 87 | 69 | 261 | 2,640 |
| Basic Forensic Pathology | 23 | 49 | 115 | 240 | 2,840 |
| SUBTOTAL | 394 | 983 | 1,682 | 3,766 | 26,392 |
| TOTAL | | 1,377 | | 5,448 | 26,392 |

## VIDEO TELECONFERENCE

| | Non Federal | Federal Attendees & International | Units |
|---|---|---|---|
| GI Tract Infiltrates | 20 | 0 | 20 |
| Diabetes Monitoring | 30 | 0 | 30 |
| Malaria | 20 | 0 | 20 |
| Granulomas | 16 | 0 | 16 |
| SARS | 35 | 0 | 35 |
| Diabetes Monitoring | 17 | 0 | 17 |
| Intraepithel Lesions of the Breast | 59 | 0 | 59 |
| CNS Trauma | 23 | 0 | 23 |
| Molecular Genetic Testing | 35 | 0 | 35 |
| Tumors of the Iris | 14 | 0 | 14 |
| Forensic Odontology | 17 | 0 | 17 |
| Danger in the House | 26 | 0 | 26 |
| Danger in the House (Pt 2) | 17 | 0 | 17 |
| Large Cell Lymphomas | 48 | 0 | 48 |
| Intestinal Polyps | 48 | 0 | 48 |
| B-Cell Lymphomas | 5 | 0 | 5 |
| Ova and Parasites | 23 | 0 | 23 |
| Head and Neck Lesions | 37 | 0 | 37 |
| Genetic and the Law | 18 | 0 | 18 |
| Astrocytomas | 16 | 0 | 16 |
| TOTAL | 524 | 0 | 524 |

## YEAR-ROUND TRAINING/EDUCATION

| | Total Attendees | Days | Units | Hours Units |
|---|---|---|---|---|
| Legal Medicine Open File | 2,548 | 159.25 | 5 | 12,740 |
| Weekly Professional Staff Conference | 603 | 26 | 1 | 603 |
| Histopathology Quality Assessment Program | 280 | 560 | 16 | 4,480 |
| Virtual Gastrointestinal Endoscopic Biopsy | 25 | 15.625 | 5 | 125 |
| Online Urologic Pathology Series | 20 | 5 | 2 | 40 |
| Registry of Oral & Maxillofacial Pathology | 14 | 21 | 12 | 168 |
| TOTAL | 3,490 | 786.87 | 41 | 18,156 |

## TOTAL NUMBER OF ATTENDEES/DAYS/UNITS

| | Attendees | Days | Units |
|---|---|---|---|
| GRAND TOTALS | 7,000 | 48,245.87 | 380,102 |

## GRADUATE MEDICAL EDUCATION COMMITTEE

***COMMITTEE MEMBERSHIP:***

Leslie H. Sobin, MD - Senior Executive Service-Chair
George P. Lupton, MD - Program Director Dermatopathology Residency Program
Nadine S. Aguilera, MD - Program Director Hematopathology Residency Program
COL Elizabeth Rushing - Program Director Neuropathology Residency Program
Teri J. Franks, MD - Program Director Pulmonary Pathology Residency Program
Zhiping Liu, MD - Resident/Fellow Representative (July 06-June 07)
Chris R. Owner, PhD- Designated Institutional Official
Carlos H. Moran - Intuitional Coordinator
Mark H. Hovland - Secretary
Nicole L. Jenkins - Office of Quality Assurance-Secretary
Frank J. Roberts - Designated Institutional Official
Tammie Winters - Pulmonary Pathology
Danny L. Urquhart - American Registry of Pathology

The GMEC meets at least quarterly and maintains written minutes documenting its activities and fulfillment of its responsibilities.

## AFIP COMMITMENT TO GME:

Graduate Medical Education at the AFIP is the cornerstone of the mission of education, research, and consultation. The AFIP acknowledges absolute correlation between quality graduate medical education, clinical excellence and scientific development. The AFIP is committed to assisting and expanding its GME programs by providing the necessary educational, financial, human resources to support its GME programs, and ensuring an environment conducive to teaching and higher learning. The program directors and their professional staff accept the greater responsibility for the fellow's professional and personal development wherein they continually seek to improve their own knowledge and skills. Together, the administration, program directors, and the participating fellows strive to enhance their professional ability and sustain an environment that nurtures innovation, creativity, and teamwork.

## AFIP ACGME ACCREDITED PROGRAMS:

The AFIP serves a sponsoring institution for 2 pathology subspecialty programs: Neuropathology, and Selective Pathology (Pulmonary Pathology).

## HOSPITALS SERVING AS PARTICIPATING INSTITUTIONS TO AFIP ACGME ACCREDITED PROGRAMS:

- Children's Hospital of Philadelphia, Philadelphia, PA-Neuropathology
- Office of the Chief Medical Examiner, State of Maryland, Baltimore, MD-Neuropathology
- Johns Hopkins Hospital, Baltimore, MD-Neuropathology

## ACTIVITIES:

### *Change in Designated Institutional Official:*

Chris R. Owner, PhD, Director, Directorate of Clinical Sciences, was appointed Designated Institional Official replacing Mr. Frank Roberts. Mr. Carlos H. Moran, MS, Chair, Department of Medical Education was appointed Institutional Coordinator.

### *Resident supervision:*

The GMEC assures that each of AFIP's subspecialty residency programs provides appropriate supervision of its residents in accordance with ACGME's Institutional and program requirements. This is done through the internal review process, reviewing each program's letter of accreditation, reviewing program goals and objectives, resident exit survey conducted by the GMEC at the end of each academic year, and discussion at GMEC meetings.

### *Resident responsibilities:*

Resident responsibilities are written into each resident's training agreement as well as each program's goals and objectivities. These documents are reviewed annually and updated as needed. The program directors meet with each resident at the beginning of each academic year to review the program goals and objectives and resident training agreement. The residents sign their training agreement at this meeting.

### *Resident evaluation:*

Residents are usually evaluated after each rotation. At a minimum, each resident is evaluated every six months. Residents are also regularly assessed in each of the six general competencies (patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism, and system-based practice), using an evaluation form developed by the GMEC.

ACGME duty hour requirements::

The ACGME Duty Hour requirements have been implemented in our 5-subspecialty programs and have been published in AFIP Regulation 351-2, *Policies and Procedures for the Administration of Graduate Medical Education*. The GMEC assesses program compliance with the duty hour requirements through a program letter of accreditation, internal reviews, and discussions at GMEC meetings.

### *General competencies:*

The general competencies have been introduced into all AFIP residency program's curriculum. The programs are currently at various stages in the teaching and evaluation of these competencies. The GMEC is working with the program directors to ensure that the general competencies are fully implemented in all our programs. The general competencies are an open item at our GMEC meetings. During internal reviews detailed information is reviewed on the program's implementation and evaluation of the general competencies.

Bruce H. Williams, DVM, DACVP
Chair
Date of Appointment —1 October 1997

# DEPARTMENT OF TELEMEDICINE

## MISSION

The AFIP Department of Telemedicine supports and enhances the missions and strategic goals of the Armed Forces Institute of Pathology and the American Registry of Pathology by evaluation and distributed deployment of emerging telecommunications technology within the Institute environment. In this fashion, the department maximizes the cost-effectiveness, speed of delivery, and quality of health care services and educational opportunities provided by AFIP personnel, and serves as a fertile testbed for new and innovative usage of emerging technology.

## STAFF

*Medical:*

Bruce H. Williams, DVM, DACVP

*Administrative:*

Daniel R. Butler, HMC, Deputy Chair
David Draley, Database and Web Developer/Administrator
Jason Siedor, Support Services Specialist
George P. Bessey, YN3, Support Services Specialist

## IMPACT

The AFIP's electronic consultation program continues to be the largest of its kind in the world, as well as the most efficient in terms of case turnaround time and scope of services provided. The AFIP telepathology program became the first of its kind to employ virtual slide scanning as a diagnostic tool. Slides are scanned at remote sites, and AFIP staff, upon case submission, transfer the wholeslides to the AFIP servers, decreasing the amount of time AFIP consultants spend viewing and manipulating slides. In addition, the 50-slide loaders associated with deployed systems allow AFIP pathologists to view multi-slide cases, which often include multiple recuts at varying levels, as well as a range of special stains. The end result is an overall improvement of diagnostic specificity, with a decrease in diagnostic deferral from 7% in 2005 to 3% in 2007, and a decrease in request for followup material from 71% in 2005 to 46% in 2007.

In 2005, the Department assumed management of the Army Telepathology program from Walter Reed Army Medical Center. As part of this program, AFIP personnel provide all installation and troubleshooting services for this program. AFIP personnel traveled to 10/11 installation sites, to include the 121st General Hospital in Seoul, and Landstuhl Regional Medical Center and Army facilities in Wuerzberg and Heidelberg, FRG.

In 2007, the Department continued development "Ask AFIP™", linking the various knowledge bases and collections of case materials and authoritative resources published by AFIP staff (including the 3rd and 4th Series of AFIP/ARP Tumor and Non-Tumor Fascicles) to provide an innovative "just-in-time" educational experience to over 10,000 pathologists, radiologists and related specialists in both the military and civilian medical communities. Improvements in 2007 included the deployment of online registration and CE tracking for all AFIP courses, including traditional classroom-based courses – providing "one-stop shopping" for all AFIP educational products.

A total of five virtual-slide based courses or conferences (the online Wednesday Slide Conference, Histopathology Quality Assurance Program, Anatomic Pathology, Genitourinary Pathology and the Registry of Oral and Maxillofacial Pathology Slide Conference) were offered online in 2007. The Department also provided online versions and portals for the American Registry of Pathology's 3rd and 4th series of the Atlas of Tumor Pathology, as well as the Atlas of Non-tumor Pathology, and the WHO Fascicles on Neoplasia of Domestic Animals. All of the Institute's online offerings, as well as any associated CME are available to military healthcare providers free of charge. Select offerings, including access to all of our slide-based online courses are available to other government and civilian healthcare providers for a nominal fee.

The Department continues to provide a wide range of virtual slide scanning for a variety of nstitutional missions, including cases in which contributors would like blocks returned, various intramural research projects, and online consensus conferences.

## DIAGNOSTIC CONSULTATION

| *Cases* | *Completed* |
|---|---|
| Military | 234 |
| Federal | |
| VA | 23 |
| Civilian | 49 |
| Total | 308 |

Overall cases showed significant decline from the previous year due to personnel turnover at installations with telemedicine systems and critical network blockages in theatre, as well as uncertainty about the AFIP's status as a result of the DoD's recommendation under BRAC and the establishment of rigid pricing schedules for civilian cases. During 2007, departmental personnel traveled to each installation to ensure that systems had received appropriate upgrades and were in excellent working condition.

Average turnaround time for 2006 for consultative cases decreased to approximately 3.0 hours as a result of increased staff familiarity with the operation of slide viewers. These numbers represent a continued focus on a militarily-relevant mission and improved overall cost-containment for the telemedicine mission.

## EDUCATION

*Presentations and Seminars:*
Department personnel gave a total of 76 hours of presentations for a total of over 3300 contact hours.

*Courses:*
Department personnel participated in a total of 10 courses.

*Educational Aids:*
The Department of Pathology provided updates or original design to 22 AFIP Web sites, provided extensive content to 6 AFIP sites, and provided extensive programming and editing services to the Digital Case Repository and online book offerings of AskAFIP™.

52 editions of the ARP 3rd and 4th series Tumor Fascicles as well as the Non-tumor fascicles, WHO Fascicles on Neoplasms of Domestic Animals, and 1 special publication, the Atlas of Gastrointestinal Endoscopy and Endoscopic biopsy were made available to online subscribers of the AFIP's Online Pathology Services.

*Telemedicine Exhibits:*
1. February 2007: Society of the Armed Forces Medical Laboratory Scientists (Butler)
2. March 2007: USCAP Annual Meeting, San Diego, CA (Butler, Draley)
3. August 2007: Force Health Protection Conference, Albuquerque NM (Siedor)
4. October 2007: Association of the United States Army, Washington DC, (Siedor)
5. November 2007: Association of Military Surgeons of the United States, San Antonio TX (Butler, Draley)

*Presentations:*

1. March 2006: Washington DC, Gross Morbid Anatomy of Diseases of Animals: "Macroscopic Description in Veterinary Pathology," BH Williams
2. May 2006: Graz Austria: "Use of Whole-Slide Imaging in Pathology Practice" BH Williams
3. June 2006: Washington DC, "Macroscopic and Microscopic Description in Veterinary Pathology," BH Williams
4. June 2006; Budapest Hungary, European Congress of Telepathology, "Reinventing Consultation and education at the AFIP - Use of Virtual Slides," BH Williams
5. June 2006: Washington DC, "AFIP Weekly Professional Staff Conference". BH Williams
6. June 2007: Portland Oregon, International Ferret Congress – Dealing with Grief. B. Williams
7. July 2007: Washington DC, AFIP VTC Grand Rounds, "Danger in the House: Zoonotic Disease," BH Williams
8. August 2007: Daegu City, ROK, Korean Society of Veterinary Pathology, "Gross Pathology of the Canine," BH Williams
9. October 2007: San Diego, CA, Pathology Visions: A Decade of Telemedicine at the AFIP, DR Butler
10. October 2007: Pittburgh, PA, Anatomic Pathology Informatics, Imaging, and the Internet: "Reinventing Consultation and Education at the AFIP," BH Williams
11. November 2007: Savannah, Georgia, Annual Conference of the American College of Veterinary Pathologists: "Preparing Your Images for Digital Publication", ACVP, BH Williams

## RESEARCH

*Publications:*

Departmental staff prepared six course syllabi during the year 2007.

*Projects:*

One active research protocol was conducted in the department during this time – UBYG. Telepathology Consultation at the AFIP, which has to date resulted in 5 articles on telepathology and digital imaging, and is currently providing raw data for a sixth.

*Collaborators:*

***Military/Federal:***

1. Department of Pathology, Keesler AFB: Feasibility Study of Telepathology in the Air Force
2. NASA: Feasibility study of virtual slides in aerospace research
3. USUHS: Feasibility of virtual slide study sets in undergraduate education
4. NCI: Familiar testicular cancer: a virtual consensus conference

***Civilian:***

1. American Registry of Pathology: Online Fascicles of Tumor Pathology.
2. American Telemedicine Association: Telemedicine Special Interest Working Group
3. Illumea Corporation: Feasibility Study of Realtime Pathology Consultation
4. Aperio Inc: Feasibility Study of Virtual Slide Scanning in Consultative Practice
5. Information Manufacturing Corporation: Ask AFIP™

***Interdepartmental:***

1. Department of Genitourinary Pathology: Familial testicular neoplasia
2. Department of Hepatic and Gastrointestinal Pathology: Fibrosis in patients with infectious hepatitis
3. Department of Veterinary Pathology: Online Wednesday Slide Conference

## PROFESSIONAL ACTIVITIES

*Official Trips:*

1. March 2007: Ft. Benning, GA, System upgrade/maintenance, J Siedor.
2. April 2007: Seoul, ROK, System upgrade/maintenance, DR Butler, J Siedor.
3. May 2007: Landstuhl, Heidelberg, FRG, System upgrade/maintenance, DR Butler, J Siedor.
4. July 2007: Ft Campbell KY, Ft Benning GA, MAMC, Seattle WAS, TAMC, Honolulu HI, System upgrade/maintenance, DR Butler, J Siedor.
5. September 2007: Kisumu, Kenya. System Install, DR Butler

6. September 2007: Ft Hood TX, System upgrade/maintenance, J Siedor.
7. September 2007: Kampala, UG, System Install, DR Butler.
8. October 2007: San Diego CA, Pathology Visions Conference, DR Butler, D Draley

*Committees:*

1. Oversight Committee on Continuing Medical Education, BH Williams.
2. IACUC Committee, BH Williams.
3. IM/IT Steering Committee, BH Williams.

*Offices/Committee Memberships in National or International Societies*

1. President, C.L. Davis Foundation for the Advancement of Veterinary Pathology, BH Williams.
2. Convenor, Telemedicine Symposium, International Academy of Pathology, BH Williams.
3. Convenor, Emerging Technology Symposium, American College of Veterinary Pathology, BH Williams.
4. Member, Education Committee, American College of Veterinary Pathologists, BH Williams.
5. Member, Editorial Board, Veterinary Pathology, BH Williams.

*Manuscripts Reviewed:*

Members of the department reviewed 15 articles for the following professional journals:

1. *Veterinary Pathology*, BH Williams.
2. *Human Pathology*, BH Williams.

Ann M. Nelson, MD
Chair
Date of Appointment — October 2001

# DEPARTMENT OF SCIENTIFIC LABORATORIES

Glenn D. Sandberg, LTC, MC, USA
Chairman
Date of Appointment –October 2001

Ann M. Nelson, MD
Chairman
Date of Appointment –October 2007

Lisa Myer, MSGT, Superintendent
Superintendent
Date of Appointment –June 2005

## MISSION

The mission of the Department of Scientific Laboratories is to provide technical, consultative, and scientific services to the Departments of the Armed Forces Institute of Pathology, ultimately supporting the Institute's mission of consultation, education, and research. Services include basic and advanced histology techniques, scanning and transmission electron microscopy, immunohistochemical tissue analyses, molecular biology and biophysics and biophysics research. The department provides basic and advanced training in histology techniques to military and civilian personnel through the Tri-Service School of Histotechnology and the Annual Histopathology Techniques Seminar, respectively. All efforts are designed to ensure the highest medical and investigative science.

## ORGANIZATION

The Department of Scientific Laboratories was organized in December 1988. As of 1997, the Department consists of an administrative section and the following four Divisions: Scientific Laboratories, Immunohistochemistry, Molecular Pathology and Biophysics.

The Department Of Scientific Laboratories was reorganized to include Acquisitions Lab, Grossing Lab, Microtomy, Special Stains Lab, General Immunology, Special Immunology, Neuromuscular, Electron Microscopy, Tri- Service School and Glassware. The laboratories are organized to allow a STAT laboratory to handle consultative cases and a Research and Education Laboratory to provide services for research and education projects. This organization has significantly reduced turn-around time and distributed the workload more equitably throughout the laboratories.

## GOALS:

*1. To support the United States Department of Defense's readiness for joint operations.*

- Support the Institute's staff in programs aimed at the increasing readiness for joint operations.

*2. To assist in the provision of top-quality, cost effective health care benefits.*

***Service:***

- Continue to provide micro-slides of excellent diagnostic quality from cases that meet agreed –upon restrictions within established turnaround times.
- Facilitate minimum specimen turnaround time (24 to 48 hr.), while maintaining a superior

product.
- Provide timely technical and scientific services specific to the needs of each department's consultative mission.
- Expand services to assist Tri-Care.

***Infrastructure***
- Continue the laboratory renovation program.

***QA/QC***
- Continue to implement quality control and improvement.
- Pursue methods that conserve resources and eliminate duplication of tasks.
- Continue to review Quality Assurance Program to eliminate of which.
- Test and evaluate prepared staining solutions.
- Implement responses to CAP accreditation.

*3. To assist in the development of military and civilian health care leaders.*

***Tri-Service School of Histotechnology***
- Provide high-quality training by Tri-Service School of Histotechnology by recruiting interdepartmental and interdivisional faculty from among the department and AFIP.
- Support the recruitment and selection of civilian and military students to maintain a maximum student body and an appropriate military/civilian mix.

***Courses***
- Facilitate the presentation and quality of academic courses.
- Support increased attendance, sponsorship, and offering of off-site courses.
- Expand military and academic training for non-prior-service (NPS) students attending the new course.

***Education***
- Support the AFIP's production of an interactive CD-Rom for Basic and Advanced Laboratory Methods on Histotechnology and Immunohistochemistry.
- Continue to prepare study sets of superior quality.
- Expand the current continuing education program to include outside speakers on various topics.
- Train more visiting technicians and pathologists.
- Revise course chart, lesson plans, and other instructional materials to reflect newly expanded program.
- Cross-train Transmission Electron Microscopy technician in the use of Analytical Scanning Microscopy methods and facilities.
- Cross-Train department personnel in electron microscopy and Immunohistochemistry technology.
- Present lectures in Transmission Electron Microscopy and Analytical Scanning Microscopy to the AFIP staff and other personnel.
- Build a reference library for the Transmission Electron Microscopy Laboratories.
- Ensure that technician become Histology Technician Certified.
- Implement College of American Pathologists (CAP) program for training and preference testing.

*4. To develop innovations and validate applications of new technologies.*
- Support research protocols, presentations, and publication of results.
- Assist Institute investigators in their development of innovations and new technologies.
- Research and develop new methodologies that are safer and reduce case turnaround time.
- Enhance and use new technology in Transmission Electron Microscopy.
- Evaluate state-of –the-art equipment that will enhance the application and diagnostic evaluation of consultative cases.
- Refine methodologies for antigen detection, automation, and more sensitive detection methodologies.
- Utilize molecular and immunology techniques for cellular proliferation, cell signaling, oncogene and suppressor gene products, and adhesion molecules.
- Bring online an expanded antibody menu performed in nontraditional fixatives.
- Institute a new lab development committee and protocol for AFIP staff to bring on new tests in Scilab.

**SECTIONS:**

Acquisitions Lab
Grossing Lab
Microtomy Lab
Special Stain Lab
General Immunology Lab
Special Immunology Lab
Histopathology Laboratories
Tri-Service School of Histotechnology
Electron Microscopy (SEM, TEM) Laboratories
TMA Lab Micro-array
Molecular Lab
Glassware
Biophysics

**STAFF**

***Professional/Scientific:***

(D) Glenn D. Sandberg, LTC, MC, USA, Chair
(A) Ann M. Nelson, MD
Wei-Sing Chu, Chief Immunopathology
Debra McElroy, Chief, QA /QC Administrator
Raheema Al-Baqi, Administrator

# HISTOPATHOLOGY LABORATORIES

Debra McElroy
Laboratory Chief
Date of Appointment –1 October 2006

**MISSION**

The Histopathology Laboratories provide histotechnical support and expertise to the pathology departments at the AFIP and training in histotechniques to visiting professionals and technologists. To insure that the laboratories are capable of fully meeting their mission, maintain certification by the College of American Pathologists.

**STAFF**

TaShanda Butler, SSGT, Histopathology Technician
Betty Beal, VAMC, Histopathology Technician
Clifford Bernard, SSGT, Histopathology Technician (Rockville OAFMED)
(D) Freda Blake, VA-7, Histopathology Technician
(D) Robert Calvo, HM2, Histopathology Technician
Sabrina Campbell, HM1, Histopathology Technician
Mel Castro, DAC, Histopathology Technician
Stacia Roundtree, HM2, Histopathology Technician
Mary Dyson, ARP, Histopathology Technician
Alicia Fuller, TSGT, Histopathology Technician
Joe Golden, TSGT, Histopathology Technician
Zehaitu Harvey, DAC, Histopathology Technician
Ingrid Jones, DAC, Histopathology Technician
Rose Andan, SRA, Histopathology Technician
(D) Samantha Korn, Anteon, Histopathology Technician
(D Mark Malogrino, SRA, Histopathology Technician
Lisa Myers, MSGT, NCOIC
Denise Negron, HM3, Histopathology Technician (Rockville OAFME)
Oliver Onyebuchykwu, ARP, Histopathology Technician
Michael Vick, HM2, USN, Histopathology Technician

Curtis Young, HM1, Lab Technician
Julia, Wilson, O'Loughlin, DAC, Program Director

In 2007 32,924 work orders were completed, requiring the following procedures and special stains:

| | |
|---|---|
| Blocks cut | 111,769 |
| H&E stains | 69,786 |
| Special stains | 30,286 |
| Unstained cut | 111,111 |
| Immuno cut | 117,273 |
| Immuno stained | 72,496 |
| Plastics | 12 |
| Slide repairs | 621 |
| Decals | 215 |
| X-rays | 56 |
| Molecular | 1,180 |
| Total Slides | 514,805 |

***Quality Assurance:***
Laboratory personnel served on 3 CAP Inspection Teams in 2007.

1. Delegate to the National Society of Histotechnology
2. Quality Assurance Committee
3. Safety Committee

## EDUCATION

***Presentation and Courses:***
Laboratory staff presented 60 didactic hours to participants in the Tri-Service School of Histotechnology course. In addition, several staff members lectured at state and regional professional meetings. Division staff made presentations at Weekly Professional Staff Conference in 2007.

***Training:***
1. Visiting pathologists and technologists received over 1,500 hours of on training in a variety of laboratory techniques, including eye histotechnology, special staining methods for infectious organisms, and Warthin-Starry procedures for melanin and bacteria.
2. Orientation and advanced training were provided to 4 civilians and 25 incoming military personnel.

***Educational Aids:***
Our laboratories prepared thousands of microslides for AFIP pathologists, for teaching and for study sets to be used at professional meetings.

## RESEARCH

***Publications:***
Articles on modifications to histopathology laboratory procedures were submitted for publication in all editions of the AFIP Letter.

***Projects:***
Our laboratories provided technical support for all approved research projects. Cost estimated are now prepared based on the College of American Pathologists' workload unit costs, which include technician time, materials, and equipment.

This year, several manufacturers were invited to demonstrate technical equipment that has significantly advanced histology microslide production, including robotic stainers and coverslippers, improved warming tables, and cryostats. These items were evaluated by department staff and were available for inspection and trial by AFIP departments.

### OTHER ACCOMPLISHMENTS

***Committees (Intramural):***

Division personnel served on the following AFIP committees in 2007.

1. Task Force Committee
2. PIMS Committee
3. Quality Assurance Committee
4. Junior Enlisted Council
5. TOP Four Association
6. AFIP Annual Picnic Planning Committee
7. Consultation Committee
8. Safety Committee
9. TASO Committee
10. Bio Safety Committee
11. ARP Registrar's Forum

***Tasks:***

Members of the division performed the following assignments in 2007:

1. Histopathology Occupational Survey
2. Dover Deployment

## TRI-SERVICE SCHOOL OF HISTOTECHNOLOGY

Lisa Myers, MSGT, Superintendent
Course Superintendent
Date of Appointment – June 2005

Julia Wilson-O'Loughlin BS, HT (ASCP)
Program Director
Date of Appointment – March 1997

### STAFF

George Barbour, HM1, Histopathology Technician
Denise Griggs, SSGT, Histopathology Technician

### MISSION

The Tri-Service School of Histopathology provides formal training to military and civilian students in the technical operations of anatomic pathology, as applied to histopathology laboratory and postmortem procedures.

***Accreditation:***

In 2001, NAACLS Board of Directors awarded five years accreditation, which is valid through October 31, 2007.

### EDUCATION

The school convenes annually and consists of 180 training days. It includes instruction in the theory and application of Histotechnology and practical training in processing, cutting and staining of tissue specimens and assisting in postmortem examinations. The course is administered by the Department of Scientific Laboratories and is coordinated through the School of Health Care Science at Sheppard AFB in Texas and the Naval School of Health Sciences at the National Naval Medical Center, Bethesda, Maryland. The school is also affiliated with the Department of Anatomic Pathology at Walter Reed Army Medical Center and Malcom Grow Medical Center, Andrews AFB.

The Tri-Service School of Histotechnology was accredited in 1997 by the National Accrediting Agency of Clinical Laboratories Sciences (NAACLS), a nonprofit organization which independently accredits Histotechnology instructional programs. NAACLS is sponsored by the American Society of Clinical Pathologists (ASCP) and the American Society for Clinical Laboratory Sciences (ASCLS), and is participated by the National Society of Histotechnology (NSH) and the Association of Genetic Technology (AGT).

Graduates of the Tri-Service School of Histotechnology are awarded certificated and AFSC 4T032 (Air Force) and NEC 8503 (Navy) classification codes. The Army currently has no Histotechnician career field classification. Graduates may apply to take the certification exam as Histologic technicians through the American Society of Clinical Pathologists, HT (ASCP).

***Number of Students Trained in 2007:***

Army ..... 0
Navy ..... 2
Air Force ..... 9
Civilian ..... 0

## SPECIAL STAIN LABORATORY

Myra Miller, DAC, Histopathology Technician
Supervisor Special Stain
Date of Appointment – May 2004

MISSION

Prepare special stains to the highest level of proficiency and accuracy to enable pathologist to read stains of light microscopy.

TOTAL SLIDES ..... 0,286

### STAFF

Juanita Rogers, ARP, Histopathology Technician
Blair Slaughter, ARP, Histopathology Technician

## ELECTRON MICROSCOPY LABORATORY

Blondell Smith, DAC
Supervisor Electron Microscopy
Date of Appointment – January 2007

### MISSION

To provide technical and scientific services to the departments of the Armed Forces Institute of Pathology, supporting the professional staff in consultation, research, and education using advanced technology in transmission electron microscopy (TEM), scanning electron microscopy (SEM), and scanning transmission microscopy (STEM).

### STAFF

(D) James Hughes, DAC, Histopathology Technician
Perz-Rosario Efrain, ARP, Histopathology Technician
Barbara Norfleet, DAC, Histopathology Technician

### DIAGNOSTIC CONSULTATION

The Electron Microscopy Laboratories have two high-resolution (ZEISS-10A) electron microscopes and a scanning transmission electron microscope with an x-ray analyzer. We also have a new scanning electron microscope (ZEISS DSM 960A) with energy dispersive x-ray analyzer.

Transmission Electron Microscopy

| | |
|---|---|
| Work orders Completed | 403 |
| Total Blocks Cut | 2154 |
| Total Grids Cut | 1860 |
| Total Pictures | 3607 |
| Total CD | 465 |

## IMMUNOPATHOLOGY LABORATORY

Wei-Sing Chu, ARP
Chief Immunopathology
Division Chief
Date of Appointment – January 2003

Aaron Auerbach, DAC, Co-Chief
Division Co-Chief
Date of Appointment – January 2007

### MISSION

The Immunopathology Laboratory provides state-of-the-art immunohistochemical staining in support of diagnostic and prognostic markers in case consultation and Institute research. Our secondary mission is to develop advanced tissue diagnostic techniques.

### STAFF

*Administrative/Technical:*

Wanda King, ARP, Histopathology Technician
XI Lin, ARP, Histopathology Technician
Verna Pinkett, DAC, Histopathology Technician
(A) Renae Ivy, MSGT, Medical Technologist
(A) Zengpeng Wang, PhD, Research Biologist

### WORKLOAD COMPLETED – 2007

| | |
|---|---|
| Immunology work orders | 4270 |
| Controls Slides | 12,200 |
| Slides Stained | 30,766 |
| Total | 42,966 |

Special Immunology:

| | |
|---|---|
| Work orders | 4,161 |
| Slides Stained | 12,850 |

## NEUROMUSCULAR LAB

Valenzuela Ives
Supervisor
Date of Appointment – January 2003

### STAFF

Lloyd Dallas, GEN, D, Technician
Waheed Muhammed, ARP, Histopathology Technician
Work Load:

| | |
|---|---|
| Work orders | 407 |

Frozen specimen ..... 382
Formalin- fixed specimen ..... 364
Guluteraldehyde-fixed specimens ..... 395
Histochemistry slides cut ..... 4,584
EM blocks embedded ..... 3,196
EM block cut ..... 498

## TMA

Lim Langston, ARP, Histopathology Technician
Supervisor
Date of Appointment – November 2006

**STAFF**

Rick Figueroa, SSGT, Instructor

## ACQUISITIONS LAB

Raheema Al-Baqi,
Supervisor
Date of Appointment – January 2003

**STAFF**

Shaquita Massey, ARP, Acquisition Clerk
Roneice James, ARP, Acquisition Clerk

Work load ..... 32,924 work orders

## GROSSING LAB

Warren McNeil
Supervisor
Date of Appointment – January 2003

Work load ..... 42,910 tissue grossed

## GLASSWARE

Elizabeth Harvel
Supervisor
Date of Appointment – January 2003

Work load ..... 57,600 glassware items washed

# DIVISION OF MOLECULAR PATHOLOGY

Guanghua Wang, MD
Division Chief
Date of Appointment - July 2007

## STAFF

Minqi Wei, MD, Research Biologist
Qi Liang, PhD, Research Scientist
Mark M. Tsai, MS, Research Biologist
Daisy Johnson, Medical Technologist
Kofi Kyeremateng, BS, Research Technologist
Myra Washington, Secretary
(D) Sherman McCall, LTC, MC, USA, Staff Pathologist
(D) LeAnn Hodge, MS, Research Biologist
(D) Jean Przybocki, BS, Medical Technologist
(D) Mary Fisher, BS, Medical Technologist
(D) Sylvia Cordero, BS, Medical Technologist

## MISSION

The division's focuses on providing prompt molecular testing for surgical pathology consultation, developing new molecular assays for surgical pathology departments, and actively collaborating with pathologists and other scientists in research using molecular techniques. The division also explores new areas in molecular pathology for future development at the AFIP.

## CONSULTATION

The Division performed 7,835 cystic fibrosis genetic tests and 1,180 molecular genetic consultation tests.

## EDUCATION

The Division hosted 4 military residents and one civilian resident for their clinical rotation for a total of 100 training days.

## RESEARCH

***Publication:***

Tavora F, Shilo K, Ozbudak IH, Przybocki JM, Wang G, Travis WD, Franks TJ. Absence of human herpesvirus-8 in pulmonary inflammatory myofibroblastic tumor: immunohistochemical and molecular analysis of 20 cases. *Mod Pathol*. 2007 Sep; 20 (9): 995-9. Epub 2007 Jul 20.

# DIVISON OF BIOPHYSICS

Jeffrey T Mason, PhD
Chair
Date of Appointment - May 2004

## STAFF

*Scientific:*

Jeffrey T Mason, PhD, Chairman, Division of Biophysics (GS)
Kimberlee Potter, PhD, Director, AFIP Magnetic Resonance Imaging Facility, Associate Chair, Division of Biophysics (ARP)
Junkun He, PhD, Research Associate (ARP)
David L Evers, PhD, Research Associate (ARP)
Carol B Fowler, PhD, Research Associate (ARP)
Robert E Cunningham, MS, Biologist and Histologist (GS)
Ingrid E Chesnick, BS, Technician/Student (ARP)

## IMPACT

***Biotoxin and Disease Biomarker Detection:***

We are developing ultra-sensitive field-deployable and clinical assay systems for detecting biological toxins and disease biomarkers with high specificity and sensitivity. We have developed an assay called liposome polymerase chain reaction (LPCR) for the detection of toxins in biological and environmental specimens. Using this assay format, we have developed the most sensitive test currently available for the detection of botulinum neurotoxin type A. This assay is 10,000-times more sensitive than the mouse bioassay for the detection of botulinum toxins. This research is critical to homeland security, the protection of military personnel in combat or peacekeeping operations, and the forensic analysis of terrorist incidents. A patent application for our assay method was prepared and is under evaluation by the US Patent and Trademark Office. This work was funded by a grant from the Peer Reviewed Medical Research Program (PRMRP) supplement to the US Army Medical Research and Materiel Command (USAMRMC). We were awarded a grant from the Veterans Health Administration in 2007 to further develop this assay and to develop an ultra-sensitive activity assay for botulinum toxins. The goal of this work is the development of a validated clinical assay to supplement or replace the mouse bioassay for the detection of botulinum toxin. During 2007, we have modified the LPCR assay format so that it can detect disease biomarkers, such as carcinoembryonic antigen (CEA) and the HIV-1 protein p24 in human serum. This method, which uses antibodies, is called the immunoliposome polymerase chain reaction (ILPCR) assay. This antibody-based assay can detect these disease biomarkers at concentrations down to 10-16M (or ~6,000 molecules), well below the capabilities of current clinical assays. Thus, the LPCR assay format has the potential to revolutionize the early detection of biomarkers for diseases, such as cancer. Grant applications were submitted during 2007 to continue this work and a manuscript describing the ILPCR assay for CEA has been submitted for publication. A memorandum of agreement is being prepared for a collaborative effort between the Biophysics Division and SuperArray BioSciences Corporation, Frederick, MD, for commercializing the ILPCR assay.

***Chemistry of Formalin Fixation:***

We are developing methods to reverse the effects of formalin fixation on proteins and RNA so that these molecules can be recovered from formalin-fixed paraffin-embedded (FFPE) tissues for retrospective proteomic and genomic analyses. If successful, this research could dramatically improve our ability to diagnosis and treat numerous diseases. These methods are also highly relevant to the evaluation of formaldehyde-treated pathology specimens obtained from

military casualties that have been exposed to infectious or toxic biowarfare agents. During the past year we have made substantial progress in the development of methods to recover proteins from FFPE tissues in a form suitable for proteomic analysis. We developed a tissue surrogate model system to study the effects of histological processing on the properties of formalin-fixed proteins. This publication was a featured article in the August 2007 edition of Laboratory Investigation. Based upon the results of this work, we developed a high-pressure method for recovering proteins from FFPE tissue surrogates. A publication describing this highly successful method was submitted in 2007 and has subsequently appeared in the February 2008 edition of Laboratory Investigation. We are now applying these methods to cells and tissues to see if the high-pressure method translates to archival FFPE tissues. Our studies on methods to recover RNA from FFPE tissues have lead to one publication in 2007 with a second manuscript submitted for publication. The latter study has identified treatment of formalin-fixed RNA with xylene and paraffin as key steps during histology that result in RNA degradation into short fragments. The mechanism responsible for this process is currently under investigation. The work described above is being funded by two grants from the National Cancer Institute. We have continued our collaborated with the Armed Forces DNA Identification Laboratory (AFDIL) to apply nucleic acid recovery methods developed in our laboratory to the recovery of trace DNA from bone specimens recovered from the Korean conflict.

***Studies of Bone Development and Tissue Engineered Bone Implants:***

Traumatic bone injury and bone disease constitute the majority of medical cases of active duty personnel costing the military millions of dollars and thousands of lost man-hours per year. We are actively involved in using magnetic resonance microscopy (MRM) to develop and evaluate tissue engineered bone implants for reconstructive bone surgery and to evaluate bone disease. We employ MRM as a non-invasive high-resolution imaging modality to assess bone repair, bone and cartilage growth, and the infiltration of bone matrix into various scaffold materials. The goal of this work is to develop tissue engineered bone implants for repair of injured or diseased bone, and to compare the effectiveness of these constructs against more traditional strategies involving bone grafts. The results of this research will have a significant impact in the medical treatment and rehabilitation of active duty military personnel and Veterans. Research during 2007 has identified manganese as an ideal surrogate for studying calcification and bone development in avian cell culture model systems. During 2007 we have also developed collagen and calcium specific MRI imaging probes to study the molecular mechanisms involved in bone development and regeneration. Collaborative studies of tissue engineered bone implants with Dr. William Landis at the University of Ohio Medical Scholl have continued during 2007. The work is being funded by a 4-year R01 grant from the National Institutes of Health.

***Traumatic Brain Injury Research:***

During 2007 the Biophysics Division has entered into an agreement with Dr. David Moore, MD, PhD, Scientific Director of the Defense and Veterans Brain Injury Center (DVBIC) to develop a research program to study the mechanisms of blast-induced traumatic brain injury. This program will involve the application of magnetic resonance imaging and other biophysical techniques to model systems, animal models, and biopsy specimens that have been subjected to blast forces that simulate those experienced by the detonation of improvised explosive devices used in the Afghanistan and Iraq conflicts. The goal of this research is to identify improved methods to detect, treat, and mitigate the effects of blast on our military service personnel.

***Additional Military Relevant Research:***

We are employing MRM in an on-going project in collaboration with Dr. Darlene Ketten of the Woods Hole Oceanographic Institute and Harvard Medical School to image the membranous labyrinths of the human cochlea. These studies have the goal of understanding hearing loss in traumatic ear injuries and optimizing the development and placement of cochlear implants in restoring auditory function. This project has expanded during 2007 to include the study of sea mammals, specifically whales and dolphins, to determine the effects of naval operations on the welfare of these animals. We are also employing MRM for wound pattern analysis in skin and eyes for applications in forensic medicine. An externally funded collaborative research project with the Department of Genitourinary Pathology to image prostatic carcinoma by MRM, initiated during 2005, has continued during 2007.

***Publicity and Honors:***

1. Our publication "Tissue surrogates as a model for archival formalin-fixed paraffin-embedded tissues," by Fowler et al, was a featured articled in *Laboratory Investigation*, August

87(8):2007. It was described in the synopsis "Optimizing Proteomics through Tissue Surrogates", which appeared in "Inside Lab Investigation" on page 728
2. Invited distinguished lecturer at the Mass Spectrometry Interest Group meeting, May 29, 2007, NCI-Frederick, Frederick, MD. This talk was entitled "Recovering Proteins and RNA from Formalin-Fixed, Paraffin-Embedded Tissues" (Jeffrey T. Mason).
3. Invited participant of the "Strategic Planning Conference," National Institutes of General Medical Sciences, 12-13 April, 2007, Bethesda, MD. This conference was convened to solicit advice from distinguished members of the scientific community on the future research areas and programs that should be supported and developed by the National Institute of General Medical Sciences, NIH (Jeffrey T Mason).
4. Invited participant in the inaugural planning meeting for the Visible Human Project, 16-17 January, 2007, Washington, DC (Kimberlee Potter).

## CONSULTATION

The AFIP Magnetic Resonance Imaging Facility serves to provide magnetic resonance microscopic imaging services to the AFIP and other military and civilian collaborators. Magnetic resonance microscopy techniques in cardiovascular, pediatric, forensic, otologic, orthopedic, genitourinary, and ophthalmic pathology are being developed for analysis of cases for research and potential diagnostic applications.

| *Cases* | *Completed* |
|---|---|
| Interdepartmental | 10 |
| Total | 10 |

## EDUCATION

### *Courses Taught:*

1. June 11-12, 2007: "Techniques in Flow Cytometry", Foundation for Advanced Education in the Sciences, NIH, Bethesda, MD, RE Cunningham.
2. August 30, 2007: Conducted workshop on preparation of liposomes for use in the liposome polymerase chain reaction, SuperAray BioSciences Corporation, Frederick, MD, JT Mason.
3. December 17-18, 2007: Conduced workshop on recovery of formalin-fixed tissue for analysis by Western plotting, George Washington University, Washington, DC, CF Fowler.
4. September 24-25, 2007: Conducted workshop on imaging crustacean specimens by magnetic resonance spectroscopy, AFIP, Rockville, MD, K Potter.

### *Continuing Scientific Education:*

1. March19-23, 2007: "Proteomics: principles and methods," The Foundation for Advanced Education in the Sciences, National Institutes of Health, Bethesda, MD, JT Mason, CB Fowler.
2. April 23-25, 2007: "Operation of IStudio archiving systems software and hardware" Young Minds, Inc., Santa Barbara, CA, K Potter, IE Chesnick.
3. November 19-22, 2007: "Mass spectrometry analysis and proteomics using a linear ion-trap LC/MS," Agilent Corporation, Rockville, MD, CB Fowler, EL Evers, JT Mason.
4. December 12-14, 2007: "Operation of IPLab software for analysis of microscopic images with the Leica DM RXA microscope" BioVision Technologies, Exton, PA, K Potter, IE Chesnick, CB Fowler.

### *Department Trainees:*

Ingrid Chesnick, Research Assistant, Masters Thesis, Hood College, Frederick, MD (Mason JT, thesis advisor; Potter K, project director)

### *Presentations:*

1. February 6, 2007: "Detection of bio-threat agents using the liposome polymerase chain reaction," Cepheid Corporation, Sunnyvale CA, JT Mason.
2. April 25–30, 2007: "The Use of Tissue Surrogates to Study Formaldehyde Fixation of Proteins" Workshop on tissue Fixation for Molecular Pathology and Cell Biology, Annual Histochemical Society Meeting, Washington, DC, Mason JT .
3. April 28–May 2, 2007: "Focal myoepithelial layer disruptions and basement membrane disappearance are correlated events: implications for breast tumor invasion" FASEB Annual

Meeting, Washington, DC, YG Man, JT Mason, TN Vinh, SM Zhang, MD Stamatakos.
4. May 10, 2007: "High-sensitivity assay formats using the liposome polymerase chain reaction," BioTrove Incorporated, Woburn, MA, JT Mason.
5. May 19–25, 2007: "Evaluation of bioreactor-cultivated bone by magnetic resonance microscopy," International Society of Magnetic Resonance in Medicine, Berlin, Germany, IE Chesnick, F Avallone, RD Leapman, WJ Landis, N Eidelman, K Potter.
6. May 19-25, 2007: "Spatial mapping of mineralization with manganese-enhanced magnetic resonance microscopy," International Society of Magnetic Resonance in Medicine, Berlin, Germany, IE Chesnick, JA Centeno, TI Todorov, K Potter.
7. May 29, 2007: "Recovering proteins and RNA from formalin-fixed, paraffin-embedded tissues," Mass Spectrometry Interest Group Meeting, NCI-Frederick, Frederick, MD, JT Mason.
8. June 25-37, 2007: "Liposome polymerase chain reaction for the detection of biological toxins," Nucleic Acids Based Technologies Symposium, Baltimore, MD, J He, JT Mason.
9. August 5-10, 2007: "Liposome polymerase chain reaction assays for biological toxins," 10th Annual Force Health Protection Conference, Louisville, KY, JT Mason, J He, TJ O'Leary.
10. August 5-10, 2007: "Non-destructive studies of tissue-engineered phalanges by magnetic resonance microscopy and X-ray microtomography," 10th Annual Force Health Protection Conference, Louisville, KY, K Potter, DE Sweet, P Anderson, GN Davis, N Isogai, S Asamura, H Kusuhara, JT Mason, WJ Landis.
11. August 30, 2007: "Liposome polymerase chain reaction as a universal assay format for disease biomarkers," Supper Array Corporation, Frederick, MD, JT Mason.
12. November 7-10, 2007: "Modeling formaldehyde fixation of mRNA," Association for Molecular Pathology, Los Angeles, CA, CB Fowler, DL Evers, JT Mason, TJ O'Leary.

## RESEARCH

### *Journal Articles and Book Chapters Published:*

1. Chesnick IE, Avallone F, Leapman RD, Landis WJ, Eidelman N, Potter K. Evaluation of bioreactor-cultivated bone by magnetic resonance microscopy and FTIR microspectroscopy, *Bone*. 40:904-912;2007.
2. Chesnick IE, Todorov TI, Centeno JA, Small JA, Potter K. Manganese-enhanced magnetic resonance microscopy of mineralization, *Magnetic Resonance Imaging*. 25:1095-1104; 2007.
3. Evers DL, Fowler CB, Cunningham RE, Mason JT, O'Leary TJ. A novel HPLC method reveals that precipitation of 2'-deoxyadenosine 5'-monophosphate with lithium perchlorate/ acetone leads to base depurination. *Anal Biochem*. 370:255-257;2007.
4. Fowler CB, Cunningham RE, Waybright TJ, Blonder J, Veenstra TD, O'Leary TJ, Mason JT. High pressure treatment promotes the reversal of formaldehyde cross-links and improves protein extraction from a formalin-fixed paraffin-embedded tissue surrogate. *Laboratory Investigation*. (Epub 24 December, 2007).
5. Fowler CB, Cunningham RE, O'Leary TJ, Mason JT. Tissue surrogates as a model for archival formalin-fixed paraffin-embedded tissues, *Lab Invest*. 87: 836-846;2007.
6. He J, Kuschner RA, Dewar V, Voet P, Asher LV, Vaughn DW. Characterization of monoclonal antibodies to hepatitis E virus (HEV) capsid protein and identification of binding activity. *J Biomed Sci*. 14:555-563; 2007.

### *Book Chapters:*

1. Cunningham RE. Overview of flow cytometry and fluorescent probes for cytometry. In: *Immunocytochemical Methods and Protocols*, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 249-256.
2. Cunningham RE. Tissue disaggregation. In: *Immunocytochemical Methods and Protocols*, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 275-260.
3. Cunningham RE. Indirect immunofluorescent labeling of viable cells. In: Immunocytochemical Methods and Protocols, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 261-263.
4. Cunningham RE. Indirect labeling of fixed cells. In: Immunocytochemical Methods and Protocols, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 265-270.
5. Cunningham RE. Fluorescent labeling of DNA. In: Immunocytochemical Methods and Protocols, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition,

Humana Press, Totowa, NJ, 2007, pp 271-273.
6. Cunningham RE. Deparaffinization and processing of pathologic material. In: Immunocytochemical Methods and Protocols, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 275-279.

***Abstracts:***

1. Fowler CB, Cunningham RE, O'Leary TJ, Mason JT. Recovery of proteins from formalin-fixed paraffin-embedded tissues for proteomic studies. *Protein Science*. 16:475a; 2007
2. Mason JT, Xu L, Sheng X-M, O'Leary TJ. Liposome polymerase chain reaction assay for the high sensitivity detection of biological toxins. *Biophysical Journal*. 91:1550a; 2007
3. Mason JT, Cunningham RE, O'Leary TJ, Fowler CB. Biophysical properties of proteins treated with formaldehyde. *Protein Science*. 16:525a; 2007
4. Man Y-G, Stamatakos M, Mason JT, Gardner WA. Prostate tumor cells near and distant from focally disrupted basal cell layers have different expression profiles. *Molecular and Cell Biology*. 18:1843a; 2007.
5. O'Leary TJ, Fowler CB, Fabris D, aMason JT. Recovery of proteins from formalin-fixed paraffin-embedded tissues. *Biophysical Journal*. 91:1840a;2007.

Two journal articles are in press and four are submitted.

***Projects:***

1. Formalin fixation and recovery of RNA and protein, UBQI.
2. A field-deployable ultra-sensitive assay system for biological toxins using immunoliposome-DNA amplification hybrids, UBUC.
3. Nuclear microarrays for quantitative high-throughput molecular screening of tissue specimens, UBHP.
4. Correlation of NMR measurable parameters, UBAT.
5. Bone formation studies by magnetic resonance microscopy, UB5Q
6. NMR microscopy of metastatic disease, UBTV.

***Collaborators:***

**Military:**

1. Dr. Tiffany Heady, Walter Reed Institute of Army Research, Silver Spring, MD.
2. Dr. Michael Jaffe, Director, Defense and Veterans Brain Injury Center, Walter Reed Army Medical Center, Washington, DC.

**Civilian:**

1. Dr. Naomi Eidelman, American Dental Association, Gaithersburg, MD
2. Dr. Darlene Ketten, Harvard Medical School, Boston, MA
3. Dr. Gary Griffiths, Director of the Imaging Probe and Developmental Center, NHLBI, NIH, Gaithersburg, MD
4. Dr. William Landis, Northwestern Ohio Universities College of Medicine, Rootstown, OH
5. Dr. Lorraine Siperko, Northwestern Ohio Universities College of Medicine, Rootstown, OH
6. Dr. John Small, National Institutes of Standards and Technologies, Gaithersburg, MD
7. Dr. Paul Anderson, Queen Mary College, University of London, London, England
8. Dr. Graham Davis, Queen Mary College, University of London, London, England
9. Dr. Michael Thali, Institute for Forensic Medicine, University of Bern, Bern, Switzerland
10. Dr. Min You, SuperArray BioSciences Corporation, Frederick, MD
11. Dr. Isabell Sesterhenn, Genitourinary Pathology, AFIP
12. Dr. Jose Centeno, Environmental & Toxicologic Pathology, AFIP
13. Dr. Todor Todorov and Dr. Alan Koenig at the United Sates Geological Survey, Denver, CO
14. Dr. Sandi Kwee, Hamamatsu/Queen's PET Imaging Center, Queen's Medical Center, Honolulu, HI
15. Dr. William Oliver, Georgia Bureau of Investigation, Trion, GA
16. Dr. Jamie Downs, Regional Medical Examiner, Savannah, GA
17. Dr. Clive Taylor and Dr. Shan-Rong Shi , Keck School of Medicine, Los Angeles, CA
18. Dr David Moore, MD, PhD, Scientific Director, Defense and Veterans Brain Injury Center (DVBIC) Walter Reed Army Medical Center, Washington, DC
19. Dr. Jens Herberholz at the University of Maryland, College Park, MD

***New Collaborations Formed in 2007:***

1. Dr. Potter has initiated a pilot project with Dr. Gary Griffiths, Director of the Imaging Probe and Developmental Center, NHLBI, NIH to develop a novel bone imaging contrast

agent that can be activated by endogenous alkaline phosphatase.
2. Dr Mason, Dr. Fowler, and Dr. O'Leary have initiated a collaborative project with Dr. Clive Taylor and Dr. Shan-Rong Shi of the Keck School of Medicine, USC, to develop tissue surrogate standards for immunohistochemistry.
3. Dr. Potter has initiated a collaborative study with Dr. Claudia Guldimann at the University of Bern to provide high-resolution MRI images of the craniofacial nerves associated with the inner ear of canine specimens.
4. Dr. Mason and Dr. Potter are working with Dr. David Moore, MD, PhD, Deputy Director of Research, DVBIC on using magnetic resonance microscopy to study traumatic brain injury and to develop a center for traumatic brain injury research at the AFIP.
5. Dr. Potter is collaborating with Dr. Jens Herberholz at the University of Maryland to provide high-resolution manganese-enhanced MRI images of crayfish.
6. Dr. Potter is collaborating with Dr. Todor Todorov and Dr. Alan Koenig at the United Sates Geological Survey to obtain quantitative maps of mineralized deposits containing manganese using Laser-Ablation ICP-MS.
7. Dr. Mason and Dr. Fowler are collaborating with researchers at SuperArray, BioSciences Corporation, Frederick, Maryland on development of high-sensitivity assays for cytokines.

## PROFESSIONAL ACTIVITIES

### *Official Trips:*

1. January 25-26, 2007: National Institutes of Health, DOD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, MD, JT Mason.
2. January 16-17, 2007: Inaugural Planning Conference for the Visible Human Project, Washington, DC, K Potter.
3. March 29-30, 2007: Reviewer for Skeletal Biology Development and Diseases Study Section, Bethesda, MD, K Potter.
4. April 2-3, 2007: Reviewer for Special Emphasis Panel for Musculoskeletal, Oral and Skin Sciences, Bethesda, MD, K Potter.
5. National Institute General Medical Sciences Strategic Planning Conference, Bethesda, MD, 12-13 April, 2007, Mason, JT.
6. May 17-18, 2007: National Institutes of Health, DOD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, MD, JT Mason.
7. May 21-22, 2007: Reviewer for Endocrinology Merit Study Section, Veterans Health Administration, Washington, DC, JT Mason.
8. July 16-17, 2007: Reviewer for Musculoskeletal Tissue Engineering Study Section, National Institutes of Health, Bethesda, MD, K Potter.
9. National Institutes of Health, DOD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, MD, 27-28 September, 2007, JT Mason.
10. October 4-5, 2007: Reviewer for Skeletal Biology Development and Diseases Study Section, NIH, K Potter.
11. November 15-16, 2007: Reviewer for Special Emphasis Panel for Musculoskeletal, Oral, and Skin Sciences, NIH, K Potter.
12. December 10-11, 2007: Reviewer for Endocrinology A&B Study Section, Veterans Administration, JT Mason.

### *Editorial Work:*

1. Reviewed manuscripts for *Journal of Histochemistry and Cytochemistry*, *Journal of Immunological Method*s, *FEBS Letters*, *Journal of Membrane Molecular Biology*, and *Analytical Chemistry* (7 total), JT Mason.
2. Reviewed manuscripts for *Journal of Magnetic Resonance Imaging* and *Journal of Magnetic Resonance in Medicine* (3 total), K Potter.
3. Editorial Advisory Board, *Journal of Membrane Molecular Biology*, JT Mason.

## GRANT AND CONTRACT FUNDING

### *Active During 2007:*

1. R21-CA118477-01 (O'Leary/Mason, Co-PIs) ..... 06/01/06 – 05/31/09
   National Cancer Institute
   Recovery of RNA from formalin-fixed tissues
2. R33 CA107844-01 (O'Leary/Mason, Co-PIs) ..... 01/01/03 – 03/31/08

National Cancer Institute
Recovery of protein from formalin-fixed tissues

3. R01 AR051446-01A1 (K Potter, PI) ..... 01/01/04 – 12/31/08
   National Institutes of Health/NIAMS
   Bone formation studies by magnetic resonance microscopy
4. DAMD17-04-1 (A Kwee, PI) ..... 01/01/05 – 12/31/07
   USAMRMC/PRMRP
   Cancer Localization in the Prostate with F-18
   Fluorocholine Positron Emission Tomography
   (K Potter, Collaborative Investigator)
5. BCTR0706983 (Y-g Man, PI) ..... 07/01/07 – 06/30/09
   Susan G. Komen Breast Cancer Foundation
   Potential values of CAPC in early detection, treatment and prevention
   of breast cancer invasion
   (J Mason, Co-investigator)
6. VA01-0701207 (Mason, JT/O'Leary, TJ, Co-PIs) ..... 07/01/07 – 06/30/11
   Department of Veterans Affairs
   Ultra-sensitive Detection of Biological Toxins

***Applications Submitted or Pending 2007:***

1. Research Resource Application (N Eidelman, PI) ..... approved
   National Center for Research Resources/NIH ..... funding pending
   Application for a Nicolet Continuum XL FT-IR
   Imaging Microscope
   (K Potter, Co-Investigator)
2. R21-CA134359-01 (Fowler, CB, PI) ..... pending review ..... 07/01/08 – 06/31/10
   National Cancer Institute
   Recovery of Proteins from Formalin-Fixed
   Tissues using Elevated Hydrostatic Pressure
3. R01–GM01125-02A (W. Landis, PI) ..... pending review ..... 07/01/08 – 06/31/12
   NIH/NIGMS
   Tissue Engineered Models of Human Phalanges
   (K Potter, Co-Investigator)
4. W81XWH-07-TBI-MRC (DF Moore, PI) ..... pending review ..... 06/01/08 – 05/31/09
   USAMRAA
   DOD Traumatic Brain Injury
   Multidisciplinary Research
   Consortium Award
   (JT Mason and K Potter, Co-Investigators)

William D. Craig CDR, MC, USN
Chairman
Date of Appointment—11 December 2006

# DEPARTMENT OF RADIOLOGIC PATHOLOGY

## MISSION

To provide preeminent educational programs, research, and consultation services to the Armed Forces Institute of Pathology, the Department of Defense, and the global medical community using a unique archive of radiologic and pathologic material.

## ORGANIZATION

The department is organized into seven sections and the Office of the Chairman.

Gastrointestinal Radiology
Genitourinary Radiology
Musculoskeletal Radiology
Neuroradiology
Pediatric Radiology
Pulmonary and Mediastinal Radiology
Forensic Radiology

## STAFF

*Medical*

William D. Craig, CDR, MC, USN Chairman and Chief, Genitourinary Radiology
Ellen M. Chung, LTC, MC, USA, Chief, Pediatric Radiology
Aletta A. Frazier, MD, Physician Medical Illustrator, ARP
Jeffrey R. Galvin, MD, Chief, Pulmonary and Mediastinal Radiology, ARP
Leonard M. Glassman, MD, FACR, Chief, Mammography, MOU-Washington Radiology Associates, PC
Howard T. Harcke, COL, MC, USA, Chief, Forensic Radiology
(A) Alice Boyd Smith, Lt Col, MC, USAF Chief, Neuroradiology
Angela D. Levy, LTC, MC, USA, Chief, Gastrointestinal Radiology
Mark D. Murphey, MD, Chief, Musculoskeletal Radiology, ARP
(A) Naomi P. Alazraki, MD Distinguished Scientist, ARP
(A) John Rees, MD, Associate Radiologist, American Red Cross
(A) John Rhee, MD, Junior Scientist, Musculoskeletal Radiology, ARP

*Administrative*

(D) Adahlia M. Glover, Case Manager, ARP
Monte Grace, HM2 (FMF), USN, NCOIC, Radiologic Pathology Correlation course.
Donald E. Hatley, Administrator, ARP
Jessica Holquin, Digitization Supervisor, ARP
(A) Danqing Liu, Administrative Assistant, ARP
Kathy M. Rahimly, Case Manager, ARP, Part-time
(A) Katherine E. Short Digitization Specialist, ARP
Anika Torruella, Editorial Assistant, ARP
Alethia B. West, Case Management, Supervisor, ARP
Carl D. Williams, Radiologic Pathology Correlation Coordinator and Categorical Course

Coordinator, ARP
Ben Yohannes, Systems Manager, Contract Employee

## IMPACT

The entire staff of the Department of Radiologic Pathology made significant contributions to the education of military and civilian radiology residents and radiologists' worldwide utilizing radiologic-pathologic correlation and to a wide range of military activities affiliated with the AFIP. The department's world-renowned educational program, the radiologic-pathologic correlation course, was held five times in 2007 with 1,291 radiology residents in attendance. Diagnostic radiology residents from all 190 United States residency programs participated in this didactic educational program. Without substantial federal assistance, this financially independent course is the sole source for all of the department's non-military salaries, equipment, and expenditures and generated revenues of nearly $3.3 million. The course also provided over 1,285 new cases to the over 94,000 cases held in the department's archives of radiologic pathologic correlation. This valuable and unique repository is the basis for all of the department's research conducted by the department's faculty, leading to 52 peer-reviewed articles and more than 300 lectures presented in numerous radiological science symposia. The 6th edition of "Radiologic Pathology" the correlation course's soft cover syllabus for the RADPATH correlation course was released for public sale in July 2007 and represented a major expansion of this text with three volumes, captioned figures, references, and an index. This is the first in the series of books to include a complete electronic file download of the book. This book has been enthusiastically received since inception and hardcover sales continue with vigor. The mission of the department is enhanced through the RADPATH Luminary, a quarterly electronic newsletter that is released to more than 18,000 email addresses or radiologists and physicians worldwide. The online educational portal Radiologic Pathology at Ask AFIP combines the case material, the 2005–2008 Radiologic Pathology syllabus, and scientific articles by the departmental staff into an interactive platform that allows efficient and timely review of a wide variety of topics as well as self-assessment for the user and is currently subscribed by 4719 members.

## DIAGNOSTIC CONSULTATION

The department conducts only intramural radiologic consultation. Provided 194 man-days of onsite radiologic consultation for forensic autopsies at the Charles C. Carson Port Mortuary, Dover Air Force Base, and Dover, DE in direct support of the Global War on Terrorism, Operation Iraqi Freedom and Operation Enduring Freedom. There were 692 real-time consultations. An additional 423 case review consults were by request or in conjunction with research studies.

## EDUCATION

***Courses:***

**1. AFIP Radiologic Pathology Courses:**

- Radiologic Pathology correlation Course: Five courses were conducted in 2007. These were attended by 1,291 radiology residents (56 federal, 1,235 nonfederal). Approximately 145 man-days of training were provided. The course remains subscribed nearly 2 years in advance and is attended by virtually all civilian and military residents from every US diagnostic radiology residency program. NearlyTwo hundred residents from other countries also attend. The Radiologic Pathology Course is also offered to radiologists who have completed their training. A complete listing of lectures provided by the department staff is located in "Presentations."

- Weekend courses: One course was provided. A total of 128 health professionals attended for a total of 256 attendee-days and 15.5 hours of CME credit was offered for each attendee.

| *Course* | *Enrollment* | *CME credit hours* |
|---|---|---|
| 21st Annual Washington Neuroradiology Course | 128 | 3968 |

**2. AFIP Courses in Collaboration with Foreign Radiological Societies:**

The Department of Radiologic Pathology provided the curriculum and faculty for four international short courses held in Spain, Austria, Portugal, and the Netherlands and sponsored by the radiological societies in these locales, in association with the AFIP and the ARP. Members of the department were also featured in specific sections within the course curricula of several major international radiological symposia in Brazil, Japan, France, Germany, Argentina and the Netherlands. These courses ensured dissemination of the principles of radiologic-pathologic

correlation to radiologists and physicians that do not traditionally participate in the department's Radiologic Pathology Courses. The courses were extremely well received and it is expected that these will continue on an annual basis. For specific listing of lectures, please see "PRESENTATIONS."

**3. Radiologic Pathology Participation in Courses Held By Other AFIP Departments:**
The staff of the Department of Radiologic Pathology provided lectures in courses hosted by Chest Pathology.

***Trainees:***
Junior Scientists begin a one-year post-residency year in graduate medical education in selected subspecialty areas of radiology. The department provided this training to one radiologists in the musculoskeletal radiology section under the direction of the section chief, Dr. Mark Murphey, in 2007. Jorge A. Vidal MD completed his Junior Scientist year in June 2007 and John H. Rhee MD began his junior scientist year in July 2007. Dr. Javier Arneiz a fourth-year radiology resident sponsored by Fundación XIV Congresso Internacional de Radiologia and Sociedad Espanola de Radiologia (SERAM) in Spain, collaborated with Dr. William D. Craig, section chief of Genitourinary Radiology, on selected projects.

***Faculty Appointments:***

**Craig WD**
1. Department of Radiology, National Naval Medical Center
2. Associate Professor, Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences

**Chung EM**
1. Department of Radiology, Walter Reed Army Medical Center
2. Associate Professor, Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences
3. Visiting Professor Georgetown University Department of Radiology

**Frazier AA**
Clinical Associate Professor, Department of Radiology, University of Maryland Medical System

**Galvin JR**
Clinical Professor, Department of Radiology, University of Maryland Medical System

**Glassman LM**
1. Clinical Professor, Department of Radiology, George Washington University School of Medicine
2. Clinical Professor, Department of Radiology, Georgetown University School of Medicine

**Harcke HT**
1. Professor of Radiology and Pediatrics, Jefferson Medical College, Philadelphia, PA
2. Adjunct Professor of Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences
3. Radiologist Emeritus and Director of Imaging Research, Department of Medical Imaging, Alfred I DuPont Hospital for Children, Wilmington, DE

**Levy AD**
1. Department of Radiology, Walter Reed Army Medical Center
2. Chief, Abdominal Imaging, Department of Radiology, Uniformed Services University of the Health Sciences, Bethesda, MD

**Murphey MD**
1. Associate Professor, Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences
2. Department of Radiology, Walter Reed Army Medical Center

**Smith A**
Associate Professor, Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences

***Honors:***

**Harcke HT**

1. Best Doctors in America (2007-2008)
2. Defense Meritorious Service Medal – US Army Service 2005-2007

**Chung EM**

First recipient of Georgetown University Department of Radiology 2007 Outstanding Volunteer Faculty

**Murphey MD**

2007 Outstanding Teacher Award from the Department of Radiology, Walter Reed Army Medical Center

***Presentations:***

The staff of the Department of Radiologic Pathology provided more than 317 presentations during the calendar year, with 159 occurring within the department's radiologic pathologic correlation course. The Staff and extended faculty of the department of radiologic Pathology lectured at 106 Radiologic Pathology courses held outside of the AFIP. Faculty members participated as visiting professors for 11 different academic institutions and delivered 52 presentations in other venues.

***AFIP Radiologic Pathology Course Lectures:***

Department of Radiologic Pathology staff in the Radiologic Pathology Correlation Course held five times in 2007 provided the following lectures.

CHEST RADIOLOGY

**Jeffrey R. Galvin, MD**

1. An Approach to Diffuse Lung Disease, Sarcoidosis
2. The Idiopathic Interstitial Pneumonias
3. Airways Disease: The Movement form Anatomic to Physiologic Assessment
4. Inhalational Lung Disease (Asbestosis and Silicosis)
5. Pulmonary Lymphoid Disorders
6. Angiitis and Granulomatosis
7. The Pulmonary Complications of Bone Marrow Transplantation
8. Tuberculosis
9. Bronchogenic Carcinoma: Radiologic-Pathologic Correlation
10. Chest Seminar I
11. Chest Seminar II

**Aletta Frazier**

12. Pulmonary Hypertension
13. Pulmonary Metastases
14. Melissa L. Rosado de Christenson, MD FACR
15. Differential Diagnosis of Mediastinal Masses
16. Seminar: Where is the lesion?

**Rosita M. Shah. MD**

17. Pneumonia: Usual and Unusual Organisms

**Gerald F. Abbott, MD**

18. Uncommon Malignant Tumors of the Lung
19. Benign Tumors of the Lung and Tumor-like Lesions
20. Pleural Disease I
21. Pleural Disease II and Chest Wall

**Leonard M. Glassman, MD**

22. Pathologic Basis of Breast Imaging
23. Breast Masses, Benign and Malignant
24. Breast Calcifications
25. Classic Breast Lesions
26. Uncommon Signs of Breast Cancer
27. Breast Disease in Men and Young Women

## GASTROINTESTINAL RADIOLOGY

**Angela D. Levy, COL, MC, USA**

28. Benign Hepatic Neoplasms
29. Malignant Hepatic Neoplasms
30. Hepatic Infections
31. Chronic Liver Disease
32. Benign Biliary Disease
33. Biliary Neoplasms
34. Approach to the Imaging Differential Diagnosis of Gallbladder and Biliary Disease
35. Pancreatic Neoplasms
36. Gastrointestinal Malignancies
37. Tumors and Tumor-like Lesions of the Peritoneum and Mesentery
38. Idiopathic Inflammatory Bowel Disease
39. ™Gastrointestinal Seminar I: Abdominal Gas
40. Gastrointestinal Seminar II: The Pancreatic Duct
41. Gastrointestinal Seminar III: Meckel Diverticulum
42. Gastrointestinal Seminar IV: Beyond Appendicitis
43. Gastrointestinal Seminar V: Approach to the Imaging Differential Diagnosis of Inflammatory Diseases of the Colon

**Faye C. Laing, MD**

44. Cholelithiasis and Cholecystitis

**Marc S. Levine, MD**

45. Inflammatory Disease of the Esophagus
46. Tumors of the Esophagus
47. Peptic Ulcer Disease

**Robert K. Zeman, MD**

48. Strategies and Characterization of Liver Lesions

**Francis J. Scholz, MD**

49. Small Bowel Obstruction
50. Mesenteric Ischemia and Mimics
51. Malabsorption Syndromes
52. Polyposis Syndromes

**Deborah Rubens, MD**

53. The Spleen
54. Seminar: Portal Venous Doppler

## GENITOURINARY RADIOLOGY

**William D. Craig, CDR, MC, USN**

55. Renal Neoplasms: Approach to Renal Masses
56. Retroperitoneum

**Peter L. Choyke, MD**

57. Cystic Diseases of the Kidney
58. Imaging of Prostate Cancer

**Deborah J. Rubens, MD**

59. Radiologic Evaluation of the Scrotum
60. Seminar: Portal Hypertension

**Brent J. Wagner, MD**

61. Imaging of Ovarian Masses
62. Adrenal Imaging in Adults

**Jade Wong You Cheong, MD**

63. Non-Neoplastic Disorders of the Ovary and Adnexae
64. Imaging of Solid Organ Transplants
65. Imaging of the Urinary Bladder and Urethra

**Paula J. Woodward, MD**

66. Imaging of Uterine Disorders

67. First Trimester Ultrasound
68. Fetal CNS Malformations
69. Fetal Body Anomalies
70. Genitourinary Seminar I: MSAFP
71. Genitourinary Seminar II: Renal Calcifications

**David S. Hartman, MD**

72. The Neglected Nephrogram
73. Problem Renal Masses

**Faye C. Laing, MD**

74. Ultrasound of the Cervix

## MUSCULOSKELETAL RADIOLOGY

**Mark D. Murphey, MD**

75. Radiologic Assessment of Joint Replacement and Imaging of Bone Grafts
76. Musculoskeletal Manifestations of Chronic Renal Insufficiency
77. Fundamental Concepts of Musculoskeletal Neoplasms: Radiographs
78. Fundamental Concepts of Musculoskeletal Neoplasms: CT and MRI
79. Osteoid Lesions of Bone
80. Cartilaginous Lesions of Bone
81. Fibrous Lesions of the Musculoskeletal System
82. Alphabet Soup and Cystic Lesions of Bone
83. Juxtaarticular Masses
84. Musculoskeletal Angiomatous Lesions
85. Paget Disease
86. Musculoskeletal Infection
87. Musculoskeletal Seminar I
88. Musculoskeletal Seminar II
89. Musculoskeletal Seminar III
90. Musculoskeletal Seminar IV
91. Musculoskeletal Seminar V
92. Mark Anderson, MD
93. MRI of the Knee: Part 1
94. MRI of the Knee: Part 2
95. MRI of the Wrist
96. MRI of the Ankle and Foot

**Mark J. Kransdorf, MD**

97. Lesions of Unknown Histogenesis: Ewing Sarcoma and Langerhans Cell Histiocytosis
98. Common Lipomatous Soft Tissue Tumors
99. Metabolic Bone Disease
100. Osteonecrosis

**Donald J. Flemming, CAPT, MC, USN**

101. Approach to Arthritis (Inflammatory Arthropathies and Osteoarthritis)
102. MRI of the Rotator Cuff

**Timothy Sanders, COL, MC, USAF**

103. Imaging of Glenohumeral Instability

**Charles S. Resnik, MD**

104. Crystal Deposition Diseases and Neuropathic Osteoarthropathy

**Mark Schweitser, MD/William Morrison, MD**

105. MRI of the Elbow

**Michael Mulligan, MD**

106. Mets, Myeloma, Lymphoma

**Thomas Lee Pope, MD**

107. Imaging of Hematologic Disorders

108. Generalized Musculoskeletal Disorders

NEURORADIOLOGY

**Alice Boyd Smith, Lt. Col. USAF MC**
109. Imaging of Demyelinating Diseases
110. Neuroradiology Seminar I
111. Neuroradiology Seminar II

**Patricia A. Hudgins, MD**
112. Imaging of Intracranial Infections
113. Sella and Central Skull Base
114. Imaging of the Infrahyoid Neck
115. Paranasal Sinuses

**Kelly K. Koeller, MD, FACR**
116. Cerebral Intraventricular Neoplasms
117. Lymphoma and Uncommon Neuroepithelial Tumors
118. Imaging of the Temporal Bone: Anatomy and Congenital Lesions
119. Imaging of the Temporal Bone: Infectious and Neoplastic Lesions
120. Imaging of the Orbit: The Globe and Conal Lesions
121. Imaging of the Orbit: Intraconal and Extraconal Lesions

**Howard A. Rowley, MD**
122. Cerebral Ischemia
123. Lesions of the Basal Ganglia
124. Erin Simon Schwartz, MD
125. Congenital Brain Anomalies
126. Congenital Spinal Anomalies

**James G. Smirniotopoulos, MD**
127. The WHO 2000 Brain Tumor Classification
128. Non-Astrocytic Gliomas
129. Neoplasms of the Meninges
130. Pineal Region Masses
131. Other Non-Glial Tumors
132. The Phakomatoses

**Wendy R. K. Smoker, MS, MD, FACR**
133. Imaging of the Suprahyoid Neck I: Superficial, Parapharyngeal and Carotid Spaces
134. Imaging of the Suprahyoid Neck II: Masticator and Parotid Spaces
135. Imaging of the Suprahyoid Neck III: Pharyngeal Mucosal Space and Oral Cavity
136. Spine I: Degenerative Disease, Cystic Lesions, and Miscellaneous
137. Spine II: Infection and Neoplasms
138. Spine III: Vascular Lesions

*PEDIATRIC RADIOLOGY*

**Ellen Chung, MD**
139. Urinary Tract Infection in Children
140. Acute Gastrointestinal Disorders in Neonates
141. Acute Gastrointestinal Disorders in Infants and Young Children
142. Diseases Affecting the Pediatric Airway
143. Vascular Rings and Slings
144. Pediatric Cystic Renal Disease
145. Radiology of Child Abuse
146. Pediatric Seminar I: Pulmonary Infections and Their Sequelae
147. Pediatric Seminar II: Bone Dysplasias and Disorders
148. Marilyn Siegel, MD
149. Pediatric Renal Tumors
150. Pediatric Adrenal Tumors
151. Pediatric Pelvic Masses
152. Congenital Lung Malformations

153. Medical Lung Disease in Children
154. Imaging of Congenital Heart Disease-Beyond the Plain Film

**Gael J. Lonergan, COL, MC, USAF**
155. Congenital Heart Disease

**Dorothy I Bulas, MD**
156. Neonatal Brain: Neurosonography

**William E. Shiels II, DO**
157. Pediatric Liver Tumors
158. Pediatric Hip Sonography: Dynamic Pathology and Intervention

***Department of Radiologic Pathology Courses:***

**January 30, 2007, Utrecht Holland, The Dutch Radiological Society**

1. "Teaching Holland, Acute Scrotum, G Lonergan.
2. "Teaching Holland, Cranial Sonography, G Lonergan.
3. "Teaching Holland, Renal tumors in children, G Lonergan.
4. "Teaching Holland, Common musculoskeletal infections, M Murphey.
5. "Teaching Holland, Alphabetical soup: cystic lesions of bone, M Murphey.
6. "Teaching Holland, Unknown session, M Murphey.
7. "Teaching Holland, Inflammatory and crystal arthritis, M Murphey, K Koeller.
8. "Teaching Holland, Imaging of soft tissue tumors: a systemic approach, M Murphey, K Koeller.
9. "Teaching Holland, Spinal cord Neoplasms & their mimics, M Murphey, K Koeller.
10. "Teaching Holland, Central nervous system infections, K Koeller.
11. "Teaching Holland, Lymphoma & uncommon cerebral Neoplasms, K Koeller.
12. "Teaching Holland, Unknown session, K Koeller.
13. "Teaching Holland, Central nervous system infections, K Koeller.
14. "Teaching Holland, Inflammatory and crystal arthritis, K Koeller.

**January, 2007, Kobe, Japan, The Japan College of Radiology**

15. Imaging acute right lower quadrant pain, M Siegel.
16. Neonatal bowel obstruction, M Siegel.
17. Vascular malformation, J Smirniotopoulos.
18. CNS Trauma, J Smirniotopoulos.

**February 2007, Denver, Colorado, 22nd Annual Neuroradiology Review Course**

19. "Patterns of contrast Enhancement, JG Smirniotopoulos.
20. CNS Trauma, JG Smirniotopoulos
21. Interaxal Neoplasms, JG Smirniotopoulos.
22. Extraaxal Neoplasms, JG Smirniotopoulos.
23. Phakomatoses Update, JG Smirniotopoulos.

**April 2007, Sao Paolo, Brazil, 37th Jornada Paulista de Radiologia**

24. Doppler US of the Acute Scrotum, Part I & II, D Rubens.
25. Liver Doppler Part I & II, D Rubens.
26. Acute Liver Disease Part I & II, D Rubens.
27. Acute Biliary Disease Part I & II, D Rubens.
28. Doppler Artifacts, D Rubens.
29. Doppler Pitfalls, D Rubens.
30. Imagining of Renal transplants Part I &II, D Rubens.
31. Imaging of Coronary Artery Disease, Part I & II, J Jeudy.
32. The Acute Aortic syndromes, Part I & II,J Jeudy.
33. Imaging of Cardiomyopathies, Part I & II, J Jeudy.
34. Cardiac Masses, Part I & II, J Jeudy.
35. Abnormalities of the Pulmonary Vasculature, Part I & II, J Jeudy.
36. Renal Mass Imaging, Part I & II, B Wagner.
37. Adrenal Imaging Part I & II, B Wagner.
38. Ovarian Imaging Non-Neoplastic, B Wagner.
39. Ovarian Imaging Neoplastic, B Wagner.

40. Seminars, B Wagner.

**June 2007: Madrid, Spain, Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XVII Curso Internacional de Correlation Radio-Patológica**

41. Vascular Rings and Slings, E Chung.
42. Newborn Gastrointestinal Obstruction, E Chung.
43. Emergency Gastrointestinal Radiology in Infants and Children, E Chung.
44. Pediatric Cystic Renal Disease, E Chung.
45. Childhood Urinary Tact Infection: Obstruction, E Chung
46. Imaging of Coronary Artery Disease I & II, J Jeudy.
47. The Acute Aortic syndromes, J Jeudy.
48. Imaging of Cardiomyopathies, J Jeudy.
49. Cardiac Masses, J Jeudy.
50. Abnormalities of the Pulmonary Vasculature, J Jeudy.
51. Osteonecrosis and Related Conditions, M Kransdorf..
52. Common Cartilage Tumors, M Kransdorf...
53. The Many Faces of Osteosarcoma, M Kransdorf.
54. Imaging of Osteomyelitis, M Kransdorf.
55. Soft Tissue Tumors: A systemic Approach, M Kransdorf. I
56. Liver Doppler Cirrhosis, Tumors and Transplants, D Rubens.
57. Doppler Artifacts and Pitfalls, D Rubens.
58. Acute Liver Disease, D Rubens.
59. Acute Biliary Disease, D Rubens.
60. Doppler US of the Acute Scrotum Part I & II, D Rubens.

**June 2007: Porto, Portugal, Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology X Curso de Correlação Anátomo Radiológica**

61. ascular Rings and Slings, E Chung.
62. Newborn Gastrointestinal Obstruction, E Chung.
63. Emergency Gastrointestinal Radiology in Infants and Children, E Chung.
64. Pediatric Cystic Renal Disease, E Chung.
65. Childhood Urinary Tact Infection: Obstruction, E Chung.
66. Imaging of Coronary Artery Disease I & II, J Jeudy.
67. The Acute Aortic syndromes, J Jeudy.
68. Imaging of Cardiomyopathies, J Jeudy.
69. Cardiac Masses, J Jeudy.
70. Osteonecrosis and Related Conditions, M Kransdorf.
71. Common Cartilage Tumors, M Kransdorf..
72. The Many Faces of Osteosarcoma, M Kransdorf.
73. Soft Tissue Tumors: A systemic Approach, M Kransdorf.
74. Doppler Artifacts and Pitfalls, D Rubens.
75. Acute Liver Disease, D Rubens.
76. Acute Biliary Disease, D Rubens.
77. Doppler US of the Acute Scrotum Part I & II, D Rubens.

**June 2007: Austria, Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 14th Radiologisches Fortbildungsseminar**

78. Vascular Rings and Slings, E Chung.
79. Newborn Gastrointestinal Obstruction, E Chung.
80. Emergency Gastrointestinal Radiology in Infants and Children, E Chung.
81. Pediatric Cystic Renal Disease, E Chung.
82. Childhood Urinary Tact Infection: I, E Chung.
83. Childhood Urinary Tract Infection: II, E Chung.
84. Imaging of Coronary Artery Disease I & II, J Jeudy.
85. The Acute Aortic syndromes, J Jeudy.
86. Imaging of Cardiomyopathies, J Jeudy.
87. Cardiac Masses, J Jeudy.
88. Abnormalities of the Pulmonary Vasculature, J Jeudy.,
89. Osteonecrosis and Related Conditions, M Kransdorf.
90. Common Cartilage Tumors, M Kransdorf.

91. Soft Tissue Tumors: A systemic Approach, M Kransdorf.
92. Imaging of Osteomyelitis, M Kransdorf.
93. Doppler US of the Acute Scrotum Part I & II, D Rubens.
94. Doppler Artifacts and Pitfalls, D Rubens.
95. Liver Doppler Cirrhosis, Tumors and Transplants, D Rubens.
96. Acute Liver Disease, D Rubens.

**October 2007, Paris, France, 55th Journees Francaises de Radiologie**

97. Gastrointestinal Stromal Tumors: A New Paradigm in Oncologic Imaging, A Levy.
98. Approach to the Differential Diagnosis of Tumors and Tumor-like Lesions of the Gallbladder and Bile Ducts, A Levy.
99. Imaging of Tumors and Tumor-like Lesions of the Peritoneal and Mesentery, A Levy.
100. Pathologic Basis of Breast Disease, L Glassman.
101. Uncommon Signs of Breast Cancer, L Glassman.
102. Breast Lesions in Young Women, L Glassman.
103. Patterns of Contrast Enhancement, J Smirniotopoulos.
104. Radiologic Grading of Astrocytoma, J Smirniotopoulos.
105. CNS Trauma, J Smirniotopoulos.

**December 2007, Chicago, IL. 93rd Scientific Assembly and Annual Meeting of the Society of North America**

106. Special Focus Session: Neurofibromatosis, W Craig, A Levy, J Smirniotopoulos, M Murphey.

***Other AFIP Pathology Departments Courses***

19 July 2007, Silver Spring, Maryland, 40th Annual Dr. F. K. Mostofi and COL C. J. Davis, Jr. UROLOGICAL PATHOLOGY AND RADIOLOGY COURSE, Pediatric Urology Radiologic Pathologic Correlation, E Chung.

***Visiting Professorships:***

1. February 2007, Tripler, Hawaii, J Galvin.
2. 11 October, 2007, New York, NY, Beth Israel Medical Center, Renal Cystic Disease of Childhood, E Chung.

***Non-AFIP Courses/Presentations:***

1. January 31, 2007: Philadelphia PA Mammography Society of Philadelphia, Breast Lesions in Young Women, L Glassman.
2. February 8 2007: Long Island Jewish Medical Center, Department of Radiology Grand Rounds: Gastrointestinal Stromal Tumors, A New Paradigm in Oncologic Imaging, A Levy.
3. February 19 2007: Dallas, Texas, Radiology Physics Education Conference Lifelong Learning and Online Education, J Galvin
4. March 2007: Introduction to Forensic Radiology, Delaware Society of Radiology Professionals, Dover, DE, HT Harcke.
5. March 2007: Lessons Learned from Computed Tomography Assisted Autopsy, Battlefield Healthcare 2007, Institute for Defense and Government Advancement, Alexandria, VA, HT Harcke.
6. March 8, 2007: Stony Brook, NY, Grand Rounds and Board Review, Stony Brook University, Imaging of Muscle Abnormalities, M Murphey.
7. March 18, 2007: Paris, France, Society for Thoracic Imaging and Diagnosis, Society Française de Radiologie, CT Phenotypes of COPD, Fleischner, J Galvin.
8. March 19, 2007: Orlando, FL, Society of Skeletal Radiology, Imaging Appearance of Desmoplastic Fibroma, 30th Annual Meeting, J Fanburg-Smith, M Murphey, J Vidal.
9. March 19, 2007: Orlando, FL, Society of Skeletal Radiology, 30th Annual Meeting, Incidental Enchondromas of the Knee, M Murphey, M Walden, J Vidal.
10. March 19, 2007: Orlando, FL, Society of Skeletal Radiology, 30th Annual Meeting, Imaging Characteristics of Diffuse Neurofibroma, D Hassell, L Bancroft, P Jeffrey, M Kransdorf , M Murphey, J Fanburg-Smith.
11. March 19, 2007: Orlando, FL, Society of Skeletal Radiology, 30th Annual Meeting, Imaging Appearance of Ossifying Fibromyxoid Tumor of Soft Parts, G Gibson, M Murphey, M Kransdorf, J Vidal, L Bancroft, J Peterson.
12. March 20, 2007: Orlando FL, Society of Skeletal Radiology, 30th Annual Meeting, Preva-

lence of Spinal Gout by CT, R Bhandaru, J Jelinek , J Bryan, M Gibson, M Murphey, R Archarya, R Bhagati, P DeMarco.

13. March 26, 2007: Las Vegas, NV, The Society of Thoracic Radiology, The Smoking Related Interstitial Lung Diseases, J Galvin.
14. April 18, 2007: Baltimore, Maryland, The Medbiquitous Conference, How Web 2.0 Will Shape Digital Learning, J Galvin.
15. April 20, 2007: Abdominal Radiology Course 2007 (the Society of Gastrointestinal Radiology and the Society of Uroradiology), Bonita Springs, FL, Plenary Session Lecture, Gastrointestinal Stromal Tumors: A New Paradigm in Oncologic Imaging, A Levy.
16. April 23, 2007: Chicago, IL, Sponsored by GE, Education and the Conference Room of the Future, J Galvin.
17. May 2007: Operations at Carson Port Mortuary, Dover Air Force Base, Association of the United States Army, Delaware Chapter, Smyra, DE, HT Harcke.
18. May 4, 2007: Baltimore, MD, The University of Maryland, The Idiopathic Interstitial Pneumonias. Cardiothoracic Course, J Galvin.
19. May 9, 2007: Orlando, Florida, American Roentgen Ray Society Meeting, Refresher Course, Neonatal Imaging – GI, E Chung.
20. June 2007: Lessons for the Living from Virtual Autopsy, Medical Staff of the Alfred I DuPont Hospital for Children, Wilmington, DE, HT Harcke.
21. June 9, 2007: Athens Greece, The European Society of Thoracic Imaging and Fleischner Society Course, Pulmonary Capillary Hemangiomatosis and Pulmonary Veno-occlusive Disease, J Galvin.
22. June 11, 2007: Santorini, Greece, The Fleischner Society Scientific Meeting, COPD Imaging Phenotypes, J Galvin.
23. June 20, 2007: Santa Fe, New Mexico, Pulmonary Pathology Society Biennial Meeting, The Radiologic-Pathologic Continuum of Visualization, Invited Speaker, J Galvin.
24. August 2007: Pediatric Abusive Head Trauma Conference, Penn State University College of Medicine, Hershey, PA, Lessons Learned from Virtual Autopsy, HT Harcke.
25. August 2007: 17th Annual Meeting of the Musculoskeletal Ultrasound Society, Paris, France, Musculoskeletal Infection in Pediatrics; Sonographic Guidance of DDH Treatment; Interventional Ultrasound Workshop Faculty, HT Harcke.
26. September 2007: Delaware Society of Orthopedic Surgeons, Annual Meeting, University of Delaware, Newark, DE, Virtual Autopsy and Forensics, HT Harcke.
27. September 17, 2007: Bethesda, MD, 2nd Annual Workshop on Experimental Imaging of Infectious Disease, Integrated Research Facility, Division of Clinical Research, National Institute of Allergy and Infectious Disease/National Institutes of Health, J Galvin.
28. September 19, 2007: Bethesda, Maryland, DC Pulmonary Journal Club, The Radiologic-Pathologic Continuum of Visualization: Discordant Cases, Invited Speaker, J Galvin.
29. October 1, 2007: University of Toronto, Toronto General Hospital, Toronto, Ontario, Canada, Radiology Grand Rounds: Imaging of Tumors and Tumor-like Lesions of the Peritoneal and Mesentery, A Levy.
30. October 1, 2007: University of Toronto, Mount Sinai Hospital, Toronto, Ontario, Canada, Radiology Grand Rounds: Gastrointestinal Stromal Tumors: A New Paradigm in Oncologic Imaging, A Levy.
31. October 2, 2007: University of Toronto, St. Michael's Hospital, Toronto, Ontario, Canada, Radiology Grand Rounds: Unusual Pancreatic Neoplasms, A Levy.
32. October 9, 2007: Budapest, Hungary, Closed Program of the International Skeletal Society 2007 Closed Meeting, Session VII Miscellaneous I: Unknown Case 42, J Fanburg-Smith, M Murphey, J Vidal.
33. October 10, 2007: Hungary, Budapest, The International Skeletal Society 34th Annual ISS Radiology Refresher Course, Approach to Soft Tissue Tumors: Imaging Appearance & Clinical Implications, Diagnosis and Management of Musculoskeletal Disorder, M Murphey.
34. October 11, 2007: Budapest, Hungary, The International Skeletal Society 5th Pathology Refresher Course, Chordroma, Vascular Lesions and Histiocytosis, J Fanburg-Smith, M Murphey.
35. October 12, 2007: Budapest, Hungary, The International Skeletal Society 5th Pathology Refresher Course, Fibrous Lesions, F Gannon, M Murphey.
36. October 16, 2007: Arlington, Virginia, Virginia Hospital Center, Neonatal GI Obstruction, Pediatric Grand Rounds, E Chung.

37. October 19, 2007: Washington, DC, Georgetown University Pediatric Grand Rounds, E Chung.
38. October 21, 2007: Journees Francaises de Radiologie, Paris, France, Gastrointestinal Stromal Tumors: A New Paradigm in Oncologic Imaging, Approach to the Differential Diagnosis of Tumors and Tumor-like Lesions of the Gallbladder and Bile Ducts, and Imaging of Tumors and Tumor-like Lesions of the Peritoneal and Mesentery, A Levy.
39. October 27, 2007: Chicago, IL, Society of Radiologists in Ultrasound Practical Review of Ultrasound, Practical Review of Pediatric Ultrasound, E Chung.
40. November 2007: Forensic Radiology Refresher Course, Radiological Society of North America, Chicago, IL, Ballistic Injury, HT Harcke.
41. November 2007: Interventional Ultrasound Techniques Refresher Course, Radiological Society of North America, Chicago, IL, Foreign Body Removal, HT Harcke.
42. November 3, 2007: Washington, DC, Washington Orthopedic Review, The Omni Shoreham Hotel, Principles of Musculoskeletal Radiology, M Murphey.
43. November 3, 2007: Washington, DC, Washington Orthopedic Review, The Omni Shoreham Hotel, Benign Bone Tumors, Malignant Bone Tumors, F Wodajo, M Murphey, F Gannon.
44. November 3, 2007: Washington DC, Washington Orthopedic Review, The Omni Shoreham Hotel, Round Cell, Soft Tissue and Articular Tumors, F Wodajo, M Murphey, N Azumi.
45. November 28, 2007: Chicago, IL, Radiologic Society of North America, Essentials of Radiology course, Top 10 Spinal Lesions, A Smith.
46. November 28th, 2007: Chicago, Illinois. Radiological Society of North America Scientific Assembly and Annual Meeting Program, Neurofibromatosis Head to Toe with Pathologic Correlation, WD Craig, JG Smirniotopoulos, MD Murphey, AD Levy, EM Chung.
47. November 29, 2007: Chicago, Illinois, Radiological Society of North America Scientific Assembly and Annual Meeting Program, To Biopsy or Not to Biopsy: An Expert Quiz Panel for Musculoskeletal Lesions, W Palmer, M Kransdorf, M Murphey, D Rosenthal.
48. December 28, 2007: Chicago IL, The Radiological Society of North America, Essential Internet Resources for Decision Support and Learning While You Work, J Galvin.
49. December 28, 2007: Chicago IL, The Radiological Society of North America, Essential Internet Resources for Decision Support and Learning While You Work, J Galvin.
50. December 29, 2007:, Chicago IL, the Radiological Society of North America, High-Resolution CT Update: Multidetector CT Technique, Radiologic/Pathologic Correlation, and Smoking-Related Lung Diseases, J Galvin.
51. December 29, 2007: The Radiological Society of North America, Essential Internet Resources for Decision Support and Learning While You Work, J Galvin.
52. December 29, 2007: Chicago IL, The Radiological Society of North America, High-Resolution CT Update: Multidetector CT Technique, Radiologic/Pathologic Correlation, and Smoking-Related Lung Diseases, J Galvin.

## DEPARTMENTAL CONFERENCES:

***Intramural:***

**Gastrointestinal Radiology:**

2 (1 hours) per month, Gastrointestinal Pathology Conference
1 (1 hour) per month, Hepatic Pathology Conference
6 (1.5 hour) per year, Endocrine Pathology Conference
Genitourinary Radiology:
2 (2 hours) per month, Genitourinary Pathology Conference
1 (1.5 hour) per month, Endocrine Pathology Conference

**Mammography:**

1(1 hour) per year, Gynecologic and Breast Pathology Conference

**Musculoskeletal Radiology:**

23 (1 hour) per month Orthopedic / Soft Tissue Pathology Conferences
4 (1 hour) per year Oral and Maxillofacial Pathology Conference

**Neuroradiology**

4 (1 hour) per month, Neuropathology Conference

**Pediatric Radiology**

7 (2 hour) per year, Pediatric Pathology Conference.
2 (2 hour) per year, Neuropathology Conference.
1 (2 hour) per year, Hepatic pathology conference.
2 (2 hour) per year, Ophthalmic pathology.
2 (2 hour) per year, GI pathology.
2 (2 hour) per year, Genitourinary pathology.
1 (2 hour) per year, Endocrine pathology.

**Pulmonary and Mediastinal Radiology:**

2 (2 hours) per month, Pulmonary and Mediastinal Pathology Conference for class cases.
6 (1 hour) per year, Cardiovascular Pathology Conference for class cases.
2 (1.5 hours) per week review of clinical consults.

***Extramural:***

**Gastrointestinal Radiology**

2 (1 hour) per month, Department of Radiology and Nuclear Medicine (MS-4 Radiology), Uniformed Services University of the Heath Sciences
1 (1 hour) per month, Department of Gastroenterology, Walter Reed Army Medical Center
1 (1 hour) per year, Department of Pathology (MS-2 Pathology), Uniformed Services University of the Health Sciences
1 (1 hour) per year, Department of Radiology and Radiological Sciences (MS-2 Radiology), Uniformed Services University of the Health Sciences
1 (1 hour) per year, Department of Anatomy (MS-1 Anatomy), Uniformed Services University of the Heath Sciences
3 (1 hour) per year, Department of Nephrology, Walter Reed Army Medical Center.

**Genitourinary Radiology**

1 (1 hour) per year, Department of Radiology and Radiological Sciences (MS-2 Radiology), Uniformed Services University of the Health Sciences.
1 (1 hour) per year, National Capital Area Residents.

**Musculoskeletal Radiology:**

1 (1.5 hours) conference per month, Orthopedic Resident Conference, Walter Reed Army Medical Center
2 (1 hour) conferences per month, Rheumatology Conference, Walter Reed Army Medical Center
1 (1 hour) conference per month, Rheumatology Conference, National Institutes of Health
1 (1 hour) conference per month, Rheumatology Conference, Washington Hospital Center
1 (1 hour) conferences per year, Sports Medicine and Arthroscopy Conference, Walter Reed Army Medical Center

**Pulmonary**

**Forensic Radiology:**

20 (1 hour) conferences per year, Orientation to Virtual Autopsy. Training at Port Mortuary, Dover AFB for military radiology personnel from the United Kingdom.
20 (1 hour) conferences per year, Virtual Autopsy Sustainment Training. Orientation and Training, for USAF Radiologists conducted at Port Mortuary, Dover AFB.
20 (1 hour) conferences per year, Virtual Autopsy Sustainment Training. Orientation and Training, for USAF Radiologists conducted at Port Mortuary, Dover AFB.

**Radiology:**

**Neuroradiology**

4 (1 hour) per month, Neuropathology Conference

***Seminars:***

One hundred seventy-one seminars were conducted:

**Gastrointestinal Radiology:**

26 (1 hour) per year, Department of Radiology, Uniformed Services University of the Health Sciences.

3 (1 hour) per year, National Capital Area Radiology Residents.
10 (1 hour) per year, National Capital Area Gastroenterology Fellows.

**Musculoskeletal Radiology:**
8 (1 hour) per year, Uniformed Services University of the Health Sciences

**Neuroradiology:**
2 (1 hour) per year, Walter Reed Army Medical Center

**Pediatric Radiology:**
4 (1 hour) per year, Walter Reed Army Medical Center
4 (2 hour) per year, USUHS Department of Radiology – Pediatric Emergency Radiology to 4th year medical students.
3 (3.5h) Board Review – WRAMC.
1 (3H) Board Review – Georgetown University Hospital.
5 (1 hour)Lecture to Radiology Residents – Georgetown University.
1 (1 hour) Children's National Medical Center Department of Radiology – to Radiology Residents and Pediatric Radiology Fellows.
2 (2 hour) USUHS Pathology Small Group Session (2h) MS-II Pathology Course
1 (1 hour) USUHS MS-IV Intercessions Pediatric Radiology

**Pulmonary and Mediastinal Radiology:**
10 (1 hour) per year, University of Maryland Medical Center

**Forensic Radiology**
2 (10 hours) per year, Musculoskeletal Ultrasound: The Infant Hip and Other Applications. Lectures and Practicum. DuPont Hospital for Children, Wilmington, DE.
2 (10 hours) Oct 2007: Musculoskeletal Ultrasound: The Infant Hip and Other Applications. Lectures and Practicum. DuPont Hospital for Children, Wilmington, DE.

## RESEARCH

Research is based on the contents of the departmental archives, which are mainly derived from cases contributed by residents attending the Radiologic Pathology Courses, collaboration with outside investigators, and primary investigational projects by the department staff. The department published 22 journal articles, 19 abstracts, 1 book, 3 book chapter, 5 scientific exhibits, 7 electronic publications, 5 investigative research projects.

***Publications:***

***Journal Articles:***

1. Chung EM, Smirniotopoulos JG, Specht CS, Schroeder JW, Cube R. From the archives of the AFIP: Pediatric orbit tumors and tumor-like lesions: nonosseous lesions of the extra-ocular orbit. *RadioGraphics*. 2007 Nov-Dec;27(6):1777-1799.
2. Chung EM, Specht CS, Schroeder JW. From the archives of the AFIP: Pediatric orbit tumors and tumor-like lesions: neuroepithelial lesions of the ocular globe and optic nerve. RadioGraphics 2007;27(4):1159-1186.
3. Dinauer PA, Brixey CJ, Moncur JT, Fanburg-Smith JC, Murphey MD. Pathologic and MR imaging features of benign fibrous soft-tissue tumors in adults. *RadioGraphics* 2007 Jan-Feb; 27 (1):173-187.
4. Frazier, AA, Franks TJ, Mohammed TL, Ozbudak IH, Galvin JR. From the Archives of the AFIP: pulmonary veno-occlusive disease and pulmonary capillary hemangiomatosis. *RadioGraphics*. 2007 May-June; 27(3):867-882.
5. Harcke HT, Levy AL, Abbott RM, Mallak CT, Getz JM, Champion HR, Pearse L: Autopsy radiography: digital radiographs (DR) vs. multidetector CT (MDCT) in high velocity gunshot wound victims. *The American Journal of Forensic Medicine and Pathology*. 2007;28(1):13-19.
6. Harcke HT, Pearse LA, Levy AD, Getz JM, Robinson SR: Chest Wall Thickness in Military Personnel: Implications for Needle Thoracentesis in Tension Pneumothorax. *Military Medicine*. 2007; 172:1260–1263.
7. Hartel PH, Fanburg-Smith JC, Frazier AA, Galvin JR, Lichy JH, Shilo KS, Franks TJ. Primary pulmonary and mediastinal synovial sarcoma: a clinicopathologic study of 60 cases and comparison with five prior series. *Mod Pathol*. 2007 Jul; 20(7):760-9. Epub 2007 Apr 27.
8. Levy AD, Getz JM, Pearse L, Mallak CT, Caruso JL, Frazier AA, Harcke HT, Galvin JR. Virtual autopsy: 2D and 3D MDCT findings in drowning with autopsy comparison. *Radiology*.

2007 Jun;243(3):862-868.
10. Levy AL, Harcke HT , Getz JM, Mallak CT, Pearse L, Caruso JL, Frazier A, Galvin JR: Virtual autopsy: 2D and 3D MDCT findings in freshwater drowning with autopsy correlation. *Radiology*. 2007; 243: 862-868.
11. Lipton GE, Guille JT, Altiok H, Bowen JR, Harcke HT: A reappraisal of the Ortolani examination in children with developmental dysplasia of the hip. *J Pediatric Orthop*. 2007; 27(1):27-31.
12. Mani H, Shilo K, Galvin JR, Stocker JT, Franks TJ. Spectrum of preinvasive and invasive neoplastic lesions in type 1 congenital pulmonary airway malformation: case report and review of the literature. *Histopathology*. 2007 Oct;51(4):561-565.
13. Murphey MD, Vidal JA, Fanburg-Smith JC, Gajewski DA. From the Archives of the AFIP: Imaging of synovial chondromatosis with radiologic-pathologic correlation. *RadioGraphics*. 2007; 27: 1465-1488.
14. Semarang H, Bowen JR, Harcke HT: A vascular necrosis rate in early reduction after failed Pavlik harness treatment of developmental dysplasia of the hip. *J Pediatric Orthop*. 2007;27(2):192-197.
15. Semerad D, Statler J, Harcke HT, Montilla J: Disease and non-battle injury in the combat zone. Emergency *Radiology*. 2007; 14: 205-209.
16. Tavora F, Rassaei N, Shilo K, Foss RD, Galvin JR, Travis WD, Franks TJ. Occult primary parotid gland acinic cell adenocarcinoma presenting with extensive lung metastasis. *Arch Pathol Lab Med*. 2007 Jun; 131(6):970-973.
17. Vidal JA, Murphey MD. Primary tumors of the osseous spine. Beall DP, ed. In: *Magnetic Resonance Imaging Clinics of North America: The Lumbar Spine*. Philadelphia: Elsevier Saunders 2007, pp 239-255.

There are 6 articles in press.

### *Book Chapters*

Henshaw RM, Jelinek J, Jennings B, Murphey MD. Pseudotumors and tumor-like lesions. In: *Orthopaedic Knowledge Update: Musculoskeletal Tumors 2*. Schwartz HS, ed. Rosemont, IL: American Academy of Orthopaedic Surgeons 2007, Chapter 7: 59-74.

There is one book chapter and one book in press.

### *Scientific Abstracts*

1. March 20, 2007: Prevalence of Spinal Gout by CT. Society of Skeletal Radiology, 30th Annual Meeting, Orlando, FL. Bhandaru R, Jelinek J, Bryan J, Gibson M, Murphey MD, Archarya R, Bhagati R DeMarco P.
2. November 30, 2007: Abstract presentation at 93rd Scientific Assembly and Annual Meeting of the Radiologic Society of North America. Gastrointestinal intestinal stromal tumors in the pediatric population: imaging features with clinical pathologic correlation. Chicago, IL. Chung MD.
3. November 28, 2007: Neurofibromatosis head to toe with pathologic correlation. Radiological Society of North America Scientific Assembly and Annual Meeting Program, Chicago, Illinois. Craig WD, Smirniotopoulos JG, Murphey MD, Levy AD, Chung EM.
4. October 9, 2007: Session VII Miscellaneous I: Unknown Case 42. Closed Program of the International Skeletal Society 2007 Closed Meeting, Budapest, Hungary. Fanburg-Smith J, Murphey MD, Vidal J.
5. October 11, 2007: Chordroma, vascular lesions and histiocytosis. The International Skeletal Society 5th Pathology Refresher Course, Budapest, Hungary. Fanburg-Smith J, Murphey MD.
6. October 12, 2007: Fibrous Lesions. The International Skeletal Society 5th Pathology Refresher Course, Budapest, Hungary. Gannon FH, Murphey MD.
7. March 19, 2007: Imaging Appearance of Ossifying Fibromyxoid Tumor of Soft Parts. Society of Skeletal Radiology, 30th Annual Meeting, Orlando, FL. Gibson G, Murphey MD, Kransdorf M, Vidal J, Bancroft L, Peterson J.
8. Granulomatosis reaction to pneumocystis jirovecii: clinicopathologic review of 16 cases. (USCAP) Hartel PH, Shilo K, Galvin JR, Franks TJ.
9. March 19, 2007: Imaging characteristics of diffuse neurofibroma. Society of Skeletal Radiology, 30th Annual Meeting, Orlando, FL. Hassell D, Bancroft L, Jeffrey P, Kransdorf M, Murphey MD, Fanburg-Smith JC.
10. Clinicopathologic study of type 4 congenital pulmonary airway malformation (CPAM): evidence for distal acinar origin. (USCAP 2007) Mani H, Stocker JT, Shilo K, Galvin JR,

Franks TJ.

11. March 19, 2007: Incidental enchondromas of the knee. Society of Skeletal Radiology, 30th Annual Meeting. Orlando, FL. Murphey MD, Walden M, Vidal J.
12. October 10–13, 2007: Approach to soft tissue tumors: imaging appearance and clinical implications. The International Skeletal Society 34th Annual ISS Radiology Refresher Course: Diagnosis and Management of Musculoskeletal Disorder, Hungary, Budapest. Murphey MD.
13. March 8, 2007: Imaging of muscle abnormalities. grand rounds and board review, Stony Brook University, Stony Brook, NY. Murphey MD.
14. November 3, 2007: Principles of musculoskeletal radiology. Washington Orthopedic Review, The Omni Shoreham Hotel, Washington, DC. Murphey MD.
15. November 29, 2007: To biopsy or not to biopsy: an expert quiz panel for musculoskeletal lesions. Radiological Society of North America Scientific Assembly and Annual Meeting Program, Chicago, Illinois. Palmer WE, Kransdorf MJ, Murphey MD, Rosenthal DI.
16. June 2007: Successful implementation of a radiation dose reduction strategy for CT protocols in a neuroradiology section. American Society of Neuroradiology, Chicago, Illinois. Smith AB, Dillon W, Lau BC, Gould R, Verdun FR, Lopex EB, Wintermark M.
17. March 19, 2007: Imaging appearance of desmoplastic fibroma. Society of Skeletal Radiology, 30th Annual Meeting, Orlando, FL. Vidal J, Murphey MD, Fanburg-Smith JC.
18. November 3, 2007: Round cell, soft tissue and articular tumors. Washington Orthopedic Review, The Omni Shoreham Hotel, Washington, DC. Wodajo F, Murphey MD, Azumi N.
19. November 3, 2007: Benign bone tumors, malignant bone tumors. Washington Orthopedic Review, The Omni Shoreham Hotel, Washington, DC. Wodajo F, Murphey MD, Gannon F.

***Scientific Exhibits:***

1. June 21–23, 2007: Multicenter experience with the lateral distal femur as an alternative DXA site for children. International Conference on Children's Bone Health, Montreal, Canada, (Scientific Poster). Harcke HT, Kecskemethy HH, Henderson RC, Zemel BE, Szalay E, Heubi J, Tosi L, Grossberg R, Sheridan K, Fenton L.
2. October 10–13, 2007: Incidence before and after pamidronate tcreatment in children with cerebral palsy. American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting, Vancouver BC, Canada, (Scientific Paper).
3. November 25–30, 2007: The patella revisited. Presented at the 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL. Lemos DF, Burlington VT, Murphey MD, Gimenez JM, Gimenez CR, Lemos JA, Filszar E, et al.
4. November 25–30, 2007: The suprapatellar region: anatomy, pathology, and imaging findings. Presented at the 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL. Lemos DF, Burlington VT, Gimenez CR, Murphey MD, Filszar E, Dirim B, Chung SB, et al.

***Electronic Publications:***

1. Murphey MD, Electronic digitization of 6 RADPATH Correlation lectures.
2. Electronic publication of the 2007-2008 Radiologic Correlation Syllabus.

## PROJECTS:

***Investigative:***

1. Siegel MJ, Chung EM. Hepatoblastoma: radiologic-pathologic correlation in 150 cases.
2. Chung EM, Levy AD, Miettenen M, Siegel MJ. Gastrointestinal stromal tumors in the pediatric population.
3. Rushing EJ, Chung EM. Clinicopathological features of spinal cord lesions in children.
4. Kim J, Smith AB, Dillon W, Wintermark M. CT correlation with outcome in patients with SAH. Pending submission.
5. Armstrong-Wells JL, Haman A., Smith A, Mukherjee P, Abrams GM, Geschwind MD. Anti-CV2 paraneoplastic limbic encephalopathy presenting as Jakob-Creutzfeldt disease (CJD). Pending submission

***Educational:***

1. Chung EM, Specht C, Schroeder JW, Cube R, Smirniotopoulos JA. Pediatric orbit tumors and tumor-like conditions.
2. Chung EM, Glassman LM. Breast lesions in children and adolescents

### *Collaborators:*

**Military/Federal:**

1. James Smirniotopoulos, MD, Uniformed Services University of the Health Sciences, Bethesda, MD.
2. Angela D. Levy, COL, MC, USA, Uniformed Services University of the Health Sciences, Bethesda, MD.

**Civilian, US:**

1. American College of Radiology
2. American Osteopathic College of Radiology
3. American Roentgen Ray Society
4. Association of University Radiologists
5. Association of Program Directors in Radiology
6. Radiological Society of North America
7. Department of Radiology, University of Maryland Medical Center

**Civilian, International:**

1. Curso de Correlação Anatomo-Radiologica, Lisbon, Portugal
2. Fundación XIII Congreso Internacional de Radiologica, Madrid, Spain
3. Japanese College of Radiology, Kobe, Japan
4. Jornada Paulista de Radiologica, São Paulo, Brazil
5. Journées Françaises de Radiologie, Paris, France
6. Österreichische Röntgengesellschaft, Vienna, Austria
7. International Society of Skeletal Radiology

## PROFESSIONAL ACTIVITIES

### *Official Trips:*

1. March 2007: European Congress of Radiology, Vienna, Austria, C Williams (AFIP).
2. April 2007: 37th Jornada Paulista de Radiologia, Sao Paulo, Brazil, B Wagner, D Rubens (ARP), J Jeudy, C Williams (ARP).
3. June 2007: Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology, Lisbon, Portugal, XI Curso de Correlação Anátomo Radiológica, E Chung (AFIP),J Jeudy, D Rubens (ARP), M Kransdorf.
4. June 2007: Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 13th Radiologisches Fortbildungsseminar, E Chung (AFIP), J Jeudy, D Rubens (ARP), M Kransdorf.
5. June 2007: Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XVI Curso Internacional de Correlación Radio-Patológica, Madrid, Spain. KK Koeller E Chung (AFIP), J Jeudy, D Rubens (ARP), M Kransdorf.
6. October 2007: Journées Françaises de Radiologie, Paris, France. AD Levy (AFIP) L Glassman (ARC) JG Smirniotopoulos (USHS).
7. December 2007: Chicago, IL. 93rd Scientific Assembly and Annual Meeting of the Society of North America, W Craig (AFIP), MD Murphey (ARP), E Chung (AFIP) A Levy (AFIP), J Galvin (ARP) A Frazier (ARP), C Williams, D Hatley (ARP) J Rees (ARP), A Smith (AFIP).

### *Committees:*

**Frazier AA**

1. Member, Public Relations Committee, American Association for Women in Radiology
2. Member, Continuous Professional Improvement Panel, American College of Radiology
3. Member, Scientific Awards Committee, American Roentgen Ray Society

**Galvin JR**

1. Member, Education Subcommittee, Society of Thoracic Radiology
2. Member, Task Force 8 Project Team – Database development for Distance Learning and Education, Armed Forces Institute of Pathology

**Glassman LM**

Member, Radiological Devices Panel, Center for Devices and Radiological Health, United States Food and Drug Administration

**Harcke HT**
1. Member, Subcommittee on Developmental Dysplasia of the Hip, American Academy of Pediatrics.
2. Member [representing the American Institute of Ultrasound in Medicine], American College of Radiology Collaborative Subcommittee for Practice Guideline on Performance of the Ultrasound Examination of the Hip for Detection and Assessment of Developmental Dysplasia of the Hip.

**Levy AD**
1. Chairperson, National Capital Consortium Nuclear Medicine Residency Program Director Selection Committee
2. USUHS School of Medicine Admissions, Applicant Interviewer

**Murphey MD**
1. Member, Scientific Exhibits Committee, Musculoskeletal Section, American Roentgen Ray Society
2. Member, Radio Graphics Exhibit Review Committee, Musculoskeletal Section, Radiological Society of North America
3. Member, CPI/Musculoskeletal Radiology Expert Review Panel, American College of Radiology
4. Member, Program Committee, Society of Skeletal Radiology
5. Member Rules Committee, International Skeletal Society
6. Member, Closed Meeting Planning Committee, International Skeletal Society

***Editorial Boards:***

**Chung EM**
Editorial Board, Radio Graphics

**Murphey MD**
Editorial Board, Skeletal Radiology

**Frazier AA**
Associate Editor, *FOCUS*, newsletter of American Association of Women in Radiology

**Galvin JR**
1. Deputy Editor, *RadioGraphics*
2. Associate Editor, Education Center Materials, Radiological Society of North America

**Glassman L**
Editorial Advisory Panel AJR, *American Journal of Roentgenology*

***Journal Reviews:***

**Frazier AA**
Manuscript reviewer, *American Journal of Roentgenology*

**Galvin JR**
1. Manuscript reviewer, *American Journal of Roentgenology*
2. Manuscript reviewer, *RadioGraphics*
3. Manuscript reviewer for the Symposium for Computer Assisted Radiology

**Glassman LM**
1. Editorial Board, *American Journal of Roentgenology*
2. Manuscript reviewer, *American Journal of Roentgenology*
3. Manuscript reviewer, *RadioGraphics*
4. Manuscript reviewer, *Radiology*

**Harcke HT**
Manuscript reviewer, *Pediatric Radiology*

**Levy AD**
1. Manuscript reviewer, *Journal of Computer Assisted Tomography*
2. Manuscript reviewer, *RadioGraphics*
3. Manuscript reviewer, *Radiology*

**Murphey MD**

1. Manuscript reviewer, *American Journal of Roentgenology*
2. Manuscript reviewer, *RadioGraphics*
3. Manuscript reviewer, *Radiology*
4. Manuscript reviewer, *Skeletal Radiology*

Christopher R. Owner, PhD
Chair
Date of Appointment — 1 January 2005

Frank J. Roberts
Associate Chair, Repository Services
Date of Appointment — 5 February 2007

# DEPARTMENT OF REPOSITORY SERVICES

## MISSION

The Department of Repository Services provides administrative support to the Center for Advanced Pathology and to the Department of Defense in achieving the Institute's objectives in consultation, education, and research. The department's main functions are as follows:

1. Maintaining the AFIP Repository, consisting of over 3.0 million case files and associated paraffin blocks, microscopic glass slides, and formalin-fixed tissue specimens.
2. Receiving and accessioning case materials with the highest possible materials accountability and responding to contributors' requests for information on the status of cases submitted.
3. Receipting for all express and courier mail and providing a case pick-up and delivery service throughout the Institute.
4. Responding to outside requests for release of medical information and pathologic materials.
5. Coding and entering pathologic diagnoses and case demographic data into the Institute's research database using the SNOMED coding system.
6. Performing administrative quality review of case files following final report.
7. Obtaining patient follow-up information for clinicopathologic correlation studies.
8. Conducting periodic quality assurance audits to ensure case record completeness, the integrity of the research database, and the accurate tracking of case materials.
9. Generate and mail invoices for civilian billable cases using appropriate CPT codes while ensuring all services and tests rendered are accurately and completely accounted for in PIMS.
10. Maintaining a repository of pathologic materials from closed military medical facilities in accordance with applicable DoD regulations and federal statutes.
13. Serving as Institute Coordinator for the Partnership Program with Rock Terrace High School, Rockville, Maryland.
14. Providing budgetary monitoring and policy guidance for the DoD Automated Central Tumor Registry (ACTUR), the DoD Central Cancer Registry, and hosting the annual DoD Cancer Registrars Training Conference.
15. Providing management support, policy guidance, and quality assurance monitoring for the Institute's digital imaging contract task orders concerning document conversion.
16. Maintains over 4.1 million patient records and associated material from 25 military facilities closed prior to the 2005 BRAC law.

## ORGANIZATION

The department is currently organized into five separate entities as follows:

1. Office of the Chair
2. Case Materials Accountability Division (CMAD)
3. Records Repository
4. Materials Repository
5. HIPAA Training Office

## OFFICE OF CHAIR

The following is a report on programs and initiatives that impact more than one division or they are special programs managed out of the Office of the Chairperson.

***Digital Imaging Effort:***

This year the Institute's digital imaging initiative entered into its sixth year with Information Manufacturing Corporation (IMC). Although there was no active conversion tasking regarding the Base Closure records the knowledge management initiative developed for extracting pertinent data from the database for the construction of designated tissue microarrays continues. During this year, the number of images to be converted to digital format for the Main AFIP accessioned repository continued as in the previous contract. The number of cases or records currently converted and available for electronic retrieval under each of the separate task orders is as follows:

| | |
|---|---|
| AFIP Main Accessioned Repository | 1,211,868 |
| Legal Medicine Claims Files | 35,108 |
| Radiology Pathology Cases | 202,428 |
| Andrews AFB Tumor Registry | 8,390 |
| Womack Army Medical Center Tumor Registry, Fort Bragg | 1,221 |
| Portsmouth Naval Medical Center Tumor Registry | 5,683 |
| Walter Reed Army Medical Center Tumor Registry | 40,299 |
| Patrick Air Force Base Tumor Registry | 56 |
| Base Realignment and Closure Records | 4,167,533 |
| BRAC Facility Logs | 573 |
| MIS Library Test | 110 |
| MIS Library | 125,781 |
| MIS Library-Arey Depena | 7,091 |
| MIS Library Book Series | 56 |
| Total Records | 5,806,193 |

***Department of Defense (DoD) Cancer Registry Program: Department of Defense (DoD) Cancer Registry Program:***

The main objective of the DoD Cancer Registry is to assist in improving the care given to our service members and their families. The DoD Cancer Registry Program continues to make progress in improving data collection with strives toward analyzation of the data. The main highlights of the program during 2007 were as follows:

The annual training conference for the DoD Tumor Registrars was held in Las Vegas, NV in April. The theme of the conference was "Beating the Odds for a Cancer-Free Tomorrow." The objective of the conference were to provide continuing education and ongoing training to cancer registrars at the Department of Defense (DoD) military treatment facilities in order to enhance their knowledge and encourage expertise in all areas of cancer registration and cancer data collection standards.

The DoD Central Cancer Registry implemented two new edit sets to be used when processing new cases in the Registry Plus software used in the Central Cancer Registry to house the data. This implementation took place by working with Centers for Disease Control (CDC), and Electronic Data System (EDS) to insure the edits being used coincide with the Automated Central Tumor Registry, (ACTUR) data set and edits. One of the data sets will be used on the single cases entering in the database and the other for the consolidated cases. The purpose for the new edit sets is to include new data items being collected by the registrars in the reporting facilities. The DoD Central Registry processed the 2002 through 2004 cases during 2007 and all the cases have gone through the editing process before being consolidated.

The DoD Central Cancer Registry is currently housing seven years of data which includes 55,370 patients and 58,226 tumors in the Central Registry database.

***Rock Terrace School Partnership Program:***

The Institute's long-standing relationship with Rock Terrace High School continued in 2007. Approximately 15 students worked at the Institute as volunteer student aides and paid part-time workers. Most of the students worked in the Materials Repository Division and the Records Repository Division. The students continued their labor-intensive project to shred

patient-identifiable documents and they continued being responsible for the folding and mailing of the invoices generated under the Civilian Consultation Program. In addition, the students began mailing out the mid-month statements to civilian contributors for the AFIP Business Office.

### HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT OFFICE (HIPAA)

#### STAFF

Frank J. Roberts, Privacy Officer
Izzat S. Ali, CT (ASCP), Training Administrator

#### MISSION

The HIPAA Office provides guidance to AFIP staff for the implementation and maintaining the requirements in the Health Insurance Portability and Accountability Act. The Office also provides initial and refresher training to the Institute staff.

With the continued phasing bimonthly by category of both annual HIPAA Refresher and Security Training this year, AFIP was able to consistently meet training targets at the 98% or above level. Updated posters continued to be placed at strategic locations throughout the Institute.

Ms. Ali serves as the AFIP cytotechnologist providing screening assistance to the Department of Gynecology and Breast Pathology.

Ms. Ali participated in the College of American Pathologists' Inter-laboratory Proficiency Comparison Program exercises in Gynecologic and Non-gynecologic Cytopathology, as well as the Federally mandated Gynecologic Cytopathology Proficiency Test.

Ms. Ali assisted the Research Office by auditing research protocol folders and identifying areas of improvement in preparation a site visit by the Human Research Protection Program Office.

Ms. Ali serves as the Privacy Officer for the Tissue Microarray Program ensuring HIPAA and privacy regulation are followed in the use of patient material.

## CASE MATERIALS ACCOUNTABILITY DIVISION

Myra A. Moxley
Chief, Case Materials Accountability Division
Date of Appointment—12 October 1993

#### MISSION

The Case Materials Accountability Division (CMAD) is responsible for the accurate receipt and accessioning of all pathology cases submitted for consultation, education, and research. Cases are submitted from the Department of Defense and other federal agencies, including the Department of Veterans Affairs, and from civilian pathologists all over the United States and the world. Cases received with discrepancies, such as mismatched paperwork and materials or missing items are held and the contributor is called for verification. All discrepancies must be resolved or explained before the case can be processed. The division is also responsible for the receipt of all express and courier mail by the Institute during duty hours and it runs a messenger service that picks up and delivers pathologic case materials and packages throughout the Institute several times daily.

#### STAFF

Rosetta Jackson – Supervisory Medical Records Technician, Gillette CMAD
Adrian Bingham - Lead Medical Records Technician
Gloria Countiss - Lead Medical Records Technician
Norma Garey – Lead Medical Records Technician

Travis Jones - Medical Records Technician
Velda Jones – Medical Records Technician
Velda Jones - Medical Records Technician
Andrienne Kates - Medical Records Technician
Geraldine Key-Lovett – Medical Records Technician
Constance Patterson - Medical Records Technician, Gillette CMAD
Frances Miller - Secretary
Stephen Banda - Accessions Clerk
Joel Ryerson – Accessions Clerk

*American Registry of Pathology*

Jacqueline Martinez – Triage Manager
Ramona James – Medical Records Technician
Annette Dickens – Messenger
Christopher Jackson - Messenger
Edwin Roman - Messenger

*General Dynamics Information Technology*

Marqweta Butler - Medical Records Technician (GDIT)
Nydra Newman – Medical Records Technician (GDIT)
Tearia Russell - Medical Records Technician (GDIT)

## ACTIVITIES

The combined division's workload statistics for 2005, compared to 2006, are as follows:

| *Workload Factor* | *2006* | *2007* |
|---|---|---|
| Cases Accessioned | 51,233 | 45,087 |
| Federal Accessions | 40,473 | 35,713 |
| Civilian Accessions | 10,760 | 9,374 |

During calendar 2007 this division continued to experience a significant turnover of its contract personnel, largely due to training issues, as well as other losses, some of which were not filled due to decreased accessions over the course of the calendar year. However, the Division received over four-thousand (4000) OIF (Iraqi) cases and some Medical Examiner cases from Gillette to process, which did offset the decreased workload. Training sessions continued throughout the year on time capture and entering proper searc

All division SOPs were updated to reflect changes that were made in CMAD, and in anticipation of the accreditation inspection by the College of American Pathology in October 2008 and all technicians were issued individual new updated inserts to be placed in their training and reference notebook.

During the year the enhancement that was made in the specimen entry screen was revisited and it was decided that this field was of paramount importance for keying-in the surgical material numbers exactly as found on the slides and blocks submitted for the case. By doing this it has reduced the amount of unlabeled slides in the Repository and has proven to be a necessary function when identifying accession numbers on unlabeled slides. Training sessions on time capture were held twice this year for contractors.

# RECORDS REPOSITORY DIVISION

Jameelah Johnson
Chief
Date of Appointment — 19 March 2007

## MISSION

The Records Repository Division is organized into 2 branches, the Records Archives Branch, which includes the Medical Information Release Office, and the Pathology Data Branch. Both branches work closely together and many of the personnel have been cross-trained in each other's functions.

***1. Record Archives Branch:***

- Receives stores, maintains, and retrieves all forms (microfiche, digital images, paper) of pathologic case files.
- Conducts inventory verification, appropriately identifies sequences, and performs initial document preparation functions such as ordering and de-duplicating the records prior to their being transferred the digital imaging contractor.
- Matches Legal Medicine Claims files with the applicable accessioned record, verifies patient data in PIMS or accessions the case as required.
- Performs quality assurance review on document images and passes or fails the images as applicable.
- Retrieves previously accessioned case folders in response to the accessioning of a new case sequence on the same patient.
- Returns original x-rays to contributors
- Processes all requests for release of information from the pathologic case files.
- Processes all requests for loan or return of submitted pathologic materials (slides, paraffin blocks, or wet tissue specimens).
- Tracks submission of all Department of Veterans Affairs claims cases.
- Rotates into the Triage function as assigned.
- Assists in receiving and accessioning Radiology class cases and Environmental Pathology Registry cases (KUW, POW, and Agent Orange).
- Maintains Institute Special Handling files and performs annual inventory and screening of these records.
- Assists in record location audits and in looking for missing or misplaced records.

**A) General Dynamics Information Technology (GDIT)**

- Performs document preparation for digital imaging by reviewing all documents within a record
- Corrects any deficiencies or notes deficiencies that cannot be fixed by completing a quality assurance review form and explaining discrepancy
- Matches records against contractors shipping inventory
- Performs quality assurance review of indexed data and scanned images of medical records
- Compares images and indexed data to original records and rejects any records with imaging or indexing errors
- Prepares reports of reviews and calculates error percentages
- Ensures all batches rejected are corrected and reprocessed
- Process incoming pathology case files for appropriate identification, inventory, filing and storage.

**B) National Interest Security Company (NISC) formally known as IMC**

- Process incoming pathology case files and those cases already on file and packages them for shipment
- Shifts records within storage facilities and identifies and files lose correspondence
- Scans all loose correspondence with the exception of non-medical that fall with in imaging range of AWARS
- Organizes files by accession number all non-paper media returned for file by the digital imaging contractor
- Retrieves prints documents out of AWARS as required.
- Assists in filing case folder in the repository by accession number

***2. Pathology Data Branch:***

- Abstracts, codes, and classifies final diagnoses of accessioned cases according to SNOMED International.
- Retrieves demographic and diagnostic data from the research database to assist Institute staff members in their research and teaching endeavors.
- Obtains patient follow-up information in support of approved clinic pathologic correlation or descriptive pathology studies.
- Contacts contributing pathologists, hospitals, tumor registrars, patients, military records centers, and clinicians to obtain complete information.
- Prepares search requests to forward to the National Death Index (NDI) to include NDI Plus, at the request of investigators.
- Rotates into the Triage function as assigned.
- Assists in receiving and accessioning Radiology class cases and Environmental Pathology Registry cases (KUW, POW, and Agent Orange).
- Generates invoices on civilian cases using applicable CPT codes; ensures all patient and contributor demographic data is accurate and that all laboratory tests ordered in PIMS are accounted for through the billing or no bill memo functions; mails invoices if required.

## RECORD ARCHIVES BRANCH/MEDICAL INFORMATION RELEASE OFFICE

## STAFF

Louise Matthews -- Lead Medical Records Technician
Eva D. Duncan – Senior Medical Record and Information Release Technician
Shirley Shields -- Medical Records Technician
Tiloria Brooks-White -- Medical Records Technician
Lenora Vaughn -- Medical Records Technician
Pamela Poteat--Medical Records Technician
Serita Hewitt – Medical Records Technician

*American Registry of Pathology*

Glenda Taylor – Medical Records Technician
Mary Parker------Medical records Technician

*Information Manufacturing Corporation*

Suzanne Davis---Imaging Technician

*General Dynamics Information Technology*

William Moore – Lead Quality Assurance Technician
LaTonya Fleming – Quality Assurance Technician
Sara Reddix – Quality Assurance Technician
LaKinya Sowell– Quality Assurance Technician
Rodericka Reyes – Quality Assurance Technician
Jolene Cintron– Quality Assurance Technician
Jenise Jenkins – Quality Assurance Technician
Aisha Ali – Quality Assurance Technician
Kevin Edwards– Quality Assurance Technician

## ACTIVITIES

The division's workload statistics for calendar year 2006 as compared to 2007 are as follows:

| *Workload Factor* | *2006* | *2007* |
|---|---|---|
| Folder/Materials Actions Received | 74,187 | 74,768 |
| Retrieval/Sent Actions | 11,728 | 9,297 |
| Information Release Requests | 1,730 | 1,750 |
| Material scanned for TMA | N/A | 1,804 |
| VIP Cases | N/A | 250 |

## PATHOLOGY DATA BRANCH

### STAFF

Toni Dickens - Lead Medical Records Technician
Janice Powell - Medical Records Technician
Terry Lloyd - Medical Records Technician
Tammie Miles - Medical Records Technician
Jacqueline Pinnix - Medical Records Technician
Elaine Tabernilla - Medical Records Technician (Veterans Affairs)
Frances Wise - Medical Records Technician (Veterans Affairs)

### ACTIVITIES

The Pathology Data Branch's workload for 2006, compared with that of 2007 is as follows:

| *Workload Factor* | *2006* | *2007* |
|---|---|---|
| Cases Uploaded | 62,543 | 72,517 |
| Data Retrievals | 374 | 239 |
| Invoices Generated (Since 1 Oct 2004) | 8,211 | 6,698 |
| Cases Acknowledge to be Coded | 43,681 | 40,612 |

Since assuming responsibility in the Records Repository Department in March 2007, the coding backlog has been eliminated from thirteen months to three weeks. Furthermore, there have been no issues in coding and billing accuracy. Pathology Data staff are keeping up with all civilian billing requirements and, other cases put on hold for pathology department problem resolution, no billing backlogs exist.

Moreover, in addition to daily duties assigned, the Records Archive Branch has been tasked to retrieve and locate 200 cases a day for the Asterand Project. In July 2007, this department has also been assigned to scan, categorize, and process images into the system for the TMA Project. There have been over 1,804 images processed for the TMA project.

Finally, due to staff shortages in the Case Material and Accession Division, the Records Repository Branch has worked over 3,120 hours, so that incoming cases could be process in a timely manner. The success of Records Repository Department was due to new objectives, perseverance of staff and motivational tools.

# MATERIALS REPOSITORY DIVISION

Tyrone Connie
Chief
Date of Appointment – 10 December—2007

## MISSION

The Materials Repository Division processes, stores, and retrieves accessioned formalin-fixed tissue, microscopic glass slides, and paraffin blocks in support of the Institute's consultation, education, and research missions. In addition, a tissue-resealing laboratory is maintained for use in processing formalin-fixed tissue for storage and for tissue resealing and maintenance functions. The division also maintains a repository of pathologic materials and reports from closed military medical facilities. The division maintains a storage area within Bldg 54, the AFIP main building, along with two 15,000 square foot warehouses located on the Forest Glenn Annex of Walter Reed Army Medical Center in Silver Spring, Maryland.

## STAFF

Tyrone Connie - Materials Handler Warehouse Supervisor
Gregory Corbin - Materials Handler Work Leader
Thelma P. Best - Materials Handler
Ronald L. Duell - Materials Handler
Wayne Hamilton - Materials Handler
Willie Lovett - Materials Handler
Larry Middleton - Materials Handler/Driver
James C. Stinney - Materials Handler/Driver
Audrey E. Tinker - Materials Handler
Marvin L. Alston - Materials Handler
Kendrick Summers - Materials Handler
John McClenny - Materials Handler
Douglas Underwood – Materials Handler

*American Registry of Pathology*
AL Riddick-Material Handler-Warehouse Manager
Ronnie Payne – Materials Handler

*Information Manufacturing Corporation*
Della Owens – Materials Handler

*General Dynamics Information Technology*
Brian Mozon – Materials Handler
Lawrence Warren -Materials Handler

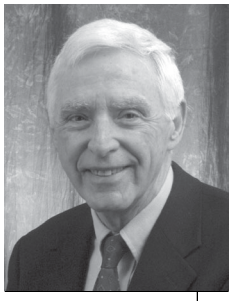
*Jackson Foundation*
Vincent Buskeys - Materials Handler
Kia Roebuck -Materials Handler

## ACTIVITIES

The division's workload statistics for 2006 as compared to 2007 are as follows:

| ***Workload Factor*** | ***2006*** | ***2007*** |
|---|---|---|
| Cases received for file | 74,572 | 60,992 |
| Cases forwarded | 17,105 | 19,659 |
| Total product | | 466,481 |

The Materials Repository continued to be inundated this year with a large volume of materials being returned to the Repository by researchers who departed the Institute. This large volume



Leslie H. Sobin, MD, SES
Director
Date of Appointment — 20 September 1987

# CENTER FOR SCIENTIFIC PUBLICATIONS

## STAFF

Leslie H. Sobin, MD, Director
Frances W. Card, Visual Information Specialist
Anupamjit K. Mehrotra, MD, Associate Editor

## IMPACT

The Center for Scientific Publications:

- oversees editorial and publishing issues of Institute-wide interest,
- reviews proposals for AFIP-generated publications,
- oversees the processing and transmitting of manuscripts to publishers,
- is responsible for clearance of manuscripts and abstracts according to DoD directives,
- maintains the Institute's publications records and archives,
- reviews requests for permission to reprint published materials,
- edits, designs, and produces the Annual Report, the Annual Research Progress Report, the Institute's non-serial publications, the *AFIP LETTER*, informational brochures and catalogs, and produces the Museum newsletter, *Flesh and Bones*.
- provides expert review and consultation for the AFIP/ARP Atlases of Tumor and Nontumor Pathology,
- designs, coordinates, and produces CD-ROMs of Institute publications and provides user support, works with the Public Affairs Office and the Museum to supply photos,
- promotes the development and application of standardized diagnostic nomenclatures and classifications of the World Health Organization (WHO) and the International Union Against Cancer (UICC),
- coordinates revision of the UICC's TNM Classification and oversees publication of the revised editions.

In 2007, the center collaborated with ARP in the production of atlases of pathology on tumors of the pancreas, central nervous system, and adrenal gland and extraadrenal paraganglia as well as an atlas on nontumor pathology of gastrointestinal diseases. The worldwide distribution of these has great impact on the Institute's reputation as a major international source of authoritative information, standardized classifications and nomenclature. The outstanding quality of illustrations, the hallmark of AFIP/ARP publications, has drawn continued praise in scientific journal reviews.

Work on the fourth series of tumor atlases and on the nontumor atlas series continues in print and online formats.

Work continues with the International Union Against Cancer UICC on tumor classification and staging (TNM system) and the interaction of staging with nonanatomic prognostic factors.

Discussions with the World Health Organization were carried out to explore integration of the TNM system into the next revision of the International Classification of Diseases (ICD).

Work on the second volume of Pathology of Infectious Diseases, Protozoa and Arthropods continues. The *Laboratory Methods in Histotechnology* manual is being revised and greatly expanded.

## PROFESSIONAL ACTIVITIES

### *Official Trips (funding agency in parentheses):*

1. March 2007: International Association for the Study of Lung Cancer (IASLC) Staging meeting, Indianapolis, IN, LH Sobin (IASLC)
2. May 2007: TNM Prognostic Factors Project Meeting, International Union Against Cancer (UICC), Geneva, Switzerland, LH Sobin (UICC)
3. August 2007: WHO consultation on integration of TNM Classification with the International Classification of Diseases, Geneva, Switzerland, LH Sobin (UICC)
4. September 2007: American Joint Committee on Cancer (AJCC), Annual meeting, Chicago, Ill, LH Sobin (American College of Surgeons)

### *Committees (Intramural):*

1. Chair, Committee on Graduate Medical Education – LH Sobin
2. Member, Institutional Review Board – F Card

### *Committees (Extramural):*

**LH Sobin**

1. Chair, TNM Prognostic Factors Project of the International Union Against Cancer
2. Member, WHO Expert Advisory Panel on Cancer

### *Editorships:*

**LH Sobin**

1. Associate Editor, AFIP Atlas of Tumor Pathology, 4th Series
2. Associate Editor, AFIP/ARP Atlas of Nontumor Pathology

## AFIP STAFF PUBLICATIONS (SEE CUMULATIVE PUBLICATIONS LIST)

### *AFIP/ARP Atlases of Tumor Pathology*

1. Hruban RH, Pitman MB, Klimstra DS. *Tumors of the Pancreas*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2007. AFIP Atlas of Tumor of Pathology. Fourth series, Fascicle 6.
2. Burger PC, Scheithauer BW. *Tumors of the Central Nervous Systems*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2007. AFIP Atlas of Tumor of Pathology. Fourth series, Fascicle 7.
3. Lack, EE. *Tumors of the Adrenal Glands and Extraadrenal Paraganglia*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2007. AFIP Atlas of Tumor of Pathology. Fourth series, Fascicle 8.

### *AFIP/ARP Atlases of Nontumor Pathology*

Noffsinger A, Fenoglio-Preiser CM, Maru D, Gilinsky N. *Gastrointestinal Diseases*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2007. Atlas of Nontumor Pathology, First series, Fascicle 5.

### *Other Publications:*

1. Card FW. A*rmed Forces Institute of Pathology Annual Report 2006*. Washington DC: Armed Forces Institute of Pathology; 2007. (print and CD-ROM versions).
2. Stone P, Card FW. *AFIP LETTER*. 2007; vol 165: nos 1-3.
3. Clarke T, Heilman J, Card FW. *Flesh and Bones*. National Museum of Health and Medicine. 2007; vol 7: nos 1-6.

# OFFICE OF QUALITY AND COMPLIANCE

Terrell W. Blanchard, COL, VC, USA
Chair
Date of Appointment — 30 June 2007
Director, Office of Quality and Compliance
Deputy Director, Army

## Safety Management

## Office of Quality Assurance

Brenda L. Smith, MS, CSP, CHSP
Director
Date of Appointment – 21 May 2001

# OFFICE OF SAFETY MANAGEMENT

## MISSION

The Office of Safety Management was established in March 1994 to develop and manage a Safety Program as outlined in Army Regulation 385-10, the Department of the Army Safety Program. This office monitors guidelines set forth by the Environmental Protection Agency (EPA), Occupational and Safety Health Administration (OSHA) and the College of American Pathologists (CAP); serves as AFIP liaison with U.S. Army Medical Command (MEDCOM) Safety Office; coordinates with the following Walter Reed Army Medical Center (WRAMC) departments - Safety Office, Occupational Health, Industrial Hygiene, Health Physics, Department of Public Works and the Fire Department. This office also serves as a member of many safety related committees; investigates all on-the-job injuries; and maintains a reference library of EPA, OSHA, DOD and local safety related publications. In keeping with the DOD goal of pollution prevention, this office operates five distillation units, which recycles alcohol, xylene and formalin back into the AFIP laboratories.

## STAFF

Brenda L. Smith, MS, CSP, CHSP – Director, Biological Safety, Occupational Health and Environmental Management
Tyrone L. Green, MS, CHSP – Safety and Occupational Health Manager
Jerome D. Escoe – Safety Technician
Vacant – Office Administrator/Safety Tech

## ACTIVITIES

The Office of Safety Management currently sits on the following committees: AFIP Safety Committee; AFIP Biosafety Committee; AFIP Physical Security/Biosurety Committee, AFIP Quality Assurance Committee; AFIP Commissioning Committee; AFIP Synchronization Committee; AFIP Facilities Committee; AFIP Space Committee; Installation Safety Committee; Installation Hazardous Substance Management System (HSMS) Committee; Environmental Overwatch Training Sub-Committee; Installation Plans and Implementation Sub-Committee; and Installation Asbestos Management Team.

The Office of Safety Management has sole responsibility for disposal of all AFIP's hazardous waste to the WRAMC Hazardous Waste Bunker. This also includes making many entries in the Hazardous Substance Management System (HSMS), a computerized tracking system mandated by DOD. This system tracks hazardous substances from receiving from the vendor through disposal (cradle-to-grave).

The Office of Safety Management presents all of the annual training required by OSHA (Hazardous Communication, Bloodborne Pathogen, and Fire Extinguisher Training) to the staff of AFIP. In compliance with General Farmers Environmental Compliance Campaign Plan, the Office of Safety Management conducts Hazardous and Universal Waste Management training.

The Office of Safety Management has been tasked with one a large new mission, the Waste Management Program. This includes the solvent distillation of xylene, alcohol and formalin; management of Regulated Medical Waste; monitoring of Hazardous (chemical) Waste; and

monitoring of the Silver Recovery Program. AFIP's current alcohol and xylene recycling equipment has proven great cost-savings in the past few years. In 2004 the Office of Safety Management recycled 234 gallons of alcohol and 280 gallons of xylene for a costs savings in purchase and disposal of $26,657.00. Costs saving figures are not available for formalin since AFIP received the formalin recycling equipment in April of 2004.

Because of new regulatory requirements resulting from BioSurety and BioSafety, the Office of Safety Management has rapidly increased in it's area of responsibility. This institute has also recently opened two new biocontainment laboratories that are BSL-3. New research protocols are now being generated and approved by the Biosafety Committee and outside inspections have increased because of the new regulatory requirements.

**GOALS**

1. Develop a computerized training program to track required training on all AFIP employees.
2. Become more involved in Community Emergency Planning Programs and resource levels.
3. Establish and publish a monthly or quarterly Safety Newsletter.
4. Expand the AFIP Safety Program in order to investigate occupational illnesses and injuries more thoroughly.
5. Research the possibility of substituting nonhazardous chemicals for the current hazardous chemicals.
6. Continue to participate in the development and management of an Institute comprehensive occupational/industrial medicine program.
7. Investigate the feasibility of distilling alcohol, xylene and formalin for all Walter Reed Activities.

Frank J. Roberts
Quality Assurance Coordinator
Date of Appointment — 19 January 1993

# OFFICE OF QUALITY ASSURANCE

## STAFF

***Admintrative***

Nicole N. Jenkins, Health System Specialist
Harold Lindmark, Credentials Administrator
Leslie A. Middleton, AFIP Metrics Administrator
Estella L. Page, Office Automation Clerk
Frank J. Roberts, Chief

## IMPACT:

The Office of Quality Assurance is responsible for the coordination of all quality assurance, risk management, and credentialing and privileging activities at the AFIP. These activities include ensuring compliance with the Institute's College of American Pathologists (CAP) accreditation requirements, providing oversight to the AFIP-sponsored Accreditation Council for Graduate Medical Education activities provided by the Institute, and maintenance and monitoring of the AFIP Metrics Program. The Office also manages the AFIP/Military/Veterans Affairs Histopathology Quality Assessment Program, Department of Veterans Affairs Systematic External Review of Surgical Cases Program, International Peer Review Program, the Medical Surveillance and Respirator Protection Programs for American Registry of Pathology contract employees, the AFIP Red Cross Volunteer Program, and the AFIP Intern Program. The Office of Quality Assurance serves as the liaison between the AFIP and the Department of Veterans Affairs Diagnostic Service, maintains the database of subscribers to the AFIP Letter, and mails newly published AFIP fascicles to active duty military pathologists

***ACTIVITIES:***

The Office of Quality Assurance engaged in the following activities in 2006:

- Coordinated the preparation and conducted the AFIP's interim College of American Pathologists' inspection.
- Reviewed and updated, as needed, AFIP Regulation 40-8, Veterans Affairs Pathology Review Program, AFIP Regulation 40-67, Medical Staff By-Laws, AFIP Regulation 40-68, Quality Assurance Administration, and AFIP Regulation 351-2, Policies and Procedures for the Administration of Graduate Medical Education.
- Provided senior staff members' with statistical data on case accessioning, management, and trends, as requested.
- Managed the external peer review program with the Brazilian Society of Pathology, State of Sao Paulo, Brazil. On a bi-monthly basis, 12-14 cases are sent to the AFIP for in-house review and 6 cases per year are sent to Brazil for their review.
- Histopathology Quality Assessment Program (HQAP) is a quality assessment tool which helps US Military and Veterans Affairs medical center departments of pathology maintain their level of diagnostic ability for a variety of pathology specimens. Four pathology cases are posted on the web quarterly, during the second month of each quarter for review and to diagnosis. Cases for this program are submitted on a rotational basis by AFIP departments. A case includes digital images and histories on the cases to be diagnosed, and discussion with references on the previous quarter's cases. Participants have from the first day of the month through midnight of the last day of the month to review the cases and provide their opinion of the diagnosis. After the review and diagnosis period, the partici-

pants' opinions of the diagnoses are electronically assembled by case and are forwarded to the contributing department/pathologist for scoring. Cases are scored correct, acceptable, or incorrect. Participants receive 1 CME credit for each case diagnosed. This program is also available to civilians for a fee. During 2006 this Program had 234 participants (military 10, VA 218, and 6 civilian) and these participants were awarded over 3,700 hours of Continuing Medical Education credit for participation, in the Program.

- Managed Systematic External Review of Surgical Cases (SERS) Program. The Chief, Pathology and Laboratory Medicine Service at each VA Medical Center that performs surgical and cytology examinations, selects and forwards to AFIP, 3 significant surgical pathology cases every other month for a total of 18 cases per year. The cases are reviewed by AFIP with comments on significant features. Quarterly, the Office of Quality Assurances provides the VA chief Consultant for Diagnostic Services Strategic Health Group a report on participating VA medical centers. During 2006, 94 facilities submitted 1,326 cases to the SERS program.
- Managed the AFIP's American Red Cross Volunteer Program by providing orientation and administrative support to volunteers, who serve the AFIP in numerous capacities by providing administrative support to departments, work on education programs, research projects, serve as docents in the National Museum of Health and Medicine, or as histopathology technician trainees. During 2006 37 volunteers provided over 7,890 volunteer hours to the AFIP.
- Managed the AFIP Intern Program which provides the opportunity for high school and college students interested in pursing a career in medicine and/or science an educational experience at the AFIP. Each student is assigned a mentor who provides hands-on and theoretical experience in the diverse field of laboratory medicine. Students attend weekly lectures, provided by AFIP staff that covers various topics in the field of pathology and laboratory medicine. Each student is also assigned a project that must be completed by the end of the Program and presented orally to staff and fellow interns. The program runs from mid-June through mid-August. During 2006, 13 students complete the Program. They were assigned to the Department of Environmental and Infectious Disease Sciences and the Department of Veterinary Pathology.
- Staff mailed AFIP/ARP the following complimentary fascicles to active duty military pathologists during 2006:
  - May-AFIP/ARP Atlas of Non-Tumor Pathology, Number 4, *Non-Neoplastic Kidney Diseases*.

    November-AFIP Atlas of Tumor Pathology, Series 4, Volume 2, *Tumors of the Bones and Joints*.
  - November- AFIP Atlas of Tumor Pathology, Series 4, Volume 3, *Tumors of the Serosal Membranes*.
  - November- AFIP Atlas of Tumor Pathology, Series 4, Volume 4, *Nonmelanocytic Tumors of the Skin*.
  - December- AFIP Atlas of Tumor Pathology, Series 4, Volume 5, *Tumors of the Eye and Ocular Adnex*a.
- Ms. Estella Page serves as the timekeeper/liaison for the 19 Veterans Affairs employees assigned to the AFIP.

## COMMITTEES:

1. Awards/ Recognition Committee, N Jenkins
2. Credentials Committee, N Jenkins, H Lindmark
3. Education Oversight Committee, F. Roberts
4. Graduate Medical Education Committee, N Jenkins, F Roberts
5. Health Insurance Portability and Accountability Act (HIPAA) Compliance Committee, F Roberts
6. Quality Assurance Committee, N Jenkins, L Middleton, F Roberts
7. Organizational Day Planning Committee, F Roberts
8. Safety Committee, N Jenkins

## GOAL

Ensure that the AFIP is fully prepared for its first unannounced College of American Pathologists inspection, which will occur during the Summer/Fall of 2007.

# GRADUATE MEDICAL EDUCATION COMMITTEE

***COMMITTEE MEMBERSHIP:***

Leslie H. Sobin, MD, Senior Executive Service-Chair
George P. Lupton, MD, Program Director Dermatopathology Residency Program
CAPT Craig T. Mallak, Program Director Forensic Pathology Residency Program
Nadine S. Aguilera, MD, Program Director Hematopathology Residency Program
COL Elizabeth Rushing, Program Director Neuropathology Residency Program
Teri J. Franks, MD, Program Director Pulmonary Pathology Residency Program
Zhiping Liu, MD, Resident/Fellow Representative (July 06-June 07
Paul Hartel, MD, Resident/Fellow Representative (July 05-June 06)
Nicole L. Jenkins, Office of Quality Assurance-Secretary
Frank J. Roberts, Designated Institutional Official
Tammie Winters, Pulmonary Pathology
Danny L. Urquhart, American Registry of Pathology

The GMEC meets at least quarterly and maintains written minutes documenting its activities and fulfillment of its responsibilities.

## AFIP COMMITMENT TO GME:

Graduate Medical Education at the AFIP is the cornerstone of the mission of education, research, and consultation. The AFIP acknowledges absolute correlation between quality graduate medical education, clinical excellence and scientific development. The AFIP is committed to assisting and expanding its GME programs by providing the necessary educational, financial, human resources to support its GME programs, and ensuring an environment conducive to teaching and higher learning. The program directors and their professional staff accept the greater responsibility for the fellow's professional and personal development wherein they continually seek to improve their own knowledge and skills. Together, the administration, program directors, and the participating fellows strive to enhance their professional ability and sustain an environment that nurtures innovation, creativity, and teamwork.

## AFIP ACGME ACCREDITED PROGRAMS:

The AFIP serves a sponsoring institution for 5 pathology subspecialty programs: Dermatopathology, Forensic Pathology, Hematopathology, Neuropathology, and Selective Pathology (Pulmonary Pathology).

## HOSPITALS SERVING AS PARTICIPATING INSTITUTIONS TO AFIP ACGME ACCREDITED PROGRAMS:

- Children's Hospital of Philadelphia, Philadelphia, Pa—Neuropathology
- National Naval Medical Center, Bethesda, Md—Hematopathology
- Office of the Chief Medical Examiner, State of Maryland, Baltimore, Md—Forensic Pathology and Neuropathology
- University of Maryland Medical System, Baltimore, Md—Neuropathology
- Walter Reed Army Medical Center, Washington, DC—Dermatopathology and Hematopathology

## ACTIVITIES

***Forensic Pathology Residency Review Committee Site Visit***

The Forensic Pathology Residency Program received its RRC site visit on 11 May 2006. The results of the site visit results were presented to the Residency Review Committee for Pathology Fall 2006 meeting. The Program received a finding of Continued Full Accreditation with a 5-year accreditation cycle.

***Change in Institutional Sponsorship for Forensic Pathology Residency Program***

The Forensic Pathology Residency Program requested change in Institutional sponsorship from the Armed Forces Institute of Pathology (AFIP) to the National Capital Consortium (NCC). The Director of the AFIP concurred with the request. The NCC GMEC and Board of Directors approved the transfer request and the ACGME at its Fall meeting concurred with the request.

### *Closure of Residency Programs*

The AFIP notified the ACGME that it is requesting Voluntary Withdrawal of Accreditation, without prejudice of its Dermatopathology and Hematopathology programs at the end of this academic year (June 07). Both programs were scheduled for RRC site visits on January 18, 2007. This decision was made because the AFIP is a Department of Defense (DoD) organization, which is scheduled to close through the DoD's Base Realignment and Closure Program (BRAC) and DoD will no longer support these programs.

### *Resident Supervision*

The GMEC assures that each of AFIP's subspecialty residency programs provides appropriate supervision of its residents in accordance with ACGME's Institutional and program requirements. This is done through the internal review process, reviewing each program's letter of accreditation, reviewing program goals and objectives, resident exit survey conducted by the GMEC at the end of each academic year, and discussion at GMEC meetings.

### *Resident Responsibilities*

Resident responsibilities are written into each resident's training agreement as well as each program's goals and objectivities. These documents are reviewed annually and updated as needed. The program directors meet with each resident at the beginning of each academic year to review the program goals and objectives and resident training agreement. The residents sign their training agreement at this meeting.

### *Resident Evaluation*

Residents are usually evaluated after each rotation. At a minimum, each resident is evaluated every 6 months. Residents are also regularly assessed in each of the 6 general competencies (patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism, and system-based practice), using an evaluation form developed by the GMEC.

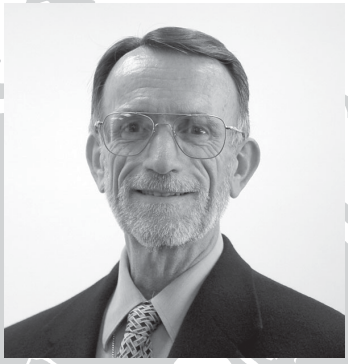
### *ACGME Duty Hour Requirements*

The ACGME Duty Hour requirements have been implemented in our five-subspecialty programs and have been published in AFIP Regulation 351-2, Policies and Procedures for the Administration of Graduate Medical Education. The GMEC assesses program compliance with the duty hour requirements through a program letter of accreditation, internal reviews, and discussions at GMEC meetings.

### *General Competencies*

The general competencies have been introduced into all AFIP residency program's curriculum. The programs are currently at various stages in the teaching and evaluation of these competencies. The GMEC is working with the program directors to ensure that the general competencies are fully implemented in all our programs. The general competencies are an open item at our GMEC meetings. During internal reviews detailed information is reviewed on the program's implementation and evaluation of the general competencies.

# DIRECTORATE OF ADMINISTRATIVE SERVICES



James L. Staiger, PhD
Director, Administrative Services

founded as ARMY MEDICAL MUSEUM 1862

**Human Resources**

**Business Office**

**Logistics**

**Information Management**

James L. Staiger, PhD
Director, Administrative Services — 21 January 2007

**Director of Administrative Services** ..... James L. Staiger, PhD
Support Service Specialist ..... Cheryl D. Parrish
**Human Resources** ..... James L. Staiger, MD
Personnel Management Division ..... Wendy S. Baker
Military Personnel Division ..... Edward E. Davis, LCDR, MSC, USN
Civilian Personnel Division ..... Diane M. Day

**Logistics Department** ..... Harvey Soefer
Materiel Acquisition Division ..... Lanelle Chisolm
Facilities & Service ..... Cornelius L. Reeder
Facilities Maintenance Branch ..... Vacant
Environmental Services ..... Sonia Cross
Property Management Division ..... Michael Stanley
Property Branch ..... Rudolph Wynn
Medical Maintenance Branch ..... Willie Jenkins
Logistics Support Division ..... Sam Belton
HSMS Branch ..... Christopher Jordan
Receiving & Distribution Branch ..... Diedra Carey
Security Division & Reception Desk ..... Vacant

**Information Management** ..... Albert Judd
Automation Management Service ..... Vacant
Developers ..... Guy Peay
User Support ..... Edwana Jones
Network Support/Tel ..... Theodore Blount
Records Forms Management ..... Bonnie Short
Digital Imaging Center ..... Douglas Landry
Exhibits Production ..... Larry Claiborne

# NATIONAL MUSEUM OF HEALTH AND MEDICINE

Adrianne Noe, PhD
Director
National Museum of Health and Medicine

Adrianne Noe, PhD
Director
Date of Appointment—September 1995

# NATIONAL MUSEUM OF HEALTH AND MEDICINE, AFIP

## MISSION AND ACTIVITIES

The NMHM promotes the understanding of medicine—past, present, and future—with a special emphasis on American military medicine. It inspires interest in personal and public health. As the nation's museum of health and medicine since 1862, we aggressively identify, collect, and preserve important resources to achieve a broad agenda of innovative exhibitions, educational programs, and scientific, historical and medical investigations.

To achieve this, we promote the responsible use of the nation's National Historic Landmark collection by continuing to catalog the collections, to record detailed information about the holdings and to edit record to make databases available for the Internet, which allow the collection to be more accessible to researchers. We cultivate ties with professional medical societies and with the Department of Defense to assist in collecting artifacts significant to the history of the practice of medicine and the evolution of medical technology, emphasizing military medicine. Finally, we collect, preserve and interpret modern examples of significant medical technology to document the history of the practice of military medicine and the evolution of medical technology to ensure the continued development of the National Museum of Health and Medicine, AFIP, as a Department of Defense asset and as a national and international resource for the military medical community, professional health care workers and the general public.

In so doing, we emphasize the Museum's focus on critical public and military health issues, the importance of the Museum as a bridge between biomedicine and the general public, the Museum's role in helping to recruit the health professionals of tomorrow, and the Museum's research programs in medical medicine, medical imaging, and other areas.

## ORGANIZATION

The Museum is organized into the Office of the Director, Public Programs and Exhibitions, and Collections and Research.

## OFFICE OF THE DIRECTOR

Staff

Adrianne Noe, PhD
Donna R. White, Administrator
(A) Elizabeth V. Eubanks, Registrar
(D) Steven Solomon, Public Affairs Officer
(D) Courtney MacGregor, Public Affairs Specialist
(D) Jennifer Heilman, Public Affairs Specialist
Theresa Butler, Staff Assistant
Melba Stewart, Special Events and Facilities
Shelly Currie, Visitor Services Representative
Luis A. Pineda, Visitor Services Representative
David Martinez, Visitor Services Representative

The Office of the Director oversees the general activities and governance of all aspects of the Museum and provides policy, technical, and scientific direction. It directs all activities for the site, facility, and programs of the Museum as its activities evolve. Activities handled within the office are external and internal relations, governmental affairs, press and public relations, and institutional development. The office works with print and broadcast media, congressional offices, and local, national, and community organizations to encourage contract with the coverage of AFIP's National Museum of Health and Medicine. The Administrative support staff continues to improve the quality of support provided to the departments of the Museum. This administrative group provides a variety of management services essential to the operation of the Museum in the areas of budgeting, manpower/personnel, contract administration, and organizational management. The office provides general supervision of the Office of the Registrar, Office of Public Affairs, the Department of Programs and Exhibitions, and the Department of Collections and Research. The office of the Director communicates and coordinates with the American Registry of Pathology (PL94-361) and numerous public and private organizations for institutional development. The Director of the National Museum of Health and Medicine is a member of the AFIP Executive Committee and an Associate Director of the AFIP.

### *Gift Shop*

The Gift Shop offers a variety of merchandise to visitors of all ages and educational interests. The Gift Shop contributes to the advance marketing efforts of the Museum and Institute; it extends the effectiveness of the Museum's programs and exhibitions by selling objects related to Museum activities. Each object has a distinct connection with the Museum's mission and/or exhibits that are on display.

### *Facilities and Special Events*

The National Museum of Health and Medicine's facilities and special events staff, in conjunction with the AFIP Directorate of Logistics Department, support and offer consultation to the NMHM in the following areas: physical security, storage movement, maintenance, repair and accountability of materials, housekeeping, exhibit upkeep and maintenance, waste collection and disposal, notification to the Provost Marshal of visitors attending special events and media filming. This notification is a part of the installation's ongoing security process. This department serves as a NMHM liaison with the AFIP Office of Safety Management. It also maintains and inventory of all hazardous chemicals located within the NMHM. The department also serves as a member of many safety-related committees and also investigates all facilities safety issues concerning staff and visitors. The Facilities Department assisted in assembling and disassembling temporary exhibits and prepared maintenance requests for the gallery to house exhibits.

Special Events staff provided support to the AFIP, WRAMC and the surrounding community by hosting and scheduling annual events for WRAMC continuing education courses such as Medical Effects of Ionization Radiation, Medical Management of Chemical & Biological Casualties and Emergency Medical Technician Training. Staff also provided logistical assistance for NMHM-sponsored events such as monthly health fairs, docent meetings, training sessions and other educational programs.

Standard Operating Procedures for Museum meetings and receptions were given to the event planners and/or point of contact for events. The office staffs and secures each event with Visitor Service Representatives. We also offer each event planner and/or point of contact a list of specialty caterers familiar with the policy and procedures of the NMHM. The Special Events Branch also assisted with the audio-visual needs of instructors, guest speakers, and event presenters.

### *Office of the Registrar*

The museum accessioned 163 objects and 3 lots of archival material in 2007. Almost all of these new accessions were acquired through transfers from 15 government/DOD entitites and 35 donations. Donors include:

> ARTech Laboratory, Inc.; Rory Cooper; Manuel del Cerro; Douglas Donald; Deanna Epley; Laura Ferguson; Renato Flores; Carolyn and Christopher Furtak; Jeffery Gambel; Larry Halvorsen; Hanger Orthopedic Group, Inc.; Florence P. Haseltine; Cindy Hawk; HemCon Medical Technologies, Inc; Ingram Miller; Howard Mooney; New Windsor Cantonment State Historic Site; Dr. Sterling Newberry; Col. Charles W. Pemble; Beverly Plog; Eleanor Porter; Christopher Proctor; R. Townsend Heard Trust; Jeffery Reznick; Arthur Rhode; Mike Rhode; Helen Ross; Patricia Rusevlyan; Roberta Schery and James

Low; Thomas Snyder; Richard Thompson; LTC Irvin J.Verney, USAR, Ret.; and Wells Fargo, Inc.

The museum has an active lending program. 2007 saw the loan of 30 objects for new exhibitions around the country and Italy to seven borrowers: The Lincoln Museum, Fort Wayne, IN; Ford's Theater National Historic Site, Washington, DC; Linea d'Ombra, Italy (for exhibition in the Museo di Santa Giulia, Brescia); Smithsonian American Art Museum, Washington, DC; National Library of Medicine, Washington, DC; Field Museum of Natural History, Chicago, IL; and the Exploratorium, San Francisco, CA.

***Ongoing exhibitions with objects lent by the museum include the following borrowers:***

Uniformed Services University of the Health Sciences, Bethesda, MD; Richmond National Battlefield, Richmond, VA; Dolan DNA Learning Center, Cold Spring Harbor, NY; National Library of Medicine, Washington, DC; National Museum of Civil War Medicine, Frederick, MD; and the American Civil War Center at Historic Tredegar, Richmond, VA.

## PUBLIC AFFAIRS

The Public Affairs Office at the National Museum of Health and Medicine (NMHM) remains committed to increasing awareness of the Museum and strengthening participation of our diverse audiences in the myriad of activities that take place at the institution. The office is comprised of the Public Affairs Officer and the Public Affairs Specialist. During 2007, PAO Steven Solomon retired from the Museum and was succeeded in the position by Tim Clarke, Jr. Core areas of activity include Media Relations, the Museum Web site, the Museum Newsletter, and Marketing.

### *Media Relations*

• **Major Media:** Developing and expanding relationships with major media outlets is a primary business activity of the Public Affairs Office. In 2007, the Museum realized considerable success in this area. Increased exposure via earned media projects the Museum's mission, value and programs into the mainstream public as well into various specialized audiences. An invigorated focus was placed on pitching original stories focused on Museum public programs. Below is a sample of key media placements:

- o WPFW-FM 89.3, "Metro Watch," with Gloria Minott and Dr. Marjorie Shaw (Museum docent) (Birth Defects Prevention Month, Aired January 5, 2007)
- o CNN, "Presidential Oddities," with Gary Nurenberg (Aired February 17, 2007)
- o The Washington Post, "Making a Spectacle at a Museum," by John Kelly (LSTAT installation, February 20, 2007)
- o WUSA 9 News Now, Morning Show with Howard Bernstein (Aired July 16, 2007)
- o Washington Business Journal, "Dead men do tell tales at military medical museum," by Jennifer Nycz-Conner (August 17, 2007)
- o MPT, "Maryland Generations: THE WAR - Then & Now," with Yolanda Vazquez (Aired October 17-18, 2007)
- o National Geographic EXPLORER, "Inside the Body Trade," with Lisa Ling (Aired November 11, 2007)
- o The Wall Street Journal, "Fabry Patients Find Art Show Is Therapeutic," by Tim Farnam (Expression of Hope, November 14, 2007)
- o The Washington Post (KidsPost section), "Pictures of Hope," by Marylou Tousignant (November 18, 2007)

• Of special note: In 2007, the Museum initiated a partnership with The Scientist featuring brief articles by Museum staff. The section, called "Foundations," is featured on the magazine's back page, and in 2007, topics included the Museum's Hooke Microscope, the recent acquisition of the first peptide/protein sequencer, and histology of the late 19th century.

• **Military Media:** Engaging local and national military media outlets, or media representatives with a specific interest in military affairs, is a core area of interest for the Public Affairs Office. In 2007, those activities included:

- o The Defense Advanced Research Projects Agency donated a "Life Support for Trauma and Transport" (LSTAT) unit, a portable Intensive Care Unit presently used in battlefield zones in Iraq and Afghanistan. The LSTAT acquisition was featured in a column in The Washington Post.

- Several media outlets – including National Public Radio and The Washington Post, interviewed the Museum's Historical Collections Manager on the history of medicine and initiatives to grow the Museum's collection with objects related to the present conflict in Iraq and Afghanistan.
- In relation to the recent broadcast of the World War II documentary "The War" by Ken Burns, the Museum's Historical Collections Manager was interviewed by two local public television stations about the history of military medicine.

***Web site:***

- The Museum's Web site remains the primary contact point for our visiting public and researcher audiences. It is regularly updated by Museum staff.
- The site averages as many 1,000,000 "hits" per month, and a monthly average of nearly 28,000 "unique visitors." (Based on a review of monthly Web site statistics for January 2007 to December 2007.) According to our site statistics, site visitors average about 10 minutes browsing the site. (Definition of "unique visitors": The number of individual people within a designated reporting timeframe, with activity consisting of one or more visits to the site. Each individual is counted only once.)
- Future plans for the Web site include integration of document and image databases that have been primarily available exclusively to researchers visiting the Museum; improved Web site statistics and trends tracking for better monitoring and data mining of the Museum's Internet audiences; a richer and more complete presentation of Museum news and events, featuring improved coverage of public programs.

***Museum Newsletter***

- The Museum's newsletter, "Flesh & Bones," continued its bi-monthly publication schedule through 2007. Circulation in 2007 averaged 3,500 each issue. The newsletter's readership includes internal AFIP departments, and is mailed to media outlets, schools, libraries, and visitors who have signed up to receive the newsletter. "Flesh & Bones" features articles written by Museum staff focusing on new exhibitions, special public programs, recently acquired objects for the Museum's collections, and loans to other museums. In 2008, "Flesh and Bones" will move to a quarterly publication schedule.

***Other Core Activities and Accomplishments:***

- Expanded marketing outreach of Museum public programs: the Public Affairs Office partnered with the Museum's Public Programs staff to aggressively market monthly health fairs and other public programs. Target audiences included internal AFIP and WRAMC personnel, as well as patients and their families at Walter Reed; and the surrounding local community. Particular success was realized with a program on HIV awareness and prevention, hosted by the Museum and featuring a prominent HIV activist; the program took place away from the Museum facility and received a five-fold increase in participation due in part to a substantial marketing program which included email campaigns targeting local neighborhoods and outreach to student organizations on local college campuses.
- The Public Affairs Office engaged the local community and other key audiences with table displays at several events during 2007, including: a table at the Gateway Georgia Avenue event reaching residents and businesses in close proximity to WRAMC; a table at a local neighborhood association meeting to promote Museum programs; a table at the "Ask Me About Washington" program held in a Congressional office building to educate Members of Congress and their staffs about local Washington, D.C. area cultural and historical institutions.
- The Museum remains an active member of Cultural Tourism DC, a coalition of arts, heritage, cultural, and community organizations that works to make Washington, D.C. a world-class destination for cultural tourism. Museum staff network with other museum representatives via CTDC and seek out new partnership opportunities.
- The Public Affairs Office partnered with the Public Programs staff to prepare programs and marketing materials for the upcoming Lincoln Bicentennial set for 2009. Tentative plans for April 2009 include a symposium on Lincoln's health.
- The Public Affairs Office placed advertisements in several different military newspapers published by Comprint Military Publications, promoting the Museum and the temporary Gregor Mendel exhibition.
- The Public Affairs Office partnered with Public Programs to host National History Day scholars and their award-winning projects. Students selected from Massachusetts, Pennsylvania, Rhode Island and South Carolina visited the Museum for a behind-the-scenes tour and presented their work to Museum and AFIP staff reflecting the year's theme, "Triumph

and Tragedy in History." Their projects included topics such as the discovery of radiation hazards through women dial painters, the 1918 Influenza epidemic, and polio, and were on display at the Museum through September.

# PUBLIC PROGRAMS AND EXHIBITIONS

## MISSION/ORGANIZATION

The division directs and coordinates operational and interpretive components of the Museum. This includes administration, exhibitions, public programs, educational tours, facilities use, and related activities. Division staff worked with governmental agencies, professional associations, museums, and individuals to develop interpretive strategies that promote greater public awareness of contemporary and historical perspectives on disease, public health, and health education.

## STAFF

Steven Hill, Exhibits Manager
(A) Andrea K. Schierkolk, Public Programs Manager
(A) Gwen Nelmes, MA, Tour Program Coordinator
William Discher, Exhibits Specialist

## DEPARTMENT OF PUBLIC PROGRAMS

***Docents:***

Solomon E. Barr, MD; Ed Beeman, MD; Catherine Bonomo, BS; Edward Byrdy, BS Ph; Gabriella Cantoni; Delores Christie, MS; James DePersis; Caitlin Duigan; Bernardine Evans, MA; Regina Hunt, MEE;; Brenda Kiessling, MD; Pam Kincheloe, BSN, JD; Lew E. Larson, BSEE; Sheila Lopez; Kate Lurain, MA; Anne Pollin; Juanita Rogers; Enid Rosen, BS; Marjorie D. Shaw, BA, PhD; Marianne Solfronk, MS; Shen Sung, MD, S. Stephen Schiaffino, PhD; Carolyn Whittenberg, MSN; Jerome Wilson, MA, PhD.

***Museum Volunteers:***

S. Stephen Schiaffino, PhD.

***Visitor Services***

***Attendance:***

Overall attendance at the Museum in 2007 was 61,733. This number includes attendance to permanent and special exhibitions, public programs, and non-public Museum programs. Also included in this number are audiences who attended special events such as receptions for organizations with missions related to those of the Museum and/or AFIP, meetings, courses or training presented by various divisions of AFIP and WRAMC.

The overall attendance in 2007 increased by 56 % over last year. The number of guided tours increased in 2007 by 3%, but the attendance for these tours decreased by 26%. The number of unguided tours increased by 67%, with visitors participating in unguided tours decreasing by 28%. There were also increases in numbers of individuals attending Public Programs by 13% and Special Events by 153%.

***Public Programs:***

On a monthly basis, several public programs were offered to members of the AFIP, WRAMC, and local military communities; all were open to and promoted to the public as well. They included book signings, monthly health fairs offered in conjunction with Health Pact, Inc., historical and scientific lectures, special docent lectures, staff offerings, and activities related to the current exhibitions of the Museum.

In April, to celebrate National Poetry Month, the museum hosted "Every Cot Has Its History: A Look at Walt Whitman's Soldiers," a panel discussion featuring Brian Spatola, MA, collections manager of the Museum's Anatomical Collections, who provided an understanding of the museum's specimens in the exhibition "Walt Whitman's Soldier" and their relationship to Walt Whitman's writings during the 1860s and 1870s; Martin G. Murray, founder of the Washington Friends of Walt Whitman, who talked about Whitman's treatment of his life in Washington, DC, in his autobiography based on the essay "Specimen Days;" and Rosemary Winslow, PhD, Associate Professor at The Catholic University of America, who provided

insight into Whitman's Civil War poetry.

A series of family and adult programs related to genetics complimented the traveling exhibition, "Gregor Mendel: Planting the Seeds of Genetics," which was on display from April until September. Museum and AFIP staff kicked off the opening of the exhibition with a ceremonial "planting of the peas" and ribbon cutting ceremony. Throughout the summer months, museum staff and docents offered a weekly children's story time program featuring Cheryl Bardoe's "Gregor Mendel: The Friar Who Grew Peas," including hands-on activities about heredity. A weekend program with master beekeeper Barry Thompson explored the common links between Gregor Mendel's research on peas and the study of bees. On July 22, the museum celebrated Mendel's 185th birthday with cake and a showing of the Discovery Channel's "100 Greatest Discoveries: Genetics." Michael Coble, PhD, the research section chief of the Armed Forces DNA Identification Laboratory, participated in a lunchtime lecture called "The Daughters of Eve and Sons of Adam: Genetic Testing for Forensic, Anthropological, and Genealogical Investigations," which highlighted the limitations of using genetic systems in genealogical studies. Museum staff and visitors as well as AFIP staff also enjoyed a weekly genetics-focused film series, including "Gattaca," "Soldier," "Harvest of Fear," "Lorenzo's Oil," "Sleeper," "The Island," "Logan's Run" and "The Boys From Brazil."

One of the most well-attended programs related to the Mendel exhibition was "Jennifer Jako: Young and Positive, Living with HIV," which featured a talk by Jako, an HIV-positive filmmaker and a showing of her documentary, "True Life: It Could Be You." A certified HIV/AIDS educator, Jako shared her personal story of infection and the making of the film, with an emphasis on the genetic mutation of the virus and its implications for those infected. This program also included an onsite visit by the J. Craig Venter Institute's Discover Genomics! Mobile Laboratory, which featured a hands-on program called ELISA, in which students model the spread of disease in a population by sharing simulated "body fluids." Following the program, staff traveled with Jako into the community to provide outreach programming for youth at the Ophelia Egypt Health Center in Southeast Washington, D.C.

In August the museum hosted a lecture and art exhibition to highlight author Helen White's "Lipstick and a Smile: One Nam Nurse Story," a book of artworks and commentary recounting White's memories as an Army nurse during the Vietnam War. The program was complimented by a showing of the documentary "Vietnam Nurses with Dana Delaney."

## OTHER EVENTS AND PROGRAMS

***Collaborations:***

The NMHM collaborated for the eighth year with Dana Alliance for Brain Initiatives in a five-day celebration of "Brain Awareness Week 2007" in March. Students from Washington, D.C., Maryland and Virginia had the opportunity to participate in lectures, activities, and opportunities to interact with local neuroscientists. Students also got to see, touch, and learn all about the human brain. Neuroscientists, medical professionals and technicians, and educators from Rutgers University (Rutgers); NIH; Georgetown University (GU); George Washington University's Center for Education and Human Services in Acquired Brain Injury (GWU); Howard University (HU); WRAMC's Defense and Veterans Brain Injury Center (DVBIC); and WRAMC's Army Audiology and Speech Center (Speech) partnered with NMHM and Dana to present lectures and hands-on activities for elementary, middle, and high school students. For the first time, members of the Potomac Chapter of the Society for Neuroscience participated as volunteers for the program and coordinated efforts with the District of Columbia's Mayor's Office to issue a proclamation declaring March 12-16, 2007, as Brain Awareness Week in the District.

Barry R. Komisaruk (Rutgers); Catherine Sasek, PhD, of the National Institute on Drug Abuse (NIDA) of NIH; Jane Acri, PhD of NIDA of NIH; Allison Chausmer, PhD, of NIDA of NIH; David Thomas, PhD of NIDA of NIH; Gaya Dowling, PhD, of NIDA of NIH; Anna Staton of NIDA of NIH; Cheryl Kassed, PhD, of NIDA of NIH; Dennis A. Twombly, PhD, of National Institute on Alcohol Abuse and Alcoholism (NIAAA) of NIH; Roger Sorenson, PhD, of NIAAA of NIH; Phyllis Quartey of the National Institute of Mental Health (NIMH) of NIH; Allison Bennett of NIMH of NIH; Sonya Steele of NIMH of NIH; Naomi Raymundo of NIMH of NIH; Elizabeth Stillman of NIMH of NIH; Dylan Wint of NIMH of NIH; Ezat Luba Yomtovian of NIMH of NIH; Andrea Sawczuk, DDS, PhD, of the National Institute of Neurological Disorders and Stroke (NINDS) of NIH; Margo Warren of NINDS of NIH; Nancy Hart of NINDS of NIH; Paul Girolami of NINDS of NIH; Michelle Jones of NINDS of NIH; Amy Williams of NINDS of NIH; Richard Benson of NINDS of NIH; Kebreten F. Manaye, MD, of Howard University (HU);

Yousef Tizabi, PhD of HU; Werner Graf, Md, PhD of HU; Rachel Dubin of HU; Wayne D. Johnson of HU; Bruk Getachew of HU; Eva K. Polston of HU; Sheketha Hauser of HU; Carlana Ramlochansingh of HU; Benjamin Walker, PhD, Georgetown University (GU); Devon Brose of GU; Eddie Billingslea of GU; Susan Kauffman of George Washington University (GWU); Lydia Gumbs of GWU; Malcolm Marfan of GWU; Corinne Foxley of GWU; Yukti Sharma of GWU; Linda Spencer of GWU; Martin Kerrigan of GWU; Marjorie Shaw, PhD, Docent of the National Museum of Health and Medicine; Gerald Schuchman, MD, of Walter Reed Army Medical Center (WRAMC) (Speech); Joan Tendrich, MA, of WRAMC (Speech); 1LT Kara Delaney of WRAMC (Speech); 1LT Elizabeth Somrack WRAMC (Speech); Alice Marie Stevens of WRAMC (DVBIC); Colleen McNerney of the Society for Neuroscience (SfN); Nadine Costello of SfN; Betsy Schultz of SfN; Andrew Wallace of SfN; Kelly Smith of SfN; Claire MacDonald of SfN; Juanita Young of SfN; Randall Winnette of SfN; Corinne Dreskin of SfN; Lionel Megino of SfN; Danah Stewart of SfN; Nadine Kampman of SfN; Jessica Pearce of SfN; Karen Graham of Charles Dana Alliance for Brain Initiatives; and Archie Fobbs, collections manager of the Neuroanatomical Collection provided lectures, hands-on activities and technical demonstrations that highlighted various brain functions or disturbances. Nearly 650 students participated in this five-day program.

This year marked the seventh year that the Museum collaborated with Health Pact, Inc, a local nonprofit company that assists community organizations by securing medical personnel, community groups, and medical supplies to perform certain medical screenings at health fairs, to present "National Health Awareness Kickoff." This is a series of programs held the first Saturday of each month to acknowledge and explore certain health awareness issues. Medical professionals provided in-depth information on the selected health issue of the month and provided free health screenings for Museum visitors interested in the state of their health. This program continued to be an important part of the museum's on-going programs.

During National Heart Month, the Museum took part in Cultural Tourism DC's annual "Warm Up in February" program with a special tour of the "A Healthy Heart" exhibit called "Warm Up Your Heart," led by docent Brenda Kiessling, MD.

During National Traumatic Brain Injury Awareness Month, the museum hosted two programs focused on brain injuries. During the monthly health fair program, Theresa Rankin, NCE, who discussed the advances in brain injury research and rehabilitation and showed a WETA documentary, "Exploring Your Brain," as well as a presentation of Virtual Conversations educational method developed by Interactive Drama, Inc., which allows users to talk one-on-one to virtual brain injury experts. The museum also hosted a lunchtime program called "The Walking Wounded: The Signs and Symptoms of Brain Injury and Current Issues in Rehabilitation," which featured lectures by Jim Malec, PhD, Anne Moessner, RN, MSN, CRRN, and Theresa Rankin, NCE with a focus on providing information on the nation's current crisis in brain injury and new advances in rehabilitation techniques.

During National Osteoporosis Awareness Month, the museum partnered with Curves of Mount Pleasant manager Emily Chabel to offer information and exercise demonstrations designed to help prevent osteoporosis as well as Mary L. Hart, certified massage therapist to offer chair massages.

Starting in July, museum staff collaborated on monthly exhibits to promote the health awareness kickoffs. The exhibits included text panels describing the monthly campaigns as well as related artifacts and specimens from the collections.

***Ongoing Programs:***
The Museum continued to offer guided tours on the weekend to walk-in visitors on the second and fourth Saturday of each month.

***Tour/Docent Program:***
In addition to the General tour, which introduces visitors to the highlights of the exhibition galleries, the following Curriculum Connection tours were offered during 2007: "Human Body, Human Being" and "To Bind up the Nation's Wounds: Medicine during the Civil War" The "Forensics Mystery" workshops continue to be popular hands-on activities for students, families, and adults. Self-guided visits to the museum continued to be complimented by general and forensics-focused "discovery sheets."

Docents, museum staff, and AFIP staff benefited from educational presentations made at monthly docent meetings, which draw upon the generous personal and professional contributions of local and more distant experts in areas related to the Museum's programs, exhibitions, and topics of general medical and historical interest. In January Frederick Pearce, Chief,

Resuscitative Medicine, Walter Reed Army Institute of Research, made a presentation called, "LSTAT: Life Support for Trauma and Transport," to support the installation of a new temporary exhibition of an LSTAT. In February, to commemorate National Osteoporosis Awareness Month, Joan A. McGowan, Director, Musculoskeletal Diseases Branch at the National Institute of Arthritis and Musculoskeletal and Skin Disease, NIH, made a presentation called, "What is Osteoporosis and can it be Prevented?" In April, Angela Gibson, MS, CGC, of Genzyme Therapeutics, talked about "Genetic Disorders and Genetic Counseling" to compliment the exhibition "Gregor Mendel: Planting the Seeds of Genetics." In May the docents participated in a tour of the Marian Koshland Science Museum and a luncheon to commemorate their past year's volunteer service. During the August meeting, docents participated in the program, "Jennifer Jako: Young and Positive, Living with HIV." In September Kari Saavedra, Director of Education at the National Museum of Civil War Medicine made a presentation called, "Using Hands-on objects in your tour." In October, after acquiring a reproduction Civil War-era amputation kit for use during tours, Alan Hawk, Collections Manager of the Museum's Historical Collections, made a presentation called "Civil War Amputations" and demonstrated use of the kit. In December, to commemorate Pearl Harbor Day, Jan Herman, Navy Medical Historian made a presentation called, "Navy Medicine: Trial by Fire."

Docent training for new recruits took place in September. Docents in training included Gabriella Cantoni, Delores Christie, MS, Caitlin Duigan, Bernardine Evans, MA, Sheila Lopez, Kate Lurain, MA, Juanita Rogers and Jerome Wilson, MA, PhD.

### EXHIBITS

2007 saw installation of several temporary exhibits, up-grading of permanent exhibits, and de-installation/re-installation of a major permanent exhibit to facilitate building upgrade.

January/February was devoted to de-installation and re-installation of the Human Body/ Human Being exhibit. This was necessitated by a requirement to replace and reseal one of the interior walls and replace the aging and water-damaged carpeting with tile. Some minor adjustments and up-grading to the exhibit lighting and components were accomplished during the re-installation.

Two 2006 exhibits, "Cartoonists Take Up Smoking" and "Scarred for Life," were de-installed in April to make way for the visiting exhibit "Gregor Mendel: Planting the Seeds of Genetics."

The Chicago Field Museum's traveling exhibit "Gregor Mendel" was installed in April. Preparation for the installation included building a moisture-proof supplemental interior wall in one of the museum's galleries. This was necessary to mitigate long-standing problem with water seepage through the building's outer walls into the gallery. Exhibits manager made two trips to Chicago to facilitate exhibit loan.

Two temporary exhibits were installed after "Mendel" was returned in September. "Estrogen Tales," an exhibit of science and art based on works of Mara Haseltine and the research of NIH scientist Huyen Kim, was opened to the public at the end of October. "Expression of Hope," an exhibit of artworks done by and for persons suffering from lysosomal storage disorders, opened in early November.

The Alexander Tsiaris exhibit "Healthy Heart" was relocated within the museum.

The Exhibits Department coordinated with Public Programs to install a mini-exhibit each month highlighting that month's health topic. During 2007 displays were installed for Children's Eye Health and Safety (Aug), Sickle Cell Awareness (Sep), Breast Cancer Awareness (Oct), Alzheimer's Disease Awareness (Nov), and Safe Toys and Gifts (Dec).

Exhibit Department supported Brain Awareness Week in April.

Exhibits Department supported PAO and Public Programs on an as-needed basis throughout year.

## COLLECTIONS

### STAFF

Vacant, Senior Curator

***Anatomical and Neuroanatomical Collections***

(A) Franklin Damann, Curator

Archibald J. Fobbs, Collections Manager
Brian Spatola, Collections Manager
Stephen Schiaffino, PhD, Volunteer

***Historical Collections***

Alan Hawk, Collections Manager
(D) Donna Quist, Assistant Collections Manager
Vincent Neaz, Photographer
Gloria Feeney, Volunteer
(A/D)Jenifer Geibel, Summer Intern

***Human Developmental Anatomy Center***

Elizabeth C. Lockett, Collections Manager
Johanna Medlin, Collections Technician

***Otis Historical Archives***

Michael Rhode, Chief Archivist
Kathleen Stocker, Assistant Archivist
Thomas Gaskins, Archives Technician
Donna Rose, IMC Supervisor Archivist
Kirsten Strigel, IMC Contract Archivist
Amanda Montgomery, IMC Contract Archivist
LaFonda Burwell, IMC Contract Archives Technician
Shanika Queen, IMC Contract Archives Technician
Natasha Lyles, IMC Contract Archives Technician
(D) Cathy Sorge, Assistant Archivist
(D) Lauren Bene, IMC Contract Archivist
(D) Scott Prouty, IMC Contract Archivist
(A/D) Janel Whitehart, Volunteer, University of Oklahoma student

***OVERALL IMPACT***

The collections divisions of the NMHM preserve materials representing key subject areas in the history and practice of American medicine, military medicine, and modern medical and health issues and research. Each collecting division specializes in different media and subject areas. Overall the responsibilities of the divisions are to (1) provide the highest level of professional care to the NMHM collections and their associated documentation; (2) collect objects, specimens, and related archival materials deemed significant and relevant to the mission of the NMHM; and (3) support research, exhibits and public programs through access to collections.

Overall, the department of collections accessioned over 3 dozen historical and contemporary items relating to the key subject areas mentioned above. Moreover, the department facilitated loans of nearly a dozen objects to institutions including the San Diego Museum of Man, American Civil War Center at Historic Tredegar, National Vaccination Healthcare Center, and the Walter Reed Department of Pharmacy.

# ANATOMICAL COLLECTIONS DIVISION

## IMPACT

Anatomical Collections Division collects and preserves human and non-human anatomical specimens and associated materials documenting normal anatomy and the response to disease and injury and makes them available for research. The collections are of interest to physical anthropologists, medical doctors, surgeons, historians of medicine, Civil War historians and genealogists, paleopathologists, anatomists and forensic scientists.

## CONSULTATION

Nature and significance of consultative work

Please see impact statement above.

***Consultation statistics***

The Anatomy Department answered an estimated 24 collections based research requests in

2007. Ten of these researchers visited the collections and several requested digital photos of specimens. In July, the Walter Reed Provost Marshal Office consulted Damann and Spatola to determine the non-human origin of a bone found on the Walter Reed Campus.

| *Cases* | *Completed* |
|---|---|
| Military | 2 |
| Navy (2) | |
| Federal | 1 |
| VA(1) | |
| Civilian | 18 |
| Interdepartmental | 3 |
| Total | 24 |

Primary areas of interest for requests included Civil War genealogy (3), physical anthropology (5), forensic anthropology (4), Garfield Assassination (3), veterinary specimens associated with the space program (1), ballistics polytrauma (1) and lineal descendants of patients referred to the Army Medical Museum in the first half of the 20th century (3) among others. Researchers represent faculty at several universities and the Smithsonian Institution, graduate students, a Veterans Administration Hospital Director, members of the general public, a science writer and a medical museum photographer.

## EDUCATION

Three interviews to media were conducted by members of the Anatomical staff. Damann was interviewed by the *Washington Business Journal*, with the subsequent article published on 17 August 2007, and by local PBS affiliate WETA for a documentary on tourist sites around the DC area. The subsequent program aired in November 2007. Spatola did a short interview with CNN for President's day which highlighted the specimens in the museums Presidential collection on 14 February 2007.

Spatola served as faculty for forensic anthropology workshops in the 43rd Annual Forensic Dental Identification and Emerging Technologies Course at the Hyatt Regency Hotel, Bethesda, MD, on 15 and 16 March 2007.

Spatola and Damann co-directed the 20th Annual AFIP Forensic Anthropology Course held at the National Transportation Safety Board Training Facility in Ashburn, VA, from 11–15 June 2007.

Members of the anatomical staff gave presentations to professionals and students at multiple venues. Damann spoke about the NMHM Anatomical Collections at the Department of Anthropology, University of Tennessee, Knoxville on 4 through 7 September 2007, and the Department of Anthropology, New York University on 12 September 2007. Spatola gave a public presentation on Walt Whitman's Civil War Soldiers in Russell auditorium on 21 April 2007, to participants at the National Museum of Civil War Medicine annual meeting held in Russell Auditorium on October 13, 2007. Damann and Spatola gave a public presentation on "The Human Skeleton: Why You Should Listen to your Parents" covering skeletal and dental health targeting children and parents on 27 October 2007.

Damann and Spatola gave a three-hour mini forensic anthropology workshop to American University students in the Department of Anthropology on 7 November 2007.

## RESEARCH

Spatola has undertaken several collections management projects in 2007. The general collection of osteological material is being reorganized with the assistance of intern Rebecca Farlow, MA. Kate Collins, an intern and student in the George Washington University Department of Anthropology completed rehousing and inventory of 680 Civil War specimens. Intern Samara Simmorins completed an inventory of the Gibson osteological material. Approximately 189 crania from the collections have been rehoused into archival acid free storage containers and dozens of specimens have been reunited with their histories including the wet preparation of Henry Wirz's arm bones and his torn sternocleidomastoid muscle from his death by hanging for war crimes committed at Andersonville Prison during the civil war.

Damann and Spatola initiated a research project along with AFIP Histology Labs into the conservation of the Ellis R Kerley bone slides that are used in forensic science for adult age estimation.

Archival research for the upcoming exhibit "Resolved: Advances in the Forensic Identification of US War Dead" has taken place throughout the year. Damann took research trips to (1) US Army Quartermaster Corps Museum, Fort Lee, VA on 23 August 2007, (2) the Joint POW /MIA Accounting Command, Hickam AFB, HI on 26–31 December 2007, (3) National Archives Records Administration, College Park, MD on 16 August; 3 October; 5 October; 30 November 2007. Damann and Spatola visited the National Anthropological Archives in Suitland, MD on 1 November 2007. Spatola visited the Becker Library at the University of Washington Medical School in St. Louis, MO, to borrow archival material from the Mildred Trotter papers on 4 and 5 December 2007

Two research grant concept papers titled *Development of Screening Methods for estimating Postmortem Interval and Body Relocation based on Temporal and Spatial Patterns of Biomarkers in Human Decomposition Microbial Ecology and Development of Methods for Estimating Postmortem Interval and Body Relocation based on Biomarkers of Human Decomposition Ecology* were submitted in response to two separate NIJ Solicitations (1) Forensic DNA Research and Development Funding Opportunity No. 2008-NIJ-1700 SL# 000803 and (2) Research and Development in Forensic Anthropology and Forensic Odontology Funding Opportunity No. 2008-NIJ-1698 SL# 000802, respectively on 13 November 2007.

### PROFESSIONAL ACTIVITIES

Spatola attended the American Academy of Forensic Sciences meeting in San Antonio, Texas, from 20–24 February 2007

Spatola attended the American Association of Physical Anthropologists meeting in Philadelphia, PA from 28–31 March 2007

Damann and Spatola attended an invitation-only scientific forum on World Trade Center human remains recovery operations at the Office of Chief Medical Examiner, New York City for open comments and suggestions by representatives in the field of forensic anthropology from 14–16 May 2007

### OTHER ACTIVITIES

Rare bone specimens in the Anatomical Collections were studied by two forensic anthropologists from the Joint POW / MIA Accounting Command Central Identification Lab (JPAC-CIL) in preparation for the American Board of Forensic Anthropology certification exam on 15 February 2007.

Damann and Spatola provided forensic anthropological support for OAFME morgue operations at Dover Air Force Base on two occasions the first in March and again in 25 August 2007.

Spatola travelled to Mutter Museum in Philadelphia on 9 August 2007 to examine Civil War specimens donated to that museum by the Army Medical Museum soon after the war. Several specimens that once belonged to the museum were located. Only one had enough information to be identified.

## HISTORICAL COLLECTIONS DIVISION

### IMPACT

The Division of Historical Collection acquires and preserves both artifacts of record and of note documenting the history of the practice of medicine, innovations in biomedical research and the evolution of medical technology. The collection emphasizes the role of the Armed Services of the United States, United States Public Health Service and the United States federal government as it relates to the above themes. The collection is made available for the education of medical professionals, Department of Defense personnel, historians and the public through exhibits in the museum, loans to other institutions and individualized study.

### CONSULTATION

***Nature and significance of consultative work***

Please see impact statement above.

### *Consultation statistics*

Historical Collections responded to a total of 77 research requests.

| *Cases* | *Completed* |
|---|---|
| Military | 2 |
| Army (2) | |
| Federal | 0 |
| Civilian | 75 |
| Total | 77 |

## OTHER ACTIVITIES

The Historical Collections databases currently include 39,222 records. Historical Collections is the first dataset to go 'live' on KE EMu and currently the only live dataset. AJ Hawk and J Geibel of the Historical Collection's staff edited and standardized approximately 26,389 records in the new database during CY 2007. G Feeney of the Historical Collection's staff was active cataloging the museum's civil war bullet collection using the new software as well as re-housing the pharmaceutical collection. The goal of the database is to make the holdings of Historical Collections more widely available to the research community. V Neaz of the Historical Collection's staff was active in generating over 4,000 images of historical and anatomical artifacts for eventual incorporation into the Ke Emu database.

Historical Collections collected numerous artifacts to document the history of military medicine. Acquisitions included Medical Equipment Set for a Medical Holding Squad that was used during Operation Iraqi Freedom, uniforms worn by an Army nurse during the Vietnam Conflict, a clinical psychologists field set, a pair of crutches issued to a recovering amputee during the Korean Conflict, a Navy Corpsman's helicopter helmet worn onboard the USS TRIPOLI (LPH-10) during relief operations for Operation Restore Hope and mosquito netting used by COL RT Heard, stationed Philippine Islands before 1941.

The Satava Collection initiative, a prospective collecting effort in honor of Richard Satava MD FACS, documents the influence of computerization in the practice of medicine. Dr. Satava agreed to support this collection initiative which will give the museum a unique opportunity to collect the technology causing a paradigm shift in the practice of medicine as it is occurring. Among the artifacts collected under this initiative include a olfactory delivery system for surgical simulators, prototype electronic medical record devices and the first three generations of the MUSTPAC (Medical UltraSound, Three-dimensional and Portable with Advanced Communication) system that was a fully functional 3D Ultrasound system able to be used in austere environments.

The third collection effort is the Orthotic and Prosthetics initiative which seeks to document continuity and change in the field of orthotics and prosthetics. This initiative updates to the twentieth and twenty-first centuries a substantial collection of artificial limbs dating from the early nineteenth century. Items collected through this initiative include an Otto Bock C Leg system issued at Walter Reed Army Medical Center; a prosthetic arm manufactured by the J.E. Hanger Company in the 1950's, cosmetic hand prosthesis and a runner's below-knee prosthesis.

The Billings Microscope collection continues to expand. Recent acquisitions include a Zeiss LSM-310, AFIP's first confocal microscope, a General Electric X-Ray Microscope dating from the 1950's, an Ikegami 370M video microscope camera. Manual Del Cerro continues donate from his significant personal collection, adding a MR URSS compound monocular microscope, manufactured in the Soviet Union in 1939, a Vickers Cooke Troughton & Sons, Ltd. Compound Trinocular Microscope w/ Phase Contrast Optics, circa 1950, a Tiyoda Binocular Research Microscope, circa 1960 – 1970, a Steindorff Binocular Microscope, circa 1950, with faux-alligator carrying case and a Skillcraft Corp Microscope Lab No. 424 with toy binocular microscope (un opened), circa 1970 to the collection.

Other significant donations include a Field Kits for Medical Aides, ca. 1950, civil defense medical kit maintained by the town of Cornwall, New York during Cold War era and an ABI 377 DNA Analyzer used by the Armed Forces Repository of Specimen Samples for the Identification of Remains (AFRSSIR).

AJ Hawk curated exhibits entitled "Life Support Trauma and Transportation," which opened

February 2007, and "The Automated Gas-Phase Protein Sequencer, William J Dreyer and the Creation of a New Technology", which opened in September 2007.

AJ Hawk contributed content related to the medical history of the Second World War for the local public radio and television spots promoting the Ken Burn's documentary "The War."

***Lectures:***

1. AJ Hawk, The Medical and Surgical History of the Future, Armed Forces Institute of Pathology, Professional Staff Conference, January 3, 2007.
2. AJ Hawk, Reengineering the Body, Joint Prostheses in the Human Body, Colonial Forge Middle School class, National Museum of Health and Medicine, March 19, 2007.
3. AJ Hawk, Navy Medical Artifacts in the Collection of the National Museum of Health and Medicine, Armed Forces Institute of Pathology, First Annual Meeting and Papers Session, Society for the History of Navy Medicine, May 3, 2007.
4. AJ Hawk, The Viet Cong Pharmacopeia, 80th Annual Meeting of the American Association of the History of Medicine, May 4, 2007.

***Conference Participation:***

1. American Association for the History of Medicine, Montreal, Canada, 3-6 May 2007.
2. Medical Museums Association Montreal, Canada, 3 May 2007.
3. Society for the History of Navy Medicine, Montreal, Canada, 3 May 2007.

# HUMAN DEVELOPMENTAL ANATOMY CENTER

## IMAGING TECHNICIANS FOR VIRTUAL EMBRYO PROJECT:

Austin Chang, Undergraduate, Robert H. Smith School of Business, University of Maryland
Bryan Feldman, Undergraduate, College Undergraduate, College of Chemical and Life Sciences, University of Maryland
Anu Setlur, Undergraduate, College of Chemical and Life Sciences, University of Maryland
Jill Elise VanMetter, Graduate Student, Undergraduate, College of Chemical and Life Sciences, University of Maryland

## IMPACT

To acquire, preserve, and encourage the use of major research collections for all qualified members of the research community. The collections are made available for research and for education by appointment and via Web site. Continued stimulation of new hypothesis-driven research is a top priority.

The Research Collections consist of two divisions: the Human Developmental Anatomy Center continues to be the recipient of funding from the National Institute of Child Health and Development, as well as partnering in on-going collaborations with the National Heart Lung and Blood Institute. These collections represent an important resource for the AFIP and its slides and library are regularly used by AFIP staff.

## EDUCATION

1. 2 AFIP Internship Program
2. 5 local High School interns (volunteer)

## RESEARCH

Non-grant Research days supported: 20
Collaboration: 80 days
Grant supported days 210
Data requests 4
Film crews
Tours 22

***Abstracts :***

1. Dhanantwari Preeta; Leatherbury L, Yamada S, Lo C, Lee E, Samtani R, Lockett E, Anderson S. Formation of the intraventricular septum as a developmental landmark in

echocardiography. Abstract for Journal of Radiology.
2. Yamada, Shigehito, Samtan, R., Lee, E., Lockett E, Uwabe C, Shiota K, Anderson, S. Lo, C. High resolution analysis of human embryonic development. Abstract for American Association of Anatomy Platform Presentation, You-seum, Missouri.

***Popular Press:***
New Scientist Magazine

***Collaborators in research and education projects:***

**Civilian**

1. National Institutes of Health, Nuclear Magnetic Research Center, Bethesda, MD
2. National Institutes of Health, National Library of Medicine, Bethesda, MD
3. National Institutes of Health, National Heart Lung and Blood Institute, Bethesda, MD
4. Louisiana State University, Health Sciences Center, New Orleans, LA
5. Meddium, Inc. and Zoom Intelligence, Inc. Silver Spring, MD

## PROFESSIONAL ACTIVITIES

**1. Official trips. 3**

**2. Museum Programs**
Brain Awareness Week
Talk on Medical & Scientific Illustration as career

# NEUROANATOMICAL COLLECTIONS

The Neuroanatomical Collections continued to be the recipient of National Science Foundation funding for electronic collections development during 2007. Through this resource and other support, the division encourages use of its resources by all qualified members of the research community as part of its role within the Armed Forces Institute of Pathology and the National Museum of Health and Medicine. This division collects and preserves valuable artifacts of neuroanatomy, and strives to become the premier repository in the United States for colletions focusing on neuroanatomy of the human and other non-human species.

The division includes the Yakovlev-Haleem Neuropathology and Development Collection, the Blackburn-Newmann Collection, the Lindenburg Forensic Pathology Collection, the Welker Comparative Neuroanatomy Collection, the John I. Johnson Comparative Collection, and ten other major collections.

***Consultation***
Numerous researchers utilized the Neuroanatomical Collections during 2007. Collaborating researchers include the following individuals:

1. *John I. Johnson, PhD, Department of Anatomy, Michigan State University.
2. *Wally I. Welker,PhD, Department of Physiology, University of Wisconsin-Madison
3. John Allman, PhD, Hixon Professor of Neurobiology, Division of Biology, California Institute of Technology.
4. Kebreten Manaye, MD, Department of Physiology and Physics, Howard University College of Medicine.
5. Lori Marino, PhD, Neuroscience and Behavioral Biology Program, Emory University
6. Robert Switzer III, PhD, Neuroscience Associates, Inc.
7. Manuel F. Casanova, MD, Gottfried and Gisela Kolb Endowed Chair in Psychiatry University of Louisville Department of Psychiatry.
8. William W. Seeley, MD, Clinical Fellow in Behavioral Neurology, University California San Francisco, Memory & Aging Center.
9. Karen Graham, Dana Alliance for Brain Initiatives.
11. John Morris, Neuroscience Program, Michigan State University.
12. Jason Kaufman, PhD, Division of Biology, California Institute of Technology.
13. Richard S. Nowakowski, PhD, Department of Neuroscience and Cell Biology, University of Medicine and Dentistry of New Jersey.

14. William W. Seeley, MD, Memory and Aging Center, University of California at San Francisco, San Francisco, Calif.
15. Carolyn Ikpeama, Student Program Director, St. Louis Science Center, St Louis, Science Scope.
16. Jose Ramos, Graphics Research Supervisor, Exhibition Department, American Museum of National History, New York, NY.
17. Barabara Birnman, Public Affairs Specialist, National Institutes of Health, Frederick, Md.
18. Julie Korenberg, MD, Department Medical Genetics, Cedar Sinai, Los Angeles, Calif.
19. Patrick Hof, MD, Department of Geriatrics, Mount Sinai School of Medicine, New York, NY.
20. T Xu, Department of Physiology and Biophysics, Howard University, Washington, DC.
21. Y Sharma, Department of Physiology and Biophysics, Howard University, Washington, DC.
22. CJ Bonar, Cleveland Metro Parks Zoo, Cleveland, OH.

*Collaborations with these scholars continue to be possible chiefly through support of the National Science Foundation.

***Other Activities:***

John Allman PhD, Division of Biology, Caltech University, Pasadena, California and his staff, in collaboration with Neuroanatomical collections staff, conducted research on developing spindle cells and their correspondence to fetal development and adult mental illness. Stereology (algorithmic mapping) of the human and other mammalian brains project was also initiated with Dr. Allman's group. Additionally, Dr. Allman, in cooperation with Neuroanatomical collections staff, Dr. Kebreten Manaye and Dr. Julie Korenburg, were awarded a $1.8 million research grant from the James S. McDonnell Foundation, to be used for brain research over the next 3 years.

The Neuroanatomical Collections were instrumental in providing valuable educational experiences for students from the Rappahannock High School, Swanson Middle School, George Washington University, and Howard University.

The Neuroanatomical division of the National Museum of Health and Medicine/AFIP, the Dana Alliance for Brain Initiatives, and the National Institutes of Health collaborated on a Brain Awareness program. Students from Virginia, Maryland, and the District of Columbia were invited to hear featured speakers from NIH and to participate in interactive demonstrations. They also viewed artifacts from the museum's brain collections. Approximately1000 students attended the program.

Dr. George Stevenson and researchers from Neuroscience Associates and the University of Florida are studying the olfactory system in bears.

Roger Reep, PhD, University of Florida–Gainesville, Collaborator in studies of the brains of Manatees. He recently published a journal manuscript on the Manatee, covering external morphology and nuclear Architecture in relation to behavior, which included many images from Welker's UW Brain Collection. Dr. Reep's recent collaborative study on regional brain volume in mammals from the UW Collection was published.

Additional brain images from the UW Collection that have been used in a book on the somatosensory specializations in the Manatee's nervous system and a journal article on somatosensory areas of the Manatee cerebral cortex.

Research of the Neuroanatomical Collections was also made possible by the Internet at http://www.brainmuseum.org as well as through mirror sites at http://www.manateebrain.org; http://www.brains.rad.msu.edu (the Michigan State portal); and http://turing.commtechlab.msu.edu/default.htm (the database site).

The University of Wisconsin-Madison and Michigan State University continued to maintain these websites jointly and chiefly through support from the aforementioned NSF grant. Collection inquiries via the website increased 40 percent throughout the year. Requests for collection images, scheduled visits to the collections division and to the museum have all increased as a result of the website. The website receives about 200 hits per day from around the world. Educators continue to report that the website is a useful resource for curriculum development, science projects, and answering structural and functional questions about the brain.

A search function was added to the widely used human brain atlas that is made from MRI images stored at Michigan State and images of stained sections from the NMHM Yakovlev-Haleem collection. This search function of the web site enables locating any neuroanatomical structure in the plane of section of choice, and will be expanded to include other atlases as they are completed. In this way users can view instant comparisons of corresponding structures in brains of different species. Labeling of stained sections in the sagittal and horizontal planes is in progress for the sheep brain atlas, and in the coronal and horizontal planes for the dolphin brain atlas. These atlases are located on the Internet at http://www.msu.edu/user/brains/atlases. A recent publication using this technology describes the brain of the Spinner Dolphin, Stenella longirostris orientalis.

***Conservation:***

Collection staff continued to identify and pursue conservation priorities with specific attention to the Welker Comparative Neuroanatomy Collection slides, this work being a defined expectation of the aforementioned National Science Foundation grant. Additionally, documents of the Welker Collection were transferred to acid free folders after scanned images were preserved on compact discs for future access.

Reorganization of the Yakovlev-Haleem library continued alongside reassessment of staff workspace. Selected contents of the library were relocated to the museum's off-site storage facility in Gaithersburg, Md for storage. Additionally, slides from the C. Miller Fisher Collection were stored in slide cabinets at the Gaithersburg facility.

***Equipment:***

One stereology computer system was purchased with support from the J. McDonnell Foundation and John Allman, PhD.

***Presentations:***

1. January 2007: Brain Function and Research in Neuroscience, Bladensburg High School, National Museum of Health and Medicine/AFIP, Washington DC
2. February 2007: Brain Function and Research in Neuroscience, Fulton 4-H Club, Fulton MD
3. February 2007: Brain Function and Research in Neuroscience, Swanson Middle School, Arlington VA
4. February 2007: Brain Function and Research in Neuroscience, Swanson Middle School, Arlington VA
5. March 2007: Brain Awareness, National Museum of Health and Medicine, Washington DC
6. April 2007: BRAC and the Future of the Neuroanatomical Division of the National Museum of Health and Medicine, Howard University Medical Center, Washington DC
7. June 2007: Unlocking the Mystery of the Brain and Careers in Neuroscience, Bladensburg High School, National Museum of Health and Medicine/AFIP, Washington DC
8. June 2007: Brain Function and Research in Neuroscience, Deputy Director Armed Forces Institute of Pathology Summer Program, National Museum of Health and Medicine, Washington DC
9. June 2007: National History Day Lecture, National Museum of Health and Medicine/AFIP, Washington DC
10. July 2007: Brain Function and Research in Neuroscience, National Cancer Institute Take Your Child to Work Day, Fort Dietrich, Fredrick MD
11. July 2007: Teenage Brain Workshop, St. Louis Science Center, St. Louis MO
12. October 2007: Neuroscience Week at St. Louis Science Center, St. Louis Science Center, St. Louis MO
13. November 2007: Sensory And Motor Areas Are Seen To Converge Upon The Insular When Viewed Inflatten 2-Dimensional Cerebral Cortex, J. I. Johnson, J. A. Morris, A. J. Fobbs, Jr., Society for Neuroscience, San Diego, CA
14. November 2007: Comparative Anatomy Of The Locus Coruleus In Humans, Y. Sharma, T. Xu, W. Graf, A.J. Fobbs, Jr., C. Sherwood, P. Hof, J. Allman, K. Manaye, Society for Neuroscience, San Diego, CA
15. December 2007: VENs and the Developing Brain a 3-D Reconstruction. J. McDonnell Foundation Meetings, University of California at San Francisco, San Francisco, CA

***Media Collaborations:***
February 2007 Discover Magazine used comparative and human Images from the Yakovlev-Haleem Collection and the Welker Collection for a publication on the brain

***Project Training and Development:***
Extensive alphanumeric data from museum collection specimens were used worldwide via the Internet. Data and images from museum collection specimens were made available for use in education at all levels. Magnetic Resonance Imaging (MRI) scans provide volumetrical and spatial data about the internal architecture of brains of rare or difficult-to-process species of animals. The spatial data can be analyzed in 3-dimensional models. These projects provided hands on research experience for student interns. These projects have provided opportunities for training student interns in the use of data basing, electronic imaging, and the acquisition of neuroanatomical data, including 3-dimensional surface rendering modeling.

***Outreach Activities:***
The Sacramento project primarily involved with undergraduate education reached another dimension with the formal presentation, by the undergraduate students, of their work using the collection specimens to visiting grade school students.

Brain Awareness Week (March 2007) held at the National Museum of Health and Medicine brought together over 1,000 school age students form Virginia, Washington DC, and Maryland. This event also involved other federal agencies including NASA and NIH as well as Georgetown University and Howard University Medical Schools. This highly successful program will be repeated next year. The Neuroanatomical division of the National Museum of Health and Medicine/AFIP, the Dana Alliance for Brain Initiatives, and the National Institutes of Health collaborated on a Brain Awareness program. Students from Virginia, Maryland, Pennsylvania and the District of Columbia were invited to hear featured speakers from Howard University, Georgetown, and the National Institutes of Health on topics related to the brain.

The recently developed websites devoted to the brain and the NMHM collections offer an opportunity to obtain images of real brains. School children in particular frequently request permission to use our Internet images for their projects, exhibits and papers. Teachers of K-12, undergraduate, graduate, medical, and postgraduate medical students also are sources of numerous requests to use our website materials.

## OTIS HISTORICAL ARCHIVES

Substantial requests for information were handled, frequently regarding sensitive topics. The Vorwald Collection continues to be used for research for asbestosis lawsuits in spite of being open to the public for two decades. Interest in the 1918 influenza epidemic has not yet peaked, and many requests were received to use images from the Archives, all of which are viewable on the website to facilitate research. A book chapter ‘"A Repository for Bottled Monsters and Medical Curiosities: The Evolution of the Army Medical Museum"’ on the Medical Museum in the nineteenth century appeared in Small Shrines and Halls of Fame: Local Museums and Local Histories, an edited volume by Amy Levin and Rhode’s paper "The Rise and Fall of the Army Medical Museum" was published in Washington History magazine. He submitted a paper on the Medical and Surgical History of the War of the Rebellion for publication in the Journal of the History of Medicine and Allied Sciences, and has gotten reviewer comments on it. At the beginning of the year, we assisted Bill Creech of the National Archives with a survey of our St. Elizabeth’s Hospital collection. A tour was given to National Park Service's monument core rangers in February.

The Medical Illustration Service Library, through the IMC scanning project, is being scanned. Rhode is the Task Order Manager for the MIS part of the project; he and the assistant archivists and technicians selected material for scanning, reviewed the material and recommended accepting the work on behalf of the government. Stocker moved to ARP and was replaced by Rose as team leader for the project. The members of her IMC team are processing the images for scanning and then cataloguing them when they return. Gaskins and Sorge are providing the quality control. 200,000 images were scanned last year, and cataloguing and indexing are being finished. 350,000 images are anticipated for this year including 10,000 military medicine photographs newly added to the NCP collection, the Museum’s 19th century collections logbooks, captured Viet Cong medical journals, accession files for the Orthopath and Blackburn collections, and HDAC’s Carnegie collection records. USUHS transferred the WIDMET Vietnam

casualty data back to AFIP over the summer, prefatory to scanning it; the material is being worked on by IMC in West Virginia. In 2006 photographs were scanned from collections including WWI/Reeve, Medical Illustration Service Library, Swan Vietnam War slides, American Expeditionary Forces, Signal Corps, HDAC's Arey-Depena lantern slides, Korean War Ballistic, and WRAIR Korean War photographs; these photographs are all searchable on the AFIP's AWARS system.

Computerized cataloguing on the collection level has continued in the shelf inventory. Cataloguing for the General Medical Products Information Collection, Medical Ephemera, New Contributed photographs, Audiovisual collection, AFIP Historical Files and others was done. Implementation of a comprehensive computer catalogue for the entire Museum continued with data from the archives being turned over to KE Software for conversion to their EMU database, although this project has been slowed due to financial issues. New material acquired included Richard Thompson's "The Big Leg" cartoon about visiting the Army Medical Museum, McHale's Chiropody License (1917), the log of the Beadle County Chapter of the American Red Cross (1917-1922), Blanchard collection of two letters from Army Medical Museum staff (1891), Donald Collection of World War II hospital ship material, McCravey Collection of World War II medical treatment files, and a roomful of Wound Data Munitions Effectiveness Team (WDMET) records from the Vietnam war. Museum records from staff members were added to the archives. Rhode interviewed Frank Avallone for the AFIP Oral History Collection. Sorge wrote a finding aid to AFIP neuropathologist Webb Haymaker's papers which is on the web. Sorge and Stocker also added new material to the WRAMC Historical Collection and updated its finding aid.

Research and historical material, mostly on military medicine, was provided to AFIP especially the Public Affairs Office the Departments of Radiologic and Veterinary pathology. Other DOD institutions assisted were US Army OTSG (providing raw text scans of the Civil War and World War I medical histories for use on their website), the Secretary of Defense Historian's Office (9-11 photographs), USUHS, Tinker Air Force Base, Naval Research Lab, US Army Telemedicine and Advanced Technology Resource Center, Borden Institute, WRAMC Chaplain's Office, Army Corps of Engineers, US Army Center of Military History, Fort Jackson, WRAIR and the US Army Medical Department Museum. Other institutions assisted included Centers for Disease Control, National Library of Medicine, US Dept. of Health and Human Services, Smithsonian National Museum of American History, University of Manchester, Denver Museum of Natural Science, Harvard University, Smithsonian American Art Museum, National Park Service, Eastern Washington University, Stryker Osteosynthesis, Helicopter Museum, National Geographic, Columbia University, Flinders Medical Center, University of Wisconsin – Madison, St. Elizabeth's Hospital, Dittrick Medical History Center, University of North Texas, Civil War Preservation Trust, University of Nottingham, University of Toronto, Mutter Museum, George Mason University, Vietnam Dog Handlers Association, University of Queensland, Canada Science and Technology Museum, Doubleday, National Baseball Hall of Fame and Museum, Texas Parks and Wildlife, Creative Differences TV, Radcliffe University, Ageless Magazine, Politics and Middle East Studies, Institut National de L'audiovisuel, South Carolina State Museum, University of North Carolina-Wilmington, Adler Museum of Medicine, Penn State University, Oxford University, Fredericksburg Area Museum and Cultural Center, Linea d'ombra Libri, Umea University, GlaxoSmithKline, University of North Carolina-Charlotte, Washington City Paper, Greenwood Publishing Group, Army Historical Foundation, University of Tennessee Memorial Hospital, Fred Friendly Seminars, Inc., Jones and Bartlett, National Geographic TV, W.W. Norton and Company, University of Massachusetts Medical School, Chad Angler Lewis, Danish Society for Emergency Medicine, Waseda University, JAK Films, Health Protection Scotland, Popular Mechanics, James Madison University, Missouri Valley Special Collections (Kansas City Public Library), The Minister's Communications Unit, Ministry of Foreign Affairs (Norway), Maryland Public Television, Post Office Editorial, Tulane University, University of Saskatchewan, HiddenHill Productions, Fundação Roberto Marinho, Catholic Health Association, Spring Mount Communications, American Medical Association, Office of Public Health Preparedness, Mount Sinai School of Medicine, Times Publishing (Hong Kong) Ltd., Penn Museum, Mississippi Board of Nursing, United States Naval Institute, HiddenHill Productions, Spring Mount Communications, I-Dear2 Kommunikation&Management GmbH, High Desert Museum, Clinical Lab Products, Battleground Productions, CLP Magazine, Perugia University Medical School, University of North Carolina School of Medicine Chapel Hill, American College of Radiology, Michigan State University, Weider History Group, Inc., Mowbray Publishing Ltd., Les Editions Didier, Facts on File/Chelsea House, McGraw-Hill, Pasteur Foundation, University of South Carolina Aiken, Kansas State Historical Society, SAIC, Backe Communications, Informa Healthcare, Carousel Films, Steptoe and Johnson, Quatrefoil

Associates, Greenblum and Bernstein PLC, and Feldman & Associates Inc.

The significant Archives presence including the Guide to the Collections of the Museum on the website remains the main way researchers begin to use the archives, and several finding aids were added to the website. In fall 2006, archives staff began adding interesting photographs to the Flickr website, partly as a morale exercise for the IMC cataloguers. By the end of 2007, approximately 400 photographs had gotten 14,000 views; in January 2008, after the site was publicized by BoingBoing's website, the number of photographs seen jumped over a weekend to 48,000 views. This clearly demonstrates the appeal of the photographs held in the Archives. No more archival collections were listed in the Library of Congress' National Union Catalogue of Manuscript Collections (NUCMC), with finding aids loaded instead onto the Museum's website. However, finding aids should be sent to NUCMC in the future for the different audiences they reach. Styker printed The Marrow Nailing Method by Dr. Gerhard Kuentscher in a facsimile edition from scans made from the German Medical Translations collection. Although Kuentscher developed famous orthopedic techniques, this book, translated after World War II by the US Navy, had never been published.

Rhode served on the AFIP's Institutional Review Board and HIPPA committees as well as Museum committees including the Admin group, the collections committee and the database committee. Former intern Amanda Montgomery, who has just about finished her Masters in Library Science, was hired as an archivist by IMC. Intern Janel Whitehart refiled loose World War 1 photographs into the collection that they had been separated from decades ago, arranged and wrote a finding aid to the Fred Carr collection, a small donation of medical school notes and photographs and for her large project, arranged and described Alberta Montgomery's papers on physical therapy after World War I. The finding aids she produced were uploaded to the archives website as was the long finding aid for the film collection that intern Chris Abraham completed at the end of 2006. Cathy Sorge left to become WRAMC's archivist.

***Public Affairs Reports:***

1. Valdez, Angela. Interview for "What's Inside Box No. 1997.0015 OHA 293.23? The unofficial visual history of St. Elizabeths," Washington City Paper (May 11, 2007): 22-27
2. Connell, Christopher. Interview for Stanford Magazine, February 12, 2007.

***Presentations:***

1. Stocker K. "Illustrating the Medical and Surgical History of the War of the Rebellion," NMHM, October 2007.
2. Noe A, Rhode M, Varney J. "Slideshow: A Microscopic History," The Scientist website (November 2007), http://www.the-scientist.com/article/daily/53793/.

***Publications:***

1. Rhode M. "The Rise and Fall of the Army Medical Museum & Library," *Washington History*, Washington History (Spring 2007)
2. Rhode M, Connor JTH. '"A Repository for Bottled Monsters and Medical Curiosities": The Evolution of the Army Medical Museum' in Defining Memory: Local Museums and the Construction of History in America's Changing Communities, Amy Levin, ed. AltaMira, 2007.
3. Rhode M. "Foundations: photomicroscopy, circa 1876," *The Scientist.* (December, 2007), 92.


# AMERICAN REGISTRY OF PATHOLOGY

William A. Gardner Jr, MD
Executive Director
Date of Appointment — 1 August 2002

# AMERICAN REGISTRY OF PATHOLOGY (ARP)

The American Registry of Pathology (ARP) is a on-profit corporation reflecting thirty-eight national societies, which sponsor registries within the Armed Forces Institute of Pathology (AFIIP).

The Registry was created by Public Law 94-361 in 1976. Its governing body, the Board of Members, is composed of representatives of professional societies.

The ARP engages in cooperative enterprises in medical research and education in collaboration with the AFIP. It functions as a fiscal agent in the management of contracts, research grants, and monies derived from tuition fees and consultations. It serves a a focus for the interchange between military and civilian pathology and encourages the participation of medical, dental and veterinary sciences in pathology for the mutual benefit of military and civilian medicine. It publishes the atlas of pathology and other publications.

The ARP provides funds in support of various fellowship programs. Additional information concerning the ARP may be obtained from the Executive Director.

***Chair, Board of Directors***
Fred Gorstein, MD
Thomas Jefferson University Hospital
Chair, Department of Pathology
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# 2007 CUMULATIVE PUBLICATIONS LIST

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Discounting duplicate listings for multiple authors, and using publications reported in departmental annual reports, in 2007 the medical and scientific staff of the AFIP published 154 articles in professional journals and 108 abstracts. They contributed 17 chapters to published books, and were authors or editors of 4 published books. Sixteen miscellaneous publications included chapters in various course syllabuses, newsletter issues, Web publications or epubs, and books and fascicles digitized for online publication. Details of these publications appear below. Authors are listed alphabetically within departments, divisions, offices, etc, which are also listed alphabetically.

## AIDS, DIVISION OF

***Abstract:***

Nelson AM, Tetuja A, Man Y-G. Inflammatory cells and membrane disruption in prostate carcinoma: do they have a role in tumor invasion. 96th Annual Meeting USCAP, San Diego, CA, March 2007.

## ARMED FORCES MEDICAL EXAMINER, OFFICE OF

1. Hammett M, Pearse L, Naito N, Hooper T. Drowning deaths of U.S. service personnel associated with motor vehicle accidents occurring in Operation Iraqi Freedom and Operation Enduring Freedom, 2003-2005; *Military Medicine*. 2007: 172 (8): 875-8.
2. Harcke HT, Levy AD, Abbott RM, Mallak CT, Getz JM, Champion HR, Pearse L. Autopsy radiography: digital radiographs (DR) vs multidetector CT (MDCT) in high velocity gunshot wound victims. *American Journal of Forensics in Medicine and Pathology*. 2007;28 (1): 13-19.
3. Holcomb JB, McMullin NR, Pearse LA, Caruso J, Wade CE, Oetjen-Gerdes L, Champion HR, Lawnick M, Farr W, Rodriguez S, Butler FK. Causes of death in U.S. Special Operations Forces in the Global War on Terrorism: 2001-2004. *Ann Surgery*. 2007; 245 (6) :986-91.
4. Levy AD, Harcke HT, Getz JM, Mallak CT, Caruso JL, Pearse L, Frazier AA, Galvin JR,et al. Chest wall thickness in military personnel: implications for needle thoracentesis in tension pneumothorax. *Military Medicine*. 2007; 172 (12).
5. Levy AD, Mallak CT, Getz JM, Harcke HT, Pearse L., et al. Virtual Autopsy: two- and three-dimensional multidetector findings in drowning with autopsy comparison. *Radiology*. 2007; 243 (3): 862-8.

## BIOPHYSICAL TOXICOLOGY DIVISION OF

***Journal Articles:***

1. Bunnell JE, Finkelman RB, Centeno JA, Selinus O. Medical geology: a discipline emerging globally. *Geological Acta*. 2007;5(3):273-281.
2. Centeno JA, Tseng CH, van der Voet GB, Finkelman RB. Global impacts of geogenic arsenic: a medical geology research case. *Ambio*. 2007;36(1):78-81.
3. Centeno JA, Finkelman RB. Global impacts of geogenic arsenic: a medical geology perspective. *Geosciences*. 2007;5:64-65.
4. Chesnick I, Todorov TI, Centeno JA, Newbury DE, Small JA, Potter K. Manganese-enhanced magnetic resonance microscopy of mineralization. *Magnetic Resonance Imaging*. 2007;25:1095-1104.
5. Finkelman RB, Centeno JA, Selinus O. Medical geology: the emergence of a new discipline. *Terrae*. 2007;2(2):3-8.
6. Lem KE, Brinster LR, Tjurmina O, Lizak M, Lal S, Centeno JA, Liu P-C, Godwin SC, Kaler SG. Safety of intracerebroventricular copper histidine in adult rats. *Molecular Genetics and Metabolism*. 2007;91:30-36 (Epub 2007 March 1).
7. Selinus O, Finkelman RB, Centeno JA. The medical geology revolution. *Geosciences*.

2007;5:108-109.

8. Selinus O, Finkelman RF, Centeno JA. The medical geology revolution: the evolution of and IUGS initiative. *Episodes*. 2007;30(3);1-5.
9. Tseng CH, Chong CK, Tseng CP, Centeno JA. Blackfoot disease in Taiwan: its link with inorganic arsenic exposure from drinking water. *Ambio*. 2007;36(1):82-84.
10. van der Voet GB, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG. Metals and health: a clinical and toxicological perspective on tungsten and review of the literature. *Military Medicine*. 2007;172:1002-1005.

***Book Chapters and Special Reports:***

1. Centeno JA. Contributing author and Committee Member. Earth Materials and Health – Research Priorities for Earth Science and Public Health. National Academies 2007, National Research Council, Washington, DC, ISBN: 978-0-309-10470-8.
2. Todorov TI, Ejnik JW, Mullick FG, Centeno JA. Chemical and histological assessment of depleted uranium in tissues and biological fluids. In: *Depleted Uranium – Properties, Uses, and Health Consequences*. Miller AC, ed. Boca Raton, Florida, USA: CRC Press-Taylor & Francis Group; 2007: ISBN 0-8493-3047-5.

***Research Abstracts Published in Books of Abstracts and/or Conference Proceedings:***

1. Todorov TI, Ejnik JW, Squibb K, McDiarmid M, and Centeno JA. Uranium analysis in blood by inductively coupled plasma mass spectrometry. European Plasma Conference, Italy, January 2007.
2. Todorov TI, Gray M, Sarafanov A, Kadjacsy-Balla A, Centeno JA. Comparison between the cadmium, zinc, selenium, iron and arsenic content in fresh and paraffin embedded tissue specimen. European Plasma Conference, Italy, January 2007.
3. van der Voet GB, Sarafanov A, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG. Clinical and analytical toxicology of dietary supplements: a case study. 10th Force Health Protection Conference, Louisville, Kentucky, August 10, 2007

## BIOPHYSICS, DIVISION OF

***Journal Articles :***

1. Chesnick IE, Avallone F, Leapman RD, Landis WJ, Eidelman N, Potter K. Evaluation of bioreactor-cultivated bone by magnetic resonance microscopy and FTIR microspectroscopy, *Bone*. 40:904-912;2007.
2. Chesnick IE, Todorov TI, Centeno JA, Small JA, Potter K. Manganese-enhanced magnetic resonance microscopy of mineralization, *Magnetic Resonance Imaging*. 25:1095-1104; 2007.
3. Evers DL, Fowler CB, Cunningham RE, Mason JT, O'Leary TJ. A novel HPLC method reveals that precipitation of 2′-deoxyadenosine 5′-monophosphate with lithium perchlorate/acetone leads to base depurination. *Anal Biochem*. 370:255-257;2007.
4. Fowler CB, Cunningham RE, O'Leary TJ, Mason JT. Tissue surrogates as a model for archival formalin-fixed paraffin-embedded tissues, *Lab Invest*. 87: 836-846;2007.
5. Fowler CB, Cunningham RE, Waybright TJ, Blonder J, Veenstra TD, O'Leary TJ, Mason JT. High pressure treatment promotes the reversal of formaldehyde cross-links and improves protein extraction from a formalin-fixed paraffin-embedded tissue surrogate. *Laboratory Investigation*. (Epub 24 December, 2007).
6. He J, Kuschner RA, Dewar V, Voet P, Asher LV, Vaughn DW. Characterization of monoclonal antibodies to hepatitis E virus (HEV) capsid protein and identification of binding activity. *J Biomed Sci*. 14:555-563; 2007.

***Book Chapters:***

1. Cunningham RE. Overview of flow cytometry and fluorescent probes for cytometry. In: *Immunocytochemical Methods and Protocols*, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 249-256.
2. Cunningham RE. Tissue disaggregation. In: *Immunocytochemical Methods and Protocols*, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 275-260.
3. Cunningham RE. Indirect immunofluorescent labeling of viable cells. In: Immunocytochemical Methods and Protocols, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 261-263.
4. Cunningham RE. Indirect labeling of fixed cells. In: Immunocytochemical Methods and Protocols, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition,

Humana Press, Totowa, NJ, 2007, pp 265-270.
5. Cunningham RE. Fluorescent labeling of DNA. In: Immunocytochemical Methods and Protocols, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 271-273.
6. Cunningham RE. Deparaffinization and processing of pathologic material. In: Immunocytochemical Methods and Protocols, (Oliver C, and Celia JM, Eds.) Methods in Molecular Biology, 3rd Edition, Humana Press, Totowa, NJ, 2007, pp 275-279.

***Abstracts:***

1. Fowler CB, Cunningham RE, O'Leary TJ, Mason JT. Recovery of proteins from formalin-fixed paraffin-embedded tissues for proteomic studies. *Protein Science*. 16:475a; 2007.
2. Man Y-G, Stamatakos M, Mason JT, Gardner WA. Prostate tumor cells near and distant from focally disrupted basal cell layers have different expression profiles. *Molecular and Cell Biology*. 18:1843a; 2007.
3. Mason JT, Xu L, Sheng X-M, O'Leary TJ. Liposome polymerase chain reaction assay for the high sensitivity detection of biological toxins. *Biophysical Journal*. 91:1550a; 2007.
4. Mason JT, Cunningham RE, O'Leary TJ, Fowler CB. Biophysical properties of proteins treated with formaldehyde. *Protein Science*. 16:525a; 2007.
5. O'Leary TJ, Fowler CB, Fabris D, Mason JT. Recovery of proteins from formalin-fixed paraffin-embedded tissues. *Biophysical Journal*. 91:1840a;2007.

## CLINICAL LABORATORY MANAGEMENT, CENTER FOR

***Publications:***

1. Catalasan I. BOMO Lab Break Out CD: a compendium of laboratory management topics and issues. Self-published.
2. Ciolorito LR. Consultant's Corner, Society Scope. Society of Armed Forces Medical Laboratory Scientists Newsletter. Winter 2009; Vol 10, Number 1.

## DERMATOPATHOLOGY

***Journal Articles:***

1. Fetsch JF, Laskin WB, Hallman JR, Lupton GP, Miettinen M. Neurothekeoma. An analysis of 178 tumors with detailed immunohistochemical data and long term patient follow-up information. *Am J Surg Pathol*. 2007: 31(7):1103-1114.
2. Osswald SS, Lulick KB, Tomaszewski M-M, Sperling LC. Viral associated trichodysplasia in a patient with lymphoma: a case report and review. *J Cutan Pathol*. 2007; 34(9):721-725.

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***Publications:***

1. Centeno JA, Tchounwou PB, Patlolla AK, Mullick FG, Murakata L, Meza E, Todorov TI, Longfellow D, Yedjou CG. Environmental pathology and health effects of arsenic poisoning: a critical review. In: *Managing Arsenic in the Environment—From Soil to Human Health*, Naidu R, Smith E, Owens G, Bhattacharya P, Nadebaum P, eds. Australia: CSIRO Publishing; 2006, chapter 17: 311-327.
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3. van der Voet GB, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG. Metals and health: a clinical and toxicological perspective on tungsten and review of the literature. *Military Medicine*. 2007;172:1002-1005.

***Abstracts:***

1. Centeno JA, Cook A, Weinsteinn, P, Mullick, FG, Finkelman RB, Selinus, O. Health effects of natural and mineral dust—the role of trace elements and compounds. In: Book of Proceedings XXVI International Academy Congress of the International Academy of Pathology, Symposium on Environmental Pathology–Respiratory Toxicology, Montreal, Canada, September 16-21, 2007; CD media publication.
2. Centeno JA, Finkelman RB, Selinus O, Mullick FG. Global impacts of geogenic arsenic: a

medical geology research case. In: Book of Abstracts: International Symposium on Medical Geology, Royal Swedish Academy of Sciences, Stockholm, Sweden, May 2007.

3. Kalasinsky VF, Tristan JO, Pizzolato KM, Amerson ML, Strausborger SL, Gaydos JC, MacIntosh VH, Rumm PD, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database, Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, Boston, MA, February 26–March 1, 2007.
4. Kalasinsky VF, Tristan JO, Pizzolato KM, Amerson ML, Strausborger SL, Gaydos JC, MacIntosh VH, Rumm PD, Mullick FG. DoD Public Health Laboratory Services Internet-Accessible Databases, Book of Abstracts of the meeting of the Infectious Disease Society of America, San Diego, CA, October 3–7, 2007.
5. Specht CS, Katus MC, Kalasinsky VF, Lewin-Smith MR, Amato RSS, Rushing EJ, Mullick FG. Macrophagic myofasciitis: histochemical, immunohistochemical, and spectroscoopic findings in a pediatric case. *J Neuropathol Exp Neurol*. 2007;66:450 (558.6).
6. Todorov TI, Gray MA, Kadjacsy-Balla A, Mullick FG, Centeno JA. Cadmium, zinc, selenium and arsenic content in fresh and paraffin-embedded prostate tissues. In: Book of Abstracts, 9th International Symposium on Metal Ions in Biology and Medicine, Lisbon, Portugal, May 21–24, 2007, pp 143.
7. Van der Voet GB, Sarafanov A, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG. Clinical and analytical toxicology of dietary supplements: a case study. Annual Force Health Protection Conference, Louisville, Kentucky, August 2007
8. Van der Voet GB, Todorov TI, Centeno JA, Jonas W, Ives J, Mullick FG, Elemental composition of surgically removed metal fragments. Annual Force Health Protection Conference, Louisville, Kentucky, August 2007.

## DOD DNA REGISTRY

***Publications:***

1. Butler JM, Coble MD, Vallone PM. STRs vs SNPs: thoughts on the future of forensic DNA testing. *Forensic Science, Medicine and Pathology*. 2007; 3: 200-205.
2. Edson SM. Romanov Family. In: *Encyclopedia of Life Sciences*. Chicester, UK: John Wiley & Sons. Electronic re-release of the encyclopedia – http://www.els.net/[doi:10.1002/9780470015902.a0005614]
3. Edson SM. Identifying missing US servicemembers from the Korean War – Do storage conditions affect the success rate of mtDNA testing? *Profiles in DNA*. 2007; 10(1): 14-15.
4. Egyed B, Brandstatter A, Irwin J, Padar Z, Parsons T, Parson W. Mitochondrial control region sequence variations in the Hungarian population: analysis of population samples from Hungary and from Transylvania (Romania). *Forensic Science International: Genetics* 1: 158-162.
5. Irwin JA, Edson SM, Loreille O, Just RS, Barritt SM, Lee DA, Holland TD, Parsons TJ, Leney MD. The dNA identification of "Earthquake McGoon" 50 years postmortem. *Journal of Forensic Sciences*. 2007; 52(5): 1115-1118.
6. Irwin JA, Leney MD, Loreille O, Barritt SM, Christensen AF, Holland TD, Smith BC, Parsons TJ. Application of low copy number STR typing to the identification of degraded skeletal remains. *Journal of Forensic Sciences*. 2007; 52(6):1322-1327.
7. Irwin JA, Saunier JL, Strouss KM, Sturk KA, Diegoli TM, Just RS, Coble MD, Parson W, Parsons TJ. Development and expansion of high-quality control region databases to improve forensic mtDNA evidence interpretation. *Forensic Science International: Genetics*. 2007 1(2): 154-157.
8. Loreille OM, Diegoli TM, Irwin JA, Coble MD, Parsons TJ. High efficiency DNA extraction from bone by total demineralization. *Forensic Science International: Genetics* 2007; 1(2): 191-195.
9. Nelson TM, Just RS, Loreille O, Schanfield M, Podini D. Development of a multiplex single base extension assay for mtDNA genome haplogroup typing for forensic casework and anthropological studies. *Croat Med J*. 2007; 48: 460-472.
10. Parsons TJ, Huel R, Davoren J, Katzmarzyk C, Milo A, Selmanovi A, Smajlovi L, Coble MD, Rizvi A. Application of novel "mini-amplicon" STR multiplexes to high volume casework on degraded skeletal remains. *Forensic Science International: Genetics*. 2007; 1(2): 175-179.
11. Vallone PM, Jakupciak JP, Coble MD. Forensic application of the Affymetrix human mitochondrial resequencing array. *Forensic Science International: Genetics*. 2007; 1(2): 196-198.

12. Yong RY, Gan LS, Coble MD, Yap EP. Polymorphism studies of four miniSTR loci for three ethnic populations in Singapore. *Legal Medicine (Tokyo)*. 2007; 9(5): 278-281.
13. Yong RY, Gan LS, Coble MD, and Yap EP. Allele frequencies of six miniSTR loci of three ethnic populations in Singapore. *Forensic Science International*. 2007; 166(2-3): 240-243.

## ENDOCRINE AND OTORHINOLARYNGIC/HEAD-NECK PATHOLOGY, DEPARTMENT OF

***Journal Articles:***

1. Heffner DK. The cause of sarcoidosis: the centurial enigma solved. *Ann Diagn Pathol*. 2007;11:142-152
2. Heffner DK. Explaining sarcoidosis of bone. *Ann Diagn Pathol*. 2007;11:464-476.

***Book Chapter:***

Wenig BM, Heffess CS. Thyroid and parathyroid. In: Wenig BM, ed. Atlas of Head and Neck Pathology. 2nd Edition. New York, NY: Saunders Elsevier; 2008:Chapters 26-34, pages 813-1042.

## ENVIRONMENTAL PATHOLOGY, DIVISION OF

***Papers:***

Simonyan K, Tovar-Moll F, Ostuni J, Hallett M, Kalasinsky VF, Lewin-Smith MR, Rushing EJ, Vortmeyer AO, Ludlow CL. Focal white matter changes in spasmodic dysphonia. *Brain*. 2008; 131(2):447-459. Brain Advance Access originally published online on December 14, 2007.

***Abstracts:***

Specht CS, Katus MC, Kalasinsky VF, Lewin-Smith MR, Amato RSS, Rushing EJ, Mullick FG. Macrophagic myofasciitis: histochemical, immunohistochemical and spectroscopic findings in a pediatric case. *J Neuropathol Exp Neurol*. 2007;66:450 (558.6)

## ENVIRONMENTAL TOXICOLOGY, DIVISION OF

***Journal Articles:***

1. Kalasinsky KS, Hadfield T, Shea AA, Kalasinsky VF,Nelson MP, Neiss J, Drauch AJ, Vanni GS. Raman chemical imaging spectroscopy reagentless detection and identification of pathogens: signature development and evaluation. *Anal Chem*. 2007April;79(7):2658-2659.
2. Simonyan K, Tovar-Moll F, Ostuni J, Hallet M, Kalasinsky VF, Lewin-Smith MR, Rushing EJ, Vortmeyer AO, Ludlow CL. Focal white matter changes in spasmodic dysphonia. *Brain*. 2008;131(2):447-459. Brain Advance Access originally published on-line on December 14, 2007.

***Abstracts:***

1. Kalasinsky VF, Tristan JO, Pizzolato KM, Amerson ML, Strausborger SL, Gaydos JC, MacIntosh VH, Rumm PD, Mullick FG. DoD Directory of Public Health Laboratory Services Internet-Accessible Database. Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, Boston, MA, February 26–March 1, 2007.
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## FORENSIC TOXICOLOGY, DIVISION OF (OAFME)

***Book Chapter:***

Levine B, Jufer-Phipps R. Abused and designer drugs and how they escape detection. In: Dasgupta A, ed. *Handbook of Drug Monitoring Methods*, Totowa, NJ, Humana Press, 2007, 365-377.

***Journal Articles:***

1. Barnes AJ, Smith ML, Kacinko SL, Schwilke EW, Cone EJ, Moolchan ET, Huestis MA. Excretion of methamphetamine and amphetamine in human sweat following controlled oral methamphetamine administration. *Clinical Chemistry*. 2007; 54:172-180. [Nov 2, 2007 Epub ahead of print].

2. Cox D, Jufer-Phipps RA, Levine B, Jacobs A, Fowler D. Distribution of phencyclidine into vitreous humor. *Journal of Analytical Toxicology*. 2007; 31, 539–541.
3. Huestis MA, Darwin WD, Shimomura E, Lalani SA, Trinidad DV, Jenkins AJ, Cone, EJ, Jacobs AJ, Smith ML, Paul BD. Cocaine and metabolites urinary excretion after controlled smoked administration. *Journal of Analytical Toxicology*. 2007; 31:462-468.
4. Huestis MA, Gustafson RA, Moolchan ET, Barnes A, Bourland JA, Sweeney SA, Hayes EF, Carpenter PM, Smith ML. Cannabinoid concentrations in hair from documented cannabis users. *Forensic Science International*. 2007; 169:129-136.
5. Huestis MA, Scheidweiler KB, Saito T, Fortner N, Abraham T, Gustafson RA, Smith ML. Excretion of delta(9)-tetrahydrocannabinol in sweat. *Forensic Science International*. May 2, 2007 [Epub ahead of print].
6. Levine, B, Cox, D, Jufer-Phipps, RA, Li, L, Jacobs, A, Fowler, D. A fatality from sevoflurane abuse. *Journal of Analytical Toxicology*. 2007; 31, 534-536.
7. McKinley SG, Snyder JJ, Welsh E, Kazarian CM, Jamerson MH, Klette KL. Rapid quantitation of urinary oxycodone and oxymorphone using fast gas chromatography-mass spectrometry. *Journal of Analytical Toxicology*. 2007; 31: 434-441.
8. Paul BD, Dunkley CS. REVIEW: Specimen validity testing (SVT) – Effects of oxidizing agents on drugs in urine and its detection procedures. *Forensic Science Review*. 2007; 19: 29-47.
9. Paul BD, Holler JM, Lyons TP, Past MR. Stable isotopes as valid components for identification of drugs in biological specimens. *Journal of Analytical Toxicology*. 2007; 31, 447-452.
10. Smith ML, Vorce SP, Holler JM, Shimomura E, Magluilo J, Jacobs AJ, Huestis MA. REVIEW: Modern instrumental methods in forensic toxicology. *Journal of Analytical Toxicology*. 2007; 31:237-253.

## GASTROINTESTINAL PATHOLOGY, DIVISION OF

### *Journal Articles:*

1. Goldstraw P, Crowley J, Chansky K, Giroux DJ, Groome PA, Rami-Porta R, Postmus PE, Rusch V, Sobin L; International Association for the Study of Lung Cancer International Staging Committee; Participating Institutions. The IASLC Lung Cancer Staging Project: proposals for the revision of the TNM stage groupings in the forthcoming (seventh) edition of the TNM Classification of malignant tumors. *J Thorac Oncol*. 2007;2:706-714.
2. Groome PA, Bolejack V, Crowley JJ, Kennedy C, Krasnik M, Sobin LH, Goldstraw P; IASLC International Staging Committee; Cancer Research and Biostatistics; Observers to the Committee; Participating Institutions. The IASLC Lung Cancer Staging Project: validation of the proposals for revision of the T, N, and M descriptors and consequent stage groupings in the forthcoming (seventh) edition of the TNM classification of malignant tumors. *J Thorac Oncol*. 2007;2:694-705.
3 Hou L, El-Omar EM, Chen J, Grillo P, Rabkin CS, Baccarelli A, Yeager M, Chanock SJ, Zatonski W, Sobin LH, Lissowska J, Fraumeni JF Jr, Chow WH. Polymorphisms in Th1-type cell-mediated response genes and risk of gastric cancer. *Carcinogenesis*. 2007;28:118-123.
4. Levy AD, Sobin LH. Gastrointestinal carcinoids: imaging features and clinicopathologic comparison. *RadioGraphics*. 2007;27:237-257.
5. Miettinen M, Kraszewska E, Sobin LH, Lasota J. A nonrandom association between gastrointestinal stromal tumors and myeloid leukemia. *Cancer*. 2007 Nov 26; [Epub ahead of print]

### *Abstracts:*

1. Bassett JT, Perry JL, Osgard EM, Maydonovitch CL, Sobin LH, Wong RH. Prevalence of esophageal dysmotility in a cohort of patients with biopsy proven eosinophilic esophagitis: a prospective study. Amer College Gastroenterol Poster, Philadelphia, October 2007.
2. Makhlouf HR, Dow N, Sobin LH, Miettinen M. Synovial sarcoma of the stomach: a clinicopathologic, immunohistochemical and molecular genetic study of 6 cases with a long-term follow-up. *Modern Pathol*. 2007; 20;122A (abstract 547)
3. Rassaei N, Tavora F, I Ozbudak I, Chu W-S, Jaynes E, Sobin L, Travis WD, Jen J, Shilo K, Franks TJ. Thyroid transcription factor-1 (TTF-1) expression in pulmonary neuroendocrine carcinomas: clone-based variability. *Modern Pathol*. 2007; 20;329A (abstract 1515)

## GENITOURINARY PATHOLOGY, DEPARTMENT OF

### *Journal Articles:*

1. Furusato B, Gao CL, Ravindranath L, Chen Y, Cullen J, McLeod DG, Dobi A, Srivastava S, Petrovics G, Sesterhenn IA. Mapping of TMPRSS2-ERG fusions in the context of multi-focal prostate cancer. Mod Pathol. 2008;21:67-75. Epub 2007 Dec 7.
2. Furusato B, Koff S, McLeod DG, Sesterhenn IA. Sarcoidosis of the prostate. *J Clin Pathol*. 2007;60:325-326. Review.
3. Miki J, Furusato B, Li H, Gu Y, Takahashi H, Egawa S, Sesterhenn IA, McLeod DG, Srivastava S, Rhim JS. Identification of putative stem cell markers, CD133 and CXCR4, in hTERT-immortalized primary nonmalignant and malignant tumor-derived human prostate epithelial cell lines and in prostate cancer specimens. *Cancer Res*. 2007;67:3153-3161.
4. Rosner IL, Ravindranath L, Furusato B, Chen Y, Gao C, Cullen J, Sesterhenn IA, McLeod DG, Srivastava S, Petrovics G. Higher tumor to benign ratio of the androgen receptor mRNA expression associates with prostate cancer progression after radical prostatectomy. *Urology*. 2007;70:1225-1229.
5. Shaheduzzaman S, Vishwanath A, Furusato B, Cullen J, Chen Y, Bañez L, Nau M, Ravindranath L, Kim KH, Mohammed A, Chen Y, Ehrich M, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Petrovics G, Dobi A, Srivastava S. Silencing of lactotransferrin expression by methylation in prostate cancer progression. *Cancer Biol Ther*. 2007;6 [Epub ahead of print]
6. Shaheduzzaman S, Vishwanath A, Furusato B, Nau M, Ravindranath L, Chen Y, Petrovics G, Srikantan V, Sesterhenn IA, McLeod DG, Vahey M, Moul JW, Dobi A and Srivastava S. Frequent expression alterations and biological function of lactotransferrin (LTF) in prostate cancer. *Cancer Biology and Therapy*. 2007;6:1-8.
7. Shilo K, Dracheva T, Mani H, Fukuoka J, Sesterhenn IA, Chu WS, Shih JH, Jen J, Travis WD, Franks TJ. Alpha-methylacyl CoA racemase in pulmonary adenocarcinoma, squamous cell carcinoma, and neuroendocrine tumors: expression and survival analysis. *Arch Pathol Lab Med*. 2007;131:1555-1560.

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1. DeRosa CA, Chen Y, Ravindranath L, Furusato B, Cook C, Cullen J, Sesterhenn IA, McLeod DG, Srivastava S, Petrovics G. Elevated secreted protein, acidic, and rich in cysteine (SPARC) mRNA expression in neoplastic prostate epithelial cells correlates with PSA recurrence after radical prostatectomy. *J Urol*. 2007;177:4.
2. Dobi A, Masuda K, Xu I, Cullen J, Petrovics G, Furusato B, Li H, Srivastava S. Androgen receptor activity is elevated in prostatic tumors with decreased PMEPAI expression. *Lab Invest*. 2007;87:144A, 648 Suppl 1.
3. Furusato B, Rosner I, Osborn D, Cullen J, Chen Y, Davis CJ, Sesterhenn IA, McLeod DG. "The relationship of preopertive PSA levels in prostatic weight and tumor size. *Lab Invest*. 2007;87:147A, 663 Suppl 1.
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Annual Genitourinary Pathology Course, Annual Anatomic Pathology Course Conference, Kyorin Univeristy, Tokyo, Japan.

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1. Man YG. Focal degeneration of aged or injured myoepithelial cells and the resultant autoimmunoreactions are trigger factors for breast tumor invasion. *Medical Hypotheses*. 2007;96(6):1340-1357.
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7. Rushing EJ, Man YG. Correlation between p63 immunoreactivity and tumor grade in meningiomas. (Experimental Biology. 2007 April-May, Washington, DC). *FASEB J*. 2007;21(5):555.1.

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9. Stamatakos M, Vinh TN, Man YG. Elevated expression of tumor aggressiveness and invasiveness-related proteins in cells overlying focally disrupted breast myoepithelial cell layers. *Lab Investigation 87*. (Supplement 1): 2007; 309A.

## HEMATOPATHOLOGY, DEPARTMENT OF

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1. Kalandarova E, Kim B, Auerbach A, Aguilera NSI. Plasmacytoid dendritic cell expressing CD123 in histiocytic necrotizing lymphadenitis (Kikuchi-Fujimoto disease). *Mod Pathol*. 2007; Suppl 2:247A#1132
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## INFECTIOUS AND TROPICAL DISEASES PATHOLOGY, DIVISION OF

***Journal Articles:***

1. Kibadi K, Aujoulat I, Meyers WM, Mokassa L, Muyembe T, Portaels F. Study of names and folklore associated with Mycobacterium ulcerans infection in various endemic countries in Africa. *Med Trop (Mars)*. 2007 Jun;67(3):241-248. French.
2. Ohrt C, Obare P, Nanakorn A, Adhiambo C, Awuondo K, O'Meara WP, Remich S, Martin K, Cook E, Chretien JP, Lucas C, Osoga J, McEvoy P, Owaga ML, Odera JS, Ogutu B. Establishing a malaria diagnostics centre of excellence in Kisumu, Kenya. *Malar J*. 2007 Jun 12;6:79.
3. Phanzu DM, Ablordey A, Imposo DB, Lefevre L, Mahema RL, Suykerbuyk P, Meyers WM, Portaels F. Short report: edematous Mycobacterium ulcerans infection (Buruli ulcer) on the face: a case report. *Am J Trop Med Hyg*. 2007 Dec;77(6):1099-1102.
4. Suykerbuyk P, Vleminckx K, Pasmans F, Stragier P, Ablordey A, Tran HT, Hermans K, Fleetwood M, Meyers WM, Portaels F. Mycobacterium liflandii infection in European colony of Silurana tropicalis. *Emerg Infect Dis*. 2007 May;13(5):743-746.
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Procop GW, Neafie RC. Less common helminthes. In: Murray PR, ed. *Manual of Clinical Microbiology*. 9th edition. ASM Press; 2007: pp 2188-2198.

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McEvoy PL. Basidiobolomycosis HQAP-1-4, 2007. AFIP.

## LEGAL MEDICINE, DEPARTMENT OF

***Journal Articles:***

1. Buss P. Tricare benefit development: advances in medical practice. *Legal Medicine*. 2007: 50-55.
2. Dige A, Lewrandoski K. Avoid errors in clinical laboratory critical value reporting. *Legal Medicine*. 2007: 42-49.
3. Flannery F. Recent Court Decisions. *Legal Medicine*. 2007: 6-12.
4. Lester A. Med/Mal 101: Liability principles in OB/GYN and how they relate to other health care disciplines. *Legal Medicine*. 2007: 22-35.
5. Thatch J. Legal battles, medical ethics and the health care directive. *Legal Medicine*. 2007: 36-41.
6. Waxman S. Medico-legal issues in urology. *Legal Medicine*. 2007: 13-21.

## MICROBIOLOGY, DIVISION OF:

***Journal Articles:***

1. Fey PD, Dempsey MP, Olson ME, Chrustowski MS, Engle JL, Jay JJ, Dobson ME, Kalasinsky KS, Shea AA, Wickert RC, Francesconi SC, Crawford RM, Hinrichs SH. Molecular analysis of Francisella tularensis subspecies tularensis and holartica. *Amer J Clin*. 2007;128(6), 926-35.
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## MOLECULAR PATHOBIOLOGY, DIVISION OF

***Journal Articles***

1. Shimin Z, Jonklaas J, Danielsen M. The glucocorticoid agonist activities of mifepristone (RU486) and Progesterone are dependent on glucocorticoid receptor levels but not on EC50 values. *Steroids*. 2007;72:600-608.
2. Zou N, Newsome T, Li B, Tsai S, Lo S-C. Development of human single chain (scFv) antibodies against *Burkholderia mallei* and *Burkholderia pseudomallei*. *Experimental Biology and Medicine*. 2007; 232(4): 550-556.
3. Zu-Rhein GM, Lo S-C, Hulette CM, Powers JM. A novel cerebral microangiopathy with endothelial cell atypia and multifocal white matter lesions: a direct mycoplasmal infection? *J Neuropath Exp Neurol*. 2007;66(12): 1100-1117

## MOLECULAR PATHOLOGY, DIVISION OF (Scientific Laboratories)

***Journal Article:***
Tavora F, Shilo K, Ozbudak IH, Przybocki JM, Wang G, Travis WD, Franks TJ. Absence of human herpesvirus-8 in pulmonary inflammatory myofibroblastic tumor: immunohistochemical and molecular analysis of 20 cases. *Mod Pathol*. 2007 Sep; 20 (9): 995-9. Epub 2007 Jul 20.

## MORTALITY SURVEILLANCE DIVISION, OAFME

***Journal Articles:***

1. Hammett M. Pearse L. Naito N. Hooper T. Drowning deaths of U.S. service personnel

associated with motor vehicle accidents occurring in Operation Iraqi Freedom and Operation Enduring Freedom, 2003-2005. *Military Medicine*. 2007: 172 (8): 875-8.

2. Harcke HT, Levy AD, Abbott RM, Mallak CT, Getz JM, Champion HR, Pearse L. Autopsy radiography: digital radiographs (DR) vs Multidetector CT (MDCT) in high velocity gunshot wound victims. *American Journal of Forensics in Medicine and Pathology*. 2007;28 (1): 13-19.
3. Holcomb JB, McMullin NR, Pearse LA, Caruso J, Wade CE, Oetjen-Gerdes L, Champion HR, Lawnick M, Farr W, Rodriguez S, Butler FK. Causes of death in U.S. Special Operations Forces in the Global War on Terrorism: 2001-2004. *Ann Surgery*. 2007; 245 (6) :986-91.
4. Levy AD, Mallak CT, Getz JM, Harcke HT, Pearse L, et al. Virtual autopsy: two- and three-dimensional multidetector findings in drowning with autopsy comparison. *Radiology*. 2007; 243 (3): 862-8.
5. Levy AD, Harcke HT, Getz JM, Mallak CT, Caruso JL, Pearse L, Frazier AA, Galvin JR,et al. Chest wall thickness in military personnel: implications for needle thoracentesis in tension pneumothorax. *Military Medicine*. 2007; 172 (12).

## NATIONAL MUSEUM OF HEALTH AND MEDICINE

***Publications:***

1. Rhode M. The rise and fall of the Army Medical Museum & Library, *Washington History*, Washington History (Spring 2007)
2. Rhode M, Connor JTH. A Repository for Bottled Monsters and Medical Curiosities: The Evolution of the Army Medical Museum in Defining Memory: Local Museums and the Construction of History in America's Changing Communities, Amy Levin, ed. AltaMira, 2007.
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## NEUROPATHOLOGY AND OPHTHALMIC PATHOLOGY, DEPARTMENT OF

***(See Ophthalmic reports under Ophthalmology, Division of)***

***Journal Articles:***

1. Agarwal B, Ahmed A, Rushing EJ, Bloom M, Kadom N, Vezina G, Krasnewich D, Santi M. Congenital disorder of glycosylation-x: clinicopathological study of an autopsy case with distinct neuropathological features. *Human Pathol*. 2007;38:1714-1720.
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3. Crespo-Rodríguez AM, Smirniotopoulos JG, Rushing EJ. MR and CT imaging of 24 pleomorphic xanthoastrocytomas (PXA) and a review of the literature. *Neuroradiology*. 2007;49:307-15.
4. Makuria AT, Henderson FC, Rushing, EJ, Hartmann D-P, Azumi N, Ozdemirli M, Oligodendroglioma with neurocytic differentiation versus atypical extraventricular neurocytoma: a case report of unusual pathologic findings of a spinal cord tumor. *J NeuroOncol*. 2007;82:199-205.
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*Sys*. 2007;23:799-805.

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***Book Chapters:***

1. Giannini C, Rushing EJ, Hainfellner JA. Haemangiopericytoma. In: Louis DN, Ohgaki H, Wiestler OD, Cavenee WK, eds. *WHO Classification of Tumors of the Central Nervous System*. Lyon, IARC 2007, 178-180.
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***Abstracts:***

1. Basser PJ, Lin DC, Silva C, Horkayne-Szakaly I, Horkay F. A polymer physics/materials science approach to explain the material properties of cartilage, MRS Fall Meeting, Biomimetic Polymers and Gels, November 26–30, 2007, Boston, MA. Abstracts LL.5.2.
2. Begnami M, Santi M, Rushing EJ, Quezado M. Evaluation of chromosome 7 alterations including epidermal growth factor amplification status in pediatric meningiomas. *Mod Pathol*. 2007;20:296A.
3. Horkay F, Lin DC, Dimitriadis EK, Horkayne-Szakaly I, Basser PJ. Interactions among the polymer components of cartilage matrix. 233rd ACS National Meeting, Chicago, IL. March 24-29, 2007. Abstracts.
4. Horkay F, Lin CD, Horkayne-Szakaly I, Dimitriadis EK, Silva C, Basser PJ. Biomechanical properties of tissue engineered cartilage. 234th ACS National Meeting, Boston, MA. August 19–23, 2007. Biotechnology Division.
5. Lin DC, Dimitriadis EK, Horkayne-Szakaly I, Basser PJ, Horkay F. Swelling and biomechanical properties of tissue-engineering cartilage. 51st Annual Meeting of the Biophysical Society, March 3-7, 2007, Baltimore, MD. Abstracts.
6. Lin DC, Silva CC, Dimitriadis EK, Horkayne-Szakaly I, Basser PJ, Horkay F. Integrative study of cartilage chemical and physical properties. Experimental Biology Annual Meeting, Washington, DC, April 28-May 2, 2007. Abstracts LB3.
7. Rushing EJ, Man Y-G. Correlation between p63 immunoreactivity and tumor grade in meningiomas. Experimental Biology Annual Meeting, Washington, DC, April 28-May 2, 2007. Abstracts A388.
8. Sandberg GD, Horkayne-Szakaly I, Rushing EJ. Evaluation of a novel tissue transport media for muscle biopsy specimens. Experimental Biology Annual Meeting, Washington, DC, April 28–May 2, 2007. Abstracts LB66.
9. Silva CC, Lin CD, Horkayne-Szakaly I, Basser PJ, Horkay F. Novel applications of the QCM technique in biomaterials. *Science*. MRS 2007 Fall Meeting, Boston, MA, November 26-30, 2007. Abstracts LL.3.6.
10. Specht CS, Katus MC, Kalasinsky VF, Lewin-Smith MR, Amato RSS, Rushing EJ, Mullick FG. Macrophagic myofasciitis: histochemical, immunohistological and spectroscopic findings in a pediatric case. *J Neuropathol Exp Neurol*. 2007; 66:450. (558.6).

***Other Publications:***

1. Syllabus for 45th Annual Neuropathology review
2. Handouts for lectures in one AFIP-sponsored course
3. Keylock J and Rushing EJ, Check Sample on "Rosai-Dorfman Disease of the Brain".

## OPHTHALMOLOGY, DIVISION OF

***Journal Articles:***

1. Chung EM, Smirniotopoulos JG, Specht CS, Schroeder JW, Cube R. From the Archives of the AFIP: Pediatric orbit tumors and tumor-like lesions: non-osseous lesions of the extra-

ocular orbit. *RadioGraphics*. 2007: 27: 1777-1799.
2. Chung EM, Specht CS, Schroeder JW. From the archives of the AFIP: Pediatric orbit tumors and tumor-like lesions: neuroepithelial lesions of the ocular globe and optic nerve. *RadioGraphics*. 2007; 27: 1159-1186.
3. Colyer MH, Bower KS, Ward TP, Hidayat AA, Subramanian PS. Mitochondrial myopathy presenting with segmental corneal oedema and retrocorneal membrane. *Br J Ophthalmol*. 2007 May; 91(5):696-697.
4. Hidayat AA, Flint A, Marentette L, Torczynski E, Al-Qahtani JM, Ahl NC, Elner VM. Myxomas and angiomyxomas of the orbit: a clinicopathologic study of 6 cases. *Ophthalmology*. 2007 May; 114(5):1012-1019.
5. Wang M, Khurana RN, Parikh JG, Hidayat AA, Rao NA. Myxofibrosarcoma of the orbit: an underrecognized entity? Case report and review of the literature. *Ophthalmology*. 2007 Dec 18 [Epub ahead of print].

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## ORAL AND MAXILLOFACIAL PATHOLOGY, DEPARTMENT OF

***Journal Articles:***

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2. Foss RD, Fielding CG. Glandular odontogenic cyst. *Head and Neck Pathol*. 2007;1; 2 pages online.
3. Foss RD, Fielding CG. Juvenile psammomatoid ossifying fibroma. *Head and Neck Pathol*. 2007;1; 2 pages online.
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5. Tavora F, Rassaei N, Shilo K, Foss RD, Galvin JR, Travis WD, Franks TJ. Occult primary parotid gland acinic cell adenocarcinoma presenting with extensive lung metastasis. *Arch Pathol Lab Med*. 2007;131:970-3.
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1. Stone P, Hammonds MR, eds. The AFIP LETTER. Summer 2007; Vol. 165, Number 2.
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### *Book Chapters*

1. Henshaw RM, Jelinek J, Jennings B, Murphey MD. Pseudotumors and tumor-like lesions. In: *Orthopaedic Knowledge Update: Musculoskeletal Tumors 2*. Schwartz HS, ed. Rosemont, IL: American Academy of Orthopaedic Surgeons 2007, Chapter 7: 59-74.
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1. Bhandaru R, Jelinek J, Bryan J, Gibson M, Murphey MD, Archarya R, Bhagati R DeMarco P. Prevalence of spinal gout by CT. Society of Skeletal Radiology, 30th Annual Meeting, Orlando, FL. March 20, 2007.
2. Chung MD. Abstract presentation at 93rd Scientific Assembly and Annual Meeting of the Radiologic Society of North America. Gastrointestinal intestinal stromal tumors in the pediatric population: imaging features with clinical pathologic correlation. Chicago, IL. November 30, 2007.
3. Craig WD, Smirniotopoulos JG, Murphey MD, Levy AD, Chung EM. Neurofibromatosis head to toe with pathologic correlation. Radiological Society of North America Scientific Assembly and Annual Meeting Program, Chicago, Illinois. November 28, 2007.
4. Fanburg-Smith J, Murphey MD, Vidal J. Session VII Miscellaneous I: Unknown Case 42. Closed Program of the International Skeletal Society 2007 Closed Meeting, Budapest, Hungary. October 9, 2007.
5. Fanburg-Smith J, Murphey MD. Chordroma, vascular lesions and histiocytosis. The International Skeletal Society 5th Pathology Refresher Course, Budapest, Hungary. October 11, 2007.
6. Gannon FH, Murphey MD. Fibrous lesions. The International Skeletal Society 5th Pathology Refresher Course, Budapest, Hungary. October 12, 2007.
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8. Hartel PH, Shilo K, Galvin JR, Franks TJ. Granulomatosis reaction to pneumocystis jirovecii: clinicopathologic review of 16 cases. (USCAP)
9. Hassell D, Bancroft L, Jeffrey P, Kransdorf M, Murphey MD, Fanburg-Smith JC. Imaging characteristics of diffuse neurofibroma. Society of Skeletal Radiology, 30th Annual Meeting, Orlando, FL. March 19, 2007.
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11. Murphey MD, Walden M, Vidal J. Incidental enchondromas of the knee. Society of Skeletal Radiology, 30th Annual Meeting. Orlando, FL. March 19, 2007.
12. Murphey MD. Approach to soft tissue tumors: imaging appearance and clinical implications. The International Skeletal Society 34th Annual ISS Radiology Refresher Course: Diagnosis and Management of Musculoskeletal Disorder. Hungary, Budapest. October 10–13, 2007.
13. Murphey MD. Imaging of muscle abnormalities. grand rounds and board review. Stony Brook University, Stony Brook, NY. March 8, 2007.
14. Murphey MD. Principles of musculoskeletal radiology. Washington Orthopedic Review, The Omni Shoreham Hotel, Washington, DC. November 3, 2007.
15. Palmer WE, Kransdorf MJ, Murphey MD, Rosenthal DI. To biopsy or not to biopsy: an expert quiz panel for musculoskeletal lesions. Radiological Society of North America Scientific Assembly and Annual Meeting Program, Chicago, Illinois. November 29, 2007.
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18. Wodajo F, Murphey MD, Azumi N. Round cell, soft tissue and articular tumors. Washington Orthopedic Review, The Omni Shoreham Hotel, Washington, DC. November 3, 2007:.
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## SCIENTIFIC PUBLICATIONS, CENTER FOR

### *AFIP/ARP Atlases of Tumor Pathology:*

1. Burger PC, Scheithauer BW. *Tumors of the Central Nervous Systems*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2007. AFIP Atlas of Tumor of Pathology. Fourth series, Fascicle 7.
2. Hruban RH, Pitman MB, Klimstra DS. *Tumors of the Pancreas*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2007. AFIP Atlas of Tumor of Pathology. Fourth series, Fascicle 6.
3. Lack, EE. *Tumors of the Adrenal Glands and Extraadrenal Paraganglia*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2007. AFIP Atlas of Tumor of Pathology. Fourth series, Fascicle 8.

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2. Clarke T, Heilman J, Card FW. *Flesh and Bones*. National Museum of Health and Medicine. 2007; vol 7: nos 1-6.
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## SOFT TISSUE PATHOLOGY, DEPARTMENT OF

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