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Family Planning Digest

A Publication of the National Center for Family Planning Services, Health Services and Mental Health Administration, U.S. Department of Health, Education and Welfare.

Manpower

Nonphysician Professionals Being Trained to Provide Medical Family Planning Care

Family planning specialist at Einstein clinic teaches patient about IUD, diaphragm.

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Interest in training nonphysicians to perform many tasks traditionally reserved for MDs is at a new high—spurred by doctor shortages, the emergence of consumerism in health care and the continuing upward spiral of medical costs. In the family planning field, these physician assistants (PAs), sometimes called family planning specialists, consist of a varied group which includes nurse-midwives and RNs, practical nurses, former family planning outreach workers and counselors, and new recruits to the field who generally have neither medical training nor experience in family planning, and whose formal education may have ended with a high school diploma or less. Family planning specialists are being trained for a range of tasks, from inserting IUDs to taking blood pressure readings. The number of trained specialists is still small but, like PAs in other fields, their ranks are growing, encouraged by federal funding of PA training, and general approval of the idea of using nonphysician personnel by key national medical and health bodies including the American College of Obstetricians and Gynecologists and the American Public Health Association.

In the family planning area, training programs range from efforts to establish major centers whose graduates can work and, in some cases, are working throughout the country, to others where the sponsoring institution has trained just a few individuals to staff its own clinics. In general, a graduate of these programs is able to provide basic family planning care to healthy women.

Thus far, except for one instance, only women have been trained as family planning specialists because physicians and nurses who have been involved in developing these programs believe that the women who are patients will relate

better to other women as counselors and providers of service than they will to men. Since the presence of a woman is usually required when a man performs a pelvic examination, it also appears to be cost-efficient to employ a woman for the job.

The legal status of PAs is far from clear. By the end of 1972, 24 states had passed legislation dealing with PAs, according to data reported by W. J. Dean, a lawyer with DHEW. Seven of these states passed "general delegatory" statutes, allowing doctors to permit PAs working under their supervision to perform any tasks normally performed by physicians. Sixteen states have "regulatory authority" statutes, which give a specific body, usually the state board of medical examiners, the authority to set employment and education standards for PAs. One state, Colorado, has both types of statutes. With PA-related bills continually entering state legislative hoppers, this situation is in a state of constant flux.

The programs surveyed by *Digest* seem to have fairly similar curricula, although several of them have added instruction in some specialized techniques. The evolving norm includes training in history-taking, counseling and education, breast and pelvic (bimanual and speculum) examinations, taking pap smears and gonococcus cultures, pregnancy testing, measuring blood pressure, urinalysis, hematocrit, testing for common vaginal infections (such as trichomonas and candida), uterine sounding and insertion and removal of IUDs, fitting diaphragms and prescribing oral contraceptives under medical directives (see Table 1). The course of instruction is usually about one-third classroom lectures and two-thirds clinical practice.

Two of the most ambitious programs are those at Harbor General Hospital in Los Angeles and at the Albert Einstein College of Medicine in New York City. Both of these involve training some individuals with no formal medical background. The California project, directed by Dr. Donald R. Ostergard, has trained 54 family planning specialists (who also perform non-family planning tasks). They include 27 RNs, 12 licensed vocational nurses, two women who had worked as medical assistants and 13 women with no previous medical instruction (including one who did not have even a high school diploma). Originally, the course ran 20 weeks for all participants, but now it is 12 weeks for RNs and 24 weeks for the others (although a student can complete the course in less time if she proves to be proficient in the required skills).

Graduates of the program work not only in Harbor General's family planning clinic, but also are employed in such diverse settings as the Long Beach City Public Health Department, a prepaid group practice office in Los Angeles and in the private office of an obstetrician-gynecologist. Currently, Dr. Ostergard told *Digest*, the program has contracts with the National Center for Family Planning Services (NCFPS) for $75,000 to train 16 RNs, and with the Office of Economic Opportunity (OEO) for $160,000 to train 24 non-RNs, most of whom have previously worked as aides or counselors in family planning programs.

According to unpublished reports by Drs. Ostergard and John R. Marshall, also of Harbor General Hospital, the course includes 78 classroom hours, covering medical terminology and history-taking, male and female reproductive anatomy, endocrinology, physical examination techniques, contraceptive methods, gynecological diseases, normal and abnormal obstetrics, sexual development, genetics, nutrition and counseling techniques.

Aside from the "standard" procedures, the trainees are taught several less common clinical techniques—more than in any other program—including monitoring fetal heart rate, use of the tenaculum, administration of paracervical block anesthesia, performing certain staining techniques relating to cancer checks and the use of the colposcope (which gives a 13-power magnification of the cervix) to determine the proper place to take a pap smear.

The student begins clinic work under the close supervision of a nurse-instructor. They both examine each patient and compare their physical findings. Whenever the student has problems recognizing certain conditions, the instructor provides immediate guidance. The trainee is permitted to function semiindependently (with the instructor checking only one of five patients) when she "has achieved an accuracy of greater than 90 percent in her description of the physical examination findings," according to Drs. Ostergard and Marshall. Accuracy is determined by comparing the student's observations with those of the instructor after some 100-200 examinations.

Before she is considered to have completed training, the student must also demonstrate "clinical judgment"—integrating "each bit of information about the patient . . . into a composite, coherent and tangible medical history producing a predictable and rational plan of management," the physicians emphasized. During internship (when the trainee works semiindependently), the instructor and physician in charge review the charts of each patient to see if the student is displaying this clinical judgment.

Good Performance Record

On the job, the specialists have been taking a large portion of the work load off the doctors' shoulders. The RN graduates had to send only nine percent of a series of more than 3,000 patients on to doctors for physical examinations and three percent for verbal consultation. For non-RN graduates, 15 and five percent, respectively, of 8,300 patients were referred to physicians—still leaving at least 80 percent of patients who can receive care "without the need for physician involvement." The effectiveness of the family planning specialist is highlighted by the following data reported by Drs. Ostergard and Marshall.

Among more than 4,000 women fitted with the Dalkon Shield by PAs and MDs, women whose IUDs were inserted by nonphysician specialists had a significantly higher continuation rate than those whose IUDs were inserted by physicians. Twelve months after insertion, 85 percent of 2,370 multiparous patients, continued with the method when a specialist did the insertion, compared with a 76 percent rate for physician insertions. These figures fell to 70 percent for the specialist and 59 percent for the physician after 24 months. For 1,697 nulliparous women, continuation rates after one year were 85 percent for the nonphysicians and 77 percent for doctors; after two years the rates were 76 and 62 percent, respectively.

The program at Einstein is one of seven projects funded by OEO and administered

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Table 1. Programs training nonphysician family planning specialists, according to number trained and cost per trainee, qualifications, length of training and tasks performed, as of May 1, 1973

No. trained	*Cost (est.)**	*Qualifications*	*Length of training (wks.)*	*Tasks performed*																		
				History	*Counsel*	*Administer Pill*	*Administer IUD*	*Administer Diaphragm*	*Breast exam*	*Pelvic exam*	*Pap test*	*GC test*	*Vag. infec. test*	*Preg. test*	*Blood pressure*	*Urinalysis*	*Hematocrit*	*Monitor fetal heart*	*Schiller staining*	*Thyroid palpation*	*Paracervical block*	*Cerv. colposcopy*
Harbor Gen.																						
26	$3,000*	RN	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
28	$6,000*	none†	24	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Downstate																						
185‡	§	MW**	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		
40††	‡‡	NMW§§	6-8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		
Einstein																						
12	§	HS	60	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Hartford																						
3	§	RN	17	●	●	●	●	●	●	●	●	●	●	●	●	††	*†					
U. of Fla.																						
27	§	RN	6	●	●	●	●	●	●	●	●	●	●	●	●	●				●		
U. of N. Mex.																						
6	$3,000-$4,000*	HS	26	●	●			●	●	●	●	●	●	●	●	●	●	●				
U. of Nebr.																						
5	$4,000-$6,000*	HS	16-24	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
PP of Wis.																						
10	$3,000	RN	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
FNS																						
120	‡‡	NMW§§	‡‡	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
PP/N.J. Med. Col.																						
30	$3,000	RN	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
U. of Calif.																						
80	$1,000	RN	6	●	●	●	●	●	●	●	●	●	●	●	●	●						

* Includes stipends to cover living costs or travel expenses where applicable. Stipends range from $250 to $300 per month.

† Includes 11 licensed vocational nurses, ten high school graduates and one trainee without a high school diploma.

‡ Includes approximately 135 foreign midwives trained 1966-1972, plus 50 scheduled for 1973.

§ Not available.

** Foreign-trained midwives.

†† Approximately 40 nurse-midwives elected special family planning training as part of internship and refresher programs, 1966-1971. Figures for 1972-1973 not available.

‡‡ Since the family planning training was part of a larger program, this figure was not available.

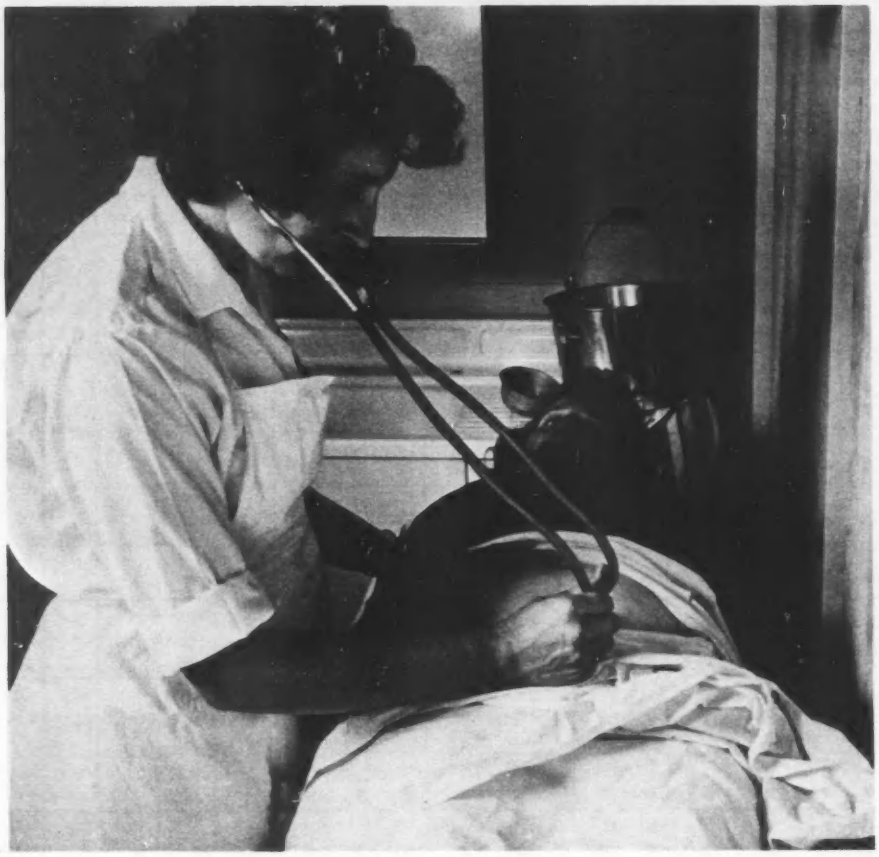
§§ Nurses receiving extensive family planning training as part of their training in nurse-midwifery.

*† These procedures are performed as part of a laboratory work-up before patient sees the nurse-practitioner.

by the American Public Health Association (APHA). Seven medical schools were chosen to establish model family planning services for local communities and to train the personnel needed to deliver these services. The 12 "externs" (as graduates of the Einstein program are called) had to be high school graduates (a standard set by an Advisory Health Council made up of community members), Sonia Garcia Hartman, Director of Einstein's Bronx Maternity Health Guidance Center, told *Digest*. In addition to responsibilities common to specialists working in other programs, the externs in the Einstein program direct the four neighborhood clinics that compose the Bronx Maternity Health Guidance Center, hold sex education workshops in the community and provide sex counseling for adolescents, are responsible for full patient follow-up, provide ambulatory prenatal care, counsel menopausal patients, refer patients to community hospitals for a variety of care and assist the patients and their families with social problems.

This expanded role has produced the longest training period of any of the programs—from 12 to 15 months, including vacation time. But in the process, the 12 women, all of whom are black or Puerto Rican learned about the entire social service system in the Bronx, according to Hartman, visiting courtrooms, hospital emergency rooms and a variety of welfare agencies.

This aspect was deliberately included in the curriculum, Dr. Irwin H. Kaiser, the program's Medical Director, reported at the tenth annual meeting of the American Association of Planned Parenthood Physicians (AAPPP) in Detroit, "to



Nurse-midwife performs a prenatal examination.

emphasize the importance of functioning in the entire social structure that affects health care. The leaking ceiling of a kitchen is a health problem which is not responsive to the capabilities of conventional medicine." Dr. Kaiser believes that the training program may be too long. "This is almost certainly because we decided to err on the side of overtraining," he said, "since we had no models to guide us or systems which could provide ongoing testing."

The externs operate four clinics twice a week, spend two days a week in follow-up work and have one day for continuing education (usually seminars to discuss problems or questions that have arisen during the week). The follow-up includes extensive home visiting—to recruit new patients, make sure those who have been given hospital appointments have kept them, and find out why those who haven't kept them failed to do so. Transportation is provided when a patient needs it to meet an appointment—which the externs make for them at the hospital of their choice. They also follow up the patient's hospital visit—checking records to make sure everything that should have been done was done, bringing whatever they feel are questionable findings to the attention of the program's medical consultants and educating the patient about her rights.

"Here the familiarity of the health externs with clinics, emergency rooms and hospitals, as well as their dedication to patient advocacy, pays big dividends in the form of prompt care," Dr. Kaiser notes. Because of this advocacy role, coupled with medical knowledge, "particularly for the disadvantaged portion of society, they can then function as lubricants at the abrasive interface between the consumers and the providers." The first group of six were graduated in February 1971 and were jointed by six more (out of 10 who started training) in June 1972. They now handle some 4,400 clinic visits a year. The patient return rate for the first 18 months of the program (those given oral contraceptives are generally asked to return in six months; IUD patients in a year) has been about 75 percent, according to Hartman.

Non-RNs are also being trained in two other OEO-funded programs—both fairly new At the University of Nebraska College of Medicine, in Omaha, four RNs and one non-RN have gone through a 24-week course, and a second group of eight students is scheduled to enter the program, for which the trainees earn 13 credits from the university. In New Mexico, six of a planned 12-18 trainees—so far all Mexican-American women with high school diplomas—made up the first class in a program being directed by the University of New Mexico College of Medicine, in Albuquerque. The graduates will work in Taos and Rio Arriba counties after completing the six-month course. There are about 1,200 poor women estimated to be in need of subsidized family planning services in the mainly rural area—most of them Mexican Americans, some Indians and some "hippie types," according to program director Dr. John Slocumb.

Nurse Family Planning Specialists

Numerous programs have been established to train nurses as family planning specialists to staff OEO-funded projects. Medical schools of the University of Florida, Temple University, the University of Pennsylvania, the University of Pittsburgh, Wayne State University and The Johns Hopkins University have received funds from OEO, through APHA. In the University of Florida (Gainesville) program, 24 RNs (most of them public health nurses) received training, beginning in early 1971 and continuing through May 1972. (Since then, three more nurses have been trained at university expense for the student health service.) The six-week course includes 10 classroom hours and eight to 10 two-hour clinic sessions, and the graduates have been assigned to 13 counties in the northeast part of the state, working with both urban and rural low-income women. Under the direction of the medical school, most of the nurses operate clinics in their counties (although some county health officers have not permitted this). Most insert IUDs, but this has also been prohibited in certain counties by the health officers.

In Alachua county, where the university is located, three graduates have been directing 14 clinic sessions a month according to Dr. James W. Daly, director of the program. Last year, they saw some 1,400 new family planning patients and 2,700 continuing patients for contraception. Some 172 IUDs were inserted, Dr. Daly told *Digest*. Outreach workers (six hired under the OEO grant, and others hired by the counties) work in each county program providing follow-up services.

OEO has also given grants, through the American College of Obstetricians and Gynecologists (ACOG), to several hospitals for the development of innovative methods of delivering family planning services. Training of RNs has been required to provide staff for the services. Participating hospitals include Presbyterian-St. Luke's in Chicago; Riverside General, in Riverside, California; Hartford Hospital, in Hartford, Connecticut;

Kapiolani Maternity, in Honolulu; Emanuel, in Portland, Oregon; University of Mississippi Hospital, in Jackson; and Deaconess, in Buffalo, New York.

The Hartford Hospital program is typical. Three nurse-practitioners—all of whom were already working at the hospital—received four months of "on-the-job training," according to Dr. Arnold Case, director of the Ob-Gyn clinic at Hartford. They received their training on a one-to-one basis from physicians, and it was estimated they "were completely able to perform pelvic examinations" and the other clinical procedures after 100 trials. The nurse-practitioners also provide a walk-in pregnancy testing and counseling service. In addition, they prescribe treatment for common vaginal infections. In the first year of clinic operation, the nurses saw some 1,500 patients, 95 percent of whom returned for follow-up care.

Local needs suggest program modifications: The Jackson program in Mississippi, because of the population served, also emphasizes testing for sickle cell anemia.

Two general training programs for nurses have been established by Planned Parenthood. In cooperation with the New Jersey College of Medicine and Dentistry and Planned Parenthood of Essex County, Planned Parenthood-World Population is running a 12-week program in Newark (funded by private foundations), which began in January 1972 and currently trains three classes of 10 students each per year. Along with the instruction in counseling and medical skills common to most of the programs, the Newark project also focuses on clinic management, including staff training, organizing services and federal financing. "The payoff from this," notes Miriam Manisoff, Director of Professional Education for Planned Parenthood-World Population, "is that every one of our graduates has become involved in inservice training at the institution from which she came, and the whole clinic operation is improved."

There is also emphasis on the "need to integrate all the components of patient assessment," she says. Most of those trained so far are from public health departments, with others from hospital and Planned Parenthood clinics and community health centers. Evaluation of the students consists of written and oral exams, plus regular checking of the nurses' clinical findings.

Planned Parenthood of Wisconsin has recently started a similar program in Milwaukee, funded with a $50,000 grant from NCFPS. Trainees have included two nurses from private clinics and one from a prepaid health plan, in addition to those from P.P. and public clinics.

Since 1971, the Medical Center of the University of California at San Francisco has been conducting a six-week training program for nurses from various agencies in the Bay Area (most of them RNs working in county health department clinics). Some 80 nurse-specialists have completed the program—which currently costs about $1,000 per student, up from $100 to $300 each for the first groups of trainees—according to Dr. Phillip J. Goldstein, who helped develop the project. The program has produced the one exception to the women-only rule—a man currently working at a neighborhood health center in Berkeley. The course is shorter than most because the participants all come from family planning programs and already have much of the basic knowledge included in other training curricula.

One problem encountered by graduates of the San Francisco program is a lack of willingness on the part of many of the agencies from which they come to utilize these nurses as fully as their training would allow. Interviews with 24 of the first 28 graduates revealed that even several months after returning to their agencies, only four of the nurses were working full-time as family planning specialists and eight were spending one-fourth or less of their time in that role, Linda Rudolph, a medical student at the University of California in San Francisco, reported at the AAPPP meeting in Houston in April.

Clear Guidelines Necessary

In general, she found, the clearer the guidelines for the specialist's role that the agency laid down before the nurse began training, the more time she spent working as a specialist once she returned. In all three agencies with clear guidelines established before training began, the nurses were working full-time in family planning. In the seven agencies that never set more than "vague" guidelines, six nurses were spending one-fourth or less of their time as specialists and one was working half-time in the area.

Concern over the legal status of the nurse-specialist limits her activity, Rudolph reports. Only five of the family planning nurse-specialists insert IUDs, although all have been trained to do so, she said.

The involvement of the nurse-specialist, despite the reservations described, has been associated with an increase in patients at six clinics of from 50 to 100 percent, and waiting time for appointments in the clinics has been decreased in four others.

Nurse-midwives receive some training in family planning as part of their instruction in midwifery, but special emphasis is placed on the subject at the Frontier Nursing Service (FNS) in Hyden, Kentucky, and at Downstate Medical Center in New York City.

FNS probably has the oldest of the nonphysician training programs. It serves a 750-square mile area of rural Eastern Kentucky. Founded by a nurse-midwife nearly 50 years ago, FNS's purpose is to provide maternal and child health care to those who live in isolated communities of Appalachia. FNS has been involved in family planning since 1958, Dr. W. B. Rogers Beasley, former FNS Medical Director, told *Digest*, when several hundred FNS patients were included in Dr. John Rock's clinical research on the oral contraceptive. FNS nurse-midwives did most of the physical exams and routine laboratory tests from the start. Currently, training in the delivery of family planning services is an integral part of the curriculum at the Frontier School of Midwifery and Family Nursing (originally the Frontier Graduate School of Midwifery), founded in 1939. About 12 nurse-midwives are trained each year to fill the FNS's 36 posts.

The nurse-midwives deliver a full range of services, including physical examinations, laboratory work-up and counseling. Like other nonphysician practitioners, the FNS nurse-midwives look for vaginal, urinary tract and gonococcal infections. But unlike most others, they also treat these infections, "following specific detailed instructions," Dr. Beasley explained, which are part of the nurses' standing medical directives. All standard contraceptive procedures (except sterilization) are dispensed by the nurses. When abnormalities or complications are found, the patient is referred to an FNS physician.

FNS has trained some 120 nurse-midwives since family planning became a significant part of the curriculum in 1964, Dr. Beasley told *Digest*. Graduates have gone on to work abroad as well as in several U.S. hospital clinics.

Downstate has had a program to train foreign midwives and nurse-midwives to deliver family planning services since 1966 (originally funded by private foundations but now operating under an Agency for International Development grant). The development of that program has brought two other, shorter courses in family planning—a four-month internship for U.S. nurse-midwives, and an intensive program in family planning as part of a refresher course for foreign-trained nurse-midwives who want to become licensed here, as well as for U.S. nurse-midwives who have not practiced for some time and want to resume work. There are

some 30 nurse-midwives on the staff at University and Kings County hospitals, part of Downstate, most of whom have gone through training at Downstate. They provide a full range of clinical and counseling services, and see 350-400 patients a week. The nurse-midwives who are instructors in the programs provide training in family planning to the center's medical students.

As important as the ability of these specialists to perform the medical procedures well is their acceptance by their patients and the physicians with whom they work. In those programs surveyed by *Digest*, there seems to be little doubt that they have been enthusiastically accepted by the women they serve, while the response from some physicians has not been quite as warm.

In a survey of more than 11,000 patients at Harbor General, Drs. Ostergard and Marshall report that only 0.6 percent expressed a preference for a physician to deliver their medical family planning services, with 43.8 percent preferring the family planning specialist and the rest giving no preference.

Dr. Beasley estimates that "maybe one" of the 100-150 patients seen each week by nurse-midwives at the University Hospital and of the 250 patients seen at the Kings County Hospital will say she wants to see a doctor. "The nurse-midwives listen more, talk more with the patient, and are more conscientious in detailed work," he notes. In the Frontier Nursing Service, he adds, with its "rural setting, . . . its shortage of physicians and obstacles of distance and lack of transportation, utilization of the nonphysician may make the difference between quality care and no care. . . . There has been complete acceptance by the patients."

Some 40 patients served by graduates of the San Francisco program were selected at random and surveyed for attitudes toward the nurse-specialists. "All approved of the nurse and would see her again," Rudolph reported. "Spanish-speaking women, Indian women and young women—some of whom were receiving their first pelvic exam—were all particularly glad to be examined by a woman rather than a man. Three-quarters of the patients interviewed found it easier to talk with the nurse about problems they had, both social and sexual. This was attributed primarily to the fact that the nurses do not seem to be as rushed or busy as the doctors. For the same reason, numerous patients felt that the exam the nurse had given them was 'the most thorough exam I have ever received in my life'."

Dr. R. Clay Burchell, Director of Obstetrics and Gynecology at Hartford Hospital, notes that some doctors have had difficulty accepting the nurse-practitioner, feeling uneasy about problems such as loss of autonomy, "an alteration in the power relationship between the physician and the nurse" and "role reversal."

Einstein 'extern' checks pregnancy test results.

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Fertility Society—1973

Specialists Explore Reversible Vasectomy, Study Sperm-Related Antibodies and Antigens

Experts at the twenty-ninth annual meeting of the American Fertility Society, (AFS), held in San Francisco last April, devoted considerable attention to male fertility and infertility. They reported on attempts to reverse sterility caused by vasectomy, on the appearance of autoantibodies in some vasectomized men and on experimental methods to effect temporary sterility without severing the vas deferens. Also reported was basic research to identify the various antigens in human semen, of interest because of their role in immunologic infertility and as possible factors which might enable researchers to develop new contraceptive methods.

Reversing Vasectomy Largely Unsuccessful

Neither the skills of the surgeon nor ingenious technologies have succeeded in making vasectomy readily or widely reversible. This is the conclusion of various reports presented at the AFS meeting.

Data presented by Dr. Fletcher Derrick, Jr., Professor and Chairman of the Department of Urology at George Washington University in Washington, D.C., indicate that little progress has been made in the last 25 years. From a survey questionnaire he sent in 1972 to 2,775 members of the American Urological Association, and to which he received 1,319 replies, it was learned that 542 urologists had performed 1,630 operations in attempts to restore the fertility of men who had been vasectomized. They reported a success rate (defined as pregnancy occurring after reanastomosis of the vas) ranging from 10.9 to 26 percent. The respondents also estimated a 38 percent return of normal sperm in the ejaculate. Dr. Derrick noted that when a similar survey was fielded in 1948, a pregnancy rate of about 22 percent was reported, with a 35 percent return of sperm.

One of the problems encountered in trying to determine the success rate of vasectomy reversal, observed another speaker, Dr. Paul Getzoff, Professor of Urology of the University of California at Irvine, involves the different definitions of success. From the 150 replies he received to a questionnaire he sent to 200 board-certified urologists, Dr. Getzoff found wide variation in what is considered a "successful" reversal of vasectomy. Only 30 percent of the urologists said pregnancy resulting in a live birth was the standard, while more than 42 percent reported that the appearance of normal sperm, as determined by semen analysis, constituted success. Just under nine percent of respondents called the attempted reversal successful when "some" sperm reappeared in the ejaculate, and about 19 percent believed their efforts had been crowned with success when women became pregnant, even if their pregnancies miscarried.

In view of these results, it is hardly surprising that attempts have been under way for some time to achieve reversible male sterilization without severing the vas deferens. Two such efforts, both in the early stages of development, were described. Dr. Derrick inserted plastic polypropylene plugs less than half an inch long into the vasa deferentia of 13 men, with the following results: In 10 of the men the plugs prevented the sperm from making their way through the vasa, and they became sterile. In three of the men the plug did not, apparently, block passage of the sperm, and although their sperm count was low, they could not be considered sterile. These men were subsequently vasectomized. To test the reversibility of the procedure, the plugs were removed from eight of the 10 men after five to 18 months in place. "After from five to 12 months," reported Dr. Derrick, "they are all still sterile," despite the fact that spermatogenesis is continuing. The physician told *Digest* he believes that the problem is one of technology, and that modification of the plug may yet accomplish the objective of reversibility.

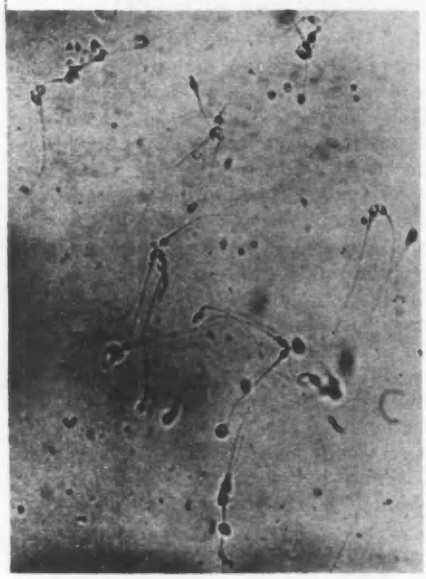
A progress report on another experimental device, a valve which can be turned on and off to achieve sterility and reverse it when desired, was presented by Dr. Joseph E. Davis, Professor and Chairman of the Department of Urology at New York Medical College. Experiments begun a few years ago, with a stainless steel and gold valve placed in the vasa deferentia of guinea pigs and human volunteers, required modification of operative technique and valve model when it was found that, because of problems of fit sperm were making their way around the device and through the vasa. Both the valve and the operation to place it in position have since been modified, the physician reported. The current device, like the original one, has fine gold wire wrapped around both arms of the valve, but it is smaller, measuring one-quarter of an inch long and with an internal diameter of 0.25 mm. Thus far, there is no evidence of tissue rejection or reaction. The vas is now denuded of its mucosa prior to placement of the valve, permitting a firm tissue-to-valve seal, which Dr. Davis believes is essential. A holding suture is placed on each arm of the device, another modification, and the vas is transected rather than incised longitudinally. This new valve was placed in the vasa of 13 guinea pigs in the open position and of 13 in the closed position one year ago. Five of the animals with the valve in the open position have been mated, all resulting in normal births. Toxicity studies show no difference between animals with and those without the valve. Five human subjects have the new device in place in the open position, and 10 with it in the closed position, but it is too early to report results, Dr. Davis told *Digest*.

The one physician who reported an extraordinarily high success rate in restoring fertility attributed his success to the fact that all the men had very young wives. Dr. Sheridan W. Shirley, Professor of Urological Surgery at the University of Alabama, said there were 13 successful pregnancies following 17 reanastomoses. All the men were under 40 years of age, all had had normal sperm counts prior to their vasectomies and all had had children. The oldest vasectomy had been performed 12 years previously. Dr. Shirley emphasized that the selection of the patient was extremely important to the success of the effort to restore full fertility. Proven previous fertility is a key factor, he said, and preferably with living children as the proof positive. Patience is also important, since fertility may not be restored at once. For one of his patients, a 38-year-old man with a six-year-old vasectomy, it took nine months for a decent sperm count to be reached. The physician told *Digest* that his success may be simply a coincidence and that it would take a much larger series to establish that his findings are valid.

In remarks following the presentations on vasovasostomy, Dr. Bruce H. Stewart, President of the American Fertility Society, said he was discouraged about the possibility of reversible vasectomy and said it would be prudent to advise men contemplating vasectomy to consider it irreversible.

Sperm Antibodies Remain Puzzling

Although he could find no evidence to support recent reports of ill-effects following vasectomy in a sample of men he followed up to 24 months, Dr. Rudi Ansbacher, of the Department of Obstetrics and Gynecology of Brooke General Hospital,



Human sperm agglutinated by human antibodies.

at Fort Sam Houston in Texas, did find that a significant percentage of men studied prospectively developed antibodies to their own sperm which could render them infertile, confirming previous observations. [See: "Discuss Sterilization Advances, Problems," *Digest*, Vol. 1, No. 5, 1972, p. 9.] Some of these antibodies cause immobilization of the sperm; others cause sperm to agglutinate.

When the sera (a component of the blood) of 106 men of proven fertility were tested prior to vasectomy, one man, or one percent, showed evidence of the presence of sperm agglutinating antibodies. Six months following vasectomy 39 of 69 men (56 percent) were found to have circulating sperm agglutinins, and at the 12-month examination, 27 of 44 men (61 percent) had sperm agglutinins. (The fall-off in numbers occurred because some men were lost to follow-up and some of the original group had not yet reached the various checkup times following vasectomy, Dr. Ansbacher explained.)

Of the original group of 106 men, none had had circulating sperm immobilizins (causing the sperm to lose motility) prior to the vasectomy. At six months postvasectomy, however, 19 of 69 men (27 percent) and at 12 months 12 of 44 men (27 percent) had positive sperm-immobilization tests.

Ejaculates from 39 of the 44 men collected one year after vasectomy showed their seminal fluid to be free of spermatozoa or sperm antibody activity.

The findings on 21 men who returned for their 18- and 24-month postvasectomy visits showed the following:

- Thirteen (62 percent) had circulating agglutinins at the 18-month and 12 (57 percent) at the 24-month visits. These incidences were comparable to those seen six and 12 months after vasectomy.
- The finding on circulating immobilizins was quite different, however. Only nine percent of 21 men had circulating immobilizins at the 18- and 24-month postvasectomy checkup, a marked decrease from the 33 and 38 percent incidences seen at the six- and 12-month visits for this group.

Onset of sperm antibody activity following vasectomy varies, Dr. Ansbacher found. Of seven men studied pre- and immediately postvasectomy, one demonstrated circulating agglutinins at three to four days, three at seven days and five at 10-11 days after the procedure was performed.

Dr. Ansbacher said he is unable to explain why some vasectomized men develop antibodies while a significant proportion do not. He was also unable to say with certainty whether the antibody effect would disappear over time. He cautioned, however, that his findings do cast some doubt on assertions that vasectomy is reversible. He told *Digest* he believes that some men may suffer permanently diminished fertility.

Basic Research

Some Seminal Fluid Components Defined

The effort to develop a nontoxic, effective, reversible inoculation which would make women 'immune' to sperm continues, although early experiments to produce immunologic infertility have thus far been unsuccessful. On the assumption that more precise information about the composition of seminal fluid might lead to development of such a contraceptive, Dr. W. Leslie G. Quinlivan, Professor of Obstetrics and Gynecology at the University of California at Irvine, reported that he and a colleague had identified nine antigens in human seminal plasma. Four of these (albumin, transferrin, immunoglobulin G and a beta-1 globulin) arise from blood plasma. Three antigens (lactoferrin, a beta-1 and a beta-2 globulin) came from the seminal vesicles. Two (acid phosphatase and a beta-2 globulin) and possibly also lactoferrin came from the prostate gland. Lactoferrin was also found to originate in the epididymis.

This latter antigen, arising from three different sites, made a firm coating on the surfaces of ejaculated spermatozoa, and was demonstrated also on the surfaces of spermatozoa from spermatocele fluid, the researchers found. The presence of lactoferrin in the epididymis and on spermatozoa from spermatocele fluid shows, Dr. Quinlivan said, that lactoferrin first becomes attached to spermatozoa in the epididymis. Later, the substance, which is also produced by the seminal vesicles, becomes one of the constitutent proteins of the seminal plasma, and may add a further coating to the sperm during their storage within the vesicles. Dr. Quinlivan said that it is just possible the lactoferrin in human semen may prove to be the specific antigen necessary for producing antibodies to spermatozoa.

He told *Digest* he could envision inoculating women with lactoferrin to set up an immune response against sperm. One problem which must be solved is development of a synthetic lactoferrin, since there are difficulties obtaining enough of the natural substance for practical use. (Lactoferrin is also present in human mother's milk, he said.) Another question to which scientists have to address themselves is whether the immune effect is reversible. The physician believes research along these lines may provide another family of contraceptives.

Sources

Papers, reports and remarks presented at the twenty-ninth annual meeting of the American Fertility Society, San Francisco, Calif., April 5-7, 1973:

R. Ansbacher, "Sperm Antibodies in Vasectomized Men."

J. E. Davis, "Results with the Use of Intra-Vasal Valve."

F. C. Derrick, Jr., remarks at vasovasostomy panel.

F. C. Derrick, Jr., F. J. Frensilli, W. L. Glover and Z. Kanijubarambam, "Experience with a Reversible Intra-Vas Device—The Brodie Polypropylene Plug."

P. Getzoff, remarks at vasovasostomy panel.

W. L. G. Quinlivan and H. Sullivan, "Lactoferrin, A Sperm Coating Antigen."

S. W. Shirley, remarks at vasovasostomy panel.

B. H. Stewart, remarks at vasovasostomy panel.

Resources in Review

By Dorothy L. Millstone

Social work has much to contribute to effective family planning education. By definition, social workers are in systematic contact with key persons known to want and need subsidized service. But most experience indicates that only rarely is the social worker the source of referrals to the clinic.

This makes especially welcome *Population and Family Planning: Analytical Abstracts for Social Work Educators and Related Disciplines*, a paperback published in 1972 by the International Association of Schools of Social Work. Social service agencies could make good

use of this carefully selected collection in planning inservice orientation courses.

Katherine B. Oettinger and Jeffrey D. Stansbury digested 55 articles and books relating social work to the areas the title suggests, and much of the material, although designed primarily for overseas use, is by Americans and draws on American sources. For example, a chief item in the section on preparation for practice is Florence Haselkorn's *Family Planning: Readings and Case Materials*, issued for U.S. readers. Social work faculty interested in setting family planning teaching in a global framework may find this a time-saver. One full set of the publications digested can be consulted at the offices of the Association (otherwise some items listed may prove hard to find). Available free from the Association, 345 E. 46th St., New York, N.Y. 10017. Supply is limited; first come, first served.

Direct Mail

Mass Mailing Manual for Family Planning (1972), a 114-page why-and-how-to-do-it paperback from the Communications Laboratory of the University of Chicago Community and Family Study Center, argues that this multibillion dollar business has much to offer family planning education and that no program should be without a carefully planned way of making friends by mail.

Authors Björn Berndtson and Donald J. Bogue find 10 audiences for which mail could be tailored: potential clients, community organizations, family planning service providers other than public clinics, change agents and community leaders, mass media, resistant and hostile groups, centers of power and authority, sources of funds, administrators and evaluators, and employees and volunteers.

A typical year's program is outlined in one chapter. Another spells out personnel and equipment requirements. Artwork, photography and the preparation of printing are also covered, as are collecting and servicing the mailing lists and evaluation of the results.

Even in the United States, direct mail is cheaper than home visiting, the authors argue. The home visitor, seeing 25 households a week, is paid about $120 a week, or $5 a house call. A 12-page brochure on family planning could be printed, stuffed and mailed for 20 cents, and $120 could reach 600 households.

One could, of course, question this assessment of the advantages of direct mail—but this volume is nonetheless a useful presentation of the whys and hows of an important selling tool.

Purchase price, $1 a copy, plus postage, from Publications Secretary, Community and Family Study Center, 1411 E. 60th St., Chicago, Ill. 60637.

The Population Questions

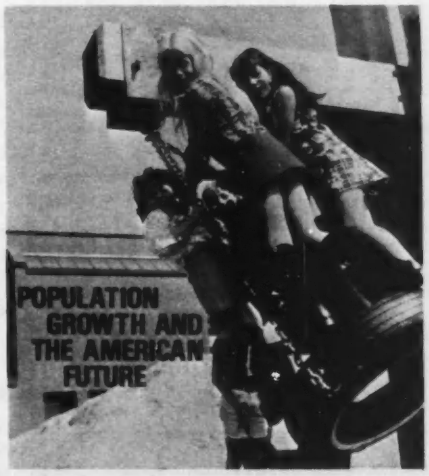
A film and pamphlets address themselves to the complicated issue of the impact of population growth on the quality of American life.

• Film—*Population and the American Future* (one hour, color, 16 mm, in two half-hour segments). This is the film version of the Report of the Commission on Population Growth and the American Future. Hugh Downs narrates and simplifies the Commission's finding: that population growth, though not a principal cause of U.S. economic and social problems, intensifies them, making it harder for the nation to cope. Factors causing growth are examined, and Commission recommendations, including proposals for more sex education and a "voluntary program to reduce unwanted pregnancy," are presented along with the reasoning that led to their adoption. The controversial character of aspects of the report is candidly acknowledged and divisions among members of the Commission are frankly expressed.

The impact of population growth on natural resources, pollution, and urban and suburban sprawl is examined while the camera moves pleasantly into illustrative background scenes in crowded city streets, playgrounds, industrial sites and classrooms. The division of the film into two segments permits spreading its teaching over two days or more if class interest warrants this.

Teachers will find this film useful as a curriculum tool, especially suitable for social studies. Its candor on controversial aspects can spur independent student research, and its factual information will facilitate a grasp of the factors causing population change.

The film is available on loan free from Modern Talking Picture Service, Inc., Film Library, 2323 New Hyde Park Rd., New Hyde Park, N.Y. 11040. The only charge to the borrower will be for return postage.



Prints are limited in number, so it is suggested that orders be placed two months in advance and that two alternative dates be offered for showing.

Purchase price: $300, from Fisher Film Group, 216 E. 49th. St., New York, N.Y. 10017.

Two teaching aids have been prepared to facilitate effective classroom use:

• *Viewers Guide to Population and the American Future*, a colorful, chart-illustrated, 12-page review of film highlights, is available free in small quantities (20-30) from the Population Reference Bureau (PRB), 1775 Massachusetts Ave., N.W., Washington, D.C. 20036. If this is read before the film is shown, students will find it easier to absorb its statistical content.

• An 80-page teachers' guide entitled *Options for Population and the American Future*, designed for junior and senior high school and undergraduate courses at the college level, suggests activities and independent research projects suitable for fusion into the curriculum. Copies of this guide will be sent free to borrowers of the film when confirmation of the loan is sent. A 50-cent handling charge will be made for orders independent of the film loan.

A Voice of Dissent

The Commission and the substance of the report on which the film is based come under attack in a 54-page pamphlet by Randy Engel, Executive Director of the U.S. Coalition for Life, and published in 1972. About one-third of the booklet, *A Pro Life Report on Population Growth and the American Future*, marshals arguments against legal abortion. Other sections question the objectivity of Commission members, oppose federal support of family planning and challenge the theory that population growth is a major factor in the development of economic and social problems. The booklet is obtainable for 75c from Pennsylvanians for Human Life, P.O. Box 10417, Pittsburgh, Pa. 15234.

• Note—Readers are urged to send their own materials for review. Send two copies of each item; define the intended audience and goal; state the price and how *Digest* readers may obtain copies. Contributions should be addressed to:

Resources in Review
Family Planning Digest
Room 12A-33
5600 Fishers Lane
Rockville, Md. 20852

Readily Available Free Services Reduce Infant, Maternal Deaths, Cut Birthrate

What are the long-run personal and social consequences of making comprehensive family planning services readily available to all who want them? Returns from Aberdeen, a city in Scotland with a population of 182,000 which pioneered such a program, show major reductions in maternal and infant mortality, illegitimate births and high-risk pregnancies, as well as sharply reduced birth and fertility rates.

The program began when the city took over a voluntary clinic in 1946, initiated free contraceptive services in 1967 and opened its doors to the unmarried in 1968. A marked effect on the birth and fertility rates resulted. While the fertility rate (the number of children born to 1,000 women aged 15-44) increased from 83.4 to 86.6 for Scotland as a whole from 1950 to 1970, the rate for Aberdeen fell from 74.5 to 69.9. The live birth rate (children born per 1,000 population) dropped from 17.2 to 14.4 in Aberdeen during that period, while the rate for Scotland declined from 18.1 to 16.8 (see Table 1). Among the health achievements associated with the development of the family planning program are no maternal deaths in either 1969 or 1970, and an infant mortality rate of 12.3 deaths per 1,000 births in 1971 (down from 19.2 in 1960), one of the lowest recorded anywhere in the world.

These are some of the findings of a report, "The Benefits of Birth Control—Aberdeen's Experience 1946-1970," published this year by the Birth Control Campaign, a voluntary organization established in 1971 to win support for the inclusion of comprehensive birth control services in Britain's National Health Service (NHS).

Two factors which helped contribute to the extraordinary record on maternal mortality, the report noted, were the reduction in births to older women and to women who already had three or more children—both high-risk categories. The ratio of fourth or subsequent children was only 7.4 per 100 live births in Aberdeen in 1969, less than one-third of that in Scotland's largest city, Glasgow (24 per 100 live births in 1969), which has a similar population, but no comparable birth control program. The rate of live births to Aberdeen women 35 years or older was cut nearly in half between 1961 and 1970.

Illegitimate births rose steadily from 1960 to 1968 in Aberdeen (more rapidly than in the country as a whole). However, while the illegitimacy rate continued to increase in Scotland in general, the rate in Aberdeen started to fall after 1968.

As of 1972, the city's family planning service provided a total of 22 clinic sessions a week at four clinic sites. Two additional clinics provide contraceptive advice to women receiving postnatal examinations. Some 5,126 women were seen in 1971 (up from 4,244 in 1970 and 1,527 in 1960). Among these were 1,868 new clients (compared with 1,457 in 1970 and 479 in 1960). It is estimated that by mid-1972 the clinics had provided contraceptive help to nearly half of the women of childbearing age. "Most of the rest of those women at risk of pregnancy are obtaining contraceptives from their family doctors or commercially (both are important sources of contraceptive supplies in Great Britain), while a comparatively small number are still unprotected; a rough estimate has placed this figure at about 10 percent of Aberdeen women of fertile age," according to the report.

Contraceptives are not provided at the city's hospitals, but those institutions do have "a thorough system of referral" of patients to the family planning clinics. Similarly, the clinics refer appropriate patients, such as those desiring abortions or sterilization operations, to the hospitals. Female sterilizations paid for by the NHS rose from 197 in 1960 to 351 in 1970. Vasectomies were not included in the NHS until 1967 (when just two were performed). By 1970, 148 vasectomies were performed in Aberdeen. Abortions increased from 77 in 1960 (including 11 of unmarried women) to 330 in 1970 (including 194 of unmarried women). As a result of the program (as well as of an increase in legal abortions), the report notes that "illegal abortion appears to be as good as nonexistent in Aberdeen, nor is there a private practice in abortion with its frequently associated high charges."

The family planning service seems to be used by all segments of the population. The number of women from working-class families increased after clinic charges were dropped in 1967, with the number of new patients from this group in 1968 and 1969 nearly three times the number in 1966. The parity and marital status of the average patient has also changed. In 1965, 70 percent of the women visiting the clinics had two or more children. But in 1971, 71 percent of the women were nulliparous or had only one child. While only nine percent of patients were unmarried in 1968, this figure rose to 36 percent in 1971.

About two-and-a-half percent of the local health budget is spent on the program (excluding the family planning part of the health visitors' work), which amounted to £ 17,000 ($40,800) in 1971. "Thanks to its past service and the climate of opinion built up among its young people and families, Aberdeen has already begun to save itself considerable social services expenditure by reducing the number of births of unwanted, neglected and otherwise handicapped children," the report concludes.

Table 1. Selected birth, fertility, illegitimacy and infant mortality rates for Aberdeen, Glasgow and Scotland, 1950-1970

	1950	*1960*	*1965*	*1966*	*1967*	*1968*	*1969*	*1970*
Infant mortality (per 1,000 births)								
Aberdeen	—	19.2	19.2	14.8	22.6	18.6	17.2	14.5
Glasgow	—	32.2	28.1	30.2	24.5	26.2	27.0	23.0
Scotland	—	26.4	23.1	23.2	21.0	20.8	21.1	19.6
Live births to women 35 or older (per 100 live births)								
Aberdeen	—	9.3*	8.2	8.6	8.9	7.9	6.9	4.8
Live births of fourth or subsequent children (per 100 live births)								
Aberdeen	—	13.2*	11.6	11.9	10.6	9.4	7.4	7.6
Scotland	—	18.6	19.1	18.2	17.4	16.4	15.6	14.8
Illegitimate live births (per 100 live births)								
Aberdeen	5.3	5.1	6.5	7.5	7.3	9.5	9.1	7.7
Glasgow	5.6	5.4*	7.7	8.8	9.6	10.4	10.7	11.8
Scotland	5.2	4.3	5.8	6.4	6.9	7.4	7.5	7.7
Live birth rate (per 1,000 population)								
Aberdeen	17.2	17.5	17.5	15.9	15.3	15.7	14.1	14.4
Glasgow	18.4	21.8	20.8	20.2	20.1	19.9	18.8	17.9
Scotland	18.1	19.6	19.3	18.6	18.6	18.3	17.4	16.8
Fertility rate (per 1,000 women, aged 15-44)								
Aberdeen	74.5	80.9	84.0	76.9	75.0	76.4	69.0	69.9
Scotland	83.4	96.4	96.3	93.8	94.3	93.8	89.5	86.6

*1961.

Source

A. Service, "The Benefits of Birth Control—Aberdeen's Experience 1946-1970," Birth Control Campaign, London, 1973.

AAPPP—1973

Improved Copper IUD, Male Attitudes Toward Contraception, Endometrial Aspiration, Nonprescription Pill Discussed by Experts

The 30 papers presented at the eleventh annual meeting of the American Association of Planned Parenthood Physicians (AAPPP) explored numerous subjects of current interest and importance to the field. The digests that follow are a sampling of some of these papers, including continuing experience with the safety and efficacy of the copper T and 7 IUD, and efforts to include copper on the conventional Lippes loop; the attitude of American men toward contraception; the first detailed reports on experience with minisuction to induce menstruation, and a proposal by an AID officer to permit over-the-counter sale of oral contraceptives in the United States as well as abroad. The AAPPP membership includes 750 physicians and other professionals who work in family planning programs sponsored by health departments, hospitals, a variety of voluntary organizations and numerous community groups, many funded by the federal government.

No Toxicity Seen With Copper IUDs

Continuing investigations of copper IUDs confirm the effectiveness of the copper T and the copper 7, while uncovering no evidence that the presence of copper in the uterus involves any toxic side effects. Two reports to the AAPPP presented the first data on trials with a new copper IUD—the TCu-300 (a version of the T on which there is 300 square mm surface area of copper instead of the usual 200 square mm on the TCu-200)—and with two copperbearing versions of the Lippes loop.

Dr. Howard J. Tatum, Associate Director of the Biomedical Division of the Population Council and developer of the copper T, reported that in a comparison of the TCu-200 with the TCu-300 and the Lippes loop D over a 10-month period, "there is a suggestion that the greater surface area of copper may be providing somewhat better antifertility action." Pregnancies, expulsions and removals for pain, bleeding and other medical reasons were all lower with the TCu-300, as Table 1 shows. [For a comparison of the TCu-200 with several other IUDs, see "Shield Pregnancies Higher than Loop's; TCu, Cu7 Reviewed," *Digest*, Vol. 2, No. 1, 1973, p. 6.] While there was little difference between the TCu-200 and loop D in pregnancies and expulsions, as the table shows the TCu-300 was markedly better in these two areas, and both Ts had fewer removals for bleeding, pain and other medical reasons than the loop (with the TCu-300 better than the TCu-200). A nine-month double-blind comparison of the TCu-200 with the copper 7 showed similar rates for pregnancy and removal for bleeding, pain and other medical reasons. The TCu-200 had a lower rate of expulsions, but the difference was not significant. Dr. Tatum also presented data gathered by Dr. Daniel R. Mishell, of the University of Southern California, comparing the experience with the two Ts in multiparae and nulliparae. Three hundred and sixty insertions of the TCu-300 in multiparous women, involving 3,805 woman-months of use, resulted in three pregnancies, 12 expulsions and 26 removals for bleeding and pain; while 283 insertions of the TCu-200 in multiparae, involving 4,291 woman-months of use, resulted in 10 pregnancies, 17 expulsions and 20 removals. Nulliparae who underwent 346 insertions of the TCu-300, with 4,162 months of use, experienced two pregnancies, 20 expulsions and 32 removals, compared with 19 pregnancies, 35 expulsions and 68 removals among nulliparae who underwent 472 insertions and 7,266 months of use of the TCu-200. Dr. Tatum observed that "although the data are still preliminary, they do suggest that the TCu-300 may be the most effective" for nulliparous women. The investigator also noted that in examining the rate of accidental pregnancies in relation to the time the T has been worn, "over a period of two years, there has been no indication that the contraceptive properties of the copper T have diminshed." Therefore, he has extended the "recommended period of use on an investigational basis to three years" from the previous two-year limit. He revealed that a modification of the T is currently being investigated under Population Council sponsorship, which "should theoretically provide effective contraception for 15 or more years."

Table 1. Net cumulative termination rates, TCu-200, TCu-300, and loop D, per 100 users, after 10 months of use, by type of termination, as of March 1973

	TCu-200	*TCu-300*	*Loop D*
Pregnancies	2.2	1.1	2.0
Expulsions	8.4	6.9	8.7
Removals:			
Bleeding/pain	5.9	4.8	9.7
Other medical	2.4	1.7	2.8
Planning pregnancy	1.4	1.5	0.6
Other personal	1.8	1.5	1.7
Total event rate	22.1	17.5	25.5
No event rate	77.9	82.5	74.5
Insertions	10,352	5,299	7,553
Woman-months of use	52,985	22,689	57,927

Copper Loop

Dr. Jack Lippes, Associate Professor of Obstetrics and Gynecology at the State University of New York at Buffalo School of Medicine, and Medical Director of Planned Parenthood of Buffalo, reported on the first trials of a copper-bearing loop. Two versions, both using the loop A (the smallest one), were developed, one with 135 mm and one with 200 square mm of copper surface. The copper was wrapped on the horizontal portions of the loop, rather than coiled around a vertical member, as with the copper T.

After a one-year trial, Dr. Lippes found that both versions of the copper loop had markedly lower continuation rates than the TCu-200, and that the copper loop A-200, with more copper, had a slightly poorer record than the copper loop A-135. The only category in which a copper loop proved better than the copper T (although only slightly so) was the rate of accidental pregnancy per 100 woman-years, where the loop A-135 was associated with a 1.86 rate, compared with 2.21 for the TCu-200 and 3.17 for the loop A-200.

The reason for the poor performance of the copper loops, especially in such areas as expulsion and removal for medical reasons, Dr. Lippes said, was probably "that the horizontal positioning of the copper tubing on the loop made the device stiffer. Copper loop A-200 represented a stiffer device when compared to the copper loop A-135."

The extra copper on the loop A-200 was on the uppermost horizontal part, positioning it in the uterine fundus. This apparently did not lower the pregnancy rate. In an attempt to solve the stiffness problems, several short pieces of tubing —instead of one long section—will probably be tried in the future, Dr. Lippes said, using loops C and D.

Systemic Effects of Copper

One area of concern regarding the use of copper as a contraceptive is its effect on the uterus and its long-term systemic effects. Observing that "copper is known to be an essential trace element in the human," Dr. Tatum called attention to studies which revealed that there were

"significant variations" in concentrations of copper (among other trace elements) in the endometrium as well as in the cervical mucus during the menstrual cycle of women not using copper IUDs.

With the copper T in utero, Dr. Tatum noted, the copper content of the endometrium, cervical mucus and uterine fluids all increase, but the levels return to normal after the IUD is removed. The TCu-200 releases an average of .05 mg (50 mcg) of copper a day—or 18.25 mg during a year. Some two to five mg of copper a day "is required by the adult human for his biologic steady state. Most normal diets contain considerably more copper than this minimum daily requirement. . . . It would appear therefore that the 50 mcg of copper which is released into the uterine cavity daily by the TCu-200 should cause no toxic manifestations, even if it is completely absorbed by the system." He pointed out that preliminary studies show that certain enzymatic alterations in the endometrium also occur but that "the significance and implications of these . . . changes are unknown at the present time."

Another investigator, Bea McClenahan, of the Battelle Population Study Center, noted that the daily IUD release of copper amounts to only 2.5 to seven percent of the normal daily absorption of copper gastrointestinally. In a study sponsored by G.D. Searle and Company of 43 women aged 21-35 (six controls, eight on oral contraceptives, 10 using Saf-T-Coils, nine Dalkon shields, and 10 with copper 7s —which, like the TCu-200, have a copper surface area of 200 square mm), no difference was found in whole blood copper levels, and the only group with a statistically significant elevation in serum copper levels were the oral contraceptive users. Menstrual copper, she noted, was below the control group for women taking the pill and above normal for IUD users—highest for those using the shield.

The released copper evidently does not concentrate in body tissues. Dr. Tatum reported on a study of five monkeys fitted with "diminutive intrauterine copper Ts," five more who had the device placed in the peritoneal cavity and another five on whom sham operations were performed. All animals were sacrificed after one year, and copper content of the kidneys, brain, liver, uterus and other tissues was analyzed. "There was no accumulation of copper in any tissue except the kidneys of the animals bearing the intrauterine copper." And the increase over the control group "was so small as to be considered biologically insignificant."

Because the copper is eroded while in the uterus, the effect of copper flakes and semicircles (such as might break off a copper T if significant erosion took place) was studied in two experiments with monkeys. Dr. Tatum reported that 25 copper semicircles placed in the uterine cavities of eight monkeys all left the body within 94 days (only six days in the shortest instance). Minute copper pieces the size of possible flakes from a copper IUD—some 332,000 per animal—were placed in the endometrial cavities of four monkeys, who were then sacrificed after either their first or second menstruation. No difference in copper concentration in the lungs or liver was found when compared with five control animals.

The investigator said that the corrosion of the wire may sometimes cause a break in it and that such fractures have been "infrequently observed in the TCu-200 devices recovered from patients;" nevertheless, he emphasized, "in no instance has there been any clinical signs or symptoms which could be attributed to such flaking or fractures." He further noted that "both retrospective and prospective studies have failed to suggest any carcinogenic action of copper upon the generative tract." No congenital abnormalities have been observed in children delivered to 25 women who conceived with a copper T in utero, and the pregnancies, labor and delivery were all "uneventful," according to Dr. Tatum.

Male Attitudes

Contraception is Job of Both Partners

More than eight of 10 men in a recent survey of selected eastern U.S. communities believe that men and women should share the responsibility for contraception, Dr. Louis Keith, Medical Director of the Illinois Family Planning Council, reported at the AAPPP. This favorable attitude of men towards contraception confirms other recent findings. [See: "U.S., Chilean Men Say 'Family Planning Yes', Want More Contraceptive Education Services," *Digest*, Vol. 1, No. 5, 1972, p. 8.]

Yet nearly one-quarter (23 percent) of the 438 respondents said that they or their partners never used any form of contraception during intercourse and another 12 percent said they seldom used a method. Less than half (46 percent) said they or their partners used contraception all of the time. In addition, 83 percent of the men said that they preferred female methods to condoms and withdrawal.

The population surveyed via interview was from Fort Monmouth and from Monmouth College, both in New Jersey; Walter Reed Army Hospital, in Washington, D.C.; Anacostia Naval Air Station in Virginia; and Philadelphia. This was not a cross-sectional sample and the respondents were younger, better educated, and had fewer children than the average adult male living in the United States. Some 59 percent were or had been married. Six percent were black, 90 percent were white and three percent were oriental or 'other'.

While 84 percent believed contraceptive responsibility falls on both partners, 10 percent said it was the woman's job; four percent, the man's responsibility; the remainder did not answer. Although 77 percent of the respondents felt morally and financially responsible to aid a woman whom they had made pregnant, a smaller proportion—54 percent—would include helping her get an abortion under that heading.

The survey showed that knowledge of

contraceptives was high, Dr. Keith observed, with more than 90 percent of respondents having heard of most methods. The IUD was the least known contraceptive method, with 84 percent having heard of it. "The most preferred" presently available contraceptives were the pill, favored by 58 percent of the men, followed by the IUD (11 percent), condom (nine percent), diaphragm and rhythm (five percent each), withdrawal and foam (three percent each) and douche (one percent). More than 60 percent of the respondents said they had postponed intercourse because of inadequate contraception at least once and 11 percent said they had done so "many times." The same percentage had been asked at some time by their partner to use withdrawal or a condom, and 31 percent of these always agreed (only eight percent never agreed).

More than three in four (76 percent) thought contraceptive information and devices should be available to anyone, regardless of age or marital status, while 15 percent wanted it restricted to those over 18, two percent wanted it restricted to those over 21 and three percent felt that only married or engaged couples should have access to contraception.

Some 70 percent of the men said they would use a new male contraceptive if it were available, but they weren't willing to pay much for it. Only 13 percent thought the price would be reasonable if it cost more than five dollars a month, and 26 percent thought it should cost less than a dollar a month. Ten percent wanted improved condoms. Some 65 percent thought a pill or shot that would give temporary sterility would be a good idea. Of the total, 10 percent wanted a pill or shot that would last a year, 27 percent favored a month-long treatment, 13 percent wanted a weekly method and 15 percent were interested in a one-night dosage. Only 19 percent were interested in reversible vasectomy as a first choice of contraception.

Menstrual Induction Experience Reported

Data on 1,108 terminations of suspected early pregnancies (variously described as minisuction, menstrual regulation, menstrual extraction or endometrial aspiration) were presented at the AAPPP. In 315 cases either no pregnancy existed or pregnancies were unconfirmed. The data suggest that complications associated with the procedure are relatively minor and infrequent. However, since no uniform definition of complications has yet been adopted by physicians performing the procedure and no national reporting system has been established (comparable to the Joint Program for the Study of Abortion), it is not possible to define precisely what the complication rate is. Among the complications reported were one uterine perforation, three cases of fever (in one series) exceeding 100 degrees F, one case of "immediate heavy bleeding," and some instances of nausea, vomiting and fainting. Eleven pregnancies continued despite the aspiration.

Menstrual extraction, using a flexible plastic cannula for suction, was performed on women who were from 24 to 49 days beyond the first day of their last menstrual period (LMP). The reason for the seven-week LMP cutoff point (six weeks in one series) was that if the woman was pregnant and there was Rh incompatibility between her and the fetus, Rh sensitization would be extremely rare. (When such sensitization does occur, and goes untreated, subsequent births can be severely compromised.) The widest variation in days since LMP—24-47 days—was in 598 aspirations performed at the International Abortion Research and Training Center in London, the data from which were analyzed by Dr. William E. Brenner and his colleagues at the University of North Carolina. Dr. Edward Stim, of Lincoln Hospital in New York City, reported on 310 office procedures performed from 33 to 49 days since LMP, while Dr. Sadja Goldsmith, of Planned Parenthood-San Francisco, and her associates at the University of California at San Francisco, performed aspirations on 200 women who were 28-42 days from LMP. Evacuated tissue was studied in all cases to determine whether the woman had been pregnant. In general, the investigators noted, the longer the patient's amenhorrea, the more likely it was that she was pregnant (and the less likely that a pregnancy test would give a false negative). As Table 1 shows, about 30 percent were not pregnant or the pregnancies could not be confirmed.

Dr. Goldsmith reported that of 50 patients 28-35 days from LMP, only 44 percent were confirmed to be pregnant, while this figure rose to 83 percent of the 150 women 35-42 days since LMP. Dr. Stim noted that of 50 women 35-39 days past LMP who were confirmed pregnant, only 23 (or 46 percent) had a posivite pregnancy test, while of 46 pregnant women 45-49 days since LMP 43 (or 94 percent) had a positive pregnancy test (in this case the Pregnosticon Dri-Dot test on casual urine sample). Dr. Brenner pointed out that, in the patient data studied by his team, the same test did not give less than five percent false negatives until after 44 days of amenorrhea. Some 58 percent of the women less than 33 days from LMP were pregnant. Of those in the series with negative pregnancy tests, 66.3 percent were found to be pregnant.

Table 1. Total number of aspirations, number of pregnancies, number of incomplete aspirations and number and percent of negative or unconfirmed pregnancies in three series

	Total no. aspirations	*No. pregnancies*	*No. continuing pregnancies*	*Not pregnant or unconfirmed*	
				No.	*%*
Total	**1,108**	**793-1,029***	**9**	**315**	**29.2**
Brenner	598	446-594*	1	152	25.4
Goldsmith	200	146	2	54	27.0
Stim	310	201-289*	6	109	35.2

*Range in number of women who were pregnant indicates those patients for whom an examination of evacuated tissue did not yield a conclusive answer.

Both Drs. Stim and Brenner noted that a definitive yes or no answer on pregnancy could not be given for a significant proportion of the women even after examination of the evacuated tissue. Because of this, and because of the incidence of continuing pregnancies (ranging from two percent of all procedures in one series to 0.2 percent in another, as shown in Table 1), the investigators emphasized the importance of follow-up examinations for all women in whom it was not clear that a pregnancy had been terminated.

"All cases of continuing pregnancy [after aspiration] have had a strikingly similar clinical picture," said Dr. Stim. "The volume of endometrial aspirant has been small, always less than two ml. The patients have noted no menstrual-type bleeding during the week after the procedure and have continued to be bothered by breast tenderness and enlargement, and the development of nausea. . . . It is important to be aware of this complication so that unobservant patients will not be lost to follow-up and pass into a later stage of pregnancy."

There was some variation in the procedure among the several series described. In Dr. Goldsmith's group (all performed in a medical office at the University of California Hospital in San Francisco) codeine and aspirin were given to the woman, a paracervical block administered, the cervix cleaned with an antiseptic solution and fixed with a tenaculum, and the uterus sounded (this series was the only one in which metal instruments were routinely inserted into the uterus, and the only one in which a perforation occurred). Hegar dilators were also used if needed. A five mm Karman cannula was then used with a foot-operated pump for suction. A five mm curette was inserted to confirm complete evacuation.

Dr. Stim used four, five and six mm cannulas in his study. Five of the six continuing pregnancies (out of 161 cases) in his group occurred when the four mm cannula was used. This cannula was routinely employed when the pregnancy test was negative. In the 149 cases where the larger cannulas were used, there was one method failure. Use of dilators was needed in only six percent of the procedures, he reported, dilatation being accomplished in other cases by inserting progressively larger plastic cannulas. Suction never lasted more than 60 seconds. Paracervical block was administered only when a five or six mm cannula was needed or when there had been no previous childbirth. Sharp curettage to confirm complete evacuation was used only at the start of the series, and was then discontinued.

Pregnant . . . or not pregnant?

In the London series, Dr. Brenner reported, a different four mm plastic cannula was employed, as well as a six mm Karman cannula. Metal dilators were used when necessary. All of the women treated in this group were given general anesthesia and were hospitalized overnight to evaluate any immediate complications.

Although dilatation, sounds and sharp curettes were occasionally used in these series, the investigators emphasized that in regular practice this need not be the case. "The whole concept of this procedure is based on the use of nonrigid instruments," Dr. Stim declared, in answer to a question from the audience. "Once vou add rigid instruments you are destroying this concept because of the danger of perforation. The sound and curette are definitely out for this procedure and should not be used." While he felt dilatation with metal instruments was permissible in the small percentage of cases where the four mm cannula would not easily penetrate the cervix, others disagreed.

Dr. Brenner recommended waiting for a few days (to better insure that the patient is pregnant) "if cervical dilatation [is] difficult," or using a small laminaria tent for dilatation and then going ahead with the procedure six hours later. "Non-dilatation is important," noted Dr. Goldsmith, to avoid any damage to the cervix. Harvey Karman, the psychologist who invented the cannula used for both menstrual induction and suction abortion, and who was present at the session, commented that "we have found that if the cervical os is that tight there is a 90 percent chance the woman is not pregnant. We just give her reassurance and tell her to come back in a week to 10 days."

While there was one uterine injury and one hemorrhage reported, a lack of standardization of criteria for other complications made comparison among the series, and with standard suction abortions, impossible, as noted previously. In the London series, Dr. Brenner said, there was a complication rate of 9.6 per 100 women—but 8.2 percent of this he attributed to the general anesthesia. The other complications (in 1.4 percent of the cases) consisted of diarrhea, nausea and vomiting. Only "immediate" complications—during the original hospitalization —were reported, however. Dr. Brenner said that the purpose of studying a series in which menstrual induction was performed under general anesthesia—not the usual method for the procedure—"was to determine a bench mark for efficacy" since earlier trials of aspiration using metal cannulas had had high failure rates.

Dr. Stim compared complications in his series of 310 aspirations (273—88 percent —of which were followed up) with complications in a simultaneous series of standard suction abortions he performed (with follow-up of 165 cases—74 percent). There were five hemorrhages, one uterine perforation, one case of "insufficient dilation" (and, therefore, inability to abort) and two cases of immediate severe cramps in the standard abortion group, and none of these in the aspiration group. There were 10 cases (3.7 percent) of "mild fainting reaction" among the aspiration patients, and two (1.2 percent) such instances among abortion patients. Fewer aspiration than standard abortion patients experienced bleeding and cramps, 18 (6.6 percent) compared to 19 (11.5 percent); no women aspirated retained fetal material, compared with four abortion patients who did so; none had fever, compared with two abortion patients who did; two (0.7 percent) suffered delayed severe cramps, compared with six (3.6 percent) abortion patients; none had an hysterical reaction to the procedure, while one abortion patient did so. There was one (0.6 percent) continuing pregnancy among the traditional abortion patients, and there were six (2 percent) among the aspirated group. Reaspiration was required for 14 (5 percent) aspiration patients and six (3.6 percent) abortion patients.

Two patients in Dr. Goldsmith's group and 22 of Dr. Stim's patients had aspirations a second time in the course of the reported series. One of Dr. Stim's patients had three procedures performed, each about 40 days apart; among his traditional abortion patients there were 25 women who had 27 repeat abortions, even though all of the women were offered contraceptives. Since no data is available as yet, the question of what, if any, long-term effects repeated aspirations would have remains open, the doctors told *Digest*.

But this should not become a problem, Dr. Goldsmith declared. The two repeaters in her series were both "nulliparae who had prior abortions. The other patients made it clear that they did not intend to rely on menstrual induction as a means of birth control, as they felt that even this 'mini-abortion' was a difficult and uncomfortable experience in many ways." Dr. Stim, however, said he felt it was unlikely repeated aspiration would cause complications because of the nature of the procedure, noting that many of his patients were women who had "given up" on standard forms of birth control because of negative experiences with them.

All three investigators said, however, that repeat aspirations should not be performed automatically—especially if it was not clear that the woman was pregnant the first time. "She may just have irregular cycles," noted Dr. Brenner. Dr. Stim recommended a fern test (a check of the cervical mucus for fernlike forma-

tions) to see whether the woman has ovulated. If a woman kept returning for aspirations and was pregnant each time, Dr. Brenner observed, "I would feel that her not accepting a proper means of contraception was a failure on my part."

If proper care and precautions are taken, however, they believe that the procedure is safe and useful, and can be performed in a doctor's office. Dr. Stim emphasized, however, that "menstrual induction is a form of early abortion and it is best done," he explained, "when a pregnancy test is positive, assuring the patient that she is undergoing a procedure that is necessary to terminate an unwanted pregnancy." He pointed out that complications were "significantly higher in patients who did not have a positive pregnancy test." Dr. Goldsmith said that an advantage of the procedure is "in the immediate relief given to an unusually anxious woman whose life circumstances may make delay for confirmation of pregnancy especially stressful." Her colleague, anthropologist Lucille Newman, noted that "the longer a perceived difficulty exists unresolved, the greater the potential for stress and damage. Our interviews [with the first 113 women in the San Francisco series] indicate that it is the individual's perceived state and the response of those around her that create a crisis and that make of unwanted pregnancy and consequent abortion a stressful experience."

AID Official Urges Nonprescription Pill

Reviewing the demographic and health impact of family planning programs abroad in the decade of the 1960s, and the role of the various contraceptive methods, Dr. R. T. Ravenholt, Director of the Office of Population of the State Department's Agency for International Development (AID), said that he believes that "the public health of the world, and far and away of the developing world, would be very sharply and importantly improved if the pill were at least as generally available as aspirin." He announced that the U.S. government will support those programs abroad which make the pill, which he described as a "nonclinical" method, along with the condom, available to as many people as possible as quickly as possible. AID will also support provision of such "clinical" methods as pregnancy termination, sterilization and the IUD, he said. The physician observed that he could see "no reason why [oral contraceptives] should be limited to clinical distribution" either abroad or in the United States.

Dr. Ravenholt agreed that when the pill was first introduced in the United States in 1960 it was "quite reasonable that its availability should be restricted to medical supervision," since there was insufficient experience to judge what its effects might be. "But now we have almost 13 years of experience," he pointed out, "and some 50 million women using oral contraceptives in the world, 10 million of whom are in the United States. We've had the opportunity to look at the impact of such use upon many indices, such as age-specific mortality rates related to certain diseases, infant mortality rates, congenital malformation rates—and we have a greatly improved basis for judging the effects of the pill."

He said that the "great hullabaloo" which arose at the end of the 1960s, when an increased incidence of thromboembolism was associated with pill use, has now "faded . . . as we have been able to look at age-specific mortality rates. All we could ascribe to the pill for young women in their teens and early twenties," he observed, "is something on the order of one death per 100,000 users per annum." He referred to recent research which suggests that use of oral contraceptives "probably is preventing or decreasing cancer of the breast and uterus" [see: "British, U.S. Studies Find No Link Between Pill Use and Breast or Cervical Cancer," *Digest*, Vol. 2, No. 1, 1973, p. 3], and said there appears to be confirmation as well from some "early tumor registry data." Dr. Ravenholt maintained that the pill has had "a very salutary effect upon mortality in the United States from complications of pregnancy."

The AID director said he believes that "nothing disastrous happens" when pills are made generally available. "We do not have any evidence," he pointed out, "to indicate that there's any marked difference in the effects of pills among 10,000 women who have been screened by physicians as opposed to 10,000 women who have not been screened by physicians. As far as we can see, it is very difficult to identify the woman—the occasional woman—who should not use the pill." In the developing world, he said, "thromboembolism is a rare disease around the equator, [while] the . . . hazards from unwanted pregnancy—the hazard to a woman's life—is hundreds of times greater than it is from using the pill for a year."

Noting that the central medical committee of the International Planned Parenthood Federation had recently "recommended the removal of the prescription barrier to the availability of the pill," Dr. Ravenholt said that he had "no hesitancy" in recommending that pills should be generally available in the United States. [The statement of the IPPF medical committee said that "whoever normally meets the health needs of the community, whether doctor, nurse, traditional midwife, pharmacist or storekeeper, can be an appropriate person to distribute oral contraceptives . . . [and] that responsible simple methods of nonmedical distribution of oral contraceptives can and should be devised. . . ."] "I think that the ordinary 16-year-old in the United States is already getting it from her mother or a friend or her sister rather than from physicians."

Dissenting View

Commenting later on Dr. Ravenholt's views, Dr. Louis M. Hellman, HEW's Deputy Assistant Secretary for Population Affairs, said, "There are numerous conditions for which the pill is definitely contraindicated, such as a history of thromboembolism, hypertension, migraine headaches, diabetes. We know that the incidence of serious complications associated with the pill is rare but we believe that a thorough medical history and examination of women who desire the pill obviously is desirable and may be lifesaving. Because of the metabolic changes associated with continued and prolonged use of these drugs, it is important that a woman's condition be monitored while she is taking the oral contraceptive to see that she is not developing conditions which may contraindicate its continued use. Such monitoring is especially important since we know little about what, if any, association there may be between pill use and disease entities which take very long periods to develop.

"For the two and one-half million women who obtain the pill from organized family planning programs," the physician continued, "the physical examination and laboratory workup prior to prescription may be the only preventive medical care they receive. It would be tragic to eliminate such care for the dubious advantage of easier access." Dr. Hellman was for 20 years Professor and Chairman of the Department of Obstetrics and Gynecology of the Downstate Medical Center of The State University of New York and was Chairman of the Food and Drug Administration's Advisory Committee on Obstetrics and Gynecology from 1966 to 1970.

In the prepared text, Dr. Ravenholt and his colleague, Dr. J. Joseph Speidel, Chief of the Research Division of AID's Office of Population, reported that they found that the pill had greater demographic impact than the IUD in developing countries, although the latter reportedly had the longer continuation rate. This

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highlights the inadequacy, they said, of using either number of acceptors or continuation rates alone to evaluate program success. The former is easily subject to falsification, they pointed out, while the latter, when used simplistically, sometimes leads to programmatic decisions which may be in error. Thus, in countries where the IUD was emphasized, in part because of its superior continuation rate, the ultimate demographic effect was considerably less than that of the pill, which reached more women more rapidly and at younger ages. The former required a physician to insert and remove the device, while the latter could be initiated and stopped without physician intervention.

They noted that comparison of the continuation rates associated with various methods is hazardous, since each method of birth control requires a "somewhat unique" definition of what is meant by continuation of use. IUDs continue in use until expelled or removed; the pill is generally taken cyclically so that its use is regularly discontinued.

Unless the demographic characteristics of acceptors of the various methods are taken into consideration, comparing continuation rates may lead to serious error, Drs. Speidel and Ravenholt said. "Acceptors of pills, IUDs, sterilizations, etc., frequently differ greatly with respect to age, parity, ethnicity and desire for future fertility. . . . [and] at a minimum, age and parity should be standardized, or a matching procedure used, prior to drawing any conclusion with respect to the performance of a given program or means of fertility control compared to another."

They maintained that a "better single index which is more directly related to demographic impact . . . is prevalence, the proportion of those 'at risk' of pregnancy who are contraceptive users [at a given time]." As with continuation rates, the demographic impact will also be related to such factors as the use-effectiveness of a method and the age, parity and fecundity of the users.

They urged that continuation rates as a guidepost for emphasizing a given means of fertility control be viewed with caution for the following reasons:

- A method may have excellent continuation rates and result in significant decline in fertility among acceptors, but the method may appeal to too few women to result in adequate program coverage and therefore to have a significant demographic impact. In South Korea, Pakistan and India, acceptance curves for IUDs plateaued during the later 1960s, whereas acceptance of oral contraceptives has increased rapidly in such countries as Costa Rica, Hong Kong, the Philippines, Thailand, Indonesia and Iran.
- A method accepted only by older, high-parity women might have excellent continuation rates and very low postacceptance fertility, but still have limited demographic impact. It is estimated that the average acceptor of sterilization in developing countries is of parity four or five, and may avert two additional births over her remaining reproductive life. The continuation rates surpass those of any other means of fertility control, yet demographic impact and individual reduction of fertility have been limited.
- Nonclinical methods, which are easily started and stopped and are readily available, may exhibit a pattern of high rates of acceptance and discontinuance and still provide a significant prevalence of protection, while methods more difficult to obtain, such as the IUD and sterilization, may not provide equal protection.

The physicians presented a variety of data demonstrating that pill acceptors in postpartum family planning programs of 22 countries of the world were younger and had fewer children than IUD or sterilization acceptors, and that in countries of the world the number of pill acceptors is going up, while the number of new IUD acceptors is leveling or decreasing. Age-specific fertility declined much more sharply over time where programs emphasized the pill (and where it was available without prescription) than where reliance was placed upon the IUD. They concluded with the observation that "different means are likely to appeal to different groups of women and although dropout rates with other means may be lower, [offering] several methods will likely increase total program coverage and therefore demographic impact."

Sources

Papers presented at the eleventh annual meeting of the American Association of Planned Parenthood Physicians, Houston, Tex., April 11-13, 1973:

W. E. Brenner, D. E. Edelman, E. Kessel and G. Davis, "Suction Curettage for 'Menstrual Regulation'."

S. Goldsmith, A. J. Margolis, L. Newman and M. Murphy, "Menstrual Induction—Medical and Psycho-Social Aspects."

L. Keith, D. M. Keith, R. Bussel and J. P. Wells, "Male Attitudes Towards Contraception."

L.E. Laufe, Y. Gibor, R. G. Wheeler and B. McClenahan, "Volume and Copper Concentration of Menstrual Discharge from Women Employing Copper 7 and Other Types of Contraceptives."

J. Lippes, "Copper and the Lippes Loop."

J. J. Speidel and R. T. Ravenholt, "The 'Continuation Rate': A Misused Measure of Family Planning Program Performance."

E. M. Stim, "Minisuction—An Evaluation of Early Endometrial Aspiration Techniques with Small Diameter Flexible Plastic Cannulas in a Private Office Setting."

H. J. Tatum, "Copper IUDs."

Credits

pp. 1, 6: Marshall Schwartz; p. 4: Inga Morath, Magnum; p. 8: Sidney Shulman, Prof. Microbiology and Res. Prof. Urology, N.Y. Med. Coll.; p. 9: Fisher Films; p. 12: Ken Heyman; p. 14: Planned Parenthood of New York City.

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