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NAVY DEPARTMENT

# BUMED NEWS LETTER

a digest of timely information

Editor - Captain F. W. Farrar. (MC). U.S.N.

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TABLE OF CONTENTS



Circular Letters:



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Outline of Common Types of "Gastro-Enteritis" (including Dysentery) aboard Ship and the Prevention of Outbreaks: During 1945 Epidemiological Unit #106 at Pearl Harbor investigated thirty-three major outbreaks of "gastro-enteritis" aboard ships in the Pacific Ocean Area. This unit also routinely inspected several hundred ships of all types and thereby checked on general ship sanitation and many minor outbreaks of food infection or food poisoning. From this experience the following highlights are presented.

Common Types of Outbreaks Encountered. As summarized in the tabulation, the major epidemics of gastro-enteritis which were investigated were attributable in approximately equal numbers to (1) Shigella, (2) Salmonella, and (3) "unknown cause" (probably a virus).

Food intoxication due to Staphylococci was also probably fairly common, but since these outbreaks were usually mild and of short duration, very few were investigated by this unit. For this reason it was not possible to estimate the frequency with which outbreaks of staphylococcal etiology occurred in proportion to "dysentery types" of gastro-enteritis.

The Shigella Group. Outbreaks involving from 20 to 1400 persons each were caused by Shigella of five different types. These were Shigella flexneri I, II, III, and VIII, and Shigella alkalescens. S. flexneri III was of the most common occurrence. There were two fatalities from these outbreaks. One ship was put out of service for sixty days and many others were immobilized for shorter periods. The sources of infection were food-handler carriers on board, contaminated food eaten ashore, and convalescent carriers or cases transferred from a ship on which there was a current outbreak. The use of polluted sea water in the vegetable peelers was responsible for at least two of these outbreaks with a total of 500 cases, the two deaths, and the loss of the services of two ships for a total of three months. The foods eaten before an outbreak and subsequently discovered to have been contaminated were most frequently found to be meats and vegetable salads. Most types of Shigella dysentery were successfully treated with one of the sulfonamides in ordinary doses. However, a number of these organisms exhibited sulfonamide resistance within a wide range, including even different strains of the same S. flexneri type of bacteria.

The Salmonella Group. Outbreaks involving from 10 to 250 persons each were caused by Salmonella of more than ten different species. The symptoms were generally milder than in those outbreaks due to Shigella. The common foods infected were turkey, chicken, and salmon. Turkey was by far the most common offender. Salmonella were found to be relatively sulfa-resistant.

Probable Virus Group. A number of outbreaks were due to an unknown cause, probably a virus. These outbreaks involved from 6 to 180 persons each. Among these patients, the onset, symptoms, clinical course, and negative bacteriological findings were alike. The incubation period was estimated to be about 48 hours. These outbreaks were of insidious origin, new cases appearing over a period of from 2 to 10 days with the incidence of cases reaching a peak between the second and fifth days and then decreasing gradually. The signs and symptoms as observed in 10 outbreaks aboard ships were typical of those described by Reimann in the Journal of the American Medical Association of 6 January 1945. These included nausea, vomiting, abdominal cramps, diarrhea, muscle pains, headache, vertigo, malaise, and little or no fever (98° F. to 101° F.). The onset was usually sudden, and frequently was ushered in with nausea and vomiting. In one outbreak, concomitant upper respiratory symptoms were noted in one-third of the cases. The symptoms usually lasted 2 or 3 days. Most patients were mildly ill, although a few were very ill. The epidemiology of these outbreaks suggested that the etiological factor may be spread by contact.

Several outbreaks believed due to an enterotoxin-producing staphylococcus were investigated. These were easily identified clinically, in retrospect at least, and usually were attributable to "hold over" foods, frequently ham. One was caused by contaminated corn, and one probably by ice cream.

Chemical poisons were not proven to be the cause of an outbreak of gastro-enteritis over this period of time. Cadmium poisoning, however, is always a possibility to be considered. The reaction time for cadmium poisoning is very short (15 minutes to 1 hour) and usually follows the mixing or serving of acid drinks in cadmium-plated utensils. Galvanized cooking utensils on an APA were found to contain cadmium.

Amebic dysentery was not encountered by this unit, but should be kept in mind, especially in isolated cases of diarrhea.

Water as a Source of Infection. In the past ten months this unit has examined over five thousand specimens of water submitted by various types of ships for bacteriological examination. In no instance, however, was an outbreak of gastro-enteritis definitely proved to be due to contamination of drinking water.

Experience has shown, however, that most ships fail to make routine chemical or bacteriological examination of their water supply. It is believed that bacteriological testing should be carried out at least every three months. Even distilled water aboard ships may be contaminated, as temperatures in low-pressure distillation systems may permit pathogenic organisms that pass over

as a result of faulty operation to remain viable in the distillate. Distillation of sea water in highly contaminated anchorages would appear to be a particularly dangerous procedure.

In the examination of specimens of water from storage tanks of various ships, excessively high plate counts have been found in at least one-third of the samples. These counts revealed about 1000 bacteria per cubic centimeter and were indicative of contamination of a serious degree. Chlorination of the ship's fresh water should be unhesitatingly recommended when contamination is suspected.

Etiological Data. The following tabulation lists the etiological agents and data encountered in various outbreaks of gastro-enteritis studied by this unit.

The Salmonella observed are listed below and referred to in the tabulation by number.

# 1. S. reading
2. S. derby
3. S. orion (Isolated for the first time)
4. S. newport
5. S. bredeney
6. S. paratyphi B
7. S. typhimurium
8. S. panama
9. S. saint-paul
10. S. peona

ETIOLOGICAL DATA OF GASTRO-ENTERITIS OUTBREAKS ON SHIPS

| Responsible Pathogen | Source of Infection | Sea Water used in Galley | No. of Cases | Type of Ship |
|---|---|---|---|---|
| Shigella flexneri II. | Salads; fresh vegs.; | | 317 | |
| Salmonella | vegetable peeler. | yes | 2 deaths | AR |
| Shigella flex. VIII. | Vegs.; vegetable peeler. | yes | 123 | AK |
| Salmonella 1, 2. Shigella flex. I, III, VIII. | | | | |
| Shigella alkalescens | Turkey | yes | 100 | AS |

| Responsible Pathogen | Source of Infection | Sea Water used in Galley | No. of Cases | Type of Ship |
|---|---|---|---|---|
| Salmonella 1, 4, 5. Shigella dispar | Turkey | no | 250 | AS |
| Salmonella | Turkey | no | 100 | CVE |
| Salmonella Shigella alkalescens | Salmon | yes? | 132 | BB |
| Salmonella 4, 6, 7, 8. Shigella flex. I, III, VIII. | ? | no | 27 | AS |
| Shigella flexneri III. | ? | no | 22 | AP |
| Salmonella 1. | Salmon | no | 65 | APA |
| Shigella flexneri II. | Roast beef | yes | 75 | LSV |
| Staphylococcus | Canned salmon | ? | 92 | APA |
| Salmonella | Sandwiches from ashore | yes? | 20 | CV |
| Virus? | ? | no? | 25 | PA |
| Virus? | ? | yes | 24 | APA |
| Virus? | ? | no | 6 | IX |
| Virus? | ? | no | 35 | IX |
| Virus? | ? | yes | 150 | AS |
| Virus? | ? | no | 18 | SS |
| Virus? | ? | no | 100 | CA |
| Virus? | ? | yes | 35 | AKA |
| Virus? | ? | yes | 35 | CA |
| ? | Polluted water? | ? | 33 | ARS |
| Salmonella 9, 2, 10. | Chicken | no | 20 | AP |
| Staphylococcus | Ham | no | 168 | AP |
| Unidentified organism of Eberthella group | Roast beef; polluted sea water in galley. | yes | 1800 | AP |
| Shigella alkalescens | ? | no | 40 | BB |
| Shigella flexneri III. | Leyte Gulf; food hand. ? | yes | 623 | BB |
| Shigella flexneri III. | Leyte Gulf: food hand. ? | no? | 104 | BB |
| Shigella flexneri III. | Leyte Gulf: food hand. ? | yes | 125 | CA |
| Shigella flexneri III. | Leyte Gulf: food hand. ? | no? | 1400 | BB |
| Shigella flexneri III and Salmonella | Leyte Gulf: food hand. ? | no? | 1200 | CL |
| Shigella flexneri III. | Personnel transfers: food handlers? | no? | 250 | CL |

Outline of Prevention. An educational program and thorough daily inspections by a medical officer familiar with the usual modes of disease dissemination will prevent the majority of these outbreaks. This was emphasized by the experiences of this unit, in which the majority of outbreaks were found to

be due to improper handling of food, insanitary galley conditions, or a combination of these circumstances, all of which might well have been rectified by careful medical supervision. Inspections should be made at different times of the day so that all procedures carried on in the galley and other food handling compartments can be carefully checked. Such routine inspections may be delegated to a hospital corps officer or corpsman, if necessary, but the medical officer himself should also frequently make the inspection.

No mention need be made of the importance of self-evident matters such as the general neatness and apparent cleanliness of personnel and equipment. The following points, however, frequently overlooked by the inspection officers, and probably the most common causes of outbreaks of gastro-enteritis, require emphasis:

(A) Personnel. Infections of hands and face or presence of any illness is sufficient cause for relieving food handlers from duty. Most staphylococcic food poisonings are due to the contamination of ham, pastries, etc., by infected food handlers, combined with the holding of food at galley temperature for several hours. Staphylococcal enterotoxin is thermostable and ordinary cooking does not destroy it. In one outbreak, enterotoxin-producing staphylococci were cultured from skin lesions (mild eczema of hand) of the cook who mixed the infected food. Food-handler carriers of Shigella and Streptococcus organisms were frequent sources of outbreaks of dysentery and streptococcal pharyngitis respectively. A complete and up-to-date roster of all food handlers should be available in the files of the Medical Department. This can be used as a check-off list for the weekly physical examination of food handlers or for special examinations in case of an epidemic.

(B) Food Handling and Preparation. Improper methods of thawing frozen meats and the handling of cold cuts and hold-over meats may frequently be the source of food infection. Since fowl are commonly infected with enteric pathogens (Salmonella), the cleaning of meat blocks and other equipment after fowl are dressed must be thorough. The majority of Salmonella food infections observed aboard ships have followed turkey dinners. The same Salmonella type as that found in stools of patients has been cultured from the skin of turkeys, taken directly from the refrigerators. This would indicate that the cooked fowls were infected by cooks who had previously handled uncooked turkeys, or from the use of contaminated utensils or meat blocks. It must be kept in mind that on most ships it takes from 8 to 10 hours to roast enough turkey for one meal. This necessitates the holding of some of the turkey for from 6 to 8 hours before it is served. For this reason cooked fowl should not be handled by the cooks who also handle the uncooked fowl until they have thoroughly removed all chances of a contamination by washing and changing of clothing. Meat should not be held at galley temperature for over two hours

after being cooked, and milk should not be held for more than one hour at room temperature.

(C) Food Storage and Refrigeration. Temperatures of refrigerators should not only be checked and recorded frequently, but the medical officer should be sure that the different kinds of foods are stored in the refrigerated spaces designed and constructed for the preservation of those particular foods. For instance, several outbreaks of food poisoning were traceable to holding meat in vegetable refrigerators. Meat lockers should be kept below 20° F., preferably around 15° F., and butter and egg lockers at from 32° to 34° F.; vegetable refrigeration is usually held at around 44° F. Left-over foods, particularly meats, constitute excellent media for the growth of bacteria; their opportunity for becoming seeded with human pathogens is excellent; and unless handled in a most careful manner they are likely to be the cause of serious outbreaks. Foods that deteriorate rapidly should never be held over for serving again but should be discarded. Vegetables and fruits should be inspected regularly and those with any evidence of spoilage removed to prevent further spread. In hot climates it is inadvisable to serve creampuffs, chocolate eclairs, and other similar pastries.

(D) Milk and Ice Cream Mixing Equipment. Personnel and equipment concerned with milk and ice cream mixing should be as carefully checked as those in the galley. The proper cleaning of equipment and the handling of milk products requires a careful and detailed technic. Several outbreaks of streptococcal pharyngitis have been observed on ships due to lack of refrigeration of reconstituted milk for periods of 12 hours or more. In one such instance in which 45 per cent of the ship's company became ill, the mess cook who prepared the milk mixture had a draining streptococcal abscessed tooth. One-third of these patients developed scarlatiniform rashes. A staphylococcic food poisoning due to infected ice cream was also investigated. The improper cleaning of equipment was the probable cause of this outbreak.

(E) General Sanitation. (1) Sea Water. Where the supply of fresh water permits, salt water should not be used in the galley or other food preparation spaces for any purpose at any time. When it is not possible completely to do away with the use of sea water, it must be made certain that it is not used in any food preparation spaces for any purpose whatsoever when in a harbor, fleet anchorage, or when tied up alongside another ship. It must be kept in mind that after leaving a harbor or fleet anchorage, etc., the salt-water lines will contain contaminated water until they have been thoroughly flushed by uncontaminated open-sea water. The use of contaminated salt water was the chief sanitary defect found aboard the ships studied. The contaminated water used in vegetable peelers was undoubtedly the cause of two dysentery outbreaks that resulted in the two deaths, and put an AKA (cargo assault vessel)

and an AR (repair ship) out of service for one and two months respectively. In the former instance, the sea water was contaminated by one acute case aboard, and in the latter instance, a ship tied alongside contaminated the sea water. The use of contaminated salt water to scrub decks has been prohibited. It is believed that the only way to guard against the hazard of using contaminated salt water is permanently to disconnect all salt water lines to the galley, vegetable peelers, etc.

(2) Sculleries. If a mechanical dish-washer is in use, the temperature of water used in the rinse compartment should be at least 180° F., and dishes and utensils should be held at this temperature for at least 30 seconds. If hand-washing methods are used, the temperature of the water and the use of soap or detergent must be checked. A chlorine solution of 100 p.p.m. may be used if the rinse-water temperature cannot be maintained at 180° F. Mess gear should be drained and air-dried. Drying towels should not be used. Silverware should be stored so that all handles are together.

(3) Lighting and Ventilation. Good lighting and ventilation in the galley promote cleanliness and careful food preparation. For this reason faulty lighting, nonfunctioning blowers, etc., should be corrected as soon as possible. Galley-blower screens should be cleaned frequently and kept free of dust and grease. Sculleries have been found to be poorly lighted. This leads to careless washing of mess gear, and the presence of damp dirty corners where roaches can multiply.

(4) Food-Handler Toilet Facilities. The sanitary features of the head and washroom used by food handlers are more important than any other on the ship. Soap and paper towels should always be available, and food handlers should be required to wash their hands thoroughly before leaving. Lectures and appropriate posters in conspicuous locations will encourage correct practice. Salt water must not be used in the showers when in a harbor.

Conclusion: The great majority of outbreaks of gastro-enteritis are preventable by proper supervision. The most common points overlooked have been found to be:

1. Failure of routine inspection of hands (with especial attention to fingernails) of food handlers and the prompt removal of ill food handlers from duty.
2. Use of contaminated sea water in the vegetable peelers and on the decks of the galley, butcher shop, vegetable preparation room, etc.
3. Improper technic of handling cooked fowl.
4. Holding food at galley temperatures too long.
5. Absence of soap from heads and inadequate cleansing of hands of those involved in preparation and serving of foods.

6. Improper technic of handling milk, milk products and equipment.
7. Poor lighting and ventilation of the galley and scullery.
8. Failure to instruct food handlers in personal hygiene, ordinary galley sanitation, and correct methods of food preparation.

(Prepared upon request by Commander William A. Meyers (MC), USNR)

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Outline of Control for An Outbreak of Gastro-Enteritis Aboard Ship: When an outbreak of gastro-enteritis occurs aboard ship, the cause should be established and brought under control as soon as possible. This can usually be accomplished by taking a history of each case. The use of previously prepared 4 x 5 cards for this purpose is recommended. The important points to be noted are: time of onset, symptoms, division of ship's company to which attached, and food eaten (all food eaten within the past 24 hours, or at least which meals were eaten in previous 48 hours). It may be necessary to get a more detailed history when the cause is narrowed to one or two meals or foods.

The symptoms, incubation time, etc., should suggest a diagnosis of (1) chemical or staphylococcal toxin food poisoning, or (2) food infection due to Shigella or Salmonella. The incubation time of the first group is usually from one-half to five hours, and of the second, usually from twelve to seventy-two hours. Those ill due to the first group (food poisonings) tend to have more nausea and vomiting, but less fever, than those ill due to food infection. Outbreaks due to a "virus" infection are not explosive in character. When the responsible food is found, its preparation and handling should be carefully checked to determine the mechanisms of the outbreak.

A diagnosis as to the type of infection or poisoning should be made, if possible, because control procedures differ, depending on the etiology. Food-poisoning outbreaks (staphylococcic enterotoxin or chemical) are most often self-limited. When the cause of the poisoning has been determined, measures to prevent continuance or recurrence should be instituted. Gastro-enteritis caused by food infection is frequently not self-limited, and active control measures must be taken immediately. Food-handler carriers are the most frequent source of infection. This being the case, one carrier may start an epidemic infecting more food handlers who may become carriers either as active clinical cases, or asymptomatic cases. The experience of this unit has shown that from 10 to 35 per cent of asymptomatic food handlers have rectal cultures positive for Shigella organisms for as long as two months after the original outbreak. Salmonella were not found in as high a percentage, but many of these asymptomatic food handlers were positive for one month or more after the onset of the original outbreak.

If facilities for culturing stools are not available, all food handlers may be given sulfadiazine and any among them with gastro-intestinal symptoms should be relieved of duty associated with the preparation and serving of food. Food handlers should be instructed in all the rules and methods of galley sanitation and personal hygiene, and these procedures should be enforced. Food-handler personnel should be inspected daily for signs and symptoms of illness.

Scrub brushes for the hands should be provided and a bucket of a disinfectant (lysol or cresol solution) should be placed at the door of each head. A guard should be posted to see that everyone thoroughly washes his hands and dips them in the bucket before leaving. This guard can also be of great help in making all men who have diarrhea report to the sick bay. The guard on watch in the head used by food handlers should be particularly reliable. In a widespread outbreak of bacillary dysentery aboard many ships of the THIRD FLEET investigated by this Unit, many of the cases were undoubtedly due to direct or indirect contact with patients.

If stool cultures of patients are negative for enteric pathogens, and the outbreak is evidently not due to a chemical poison or staphylococcal toxin, a virus should be suspected. In such case the possibility of contact transmission as in respiratory disease should also be considered.

Drinking water should always be checked bacteriologically if possible, even though it has been found to be an unusual source of infection.

When an outbreak of respiratory illness occurs on a ship, all patients should be isolated if practicable. Bunks should be checked to see that the men sleep head to foot whenever possible. If the outbreak is explosive in character, food, especially milk, must be suspected. Proper methods of mixing and refrigerating milk should be enforced.

In summary, the steps to be taken in case of an outbreak of gastro-enteritis are as follows:

1. Obtain a history on each case as outlined above, and isolate if possible.
2. Inspect the galley as outlined, and determine the technic used in preparing all foods under suspicion. Obtain record of menus as actually served during the previous three (3) days. Have a daily "field day" in all food handling compartments as long as the epidemic lasts.
3. Obtain samples of suspected foods.
4. Examine all food handlers daily for skin lesions, and signs and symptoms of present or recent illness. Use a complete and up-to-date personnel check-off list to be sure all are seen. Remove all questionable men from this duty.

5. Give a short talk to all hands regarding the importance of personal hygiene and the modes of transmitting enteric diseases including by carriers. The food handlers should be given special additional instructions.

6. Arrange for a 24-hour "head watch" and employ hand brushes and disinfectant as outlined previously.

7. Check on the use of contaminated salt water on decks and anywhere in spaces used for food preparation and handling.

8. Particularly warn all hands and boat crews of the danger of contamination with polluted sea water while in and around the boats.

9. Give all food handlers prophylactic sulfadiazine gram I, t.i.d. for five days if stool cultures cannot be made. Check on source and handling of milk supply.

10. Chlorinate all fresh water tanks to 2 p.p.m. Investigate source of water supply; check for the possibility of cross connections with salt water lines, etc.

11. To prevent spread do not transfer men ashore or to other ships except for treatment.

12. Report outbreak to line and medical officers (and other higher authority if indicated) as directed, as soon as possible.

13. Obtain the assistance of an Epidemiological Unit if available.

14. If a virus is suspected as the etiological agent, measures for the control of respiratory illnesses should also be instituted as follows:

(1) Isolate all patients if possible.

(2) Ascertain the habits and the duties of the patients first to show the illness, and determine the locations aboard ship (division, bunking compartment, or special group, etc.) in which the illness may have originated and in which new cases may be expected to occur.

(3) Inspect ship as outlined above for insanitary and unhygienic conditions, and have them corrected.

(4) Check on "head to foot" bunking arrangements and ventilation of bunking spaces.

(5) Check particularly on health of milk handlers and methods used to mix and refrigerate milk and ice cream.

(6) Give a short talk to all hands on the prevention of respiratory illnesses.

(7) Do not transfer men ashore or to other ships if possible.

If the service of an Epidemiological Unit is available during or after an outbreak of any kind, it is the duty of the medical officer to request an Epidemiological Unit survey as soon as possible. It is also advisable to ask for a routine epidemiological survey every six months. (Prepared upon request by Commander William A. Meyers (MC), USNR)

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(Not Restricted)

Apical Localization of Pulmonary Tuberculosis: Dr. William Dock, Long Island College of Medicine, Brooklyn, New York, presents in the American Review of Tuberculosis, April 1946, a paper entitled "Apical Localization of Phthisis" which deserves the careful reading of medical officers treating patients with pulmonary tuberculosis. The author's paper is summarized as follows:

Because of the low level of pulmonary arterial pressures and the height from the right ventricle to the apices of the lungs to which blood must be forced, there is relatively little blood flow through the apices when adults are erect. This deficient blood supply when erect is believed to diminish or inhibit the normal defense mechanisms in the apical areas during the most part of the waking hours and explain the juxta-apical pulmonary localization of tuberculous lesions in adults. This theory is believed to be confirmed by the very low incidence of pulmonary tuberculosis in mitral stenosis, with its high pulmonic arterial pressure, and the very high incidence in congenital pulmonic arterial stenosis, with its low pulmonic arterial pressure.

A corollary of this theory is that the recumbent posture brings resistance against tuberculosis to the apical regions in the same manner and to the same degree as exists elsewhere in the lungs when erect. It would appear that most occidental adults have massive immunity to active tuberculosis except near the apices, and that recumbency should bring about protection in this region also.

Restriction to bed is therefore, in itself, not enough in the management of pulmonary tuberculosis. Recumbency, rather than rest in the conventional sense, appears to be essential to restore to the upper part of the lungs the resistance to tuberculosis which is so effective in preventing spread into the lower two-thirds of the lung. Sitting up in bed reduces the effectiveness of the rest treatment. Brief periods of erect posture for eating, bathing and elimination, which make these functions more agreeable to the patient and through the resulting diminished needs of the patient for personal assistance reduce the cost of nursing care, probably are far less injurious than being propped up in bed for intervals of an hour or more at a time. Such brief periods of useful activity help to maintain morale, as well as muscular and vasomotor tone, and make it possible to continue the program of recumbency for the long periods of time which experience has proved necessary.

The experimental studies of the blood pressure within the right ventricle were made by A. Cournand and his co-workers, under a contract between the Office of Scientific Research and Development and Columbia University, with the collaboration of New York University, and their work is continuing.

(Not Restricted)

Should studies now in progress fail to support the author's conclusions, the rationale for bed rest in the treatment of pulmonary tuberculosis, and particularly for bed rest applied in the manner described by Doctor Dock, seems to have been established. Treatment by this technic, if its value is established, will appeal to patients and make possible a greatly needed economy in the matter of nursing services. (Preventive Med. Div., BuMed)

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(Not Restricted)

Procainization of Sprains in Athletes: A sprain is a partial rupture of a ligament. When the protective function of pain is eliminated by procaine and the ligament is subjected to the violent stresses and strains of football, the partial rupture may become complete.

Furthermore, it was found some years ago in a small experimental series that the contact athlete whose ankle ligaments had been anesthetized lost his sense of timing and coordination, played badly, and was more likely to sustain other injuries. As an example, one varsity halfback, who played badly and briefly with a procainized anterior tibiofibular ligament sprain, after return to the bench stated that while running he had had no sense of the position of his ankle in space.

Although procaine is useful in the treatment of certain minor sprains in nonathletes, the experience of the Medical Department of the Harvard Athletic Association during the past ten years, based on the treatment of approximately 75 ankle sprains a year in athletes, has led to the conclusion that it has no place in the treatment of any sprain sustained in contact sport. (J.A.M.A., 4 May '46, Ltr to Editor - Thomas B. Quigley)

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(Not Restricted)

The Use of Histamine in the Treatment of Seasickness: Because of the reported successful results obtained in treating some selected cases of Meniere's disease with histamine, and because of the similarity existing between Meniere's syndrome and the symptom complex of seasickness, a medical officer studied the effects of histamine in the treatment of seasickness.

Fifty-four men among Army personnel travelling aboard an AKA en route from San Francisco to the Marshall Islands were the subjects for this study. The men had several things in common. It was their first sea voyage; all became ill after about twelve hours out of port; all had giddiness, nausea, and vomiting in varying degree; and all were ill enough to refuse food and to justify confinement to bed.

(Not Restricted)

In order to determine whether or not there existed in the patients any unusual degree of sensitivity to histamine, 0.1 mg. of the drug was injected intradermally in each. A half hour later the reactions were graded and recorded, and the patients grouped as follows:

| Group No. | | Graded As | No. of Patients |
|---|---|---|---|
| 1 | No wheal, no erythema..... | Neg. | 3 |
| 2 | Wheal with less than 1 centimeter erythema .. | 1 plus | 5 |
| 3 | Wheal with erythema 1-3 centimeters..... | 2 plus | 16 |
| 4 | Wheal with more than 3 cent. of erythema ..... | 3 plus | 30 |
| | | Total | 54 |

Fifteen of the patients were selected as controls (2 from Group number 1, 4 from Group 2, 8 from Group 3, and 1 from Group 4).

The 39 men selected for treatment received three doses of 0.5 mg. histamine administered intramuscularly at intervals of three hours. No untoward reactions were encountered. After the second injection of 0.5 mg. histamine, 20 patients experienced relief and were able to eat food and walk about with no sensations of nausea or giddiness.

The following morning, after all three injections had been received, 37 of the patients were entirely symptom-free. Two felt only moderately better. All the controls were still sick and remained so for three more days despite scopalamine, aspirin, and other similar drugs.

In view of the encouraging results achieved in this small series, and in view of the absence of any other efficacious remedy, more studies in the treatment of seasickness with histamine seem advisable. (Memo to Bumed News Letter - Lt. (jg) M. Vainder (MC), USNR)

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(Not Restricted)

The Relation of the Plasma Salicylate Level to the Degree of Hypoprothrombinemia: Clausen and Jager, the authors, investigated the plasma salicylate and prothrombin levels in 24 patients and 19 rabbits receiving large doses of sodium salicylate.

The results of their studies indicate that the severity of hypoprothrombinemia in patients and experimental animals may be correlated with the height of the plasma salicylate level, the degree of hypoprothrombinemia increasing with high salicylate levels. The plasma salicylate levels in a given

individual can not be predicted from the amount of the drug employed since there is great individual variation in the dosage necessary to obtain comparable plasma levels in different persons.

Butt and co-workers likewise noted the hypoprothrombinemia associated with salicylate medication in patients with rheumatic fever, but could find no correlation between the plasma salicylate level and degree of reduction in plasma prothrombin. They expressed the opinion, in which Clausen and Jager concur, that the likelihood of development of severe hypoprothrombinemia and spontaneous hemorrhage in association with salicylate medication was remote. Recently, Coombs, Higley, and Warren observed that the hypoprothrombinemia occurring with salicylate therapy is in direct proportion to the plasma salicylate level and that the severity of hypoprothrombinemia is of minor degree until the plasma salicylate level reaches 600 micrograms per cubic centimeter. Clausen and Jager point out that this finding confirms their observations.

Previous reports have emphasized the value of vitamin K in preventing the development of hypoprothrombinemia as well as in hastening the restoration of the prothrombin content when salicylates have been discontinued. In the present study moderately large doses of vitamin K were administered to rabbits throughout the period of salicylate medication. It was found that when the plasma salicylate level is high, hypoprothrombinemia may develop and persist in spite of continued administration of vitamin K. In this same study the authors did not begin vitamin K medication in their patients at the time of initiating salicylate therapy; however, moderately large doses of vitamin K (from 60 to 120 mg. given intravenously) after the hypoprothrombinemia had developed had little or no effect while salicylate therapy was being continued.

The authors believe the mode of action of salicylates upon the prothrombin content of the plasma to be via the liver. It is a well-established fact that vitamin K is necessary for synthesis of prothrombin by the liver. Animals fed diets low in vitamin K and patients with cirrhosis of the liver have been found to be more susceptible to the hypoprothrombinemic effect of salicylates. In the patients and rabbits studied in the present work, there was no reason to suspect a dietary lack of vitamin K or the presence of damage to the liver.

Since salicylates, dicumarol, and vitamin K contain salicyl groups in their molecular structures, it seems possible that, although sufficient vitamin K is present, its utilization may be blocked by salicylates or by dicumarol. Massive doses of vitamin K may overcome this interference, perhaps by a mass-action effect. The hypoprothrombinemia produced by dicumarol in patients usually can be overcome by the administration of very large doses of vitamin K.

The lowering of the prothrombin content may be the result of the influence of salicylates on certain enzyme systems. Serious liver impairment does not

(Not Restricted)

appear to be a frequent finding during salicylate medication, especially as evidenced by the usual liver function tests. However, ketonuria may occur if salicylate intoxication is severe. Moreover, in vitro studies have demonstrated alterations of certain metabolic activities of tissue slices in the presence of salicylates. The rapid restoration of the prothrombin content of the plasma after the discontinuance of salicylate therapy does not suggest that any permanent liver damage occurs.

The prolongation of prothrombin time does not appear to be of clinical significance since the phenomena of hemorrhage in intoxicated animals and man are infrequent and, when present, usually do not appear to be a factor in causing death from salicylate intoxication. (J. Lab. and Clin. Med., April '46 - Clausen and Jager)

Note: See end of next article for references to items on the use of salicylates in previous issues of the Bumed News Letter.

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(Not Restricted)

Salicylate Toxicity: The Probable Mechanism of Its Action: For years it has been customary to administer alkalis in conjunction with oral salicylate therapy, based on the assumption that sodium bicarbonate protects the stomach by inhibiting the release of salicylic acid. However, not until the recent work of Coburn has it become customary to administer massive doses of salicylates over a protracted period. He advocates the intravenous and oral administration of sodium salicylate until a blood plasma level of over 300 gammas per c.c. is reached, and recommends that it be maintained at a high level for some weeks. In the application of this therapeutic procedure in a comparatively small series of cases the authors were impressed by the fact that patients receiving salicylates intravenously experienced more nausea and vomiting than patients who received it orally.

The authors then undertook a study of the toxic action of salicylates, and particularly as affecting the gastro-intestinal tract.

1. A Comparative Clinical Review. A number of patients (Group 1) were given sodium salicylate intravenously and blood level determinations were made twice daily. A similar number, (Group 2) were given equal doses of salicylate orally and salicylate levels determined twice daily. The mean plasma salicylate level noted in the peripheral blood when nausea developed was 372 gammas per c.c. for Group 1 and 366 for Group 2. Although nausea and even vomiting were experienced in both series, a larger number (58 per cent) of patients who received the drug intravenously experienced nausea than of those (48 per cent) to whom it was administered orally. Although it was demonstrated clearly that

there was marked fluctuation in the blood level during the 24-hour period following the intravenous administration, and although higher peaks were reached than were possible by the oral route, more constant and stable levels were maintained by oral administration.

2. Simultaneous Administration of Sodium Bicarbonate and Sodium Salicylate. Smull and her co-workers have shown that the administration of sodium bicarbonate will promptly and appreciably reduce the serum salicylate level, and that its simultaneous administration with salicylate drugs will prevent attaining a satisfactorily elevated level. Sodium bicarbonate administered orally to each group soon after nausea appeared caused a prompt amelioration of the nausea. A substantial drop in the salicylate level of the blood was observed in each group in the determinations made 24 hours following the administration of sodium bicarbonate.

3. Urinary Excretion of Salicylates. Although Smull et al. emphasized that alkali should not be given simultaneously with salicylates as it prevented the attainment of a high blood level, they did not indicate the mechanism of this action. While administering sodium bicarbonate, the authors made quantitative urinary salicylate determinations. They found that the administration of sodium bicarbonate promptly increases the urinary excretion of salicylate with a resulting drop in the serum salicylate level, and, in general, the higher the pH of the urine, the greater the excretion of salicylates. By lowering the pH of the urine through the oral administration of ammonium chloride, the urinary excretion of salicylate is retarded, and there occurs a reciprocal increased concentration in the blood. In several cases after a relatively constant blood salicylate level had been attained, the oral administration of from 3 to 8 grams of ammonium chloride caused a drop in the pH of the urine with a corresponding prompt and sustained rise in the blood salicylate level.

4. Gastric Secretion of Salicylate. The favorable response from alkalis in the relief of the toxic symptoms from salicylates, administered either orally or intravenously, necessitated investigation to determine whether the effective relief was due to the prevention of local gastric reaction by the salicylates, or whether it may have been central in action. A group of cases was then studied in which salicylates were administered intravenously until a high and fairly constant level was attained, and tinnitus and nausea occurred. At this point gastric intubations were performed. The aspirated contents were analyzed quantitatively for titrable acidity and for the presence of salicylic acid in the stomach. In no case was any significant variation from the already determined basal acid secretion found, or even a trace of salicylic acid in the contents in any of the 15 consecutive cases in which the intubation was performed when the salicylate blood level was over 250 gammas per c.c. In several other patients a high level was attained by giving oral salicylate; from six to eight hours

(Not Restricted)

after the final oral dose was administered, gastric aspirations were performed, and no evidence of salicylic acid was found in the contents removed from these stomachs. These convincing findings would seem to disprove the time-honored teaching that the nausea and vomiting experienced during salicylism are due to the presence of salicylic acid within the stomach.

5. Gastroscopy. In this study twenty patients receiving salicylate therapy were gastroscoped in order to study the appearance of the stomach mucosa while they were toxic from salicylates. In 12 patients given salicylates intravenously, gastroscopic examinations were performed when the blood levels were over 300 gammas per c.c. and the patient was experiencing nausea or mild gastric unrest. Adequate visualization of the exposed gastric mucosa was accomplished in each case, and no evidence of any abnormality was seen. Gastroscopic examinations were made in eight patients who had been receiving 12 grams of salicylates daily by mouth, and no significant abnormalities of the gastric mucosa were observed in any of them except that one showed increased highlights and minimal superficial gastritis.

The authors conclude that the results of their study seem to indicate that the gastro-intestinal symptoms noted during salicylate therapy are due to its action on the cerebral centers and not to any local effect on the alimentary tract. (Ann. Int. Med., April '46 - Caravati and Cosgrove)

Note: References to items on the use of salicylates appearing in previous issues of the Bumed News Letter:

"Hypoprothrombinemia After Salicylate Administration," August 20, 1943
"Salicylate in Rheumatic Fever," November 12, 1943
"Intravenous Sodium Salicylate," December 10, 1943
"Salicylate: Physiological Effects," February 2, 1945
"Salicylate Absorption," July 6, 1945

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(Not Restricted)

The Use of Radioactive Sodium as a Tracer in the Study of Peripheral Vascular Disease: The value of artificial radioactive elements as "tracers" is generally recognized. Atoms of selected radioactive isotopes of various elements can be administered to a living organism and their circulation and subsequent distribution traced by measuring the intensity of the radioactivity produced at various points. It is thus possible to "tag" a desired substance by mixing with the stable atoms a relatively very small number of radioactive atoms.

The authors performed a series of investigations with radioactive sodium ($Na^{24}$) as a tracer in 200 patients with peripheral vascular disease. A few

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cubic centimeters of normal saline solution containing the radioactive isotope were injected into the cubital vein and the circulation traced down to the feet by measuring the radioactivity at various locations with the Geiger-Mueller counter.

The radioactive sodium was prepared in the Columbia University cyclotron by bombarding sodium metaborate with deuterons. The metaborate containing the active atoms was dissolved in water, acidified with hydrochloric acid, and treated with methyl alcohol, with the resulting formation of methyl borate, sodium chloride, and water. The solution was evaporated until it was dry and heated to remove excess acid; the material was then dissolved in pyrogen-free distilled water to give the desired concentration for injection, and autoclaved for an hour.

The Geiger-Mueller counting tube was enclosed in a shield of 1/2 inch lead, with a thin aluminum window 7 x 5.5 cm., which was placed against the part of the body to be measured as the patient lay comfortably in bed. The predetermined dose of isotope was, as a rule, 100 microcuries in from 5 to 12 c.c. of solution.

In measuring the radioactivity, attention was paid to two factors. First, the interval from the start of the injection to the time of the arrival of the radioactive substance at the tissues in contact with the counter was determined. When the counter was placed against the plantar region of the foot, this interval was called the arm-to-foot circulation time. The arrival of the radioactive substance was signaled in the counter by a definite increase in the number of knocks. However, if the circulation, as for example in arteriosclerosis, was slow, it was often found difficult to estimate just when the material arrived. Therefore, systematic 5-second counts were found to be more advantageous. Second, it was noted that when the counting was carried on minute by minute, the knocks increased steadily and markedly for some time. This was attributed to the interchange of plasma and extravascular fluid until the equilibrium was established and was called the "build-up curve." It soon became evident that the shape of the build-up curve gave valuable clinical information relative to the condition of the walls of the arterial vessels maintaining the viability of the part examined.

Counts were taken also at other positions, such as the calf, popliteal region, and thigh, and in many instances they were made bilaterally.

Practically all types of known peripheral vascular diseases were studied. The arm-to-foot circulation time in 131 cases is tabularly presented in the original article. The average value was found to be 39 seconds, with 15 seconds, and 105 seconds as the two extremes. In general, the longer intervals

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were noted in the more advanced stages of the disease. However, the equilibrium build-up curves were of far greater value.

It was considered that this method of study as a whole proved to be of value in the determination of the type and degree of treatment for particular cases and that it will be useful in following the progress of a disease process or to test the efficacy of therapeutic measures. The authors further considered the method, as applied, to be entirely harmless and that it could be repeated at reasonable intervals. (Radiol., Oct. '45 - Smith and Quimby)

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(Not Restricted)

The Repair of Cranial Defects with Special Reference to the Use of Cancellous Bone: All types of material have been used in the treatment of defects of the cranial bones and the search for a completely satisfactory substance continues. Tantalum has been and continues to be the most satisfactory metal used in cranioplasty. It offers inertness, mobility and strength - three factors not present in the metals previously used.

With tantalum the immediate results in many cases have been remarkable, but in spite of initial perfection some evidence is accumulating that tantalum is not suitable in all cases. Heavily scarred areas that have remained intact for varying periods have gradually broken down, and once this process has begun, the basic inertness of the metal does not prevent it from being extruded like any foreign body. Again, the possibility of cortical fixation has not been completely disproved. Other disadvantages are gradually taking shape, such as the preclusion, because of a metal, of any future x-ray studies. Some of these disadvantages may arise from the technical difficulties of cranioplasty rather than from the metal itself. Also many cranial defects have been subjected to so-called plating that in former years and under different circumstances would have been let alone. Significantly, in this group are found cases with more complaints following repair than before it. Much has been written concerning the indications for cranioplasty, and almost any case of skull defect can be made to possess those indications.

It seems more to the point to emphasize the contraindications. The clinical cases exhibiting them fall into two main categories - those with a simple "hole in the head" associated with no complaints, and those in which the complaints are consistent with functional involvement. There are, of course, other minor groups of cases, such as those with sizable retained foreign bodies, in which the advisability of cranioplasty is questionable. Opinion concerning its value when epilepsy is present is divided. At one extreme, Gardner believes that cranioplasty has been most beneficial. The time interval in the series of

cases subsequently reported has not been sufficient to warrant any definite conclusion, and although some suggestive improvement has occurred, it must be remembered that a cranial procedure of any type frequently effects a temporary change in the convulsive state.

The author presents material in an attempt to show that the use of bone in cranioplasty is not obsolete and that in certain cases bone should in fact be the material of choice. In the cases selected for bone grafts he uses cancellous bone chips approximately 1 cm. in diameter, placed in layers mosaically, and entirely filling the defect. He states that the method of taking these grafts is simple and can be accomplished in a few minutes. The crest of the ilium is exposed and the flat surface of the bone is laid bare. The outer cortical layer is split with a rotary bone saw and turned down. Thin strips of the medulla are sliced free, and when a sufficient amount has been obtained the cortical layer is replaced and sutured into its former position. The hip wounds heal quickly, and there have been no complications or complaints other than soreness for the first two or three days.

In small and medium-sized defects of the skull requiring cranioplasty, autogenous cancellous bone is the material of choice. Of all methods of repair, cancellous bone grafting is the simplest and easiest.

Mowlem attributes the marked success of cancellous bone for grafting to its highly vascular character. He believes, further, that fragmentation is a definite aid in the survival of these grafts, on the theory that a greater proportion of the bone cells becomes accessible to early vascularization.

The chief objections in the past to the use of bone in defect repairs - namely, the extensiveness of the operation, often necessitating two stages, and the extreme difficulty of obtaining the proper contour effect - have been overcome by the use of cancellous bone. Further, if the size of the cranial defect is kept at a minimum at the time of the initial debridement, many unnecessarily large defects requiring the use of alloplastic materials can be avoided. This in itself as a preventive measure would do much to reduce the number of cases requiring extensive cranioplastic measures.

The author considers that the use of cancellous bone is not suitable for repair in exceptionally large defects or in others in which the location precludes its use. Sufficient bone to repair small and medium-sized defects is readily obtained from the ilium, whereas to take the amount of bone required for the larger defects would transform a minor procedure into a major one. In defects of the orbital ridge and frontal sinuses, tantalum seems preferable, although Mowlem has used cancellous bone in this location with excellent results.

(Not Restricted)

The repair of cranial defects with tantalum is at present the procedure of choice when the defects are of such size that a sufficient amount of bone cannot be obtained without an extensive secondary procedure, or when the site of the defect renders tantalum the more suitable material. (New England J. Med., March 21, '46 - Carmody)

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(Not Restricted)

Public Health Foreign Reports:

| Disease | Place | Date | No. of Cases |
|---|---|---|---|
| Cholera | China, Canton | Mar. 1-31, 46 | 58 (9 fatal) |
| | Fukien Province | Mar. 26, '46 | 1 |
| | Hupeh Province | Mar. 1-20, '46 | 28 (4 fatal) |
| | India, Calcutta | Mar. 30-Apr. 6, '46 | 79 (43 fatal) |
| Plague | China, Fukien Province | Mar. 1-Apr. 3, '46 | 132 (56 fatal) |
| | Yunnan Province | Mar. 1-20, '46 | 11 (1 fatal) |
| | Egypt, Alexandria | Apr. 13-20, '46 | 4 |
| | Egypt | Apr. 6-13, '46 | 6 |
| | Manchuria, Mukden | Feb. 25-Mar. 25, '46 | 39 (36 fatal) |
| | Manchuria, Lioapeh Province | Mar. 9-16, '46 | 8 |
| Smallpox | British E. Africa, Tanganyika | Mar. 2-16, '46 | 494 (73 fatal) |
| | Morocco (French) | Mar. 21-Apr. 10, '46 | 201 |
| | Sudan (French) | Mar. 21-31, '46 | 105 |
| | Venezuela | March '46 | 78 |
| Typhus Fever | Belgian Congo | Mar. 23-30, '46 | 69 (murine) |
| | Bulgaria | Mar. 9-16, '46 | 64 |
| | Ecuador | March '46 | 87 (4 fatal) |
| | Egypt | Mar. 2-23, '46 | 176 (9 fatal) |
| | Eritrea | Mar. 30-Apr. 6, '46 | 26 |
| | Greece | Apr. 13-20, '46 | 101 (16 fatal) |
| | Morocco (French) | Mar. 21-Apr. 10, '46 | 566 |
| | Tunisia | Mar. 1-20, '46 | 45 |
| | | Apr. 1-10, '46 | 36 |
| | Turkey | Apr. 7-20, '46 | 126 |
| Yellow Fever | Bolivia, Santa Cruz Dept., San Jose | March '46 | 1 (fatal - suspected as due to yellow fever) |

(Pub. Health Reps., May 3, 10 and 17, '46)

(Not Restricted)

Caution for Dental Officers Regarding the Use of "Liners" for Artificial Dentures: In view of the increased use of "liners" for artificial dentures, the attention of dental officers is invited to the article by the Research Associates of the American Dental Association published in the J.A.D.A. of March 1946. This study concludes that:

"The use of currently available liners for dentures has definitely adverse effects on the base resin of the denture. The liners tend to distort, weaken, and soften the denture base resin. The liner itself is softer than the base resin and, in many instances, on prolonged immersion in water, crazes and turns white or opaque.

Although the use of liners will yield a temporary improvement in the fit of loose dentures, liners certainly should not be called permanent, nor do they yield results comparable to an efficient rebase. The experience of practicing dentists completely supports these conclusions based on laboratory tests." (Dentistry Div., BuMed)

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(Not Restricted)

Publication of Articles by Navy Medical Department Personnel on Inactive Duty: The Bureau of Medicine and Surgery has received numerous inquiries from Reserve medical officers and other members of the Medical Department, now on inactive duty, regarding censorship or other restrictions imposed by the Navy relative to publication of medical and scientific articles or papers based on wartime experiences.

For the information of those concerned, there follows a general outline for guidance in the publication or delivery of articles and papers on medicine and the allied sciences which involve naval duties or experiences:

1. In dealing with submarine and aviation medicine or atomic, biological or chemical warfare, a copy of the manuscript should be submitted to the Office of Public Information, Navy Department, Washington 25, D. C., for review and clearance prior to publication.

2. The mention of duty stations, locations, navy numbers, names of ships, length of duty tour, number of cases of various diseases and disabilities, rank and positions held, etc., is permissible. However, it is expected that professional judgment and discretion will be exercised by all those writing of or discussing their careers and experiences while in the Navy.

(Not Restricted)

3. In order that the Bureau of Medicine and Surgery may keep in touch with inactivated Medical Department personnel and their work, it is desired that one copy of any article or paper dealing with professional or scientific matters pertinent to naval medicine be forwarded by such authors to the Chief, Bureau of Medicine and Surgery. Such material will be welcomed and will be used for reference purposes as well as to provide a source of general information for the Bureau.

4. Regular and Reserve personnel on active duty will continue to be guided by existing regulations.

(Publications Div., BuMed)

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(Not Restricted)

Constructive Suggestions and Inventions: The attention of Medical Department personnel (including particularly those released to inactive duty) is called to Alnav 227 printed in full on page 30. Those not now on active duty are requested to address communications concerning the subject matter directly to the Research Division, Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C.

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(Not Restricted)

Notice Concerning Postgraduate Courses Sponsored by the American College of Physicians: The Bumed News Letter of 12 April 1946 carried a note of the announcement by the American College of Physicians that Postgraduate courses sponsored by them would carry no fees for enrolled members of the Armed Services of the United States and Canada on active duty or terminal leave.

The American College of Physicians states that it will be necessary to cancel the no-cost provisions for Service personnel for these courses beginning after 1 July 1946.

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(Not Restricted)

New Films Available: MN-3726K-Cholera Can Be Conquered - Medicine in Action Series (Sound - Color - 10 minutes): This film for all members of the Medical Department illustrates the background and clinical picture of cholera in India, the country most affected by this pestilence. It shows how the unhealthful conditions due to inadequate sewerage and water systems are relieved only during the monsoon season. The story of how the Navy battled successfully against this disease - what it did to immunize against cholera,

(Not Restricted)

how it tried saline injections for relieving fluid dehydration, and finally used blood plasma and sulfa drugs successfully - is clearly pictured.

MN-6485-Plastic Repair of the Cheek and Lip (Sound - Color - 10 minutes): This film is for all naval medical officers. In it two men at a Navy Hospital demonstrate the functional and cosmetic results which are possible in skilled plastic surgery of cheeks and lips. The picture shows a patient who had not only lost most of his upper lip but also had had the alveolar ridge destroyed, and how through plastic reconstruction this patient started out on the road to complete social rehabilitation.

(Restricted)

MN-3428f-Psychosomatic Disorders - Combat Fatigue Series (Sound - Black & White - 20 minutes): This picture to be shown the combat fatigue patient illustrates the dynamics of psychosomatic problems; it explains the relation of physical symptoms and emotional problems. The patient is shown that he must work out his own salvation in terms of his symptoms; to do this he must have intellectual recognition and emotional understanding.

(Not Restricted)

MA-1865-Schistosomiasis - Snail Fever (Sound - Black & White - 10 minutes): This film for all hands shows how schistosomiasis is caused by parasites carried by a certain type of snail. It illustrates the parasite penetrating the bodies of human beings and domestic animals and how the cycle is continued. The film demonstrates various manifestations of the disease and pictures how to combat the disease by purification of drinking water, and the avoidance in other ways of contact with infested water.

MN-2715b-Wounds of the Face & Jaw - Plastic Surgery Series (Sound - Color - 22 minutes): This film, for medical officers, emphasizes the basic theme that good end-results of plastic surgery must be based on the proper handling of patients requiring plastic surgery in the combat zones. Surgical work on casualties during the battle for Germany provides realistic examples.

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(Not Restricted)

L11-3/S37(12-1370)
Serial 100034
O:GCP (BHF)
26 Feb 1946

NAVY DEPARTMENT
BUREAU OF MEDICINE & SURGERY

MATERIEL DIVISION
SANDS & PEARL STS,BKLYN,N.Y.

To: Assistant for Dentistry
Bureau of Medicine and Surgery
Washington, D. C.

Subj: Non-standard Dental Operating Units, Replacement with Standard Operating Units.

Ref: BuMed ltr BUMED-T, QB/L11-3 dtd 11 Sep 1945; Replacement of Worn or Obsolete Equipment.

1. The Joint Army-Navy Dental Item Review Team has designated the Ritter senior, Model E, dental operating unit as the standard dental operating unit for the Army and Navy.

2. Now that many dental activities are being disestablished, it is highly desirable to use the Ritter Model E units as the standard dental operating units (if in good condition) to replace substandard, Junior, or badly worn operating units in "permanent" dental activities.

3. It is recommended that each District Dental Officer be directed to prevent all Ritter senior, Model E, dental operating units in good condition, from being reported surplus when dental activities are disestablished within his District. Such standard dental operating units need to be transferred, on S. and A. form 127, to "permanent" dental activities for replacement of substandard or badly worn equipment. The replaced equipment may be reported surplus by the "permanent" dental activity.

By direction of the Chief of MatDiv:

G. C. PAFFENBARGER
Commodore, DC, USNR

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BUMED-D-EFB 28 Feb 1946

To: All District Dental Officers.

1. Copy of above letter forwarded for your information and compliance.

A. G. LYLE
Rear Admiral (DC), USN
Assistant for Dentistry

Circular Letter 46-82 14 May 1946 (Not Restricted)

To: Comdts, ND's (Continental).

Subj: Human Plasma; Status of Program in Naval Districts.

Ref: (a) BuMed Circular Ltr., No. 45-139, 4 Jun 1945 (See BuMed Bul. of CirLtrs)

1. It is requested that a report be forwarded to the Bureau of Medicine and Surgery on or before 15 June 1946 on the present status of the liquid plasma program established in each district as instructed by ref (a).

2. Subject report should include a statement of:

(a) Amount of liquid plasma on hand at hospital designated to prepare plasma for district.
(b) Amount of liquid plasma prepared since program was instituted.
(c) Amount of liquid plasma distributed since program was instituted.
(d) Amount of dried plasma ordered from Naval Medical Supply Depot through District Medical Office since 1 July 1945.
(e) An estimate of ability to meet plasma requirements of District for Fiscal Year 1947.

3. This information is necessary for planning the Navy's plasma Program.
--BuMed. Ross T. McIntire.

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Circular Letter 46-83 17 May 1946 (Not Restricted)

To: AlNavStas.

Subj: Uniform Charge for Interdepartmental Hospitalization, Fiscal Year 1947.

Ref: (a) Resolution Adopted by Federal Board of Hospitalization on 20 September 1945, approved by the President on 29 September 1945.
(b) Part IV, Chapter 1, ManMedDept, USN., 1945 Edition.

1. The uniform reciprocal rate of reimbursement for interdepartmental hospitalization, during the fiscal year 1947, will be $5.75 per diem. This will also be the charge for supernumerary patients (other than dependents of naval personnel) from whom local collection of the hospitalization charge is made.

(Not Restricted)

2. Net earned amounts received locally for hospitalization of supernumerary patients in naval hospitals shall be deposited with the disbursing officer for ultimate credit to the appropriation, "Medical Department, Navy, 1947", Expenditure Account 45802. At all other naval activities, these net collections shall be deposited for ultimate credit as follows: to the appropriation, "Medical Department, Navy, 1947", Expenditure Account 45830, - $4.95 per diem and the remaining $0.80 per diem to the appropriation, "Pay and Subsistence of Naval Personnel, 1947", Expenditure Account 73110. At Marine Corps activities, the net collections shall be deposited for ultimate credit as follows: to the appropriation, "Medical Department, Navy, 1947", Expenditure Account 45830, - $4.95 per diem and the remaining $0.80 per diem to the appropriation, "General Expenses, Marine Corps, 1947."

3. Specific instructions regarding the rate of reimbursement for hospitalization of dependents are contained in reference (b), and remain in effect. However, the appropriations and Expenditure Accounts, as indicated in paragraph 2, shall be credited as applicable.

--BuMed. Ross T. McIntire.

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Circular Letter 46-84 27 May 1946 (Not Restricted)

To: MedOfsCom, NavHosps (All Types).

Subj: Rations Sold by Hospital Messes to Military Staff Personnel, Cash Collection for.

1. Effective 1 July 1946, collection for all rations sold by hospital messes to military staff personnel or to military staff personnel for their guests shall be effected by cash collection at the rate of $0.25 per meal or $0.75 per ration instead of by payroll checkage as at present.

2. The above cash collections shall be effected by an agent cashier in accordance with the instructions contained in BuSandA ltr. L10-5(1)/NH(AB) of 7 April 1943, which will be included in the revised edition of BuSandA Manual. Inasmuch as agent cashiers have already been appointed at most naval hospitals to handle the collection of charges for hospitalization of dependents, an additional agent cashier may not be required. However, in those naval hospitals not having an agent cashier at present, or these requiring an additional agent cashier to effect the subject cash collections, the Medical Officer in Command shall designate the Commissary Officer or one of his officer assistants to act in this capacity.

(Not Restricted)

3. In order to provide the change necessary for the collection of cash from the sale of meals, the disbursing officer will advance to the agent cashier funds for change in the manner prescribed in Arts. 1431-15(b) or 1540-5(b), BuSandA Manual, for clothing issue room storekeepers and ship's stores. All cash in excess of the necessary funds to make change will be transferred to the disbursing officer daily, or as otherwise directed by competent authority, and upon the detachment of the agent cashier and/or disbursing officer.

4. Charges for subsistence or occasional meals furnished military staff personnel and their guests shall be collected in cash from the military staff personnel concerned at the rates specified in par. 1. Nurses and other military staff personnel taking full subsistence in a hospital mess shall pay for one ration per day irrespective of the number of meals taken, except when not actually subsisted in the hospital mess due to absence on official leave. Collections shall be made monthly or immediately prior to detachment, discharge, or transfer of the individual concerned. The letters directing collection of cash from military staff personnel for meals sold shall be prepared in the same manner as letters requesting checkage for rations have been prepared heretofore, except that they shall be addressed to the agent cashier and shall direct collection to be made in cash and deposited for credit to the appropriation "Medical Department, Navy", of the fiscal year in which the meals were sold, and Expenditure Account 45803. A copy of each letter directing collection of cash from military staff personnel for meals sold shall be forwarded with the Monthly Ration Record, NavMed HF-36, to substantiate the number of rations sold, as reported on lines 118 and 119, Section F of the Monthly Ration Record. The amount of cash actually deposited with the disbursing officer shall agree with the total amount reported in the monthly letters directing collection of cash, copies of which are required to be submitted with the Monthly Ration Record.

5. Upon detachment, transfer or discharge, where the individual does not have sufficient funds to pay in cash for rations furnished him during the month, a letter directing checkage in the pay account of the individual for meals furnished may be submitted to the disbursing officer for necessary action. However, such cases should be minimal and it is directed that collections in such cases be made in cash whenever possible. Copies of letters of checkage shall be forwarded as prescribed in par. 4 above for collection letters.

6. The present procedure of effecting payroll checkage for subsistence furnished officer patients and the collection by the Bureau for subsistence furnished enlisted patients in naval hospitals is not modified by this letter. The subsistence furnished patients shall be reported in accordance with current instructions.

(Not Restricted)

7. The present procedure for sale of meals to civilian employees and the collecting and reporting therefor, is not modified by this letter.

8. Existing instructions which are in conflict with this letter are hereby superseded.

--BuMed. Ross T. McIntire.

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Circular Letter 46-85

**Not available for this issue.**

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Circular Letter 46-86 29 May 1946 (Not Restricted)

To: Commandants, Naval Districts.

Subj: Survey on Consolidation of Medical Facilities.

1. It is desired that a critical survey be made of the medical department facilities other than hospitals in each district, with a view toward consolidation where possible and elimination where feasible, in the light of early expected personnel shortages.

2. A report to this Bureau with explicit recommendations is desired prior to 15 June 1946.

--BuMed. Ross T. McIntire.

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ALNAV 227 8 May 1946 (Not Restricted)

Subj: Constructive Suggestions and Inventions by Naval Personnel.

1. Original ideas used in this war have saved thousands of American lives and speeded our victory. Inventions have made substantial contributions, so have original operational, administrative, and technical ideas. The principal flow of such ideas has been through action reports and war diaries. Responsible agencies did excellent work, but suggestions from alert original thinkers outside these agencies broadened their views and furnished the germs of vital improvements, or inspired the studies which produced them.

2. Many new and needed ideas have not yet reached anyone in a position to do something about them, because some originators have been too busy to work

(Not Restricted)

them up and difficult procedures have discouraged other originators from moving them. Still others have held back through reluctance to bother their seniors, or because of the assumption that someone had solved the problem.

3. Every field of naval effort needs the creative thoughts of those who know its problems at first hand. In the aggregate, such thoughts can shape the future of the Navy or determine the outcome of a future war. The greatest crop of naval ideas in history has been fertilized by our present unparalleled wealth of war experience. Get them to the mill while your memories of the war are fresh.

4. This message is addressed to all hands. Its purpose is to encourage you to do constructive original thinking and make it easy for you to put your constructive ideas to work. Hand them in addressed simply to the Navy Department, via your Commanding Officer, from yourself.

(a) State clearly:

(1) What you propose.
(2) Whether you want the fact that you have made this proposal treated as private information on board your ship or station.
(3) What problem your proposal will help to solve, what need it will help to meet, or for what other reason you feel it will be worthwhile.
(4) How you suggest doing or trying to do it, or why you believe a practical way to do it can be worked out.
(5) Whether you think your idea includes an invention. If you do, state clearly:

(a) What invention you claim.
(b) Whether you produced the invention in the performance of duty assigned to you and, if so, whether this assignment specifically required you to effect or devise new or improved results such as you claim to have invented.
(c) To what extent you used government time and or facilities in producing the invention claimed. For purposes of this statement, only the time assigned to naval personnel and employees as working hours or for work on specific tasks is considered to be government time. Only their expenditure of government material or their employment of government property at times when it would otherwise have been employed for government purposes is considered to be use of government facilities.

(Not Restricted)

(b) Include any discussion of your proposal and or the problem which you feel would be helpful, stating any objections or difficulties you expect your proposal to encounter and your answers to them. You may enclose photographs, sketches, diagrams, statements or witnesses to experiments or trials, and the like, but (except the invention sketch specified below) they are not required.

(c) Make it easy for your Commanding Officer and the department to handle your constructive ideas. To do this, try to stick to a single idea in any one document and be as brief and clear as you can.

(d) If you claim invention, enclose a simple sketch on diagram, dated and signed by yourself and a witness; if not, this is not required. Finished or elaborate drawings are not required.

5. The Commanding Officer will respect the originator's stated desire regarding privacy on board. He will forward direct, to the office of the Navy Department specified below. Enclosures need not be provided with information copies unless, in his opinion, such enclosures are important and can readily be provided, or will be of immediate value to particular addressees. The Commanding Officer and information addressees may comment freely on constructive ideas, but are not required to do so, except in response to specific questions from higher authority.

6. Subject to the foregoing, the Commanding Officer will:

(a) Classify all copies if the subject matter includes classified information or if, in his opinion, the new ideas should be protected by a security classification.

(b) Forward every constructive idea or invention direct, or via chain of command as may be appropriate:

(1) To SecNav (Attention: Office of Research and Inventions, Inventions Section), if invention is claimed or if the subject matter is non-military or scientific. One information copy shall be sent direct to CNO (Attention: Operational Readiness Section) and, if Bureau cognizance is apparent, also one information copy direct to the cognizant Bureau.

or (2) To the CNO (Attention: Operational Readiness Section) if it covers any operational subject (the Operational Proposals Board has been dissolved by cancellation of General Order 169), or if

(Not Restricted)

covers a non-technical military subject and invention is not claimed.

or(3) To the cognizant Bureau if it covers a military technical subject and invention is not claimed. One information copy shall be sent direct to SecNav (Attention: Office of Research and Inventions, Inventions Section) and one copy direct to the CNO (Attention: Operational Readiness Section).

(c) In the forwarding endorsement:

(1) If the originator claims invention, confirm or take specific exception to his statements regarding duty status and use of government time and facilities. This will complete adequate compliance with General Order 31.

7. The department will initiate all further action necessary to assure inventors and the originators of beneficial suggestions of their rights and of authorized recognition of awards. The procedure outline above will provide the essential record and is intended to expedite progress by moving ideas without detailed work which will only be needed if they prove successful or patentable. The important thing is to put the ideas to work without delay.

8. Naval personnel and civilian employees have positions of unique advantage for spotting needs and opportunities for improvement at first hand. Many of you are also in positions of advantage for originating practical solutions or suggestions.

9. Do not hold back your ideas because you cannot offer a complete solution or a successful invention. It is possible for the Navy Department to get problems solved by specialists, but it can only get the benefit of your experiences from you. What you alone can contribute is to recognize from your experiences what is needed and state the problems and your suggested solutions.

10. It is directed that this message be published to all naval personnel and civilian employees, and be kept available for their ready references.

--SecNav. James Forrestal.

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ALNAV 244 17 May 1946 (Not Restricted)

Subj: Restriction to Oral and Local Application of One Lot Number of Penicillin.

(Not Restricted)

Discontinue issue and use for parenteral administration Lot No. 366 Heyden Chemical Corporation calcium penicillin Stock No. S1-1133. Stocks may be utilized in preparations for oral and local application only.

--SecNav. James Forrestal.

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