OCCUPATIONAL HEALTH MANUAL

NAVAL MEDICAL TRAINING INSTITUTE

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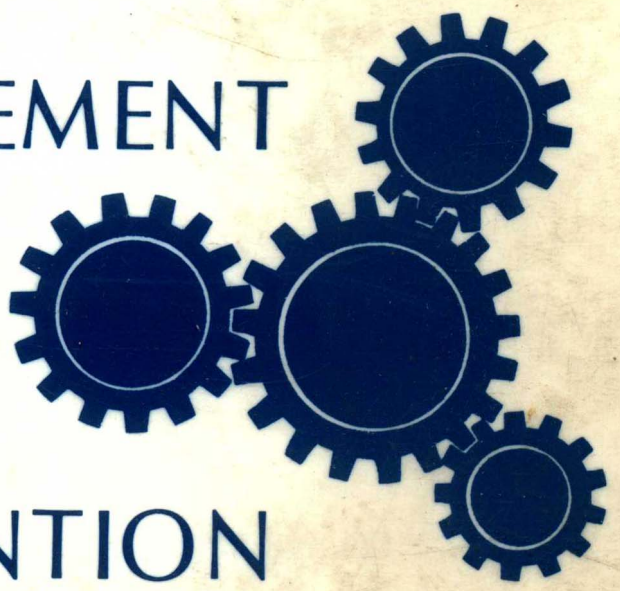


OCCUPATIONAL HEALTH MANUAL

NAVAL MEDICAL TRAINING INSTITUTE
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND 20014
1972

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402
Price $5.85 domestic postpaid or $5.50 GPO Bookstore Stock Number 0845-00014

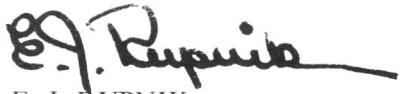
PREFACE

This *Occupational Health Manual* will be used as the text for "Administrative Aspects of Occupational Medicine," one of two officer correspondence courses on occupational medicine offered by the Naval Medical Training Institute. It describes basic administrative procedures essential to smooth operation of an occupational health program. The professional aspects of occupational medicine are covered by *Occupational Diseases: A Guide to Their Recognition* (Public Health Service Publication No. 1097), the text for the companion course "Technical Aspects of Occupational Medicine."

The present interest in ecology and public awareness of industrial pollution endangering man and his environment have spurred development of these courses on occupational medicine. The appearance of new substances, new uses of common materials, and continuous changes in industrial processes all contribute to increased industrial pollution. Though these factors, directly or indirectly, affect the health of the general population, they are even greater hazards to the health of the industrial population. Frequently, the occupational origin of industrial disease escapes detection, and health impairments may not be noticed for months or years. There should be no letup in monitoring for toxic, chemical, biological and physical pollutants of the environment.

This manual is the result of much cooperation between the Naval Medical Training Institute, and related divisions at the Bureau of Medicine and Surgery who also provided valuable technical guidance. Much of the information here is based on an unpublished preceptor handbook *Manual of Occupational Health* prepared by Dr. William A. Redman for use at the Naval Ammunition Depot, Naval Ordnance Systems Command, at Crane, Indiana. We are indebted to CDR E. J. Sullivan, MC, USN, of the Naval Industrial Environmental Health Center for preparing the present manuscript and updating the information.

We commend the following members of the Naval Medical Training Institute staff for contributions as follows: Captain D. H. Gaylor, MC, USN, for overall direction of the task; LCDR D. J. Egan, MSC, USN, and HMC E. M. Staples, USN, for course development information support; the Medical Photography Division for the photographic work; HM3 M. A. Willhoite, USN, for cover design; and Mrs. Elsie C. Yuen, writer-editor, for the editorial work.



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June 1972

DEPARTMENT OF THE NAVY
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IN REPLY REFER TO

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Dear Doctor

You are stepping into an exciting professional challenge. You now have the responsibility for the health of all the employees of your activity and some responsibility for the health of the surrounding community.

When you see an employee, you must consider how the total work environment affects his health, how his health problems affect his fellow workers, and how his health problems affect the health of the community in which he lives. Moreover, you may need to consider how the industrial processes occurring on your station affect the well-being of surrounding communities.

To assess the impact of the work environment of the employee, you will need to visit regularly each industrial setting looking for chemical, biological, mental health and physical problems including mechanical hazards. It is next to impossible to diagnose an occupational illness without having visited the worksite and knowing the materials and processes involved.

When the worker comes to you, this is the time to consider how his health problems affect his fellow workers and the people in his community as well as how his health is affected by the work environment.

You will find that personnel in the Safety Department and the Civilian Personnel Department are able and willing to help you find the most effective way to solve problems that occur in the Occupational Health Program on your station. Should you need or want additional assistance on occupational health problems, the Navy Industrial Environmental Health Center staff is available for consultation by telephone, letter, or visit.

Sincerely yours,

George M. Lawton

GEORGE M. LAWTON, CDR, MC, USN
Director, Industrial Environmental
Health Division

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PART ONE

INTRODUCTION TO AN OCCUPATIONAL HEALTH PROGRAM

PURPOSE

To increase or maintain production in our industrial society today, efficient worker performance of assigned duties is essential. It is to maintain this health fitness in the worker that occupational health programs are designed. Such a program applies public health principles, and medical, nursing, and engineering practices to conserve, promote and restore the health of workers. Achieving this through the workers' places of employment is what distinguishes an occupational health program from other preventive medicine programs.

However, since the total industrial environment determines an industrial worker's worth and output as an employee, he may become less interested and satisfied with his work when production lines and methods become more automated. His home and family problems and interpersonal conflicts may also contribute to lower efficiency. Also, the changing nature of the work force—more women, and proportionately more white than blue-collar workers—brings added problems. Because of this, all available health and social services need to work together in a program to

promote employee health fitness. Though the program is primarily employee-oriented, many spinoff benefits accrue to management.

Labor turnover, absenteeism, and liability compensation for occupational illness and injury are items of major expense to business and industry, and reductions in their occurrence may be considered as management benefits. Therefore, in a broad sense, a well-run occupational health program which stresses employee health fitness also keeps these occurrences to a minimum. This may be achieved by:

- Maintaining a healthful work environment
- Health examinations
  - ☐ Pre-employment physical examination to aid placing an employee in work for which he is physically and emotionally qualified
  - ☐ Periodic health evaluations to insure that the worker continues able to handle his job, and to encourage him to remain in good health and seek early treatment for minor non-disabling conditions.
- Providing emergency medical care for
  - ☐ Occupational injuries and illness, and
  - ☐ Non-occupational conditions, to keep the worker on the job if possible, or to refer him to his own physician when further care is required.
- Practice of preventive health through
  - ☐ Education
  - ☐ Immunizations
  - ☐ Surveys designed to reveal chronic conditions and promote early treatment
  - ☐ Counseling on health, social, and family problems.

Since a wide range of duties and service is involved to attain these goals, information applicable to operating a well-run occupational health program will be incorporated here into a single reference source for the Medical Officer and the occupational health staff. The concept of occupational health, and the administrative procedures and standing orders for treating occupation-incurred illness and injuries presented here are in accord with current medical practice and standards established by the AMA Council of Occupational Health. They are also compatible with pertinent regulations as set down in the *Federal Personnel Manual* and the Federal Employees' Compensation Act.

Medical Officers* are advised to review carefully the standing orders (pp. 51-77), make such changes as advisable, then attach signature to implement these instruc-

*The designations "medical officer" and "physician" are used interchangeably here. Unless qualified otherwise, they refer generally to the occupational health physician. The terms "industrial" and "occupational" are also used interchangeably as are "dispensary" and "occupational health clinic."

tions. Any in-house procedural variation and additional information should be clearly identified as such. Information on local resources will be updated as needed. See "Physician Approval of Standing Orders," p. 52, and "Local Resource Information," p. 9.

ORGANIZATION OF AN OCCUPATIONAL HEALTH CLINIC

Personnel

Many guidelines have been suggested to determine the number of personnel required to staff an occupational health clinic. These useful guides are all based on the number of employees, but equally important are other purely local factors, such as types of industrial hazard, availability of other medical facilities, number of shifts working, and inclusion or not of dependents served.

Essentially, the clinic staff should include a physician who is in charge, a registered nurse who supervises the rest of the personnel, and a reception and records clerk. For a clinic serving less than 300 employees, a full-time registered nurse and a part-time physician may be adequate. But, for 1,000 or more employees, a full-time physician is desirable, and he may serve as many as 4,000 employees, unless they are engaged in hazardous work. Additional nurses are recommended at one per 1,000 employees.

The physician should organize the clinic so that routine matters can be handled smoothly and efficiently. His closest relationship will be with the occupational health nurse (or chief nurse, if there is more than one nurse) who must know the "ground rules" and sources of information, as well as her own professional field. His instructions to her should provide simple, but precise directions for medical emergencies.

As the chief assistant to the occupational health physician, an experienced and dependable nurse is the key to the well-functioning clinic. In small establishments, the nurse may take on additional duties of a reception and records clerk. A relief nurse should also be available.

Services of laboratory and X-ray technicians, if available on premises, should be adequate for all routine work required. However, a full-time combination laboratory/X-ray technician on the occupational health clinic staff is indicated if the work force exceed 1,000; for a work force over 1,500, a full-time technician for each specialty may be needed.

Clinical Facilities and Equipment

In checking the adequacy of existing facilities and equipment available for an occupational health clinic, several considerations should be kept in mind.

Layout and Space Allocation

The clinic layout should be adequate for examining, treating, and testing patients, and should contribute to a functional use of space, a logical traffic-flow pattern, effective staff operation, good patient privacy, and an attractive appearance and relaxing atmosphere.

Functional use of space is important since supposedly adequate space poorly distributed can be quite unsatisfactory. A general rule of thumb suggests that total floor space for the clinic be calculated at a rate of 100 to 150 square feet for each 100 employees, with a waiting room space averaging 30 square feet allowed for each person waiting. These rough approximations may be helpful to determine if problems exist.

The traffic flow should be channelled in such a way that waiting patients are relatively undisturbed until called. It should be possible for acutely ill or injured patients to enter and leave without going through the waiting room.

Staff and Patient Conveniences

To promote a smooth-running clinic operation, conveniences for both staff and patients should be considered. Privacy for patients undergoing tests and interviews is a major necessity, as are separate and adequate toilet facilities for both men and women. These should be located to facilitate processing of urine specimens.

An adequate number of examining rooms should be available, each with the necessary diagnostic equipment and handwashing facilities. At least one bed for limited rest or observation, and used for no other purpose, is highly desirable.

Special Treatment Rooms

Space will also be needed for electrocardiography and physiotherapy. It is helpful, especially if the examining area is limited, to have several dressing rooms.

Perhaps the factor most subject to change, and also most often missing in the waiting rooms is an attractive appearance. Racks should be provided for magazines and health education materials. Plants or flowers may add to the appearance and help create a relaxing atmosphere.

Adequacy of Clinic Facilities

If there is any question on the adequacy of clinic facilities, consult the senior medical officer of the activity. The plant public works officer may be of help. Problems concerning clinic facilities should be discussed during occupational health surveys.

Planning and Construction

New occupational health clinic facilities are planned only by higher authority in accordance with Department of Defense policies. However, it is possible to alter, modernize, or replace existing facilities, if they are functionally or structurally obsolete or inadequate in accordance with established directives. Consult the public works officer, or directives in the 11.000 series on military construction planning and project scheduling. NAVFAC P-80, on "Facility Planning Factors for Naval Shore Activities," especially the section covering dispensaries, may be helpful. Any project that costs over $50,000 must be referred to Congress as military construction, except in emergencies.

Again, the above figures are approximations, and depend to a large extent on local needs. They should not be considered as specific recommendations for any facility.

Medical Equipment

Specific equipment lists are not given because, to a large extent, the need will depend on local factors and the physician's preference.

- *Standard medical equipment.* Besides usual diagnostic instruments, including thermometers, the following should be provided:

  Patient transport equipment: wheeled litters and wheel chairs
  X-ray view boxes
  Beam scale
  Vital capacity apparatus (timed)
  Steam sterilizing facilities
  Facilities for suturing and other minor surgery
  Ear irrigation equipment
  Materials for application of casts
  Assortment of crutches for loan
  Special diagnostic instruments: audiometer, orthorater
  Tonometer

- *Emergency equipment*

  Inflatable splints
  Resuscitator with oxygen
  Pressor agents and blood expanders

- *Electrocardiograph machine.* ECG tracings should be mounted and placed, together with the interpretation, in the patient's file. Appropriate records are kept, similar to the procedure for keeping radiographs.

- *Physiotherapy equipment.* Several modes for physiotherapy treatment are desirable. These may include diathermy, ultrasonic and hydrotherapy apparatus. Such treatment is given only on the physician's order or, in the case of prescribed treatment recommended by a consultant, with the physician's knowledge and approval.

The nurse can usually be instructed to handle such treatments. A prescription form stating mode, intensity, area, duration, and frequency of treatment is helpful. (See "Sample Forms," page 79.)

Night Service

Inevitably, there will be some, and perhaps many, persons working on shifts other than the regular one. The total number working will determine the extent of services necessary at night. In many instances, "standby" personnel (nurse and physician) will suffice; special situations may require on-duty personnel or arrangements with a nearby medical facility. If services are to be provided on station, services of a X-ray technician must be available.

In all instances, however, special care is necessary to provide for proper and complete records and reports of all cases treated outside regular hours. This may be accomplished by providing a brief but precise routine for handling, recording, and referring such patients. A simple form which provides a record of circumstances, treatment and instructions has been developed for this use. (See "Sample Forms," page 79.)

Other Services

Laboratory Service

The clinical laboratory should be equipped to handle routine urinalysis and blood work, and special tests required for periodic evaluations for hazardous occupations.

Necessary equipment for routine cultures for sensitivity should be available. If it is necessary to send some special tests out to other laboratories, extra care should be given perishable specimens.

X-ray Service

A competent technician should be available to evaluate on-the-job injuries; otherwise, it will be necessary to refer many minor injuries.

Routine 14 × 17-inch chest films are preferred for pre-hire and periodic examinations. Films may be lent to private physicians and consultants, provided accurate records are kept of their whereabouts. Patients X-rayed should be listed in the X-ray