Chapter 3

U.S. ARMY HEALTH PROGRAMS AND SERVICES

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INTRODUCTION

Soldiers are considered to be military employees; when they perform work that is separate from their combat duties, they frequently encounter potentially hazardous exposures that are similar to civilian industrial exposures. When soldiers are thought of in this context, the military must address the potentially harmful effects of the work that soldiers do, and the conditions under which they work, just as these are addressed for civilian employees in the federal government and private-sector work force.

Employee health programs and services focus on two interrelated aspects: (1) to prevent or reduce negative interactions between a job and an employee's health, and (2) to provide clinical services to employees. However, differences exist between military and civilian employees in both their eligibility for health services and the manner in which the services are provided. Soldiers are eligible for health services at a medical treatment facility (MTF) for all illnesses and injuries regardless of the cause. Department of the Army (DA) civilians are eligible only for job-related health services and emergency and palliative treatment. Although the Army Medical Department (AMEDD) provides all of the healthcare to soldiers (including employee health services), the only services that are available to civilian employees are those specifically provided in the context of occupational health.

Before 1974, assorted health clinics, occupational health sections, and nursing offices were established by most army installation commanders to provide health services to civilian employees of the army. However, in 1974, the Health Services Command (HSC) was activated and all of the installation clinics, nursing offices, and occupational health sections and programs were incorporated into the local HSC activity. The responsibilities for managing all the aspects of civilian employee health were given to army Preventive Medicine Services within the various HSC activities.

LAWS, REGULATIONS, AND GUIDANCE

Several laws and regulations protect the health and promote the effectiveness of all federal employees—military and civilian—including (*a*) Public Law 79-658, (*b*) the Occupational Safety and Health Act (OSHAct) of 1970, and (*c*) DA regulations. Technical guidance does not carry the same weight as a law or a regulation; it is professional advice published to aid occupational health providers and managers.

Public Law 79-658

The first law that authorized health services for federal civilian employees was Public Law 79-658, entitled *Health Promotion for Government Employees* (also known as 5 United States Code 7901, 1946 as amended). This law authorized, but did not require, federal agencies to establish health-service programs to promote and maintain the physical and mental fitness of their employees within the limits of their appropriations. Public Law 79-658 limited employee health services to

- the treatment of on-the-job illnesses,
- the treatment of dental conditions that require emergency attention,
- preplacement and other job-related health-maintenance examinations,
- the referral of employees to private physicians and dentists, and
- preventive programs related to health.

The Occupational Safety and Health Act

The Occupational Safety and Health Act of 1970 (Public Law 91-596, 29 United States Code 651 *et seq.*) succeeded Public Law 79-658 in addressing occupational health for federal employees. This law requires that all employers provide a safe and healthy working environment for all of their employees. Although the law originally exempted federal employees (both within and without the Department of Defense [DoD]), later provisions included them. For example, Executive Order 12196 (*Occupational Safety and Health Programs for Federal Employees*) and Title 29, Code of Federal Regulations Part 1960, *Basic Program Elements for Federal Employee Occupational Safety and Health Programs* state that (*a*) OSHAct applies to all federal government agencies and (*b*) the Occupational Safety and Health Administration (OSHA) requires federal agencies to establish an occupational safety and health program. Department of Defense Instructions (DoDIs) also direct implementation of the occupational safety and health program for military and civilian DoD employees.

Federal Employees' Compensation Program

The Federal Employees' Compensation Act was passed in 1916; it provides compensation benefits to federal civilian employees for disabilities caused by personal injury or disease that are sustained while job-related duties are being performed. The 1916 Act also provides for the payment of benefits to the employee's dependents if the work-related injury or disease causes the death of the employee. The provisions of the Act and information concerning the administration of the workers' compensation program are contained in *Title 20, Code of Federal Regulations*.[1]

The Office of Workers' Compensation Programs of the U.S. Department of Labor is responsible for administering workers' compensation programs for federal civilian employees. However, two divisions of this office actually administer the program: (*a*) the Division of Federal Employees' Compensation administers the program for *appropriated-fund* employees (that is, those employees who are primarily paid from the monies that Congress appropriates to run the agency); and (*b*) the Division of Longshoremen's and Harbor Workers' Compensation administers the compensation program for *nonappropriated-fund employees* (that is, employees—generally civilians—who work for activities that create their own income by providing services).

Workers' Compensation for Appropriated-Fund Employees

The *Civilian Personnel Office* at military installations is usually responsible for administering the workers' compensation program at the local level for appropriated-fund employees. However, commanders, supervisors, safety personnel, physicians, and nurses all play a role in administering the program. The DA's main objective for the program is to provide—as promptly as possible—all of the benefits to which an ill or injured civilian employee is entitled. The army also is concerned that employees who have recovered from their injuries, either partially or completely, return to work. All army installations are required to establish a light-duty program to accommodate those injured employees who may not be able to work at their regular jobs, but who may perform light-duty tasks. In addition, procedures must be established to bring long-term disabled employees back to work.[2]

The workers' compensation program has other benefits for the appropriated-fund employee. It (*a*) provides for the medical care necessary for the treatment of job-related injuries or illnesses, (*b*) contains a stipulation for the continuation of pay following a traumatic injury, and (*c*) allows for the injured employee to choose a physician.

Under the Federal Employees' Compensation Act, an employee's regular pay can be continued for up to 45 calendar days after a traumatic injury when disability, medical treatment, or both, occur. (A traumatic injury is defined by the Office of Workers Compensation Programs as a wound or other condition of the body that is caused by an external force, including stress or strain.) After the entitlement to continuation of pay is exhausted, the employee may apply for compensation if additional time is needed to recover from the traumatic injury.

The Federal Employees' Compensation Act also entitles an employee to choose among all licensed physicians in private practice or physicians at a federal medical treatment facility. Under this stipulation, the term *physicians* also includes podiatrists, dentists, clinical psychologists, optometrists, and chiropractors; each medical officer must practice within his or her specialty as it is defined by state law. In an effort to reduce civilian workers' compensation claims, the army encourages injured civilian employees to be evaluated initially at a federal MTF and to be treated there if the resources are available. These government facilities are staffed by active-duty medical officers and civilians, and include hospitals of the army, navy, air force, and Veterans Administration. However, when an employee chooses to be treated by a private physician, the staff of the Employee Health Program should monitor the progress of treatment and perform a follow-up examination when the employee returns to work.

The workers' compensation program also provides medical care benefits. These benefits include the examinations, treatments, hospitalizations, medications, appliances, supplies, and transportation that are necessary to obtain adequate medical care.

Workers' Compensation for Nonappropriated-Fund Employees

The Nonappropriated Fund Instrumentalities Act of November 1958 (now known as United States Code 8171-8173) provides workers' compensation coverage for nonappropriated-fund employees under the Longshoremen's and Harbor Workers' Compensation Act. Workers' compensation benefits are provided by a self-insured workers' compensation program managed by the U.S. Army Central Insurance Fund.[3] The services that are provided to nonappropriated-fund employees are similar to those that are provided to appropriated-fund employees under the Federal Employees' Compensation Act. However, the army MTF

responsibilities are limited to providing initial and emergency care without charge; referral to community medical resources occurs if and when further medical care is required as determined by the physician.

Workers' Compensation Claims Procedures

Employees and federal agencies must use specific forms and procedures to initiate claims for traumatic injury, occupational disease, recurrence of disability, and death.[4] Most of the forms include a statement of the purpose of the form, directions for completing and submitting the form, the party responsible for its preparation, the date by which it must be submitted, and to whom it must be submitted.

Regulations and Guidance Applicable to Employee Health

The primary Employee Health Program laws and regulations are listed in Exhibit 3-1. Other publications that pertain to the program are listed in the recommended reading at the end of this chapter.

To ensure effective management of the Employee Health Program, the staff must also develop and maintain administrative documents. A good administrative structure is basic to providing effective employee health services and managing the program.

In addition to the laws and regulations that have already been discussed, other army directives include (*a*) an installation occupational health regulation, (*b*) an occupational health program document, (*c*) standing operating procedures (SOPs), and (*d*) medical directives for occupational health nurses.

Installation Occupational Health Regulations

The installation occupational health regulation, based on the documents in Exhibit 3-1 and published army policies, defines policy and instructions as they apply to that particular installation.[5] At a minimum, this regulation should define the extent of the occupational health program, the eligibility for its services, and the responsibilities of (*a*) the occupational health staff to provide employee health services at the local level, (*b*) all installation occupational health participants such as the safety and civilian personnel officers, and (*c*) the employees who receive the services.

During the development of the regulation, the draft must be passed through all the activities and divisions that have a designated occupational health responsibility. After the local regulation is published, it must be kept current through periodic reviews and updates. Either the occupational health physician or the occupa-tional health nurse or both must contribute to any in-stallation directive that involves occupational health, from its initial development through the staffing stages.

Program Document

Commanders of Medical Centers (MEDCENs) and Medical Department Activities (MEDDACs) are responsible for publishing an occupational health pro-

EXHIBIT 3-1

PRIMARY EMPLOYEE HEALTH PROGRAM REGULATIONS

Department of Labor, Occupational Safety and Health Administration
Title 29, Code of Federal Regulations, Part 1910, *Occupational Safety and Health Standards*[*]

Department of the Army and the Health Services Command
Army Regulation 40-5, *Preventive Medicine*
Army Regulation 40-3, *Medical, Dental, and Veterinary Care*
Health Services Command Regulation 40-30, *HSC Operating Program—Preventive Medicine Program for MEDCEN/ MEDDAC*
Health Services Command Regulation 10-1, *Organizations and Functions Policy*

Office of Personnel Management
Federal Personnel Manual, Chapter 339, Medical Qualification Determinations
Federal Personnel Manual, Chapter 792, Federal Employee Health and Counseling Programs
Federal Personnel Manual, Chapter 810, Injury Compensation
Federal Personnel Manual, Supplement 293-31, Basic Personnel Records and Files System

[*]Published annually

gram document that identifies the preventive medicine services that are available.[6] The document should include the program objectives, target dates for the accomplishment of each objective, methods to achieve the objectives, and an evaluation plan. As an addendum to the Preventive Medicine Services general program document, good management practice dictates that the employee health staff develop and review the Employee Health Program section of the document annually. The Employee Health Program plan and objectives must be consistent with the overall installation and MTF mission, priorities, and resources.

Frequently, the manager of the Employee Health Program will be called upon to (*a*) defend the program against reductions in the budget, personnel, and space; (*b*) justify requests for more resources; and (*c*) assure the commander that the Employee Health Program is helping to accomplish the installation's mission. An up-to-date, meaningful program document, representing both a plan for the future and a report on past performance, will be invaluable in these situations. The successful development and management of a continuing Employee Health Program depends not only on the quality of the program document but also on the extent to which it is followed.

Standing Operating Procedures

The basic management tools for the Employee Health Program, SOPs consist of a written set of instructions and detailed step-by-step operational procedures for accomplishing an organization's specific tasks. An SOP is an internal document and includes only the steps that employees in the immediate organization perform. SOPs assist in training new employees and serve as continuity tools in instances when regular personnel are absent, enabling others to carry on the operation. To be of value, SOPs must be used by the personnel for whom they were intended and updated at least annually.

Medical Directives

Medical directives are the physician's written orders to the occupational health nurse for administering treatment in the physician's absence. Directives must include the steps to follow in providing emergency care and must list the treatments of occupational and nonoccupational illnesses and injuries. Written medical directives are required to assure that emergencies are properly handled in the absence of a physician, to direct medical care for minor incidents that do not require the services of a physician, and to authorize other nursing staff activities such as changing a dressing.

The written medical directives must include instructions for the occupational health nurse to administer *only* noncontrolled pharmaceuticals as a one-time dose (when a nonprescription drug is the treatment of choice). The drugs, selected from a list of only nonprescription drugs, are authorized by the local Therapeutic Agents Board. Instructions for prescription drugs are not included in medical directives because it is not within the purview of usual occupational health nursing practice to administer prescription drugs in the absence of a physician.

Medical directives should be consistent with the anticipated requirements for employee health services and the capabilities of the nursing staff. Thus, the physician should coordinate with the occupational health nurse manager and supervisor to prepare the directives. The physician must sign and date these directives.[5] Occupational health nurses who participate in the preparation of medical directives should cosign them.

Clinical guidelines require periodic review and revision of the directives both as medical knowledge increases and as other changes occur at the installation. At a minimum, the occupational health physician and nurse must review the medical directives annually, and indicate this review with their signatures and the review date.[5]

ORGANIZATION OF THE ARMY'S OCCUPATIONAL HEALTH PROGRAM

The army operates more than 130 individual Employee Health Programs. These programs' missions and structures vary from installation to installation because each installation has specific employee-health needs. There are, however, a few basic designs for these programs.

The position of the Employee Health Program within an organization depends on whether it is collocated with a MEDDAC or MEDCEN, both of which include a hospital and a Preventive Medicine service, or with an Army Health Clinic (AHC), which is located at an installation without a hospital and has no Preventive Medicine service. HSC Regulation 10-1, *Organization and Functions Policy*, prescribes the organization and the functions of AMEDD activities under the command Headquarters, U.S. Army Health Services Command; HSC Regulation 40-5, *Ambulatory Patient Care*, further defines the operations of the AHCs and occupational health clinics. Compliance with these regulations allows the Employee Health Program to operate

within either the Preventive Medicine Service or the health clinic system.

Preventive Medicine Service Employee Health Program

In those installations that have an army hospital, the occupational health section of the Preventive Medicine Service conducts the Employee Health Program (Figure 3-1). Often the occupational health section has no clinical capabilities, but it manages all the administrative aspects of occupational health for both civilian and military employees who work at the installation. The staff of the collocated MEDDAC or MEDCEN performs all of the preventive and clinical services for patients, including treatment and examinations. However, at installations where a mobile occupational health vehicle (MOHV) is assigned, the staff of the occupational health section uses the vehicle to provide preventive services at the worksite (Figure 3-2).

The staff of an occupational health section usually consists of one to three civilian occupational health nurses, a clerk, and often an industrial hygienist, depending on both the size of the population that is to be served and the health services that are required. The occupational health nurse serves as the Employee Health Program manager, except when a full-time physician is assigned to the section.

Physician's assistants with 2 years of postgraduate training in occupational health are assigned to several of the larger U.S. Army Forces Command (FORSCOM) installations, where they serve as program managers for those employee health services that are provided to soldiers.

In the absence of a full-time physician, the chief of the Preventive Medicine Service (if he or she is a physician), or a physician who is assigned to the MEDDAC or MEDCEN in another capacity, may provide occupational medicine support. This type of support is most commonly found at FORSCOM and

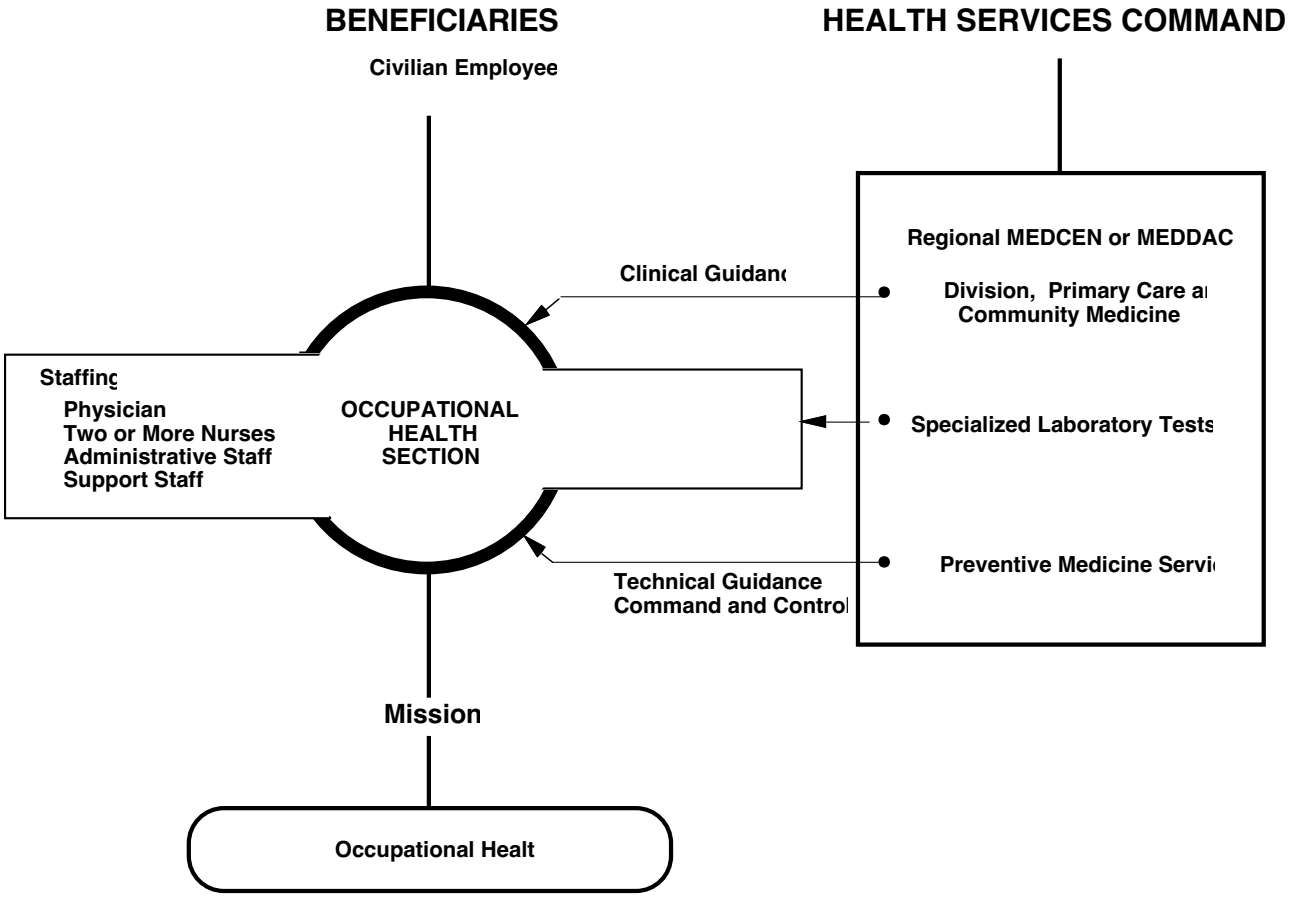


Fig. 3-1. The typical organizational structure for occupational health services on a larger army Training and Doctrine Command (TRADOC) or army Forces Command (FORSCOM) installation with a post U.S. Army hospital.

Fig. 3-2. The mobile occupational health vehicle (MOHV). The staff of the occupational health section use the MOHV to provide preventive health services at the worksite. Often power stations are set up at different locations so the vehicle can be moved from site to site according to a prearranged schedule. The U.S. Army deployed 11 MOHVs to Saudi Arabia during Operation Desert Storm.

U.S. Army Training and Doctrine Command (TRADOC) installations.

Army Health Clinic Employee Health Program

The Employee Health Program is a part of the AHC at U.S. Army Materiel Command installations. The AHC is organizationally located in the Department of Primary Care and Community Medicine of the regional MEDDAC or MEDCEN (Figure 3-3). The staff of the AHC usually includes one or two physicians (either military or civilian), several civilian nurses, and other administrative and support personnel. A physician is the director and possibly also the commander of the clinic. An AHC usually has general radiology and laboratory capabilities. With these staff and tools, the AHC's mission is to deliver both the civilian Employee Health Program and outpatient healthcare services to active-duty soldiers, their dependents, and retirees. The regional MEDDAC or MEDCEN also provides support such as specialized laboratory tests or audiology consultation when it is needed.

Although providing employee health services to civilian employees who are assigned to the installation can be a major part of the clinic's mission, managing the civilian Employee Health Program is often an additional, secondary responsibility. The Employee Health Program is usually integrated into the AHC's overall services, and the entire staff provides the employee health services. Often, one of the civilian physicians and several of the civilian nurses will be designated with the prefix *occupational health* on the Table of Distribution and Allowances, the official staffing document that identifies all positions, including specific clinic positions.

Each Employee Health Program should have a designated program manager; this is usually the senior occupational health nurse. In clinics where there is no actual position for an occupational health physician, one of the clinic physicians is assigned the responsibility of providing occupational medical consultation to the Employee Health Program. Other staff members may be assigned particular occupational health responsibilities, such as administering the hearing conservation program. The Department of Primary Care and Community Medicine manages the clinical aspects for most AHCs, but the supporting MEDDAC or MEDCEN Preventive Medicine Service provides technical guidance and support for occupational health.

Occupational Health Clinics and Nursing Offices

Occupational health clinics are medical treatment activities whose primary missions are to provide occupational health services to military and civilian employees who work at the installation, and sick-call services to service members located in the immediate area (Figure 3-4). A physician heads this separately established operation, with a staff including civilian nurses and support personnel. The army has nine designated occupational health clinics. They are lo-

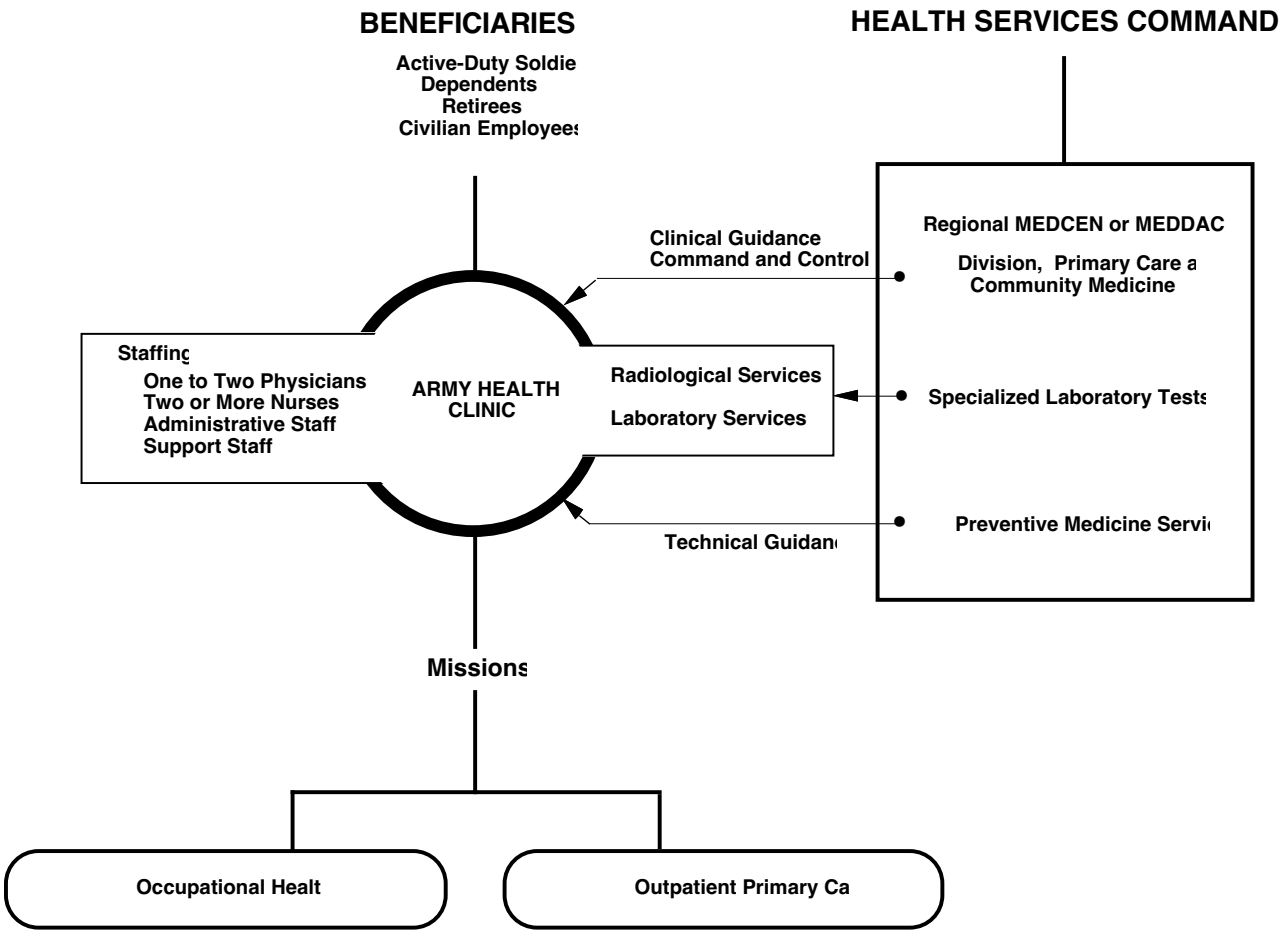


Fig. 3-3. The typical organizational structure for a U.S. Army health clinic at an installation without a post U.S. Army hospital, where primary care is the predominant healthcare mission.

cated at small installations such as the U.S. Army Natick Research Development and Engineering Center, where most workers are civilian and few military medical beneficiaries are in the area.

Occupational health nursing offices are similar to occupational health clinics but they lack a full-time physician (Figure 3-5).[7] These occupational health nursing offices are usually organizationally a part of the Preventive Medicine Service; most are located in leased federal office buildings in and around Washington, D.C.

Health Program Staffing

According to regulations of the army and the Office of Personnel Management, Employee Health Programs must be adequately staffed.[5,8] The size and experience of the staff of an occupational health section (or Employee Health Program, occupational health clinic, occupational health nursing office) depend on the population to be served, type of installation, range of employee health services provided, and availability of the resources.

All Employee Health Programs require at least one full-time civilian occupational health nurse, either a full-time or part-time physician, and clerical support. DA Pamphlet 570-557 provides guidance for determining staff requirements.[9] The pamphlet defines the civilian or military staffing levels that the army recommends for the Employee Health Program, regardless of the program's administrative structure.

Army Regulation (AR) 611-101 describes the commissioned officer's qualifications according to the *specialty skill identifier* (that is, a two-component numeric-alpha description that identifies the skills needed for a particular job).[10] For example, an active-duty occupational medicine officer is a 60-D. The *Office of Personnel Management Handbook X-118* describes the qualifications for each civilian General Schedule (GS) job series.[11]

The Civilian Personnel Office provides guidance and establishes local procedures for all civilian per-

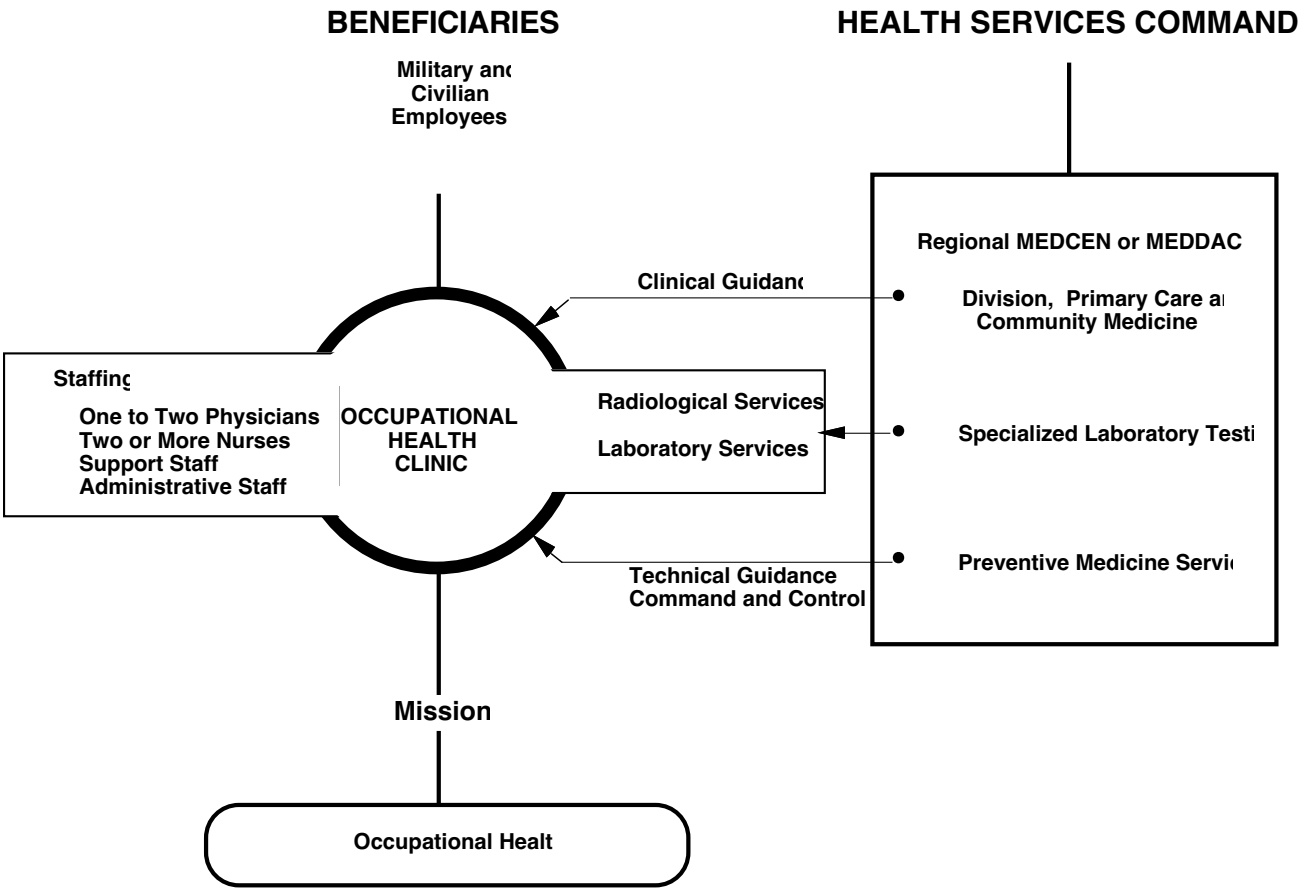


Fig. 3-4. The typical organizational structure for a U.S. Army occupational health clinic at an installation without a post U.S. Army hospital, where occupational health is the predominant healthcare mission.

sonnel administrative requirements. For example, a job description must accurately specify the functions of each position. Both the Civilian Personnel Office and the job supervisor are responsible for preparing each civilian employee's job description. The Civilian Personnel Office defines the technical aspects of the job description and the supervisor defines the job functions and supervisory controls. In addition, performance standards, which are based on the duties delineated in the job description, are required for all civilian staff members. The supervisor defines the acceptable level of performance for major duties, and these standards are used as a basis for evaluating an employee's job performance.

Once professional and technical personnel are assigned to the occupational health area, they are responsible for maintaining their own current licensure and certification according to legal and professional requirements. Each individual is responsible for his or her own continuing education.

The Occupational Health Physician

Either a military or civilian physician may fill the position of occupational health physician; however, their qualifications are different. While the MEDDAC or MEDCEN credentialing committee must approve both military and civilian occupational health physicians for clinical privileges as an occupational health physician,[12] civilian physicians must also meet the Office of Personnel Management's minimum qualifications for the position. In addition, training or prior experience in the field of occupational health is desirable for occupational health physicians.

Whether a military officer or a civilian, the occupational health physician can be assigned as a part-time or full-time member of the Employee Health Program staff. Usually a military physician is assigned part-time occupational health duties. (This arrangement is usually found at FORSCOM and TRADOC installations.) This part-time participation is seldom adequate

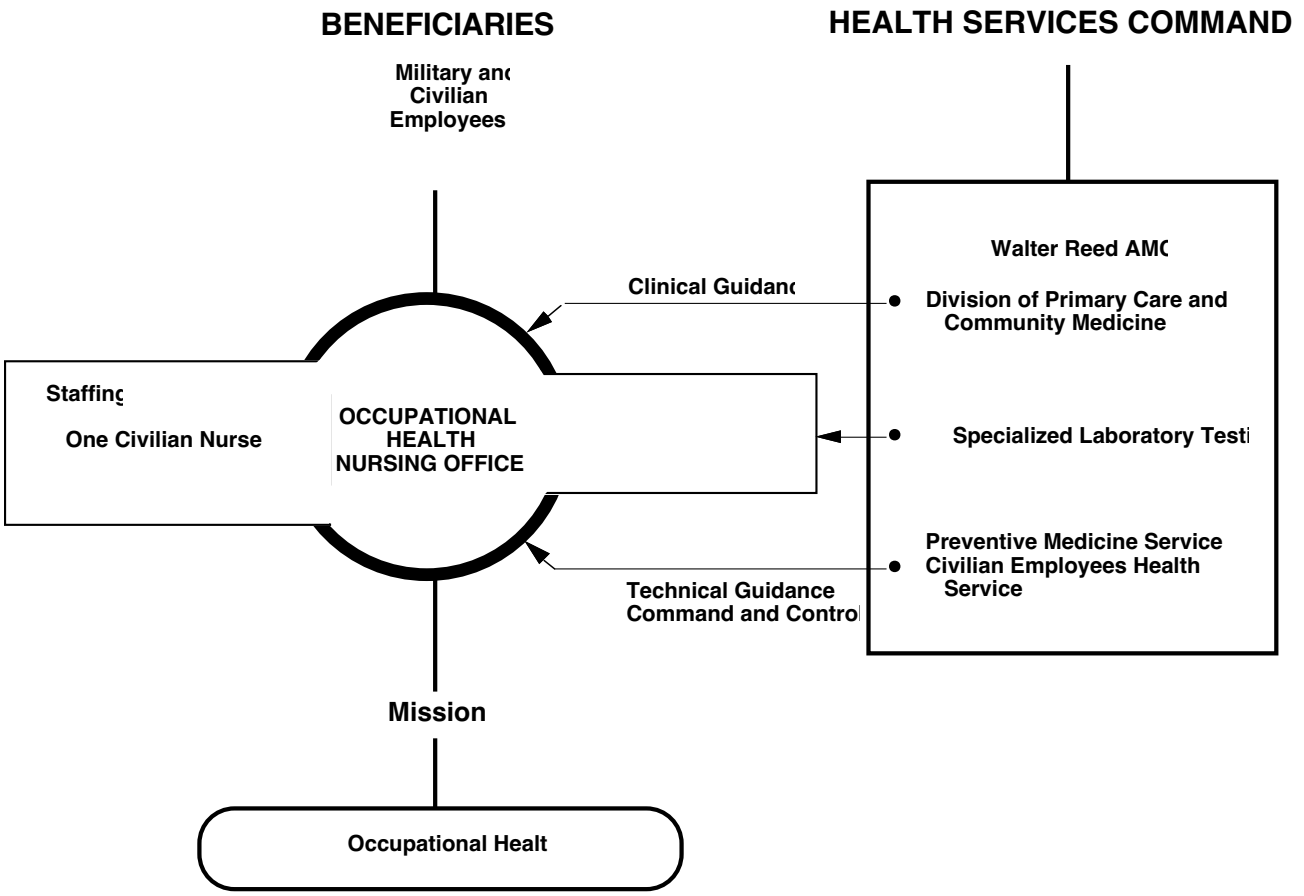


Fig. 3-5. The organizational structure of U.S. Army occupational health nursing offices in the Washington, D.C., metropolitan area.

because providing occupational medicine support for the Employee Health Program is added to the physician's primary assignment as a medical officer at the MEDDAC or MEDCEN.

The Occupational Health Physician's Assistant

The MEDDAC or MEDCEN credentialing committee must approve the military or civilian occupational health physician's assistant for clinical privileges.[12,13] Once physician's assistants have been approved to practice, they must be supervised by a physician.[12]

In recent years the army has provided additional education—a master's degree in occupational health—to selected military physician's assistants. The original purpose of training physician's assistants in occupational health in the army was to provide health services at the unit level to ensure soldiers' combat readiness. The role of the military occupational health physician's assistant has yet to be clearly defined; however, physician's assistants have functioned in various capacities (for example, as managers of the Occupational Health Program for soldiers or, infrequently, as managers of the overall Occupational Health Program for civilians and military personnel) when assigned to the MEDDAC at FORSCOM installations.

The Occupational Health Nurse

Occupational health nurses are civilian registered nurses who meet the minimum qualifications as mandated by the Office of Personnel Management. MEDDAC or MEDCEN clinical privileges are not required for occupational health nurses who practice within the usual limits of occupational health nursing. In addition to the basic nursing preparation, the nurse should have specialized training such as formal academic programs or short courses in occupational health. These educational programs should emphasize management principles; industrial toxicology; the cause, prevention, control, and treatment of occupational diseases; the principles of industrial hygiene and epidemiology; the concepts and practices of job-

related medical surveillance; and the legal and regulatory aspects of occupational health.

Ancillary Staff

The organization of the occupational health section determines whether ancillary personnel (such as licensed practical nurses, nursing assistants, medical technicians, occupational health technicians, laboratory technicians, and X-ray technicians) need to be assigned. MEDDAC or MEDCEN optometric and audiometric technicians may also provide significant support to the program. Depending on the technician's level of education, he or she could manage selected elements of the occupational health program such as hearing conservation.

MEDICAL RECORDS MANAGEMENT

Medical records and reports include (*a*) occupational medical records (cumulative individual medical records), (*b*) workers' compensation records (medical), and (*c*) administrative records and reports. The occupational medical record (civilian employee medical records and the military outpatient treatment records are types of cumulative individual medical records) and administrative reports are required by the Employee Health Program

An occupational medical record is the chronological, cumulative record of information about the developing health status of an employee with respect to his or her employment. Occupational medical records must contain personal and occupational health histories, employee exposure records, and the healthcare professional's written opinions and evaluations during the course of employment-related examinations, diagnoses, and treatments. In the military outpatient treatment record, the occupational health record consists of entries that are related to the soldier's work.

Occupational Medical Records

Civilian employee medical records and outpatient treatment records (for military personnel) serve as the occupational medical record. The purpose of any medical record is to document a complete medical history of the patient and his or her care, medicolegal support for the therapy that was given, and a basis for research and education. In instances when a civilian employee has dual status—such as a retired military member or the dependent of a retired or active-duty military member—that employee will also have both a civilian employee medical record and an outpatient treatment record. Each record will be marked or coded clearly to indicate this dual status and to facilitate the identification and reporting of job-related injuries and diseases.

The MTF commander is the official custodian of the medical records at the facility, but the chief of the patient administration division acts on behalf of the commander in matters that involve medical records. Both the civilian employee medical records and the outpatient treatment records should be maintained, by personnel trained in record keeping, in an MTF area designated for medical records.

The *Federal Personnel Manual Supplement 293-31, Basic Personnel Records and Files System,* is the major regulation that pertains to civilian employee medical records; AR 40-66 applies to outpatient treatment records; entries into all occupational medical records are made in accordance with AR 40-66.[14] This regulation contains guidance on recording injuries and includes a requirement to identify occupational injuries or illnesses as *occupational* in the medical record.

The *Report of Medical History* (SF 93) is used to obtain a health history from all civilian employees and to initiate a medical record on employment. (Exceptions can be made for transient nonappropriated-fund employees such as food-handlers.) Once the medical record is initiated with the SF 93, it is to be kept in the terminal digit series folder, *Alphabetical and Terminal Digit File for Treatment Record* (DA Form 3444), or in the *Employee Medical Folder* (SF 66-D). When an employee either transfers to another federal agency or is separated from federal service, the civilian employee medical record is transferred or retired in the SF 66-D. If the civilian employee medical record has been maintained in a DA Form 3444 during the individual's employment, the personnel responsible for maintaining the civilian employee medical record must ensure that a signed *Privacy Act Statement-Health Care Records* (DoD Form 2005) is transferred or retired with the record.

In general, only standard forms (that is, those forms that are authorized by HSC, DA, and DoD) are used in medical records. The MTF commander must approve any locally-developed form or overprint before it is placed in the medical record. In addition to standard forms, a copy of the Office of Workers' Compensation forms related to medical treatment must be maintained in the medical record.[15] These forms include

- Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay / Compensation (CA-1),

- Federal Employee's Notice of Occupational Disease and Claim for Compensation (CA-2), and
- Request for Examination and/or Treatment (CA-16).

When a civilian employee separates from federal service or transfers to another federal agency, the civilian employee medical record is usually forwarded to the Civilian Personnel Office in the SF 66-D. The Civilian Personnel Office retires the record to the National Personnel Records Center when an employee separates from federal service, and forwards it to the gaining agency when an employee transfers.

Transferring and maintaining job-related X-ray films require special procedures. If it is 8½ x 11 in. or smaller, the film is placed in the medical folder (SF 66-D) and retired or forwarded as part of the medical record. However, if the job-related X-ray film is larger than 8½ x 11 in. (such as a roentgenogram of a patient's chest and torso), it must be maintained separately from the SF 66-D. When an employee separates from federal service, the large films are maintained in their original state at the last employing agency for 30 years beyond the termination of employment. The medical record must also contain a notation on the radiologist's findings, the location of the radiograph, and how it can be obtained. If the employee is transferring to another federal agency, the large films are simply forwarded to the gaining agency.[15,16]

Like any other medical record, the civilian employee medical records must be maintained in strict confidence. However, OSHA regulations allow the employee, his or her representative as designated in writing, and OSHA representatives (compliance officers and National Institute for Occupational Safety and Health [NIOSH] personnel) to examine or copy medical records or medical information that bears directly on the employee's exposure to toxic materials and harmful physical agents such as radiation and noise.[16,17] This access is strictly limited and does not include access to any health information that is unrelated to exposure.

Medical Reports for the Employee Health Program

The MTF commander is responsible for submitting several recurrent reports that require occupational health data. The chief of the patient administration division is responsible for establishing procedures for retrieving data for all required reports, and must coordinate with the chief of the Employee Health Program to identify and ensure that all occupational health reporting requirements are met. While the staff of the Employee Health Program may or may not actually compile these periodic reports, they should be aware of the data that are required and the purpose for their collection. The primary MTF reports that require occupational health data include the *Army Occupational Health Report* (DA Form 3076); the *Medical Summary Report* (MSR), RCS (Requirement Control Symbol): MED-302; the *Management Indicators for Occupational Health (MIOH) Feeder Report* (RCS SAOSA-220); and the Command health report. Two additional reports to which Employee Health Program personnel may contribute include the *Special Telegraphic Reports* [RCS MED-16(R4)] and the *Log of Occupational Injuries and Illnesses*.

The installation, MEDDAC personnel, and higher headquarters (HSC and the U.S. Army's Office of The Surgeon General [OTSG], and the installation's major command) review and evaluate the Employee Health Program using the data in DA Form 3076, which the Employee Health Program staff must prepare and submit biannually.[6] DA Form 3076 contains information about Employee Health Program staffing, the civilian and military population at risk for potential health hazards in the work environment, and the number and types of occupational health services that the Employee Health Program provides. DA Form 3075 is used to collect these data. Instructions for completing both DA Forms 3075 and 3076 are on the reverse sides of the forms.

The MED 302 Report is one of the components of the DA medical information system that the MTF, intermediate headquarters (such as MEDDACs or MEDCENs), The U.S. Army Surgeon General, and other government agencies use for evaluating budget requests, planning programs, controlling management, analyzing manpower requirements, making authorizations, and planning facilities. Each army MTF must submit the MED 302 Report every month to provide a timely and accurate medical summary of the services that the entire MTF provides. A deficiency of this report is that it does not fully recognize the workload of the preventive medicine services, but concentrates only on the services that are provided to ill patients. The chief of the patient administration division usually requests specific data from the Employee Health Program staff to formulate this report.

Local program managers and higher headquarters use the specific data in the *MIOH Feeder Report* when they analyze and review occupational health in the army. The report reflects the numbers of occupational health staff, the population at risk, and the program evaluations that have been performed. Data concern-

ing the Industrial Hygiene and Hearing Conservation programs are provided, in addition to data regarding the Employee Health Program. All MEDCENs and MEDDACs that provide health services for active-duty soldiers and civilian employees must prepare an *MIOH Feeder Report* for their health-service area biannually.[18]

Each month, every installation's Medical Authority (that is, the senior physician assigned to the MEDDAC at the installation) is required to provide the installation commander with the Command health report.[5] Although there is no specific format required for this report, it summarizes the conglomerate health status of the command and the people who comprise the command. The Command health report provides

- information regarding health conditions within the command;
- recommendations for, or descriptions of, actions taken to improve health conditions;
- advice to higher headquarters regarding the support needed to implement the recommended actions; and
- information regarding outstanding accomplishments, new developments, and trends.

The *Special Telegraphic Reports* [RCS MED-16(R4)] are unique reports that provide epidemiological data and the results of epidemiological investigations on selected health conditions, disease outbreaks, deaths, and attempted suicides. These reports include the *Special Telegraphic Report of Selected Condition*, the *Special Telegraphic Report of Reportable Outbreak*, and the *Special Telegraphic Report of Reportable Death*.[19] Preventive medicine personnel have used the MED-16 report extensively to document outbreaks of infectious disease. However, it is equally important to notify higher headquarters of outbreaks of injury or disease, or unusual occupation-related health events, such as one or more cases of overexposure to ionizing or nonionizing radiation, or if two or more persons have been removed from their jobs as a result of abnormal job-related medical surveillance tests. The submission of any of these reports requires liaison among Preventive Medicine staff (including the Employee Health Program staff), the patient administration division, and other medical staff.

All federal agencies are required to collect occupational injury and illness data and to record these in the OSHA Log of Federal Occupational Injuries and Illnesses.[20,21] Although the installation's safety officer usually has the primary responsibility for collecting data and maintaining the log, coordination with the occupational health staff and the local Federal Employees' Compensation Act Program administrator is essential to ensure that the data are complete. The safety office should report all of the following in the log:

- occupational illness,
- job-related injuries that resulted in death or disability,
- job-related injuries that caused employees to lose time at work (other than the day on which the injuries occurred), and
- job-related injuries that required medical care.

MEDICAL SURVEILLANCE

The two principal missions of occupational health in the army are not distinctly separate, but they are very different: (1) reducing negative job-health interactions is *preventive* and applies to the general population of workers, as well as to the individual worker; and (2) providing healthcare services is *clinical* and applies to the individual employee as a patient. These elements of the Employee Health Program can be discussed separately. A basic tool for the preventive aspects of occupational health is *medical surveillance.* Job-related medical surveillance in the field of occupational health consists of systematically and periodically collecting and analyzing health data on groups of employees for the purpose of early detection of the increased risk, or the actual presence, of negative job-health interactions. Medical surveillance can be used to achieve

- primary prevention, which is oriented to preventing the risk;
- secondary prevention, which is oriented to reducing or preventing the exposure; and
- tertiary prevention, which is oriented to reducing or preventing long-term impact of the health effect.

When using medical surveillance as a primary or secondary prevention tool, we view the individual as an employee. When we use medical surveillance for tertiary prevention, we view the individual both as an employee and as a patient. The surveillance results are used for the diagnosis and treatment of the clinical condition and to indicate that a change (for example, light duty) is needed in the workplace.

Primary prevention is defined as

> a means of preventing the occurrence of illness or injury; for example, by immunization against infectious disease and by using safety equipment to protect workers in hazardous occupations.[22]

It seeks to reduce or eliminate risk through intervention before exposure to that risk. Thus, when the risks that are associated with a particular job and the health characteristics of the employee that place the employee at increased susceptibility to those risks can be determined, then medical surveillance can be used to identify those employees who will be at the greatest risk, and prevention can be directed at these employees. Of course, prevention cannot be effective until the data from surveillance are used to enforce a change, thereby reducing the occupational risk.

Primary prevention seeks to reduce or eliminate the risk by avoiding exposure. For example, it can be as simple as performing glucose-6-phosphate dehydrogenase (G6PD) tests on all who might be exposed to nitrate-containing compounds, such as the explosives RDX and M6 (a propellant used for artillery). Exposure to nitrates can cause methemoglobin to form; the G6PD enzyme converts methemoglobin back to hemoglobin. Individuals with the genetically determined G6PD-enzyme deficiency (such as those of Mediterranean heritage) may be unable to make the conversion rapidly enough to prevent signs of methemoglobinemia. Therefore, a one-time preplacement surveillance for G6PD levels can prevent the worker from being exposed, and thus avert the risk of methemoglobinemia by taking preventive action based on the findings.

Secondary prevention includes both detecting deleterious health effects and intervening before an illness becomes clinically apparent, with the goal of retarding, halting, or reversing the progress of the illness. Medical surveillance can be used in secondary prevention to detect job-related health effects prior to the onset of clinical disease. Surveillance becomes a secondary prevention tool only when the data collected are used to guide interventions that are effective. Other than in hearing conservation, there have been no systematic efforts to conduct medical surveillance for soldiers, with the exception of the routine physical examinations required to remain on active duty.

During the demilitarization of the chemical agent BZ (one of the incapacitating chemical warfare agents), the workers were enrolled in a very strict medical surveillance program to assure that early signs and symptoms of exposure to BZ would be detected. Important to this program was the measurement of the size of the workers' pupils before and after they entered the chamber. BZ exposure causes mydriasis; while mydriasis is not in itself incapacitating, it is one of the most sensitive indicators of exposure. Not until a worker was actually seen with mydriasis one afternoon was it learned that the procedures used by the workers to decontaminate themselves after their workshifts might be inadequate. Not realizing that her hands could have been contaminated, the worker passed her hands over her hair and over her eyes as she showered, transferring the BZ directly. The amount of BZ was so small that only direct contact with her eyes could have caused her pupils to enlarge. Therefore, showering procedures were changed; the workers were instructed to assume that their hands were potentially contaminated, and to wash them first. In this instance, medical surveillance was an effective secondary prevention tool; it did not prevent exposure, but it detected the physiological effect of exposure before an important clinical event occurred.

Tertiary prevention includes both the detection and treatment of an illness, or the rehabilitation of an injured or ill person, sufficiently early in the course to decrease the long-term impact that the illness or injury may have on that individual. Medical surveillance is a tertiary prevention tool when it is used to (*a*) document that the job has already affected an employee's health or (*b*) demonstrate that an employee is not fit for duty after an event has occurred.

The following example demonstrates medical surveillance in its primary, secondary, and tertiary prevention roles. Carpal tunnel syndrome (CTS) is a condition associated with certain repetitive-motion occupations such as keyboarding. A medical surveillance program for keyboard operators could include disqualification of any individual who reports previously existing CTS on preplacement history. For this job, exclusion serves as primary prevention. The program would also include limited annual histories for all keyboard operators to detect the early symptoms of CTS. Any positive findings (for example, subclinical tingling in the fingers) would be followed up by actions to determine workplace practices and to rule out clinical disease. This medical surveillance program serves as secondary prevention when it has detected subclinical findings and the Employee Health Program staff has taken action to prevent further exposure. The same program serves as tertiary prevention when a worker presents with clinical signs of CTS and the actions taken in the workplace are done to prevent further exacerbation of the condition

Medical surveillance is prospective and ongoing in nature. Effective, efficient, and economical job-related medical surveillance must encompass (*a*) the design of

the surveillance program, (*b*) the performance of medical screening, and (*c*) the use of the surveillance data. The occupational healthcare professional must fully understand that medical surveillance and medical screening are two different concepts (Table 3-1). Medical *screening* is the one-time determination of the presence or absence of a health characteristic in an individual or a group at risk. Medical screening is cross-sectional and periodic. Only rarely have one-time abnormal screenings demonstrated job–health interaction.

Lead exposure and its medical indicators illustrate the concepts of medical screening and medical surveillance. Blood-level determination is an excellent screening tool for lead exposure because an elevated value of lead in the blood is related both to exposure and to lead's biological effects. There are two action levels for lead. The first is the environmental exposure (currently, 30 $\mu g/m^3$ as a time-weighted average), which determines when blood-lead screening must be initiated. The second is a blood-lead screening level of 60 $\mu g/dL$, which requires removal from the lead exposure and more frequent screening until the individual's blood lead level drops below 40 $\mu g/dL$.

Clearly, screening for lead is effective in situations where excessive exposure to lead, and elevated blood levels of lead, occur. One-time, *normal* blood levels of lead are of little use. However, if screening is conducted over time (for example, 5 years), even though measured workplace levels of lead do not exceed the action level, slowly rising normal levels can be detected. Steps can then be taken to control lead exposure *before* any individual worker is adversely affected. Careful screening together with directed actions constitute effective medical surveillance. Therefore, determining a blood level of lead is medical screening, whereas comparing blood lead levels over time, whether the results are normal or abnormal, is medical surveillance.

TABLE 3-1

MEDICAL SCREENING VERSUS MEDICAL SURVEILLANCE

Characteristics	
Screening	**Surveillance**
Cross-sectional	Prospective
Singular	Longitudinal
Focuses on absolute values (normal or abnormal)	Focuses on trends

Determining the Need for Surveillance

Designing an effective surveillance program and tailoring it to a given group of workers begins with determining (*a*) the reason for the surveillance and (*b*) the health characteristics that should be monitored. For these purposes, all employees can be divided into three basic groups.

Group 1

The first group of employees perform jobs that require minimal physical exertion and have little potential for exposure to job-related hazards. Medical surveillance for these employees is limited to periodic screening to ensure that the workplace remains safe and the employees remain healthy.

Group 2

The second group of employees are those whose health or fitness status must be sufficient for them to be able to (*a*) perform their work safely and effectively, or (*b*) wear the personal protective equipment (PPE) required at a worksite. For example, a driver should not have any condition that could incapacitate him while he transports hazardous cargo. Thus, medical standards for this job might include the absence of insulin-dependent diabetes mellitus, and a medical surveillance program would screen the driver for diabetes. (Discrimination against the medically handicapped is not at issue here, if it has been documented that the medical condition will indeed compromise the job.)

The key to designing medical surveillance for these employees is to maintain clearly defined medical standards. In the army, the staffs of Employee Health Programs do not have the authority to publish medical standards, especially if employees must meet these standards if they are to retain their jobs. The sole authority for medical standards belongs to the Office of Personnel Management through the Civilian Personnel Office. However, physicians should work closely with personnel officers to develop medical standards when appropriate.

Performance-related medical standards that address required capabilities are preferred to *specification*-related medical standards, which require documentation of the absence of specific results of screening tests. For example, a medical surveillance program should be designed to ensure that employees who are required to wear respiratory protective equipment are physically capable of doing so. Disqualifying factors for wearing a respirator safely could include wearing

a beard (which would compromise the seal) and abnormal or borderline pulmonary function.

An appropriate performance-related medical standard could state that any employee required to wear a respirator (*a*) not wear a beard and (*b*) have no evidence of compromised pulmonary function. In this case, the occupational health physician might decide that he or she will determine the presence or absence of compromised pulmonary function, especially in a younger population, merely by talking to and observing the employee periodically.

On the other hand, a specification-related medical standard could indicate that pulmonary function tests must be performed annually, and that an employee with an FEV_1 (forced expiratory volume in 1 sec) lower than 70% of that expected for the employee's age group would be removed from the job. This specification-related medical standard requires unnecessary testing and also raises insurmountable quality assurance, medicolegal, and ethical difficulties. Fortunately, few published medical fitness standards exist. The army's Employee Health Program staffs have the opportunity and the responsibility to work closely with management in developing local medical fitness standards that are tailored to individual installations.

Group 3

This group of employees works with potential chemical, physical, or biological hazards and require med-ical surveillance for the following reasons:

- to meet requirements where workplace exposures exceed one of the federal exposure standards,
- to detect exposure-related health effects early,
- to monitor the effectiveness of the controls, and
- to monitor the extent of the exposure.

Several acceptable means exist for tailoring job-related medical surveillance for this group of employees. Medical surveillance can be based on job titles, worksites, or documented exposures and individual susceptibility.

Designing Medical Surveillance

A medical surveillance program that is based solely on the assumption that exposure has occurred is unlikely to be cost effective. Numerous factors contribute to determining the need for and content of medical surveillance:

- The assumption that a worker might have been exposed does not mean that a biologically significant dose will also have been received.
- The assumption that a biologically significant dose has been received does not necessarily mean that the dose will have been sufficient to cause a negative health effect.
- Likewise, the assumption that a negative health effect has occurred does not mean that an appropriate screening test also exists.

The level of exposure sufficient to trigger concern for a group of employees is sometimes difficult to determine. However, if an obviously uncontrolled exposure is occurring, preventive medicine dictates that action be taken to alleviate the exposure without screening for health effects. Where uncontrolled exposure has not been documented, the probability that health effects can be demonstrated through surveillance is very low. Basing the need for surveillance on the assumption that any exposure will cause negative health effects is neither cost effective nor sound practice of occupational medicine.

Other factors further complicate surveillance design. We cannot assume that all subjects in a given population will be exposed identically; also, we cannot assume that they will respond to exposure identically. For example, in an army ammunition plant, two workers standing side by side at an assembly line may be exposed to completely different levels of propellant for so simple a reason as a difference in the air flow. Even if they were exposed identically, the two might not demonstrate the same toxic effects. Nitroglycerin unintentionally inhaled or ingested in the workplace has exactly the same biological effect, vasodilation, as nitroglycerin taken as a prescribed medication. One worker might be very susceptible, due to his cardiovascular status, while a coworker could be completely unaffected.

Once an exposure justifies medical surveillance, other assumptions must be made concerning the effects on health. First, most toxic substances affect specific organ systems in specific ways. Often the toxicity of the substance depends on the route of exposure, and health effects vary with the level and the duration of exposure. Standard toxicology textbooks usually list all the effects on health that are associated with a given poison. If the staff of the Employee Health Program designs a screening program to demonstrate the absence of every toxic effect a particular agent might cause, the staff will, in effect, be trying to prove a negative. Such a program will be neither cost effective nor useful.

Instead, the occupational health physician must use professional judgment to determine the organs most likely to be affected if a negative job-health interaction has occurred. The OTSG has accepted criteria for determining the most likely sentinel toxic effects, including

- the health effect on which the OSHA permissible exposure limit (PEL) or the American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Value (TLV) was originally based,
- any health effect demonstrated to occur after exposures to airborne levels up to twice the PEL or the TLV, and
- any health effect in animals, if the exposure was up to twice the PEL or TLV, and if other related chemicals are known to cause similar health effects in humans.

Some employees may require job-related medical surveillance to meet minimum medical standards, as in the case of the second group of employees described above, and due to potentially hazardous exposures, as in the case of the third group. Although it makes good sense to conduct all required surveillance concurrently, the occupational health practitioner must assure that the principles outlined for both groups of employees are applied.

Determining the Screening Content

After the need for medical surveillance has been determined, the content of the surveillance must be designed.

Medical Surveillance Screening Tools

Four medical screening tools are available: (1) the interim history, (2) a limited physical examination, (3) diagnostic laboratory screening, and (4) biological monitoring. The effectiveness of these tools is measured by their sensitivity, specificity, cost, acceptability, ease of use, accuracy, and reproducibility (Table 3-2). Few screening tools meet all criteria for widespread use.

Figure 3-6 provides a visual presentation of the relationships among sensitivity, specificity, and positive predictive value. *Sensitivity* is the percentage of positive test results in a population that has the characteristic being tested (true positives). *Specificity* is the percentage of negative test results in a population that does not have the characteristic being tested (true negatives). *Positive predictive value* depends on the specificity of the test and the prevalence of the condition in the population. Quite simply, positive predictive value is the percentage of true positives among all positives. However, in the case of job-related medical surveillance, positive predictive value and true positives must also take into account the specific etiology of the specific effect (that is, the job-relatedness). A patient's liver-function test may be abnormal, but when considering the patient as an employee, this abnor-mality is relevant to occupational health only if the abnormality is caused by a job-related exposure.

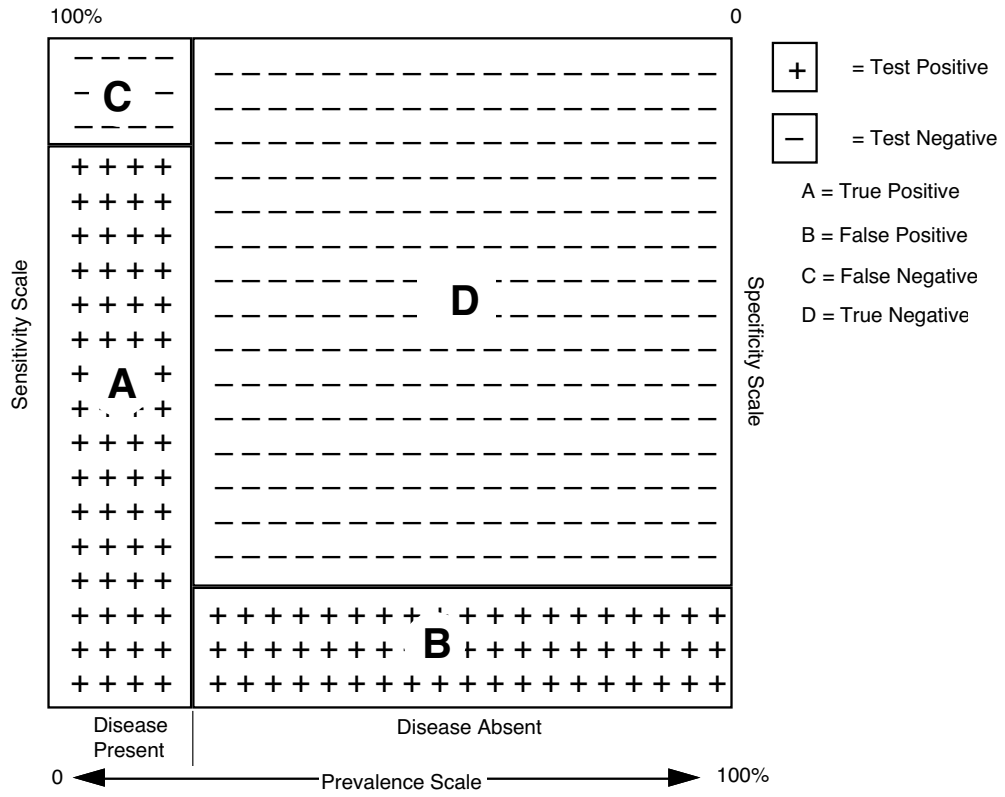
To expand further on this example, liver-function tests can be demonstrated to have very low positive predictive value for job-related medical surveillance. Assume that a worker population has a 5% prevalence of job-related liver disease, and that liver-function tests have 100% sensitivity. Also assume that liver-

TABLE 3-2

STRENGTHS AND WEAKNESSES OF MEDICAL SCREENING TOOLS*

	Interim Medical History	Limited Physical Examination	Laboratory Procedure	Biological Monitoring
Sensitivity	+	+/–	++	++
Specificity	+	+/–	– –	++
Low Cost	++	++	+/–	+/–
Acceptability	++	++	+/–	+/–
Ease of Performance	++	++	+/–	+/–
Accuracy	+/–	+/–	++	++
Reproducibility	+/–	+/–	++	++

*Assumes adequate clinical skills and state-of-the-art technology



Sensitivity: the probability that if someone has the disease, he or she will test positive. Sensitivity $\frac{A}{A+C}$

Specificity: the probability that the test will be negative given the absence of the disease. Specificity $\frac{D}{B+D}$

Positive Predictive Value: the probability that someone with a positive test will actually have the disease. Positive Predictive Value $\frac{A}{A+B}$

Negative Predictive Value: the probability that someone with a negative test will not have the disease. Negative Predictive Value $\frac{D}{C+D}$

Fig. 3-6. A visual representation demonstrating the mathematical relationships among positive and negative test results and disease presence or absence. The relationships are dependent on test sensitivity and specificity and on disease prevalence. Figure: Courtesy of David F. Cruess, PhD, Professor, Department of Preventive Medicine and Biometrics, F. Edward Hébert School of Medicine, Uniformed Services University of Health Sciences, Bethesda, Md; 1993.

function tests have a specificity of 90%. The results of 100 liver-function tests in this population would be 5 true positives and 10 false positives. The positive predictive value would be 5 true positives out of a total of 15 positives, or 33%. This example does not include the prevalence of non–job-related liver disease (certainly not an uncommon entity), which would reduce the positive predictive value for job-related disease even further. Using low-specificity screening (such as liver-function tests) often results in expensive, time-consuming follow-up. Obviously, selecting a more specific screening tool is one solution to this problem. Being very specific in the population selected for screening (that is, doing liver-function tests on those workers who report changes in alcohol tolerance and are known to be exposed to hepatotoxins) is another.

The most valuable medical screening tool is the interim occupational and medical history, which is used throughout the employee's participation in the Employee Health Program. In most cases, the interim history constitutes the only screening necessary for medical surveillance because the army's workforce is relatively healthy and job-related illnesses are rare. A well-constructed interim history can

- confirm information about an individual's job,
- confirm the employee's use of personal protective devices,

- confirm exposure history,
- determine possible changes in health status,
- determine the need for further screening,
- establish an appropriate relationship with the employee,
- observe the employee for signs of decreased fitness, and
- provide the employee with job-specific health education.

A limited physical examination directs the physician to look for specific findings that the interim history or published medical standards have already suggested. By limiting the examination to target organs, the specificity increases and the examination becomes useful for medical surveillance. But simply instructing a physician to administer an examination with emphasis on a specific organ system does not always direct the physician sufficiently. For example, published medical surveillance guidance for workers who are exposed to isocyanates recommends an annual examination "with emphasis on the respiratory system."[23] Such guidance is inadequate. If the examining physician is unaware that isocyanates are pulmonary sensitizers that cause job-related asthma, he or she may examine the patient on Monday morning (before exposure has occurred) and note normal findings on chest auscultation. But if the physician had been advised to listen for wheezing after exposure to isocyanates, the examination could have been conducted after the worker was exposed on Wednesday afternoon. This examination, directed toward a specific finding, might also be quicker and easier. Just examining the chest is completely different from specifically listening for wheezing after an exposure to a known pulmonary sensitizer.

Diagnostic laboratory screening tests are the third medical screening tool. For laboratory screening to be effective, the test's specificity is of paramount importance. A battery of tests on a group of employees based on their job description, or on the presumption of exposure, can be costly (the cost of initial and follow-up testing) and quite likely will not discriminate between *true* positive results (which could indicate a job-related health effect) and *false* positive results (which are either spurious or have nothing to do with the job). Diagnostic laboratory screening is not able to detect all of the sentinel target organ effects on health (such as most early cancers), and one-time screening values, regardless of whether they are normal or abnormal, are often useless.

Even though published medical surveillance guidance (for example, DoD Manual 6055.5-M) for specific hazards includes a comprehensive list of laboratory tests, this information—because it is so broad and nonspecific—may or may not be valuable. Many medical personnel conclude, erroneously, that because the lists are published by experts, physicians are therefore obligated to perform all the tests listed for each specific exposure. However, the guidelines address all potential exposures; *professional judgment is essential*. The only professionals who can determine which tests are necessary are the physician, the nurse, or the physician's assistant, who have talked to the employee, visited the employee's workplace, and determined the possible health effects for which a diagnostic screening test is indicated and available.

Biological monitoring includes all of the same characteristics as diagnostic laboratory screening and can also measure a toxic agent or its metabolites in a bodily fluid. Biological monitoring can be an excellent medical surveillance tool because of its high specificity, but such monitoring is available for very few occupational hazards (for example, for lead, blood lead; for benzene, urine acetone; and for polycyclic aromatic hydrocarbons, specific DNA adducts). Audiograms can also be used as medical surveillance tools to monitor for exposure to noise.

Timing the Screening

The timing of medical screening is essential. Screening is conducted before job assignments are made, periodically during employment, and on termination of employment. It also can be conducted in conjunction with the preplacement examination in order to provide baseline data for comparison with future surveillance data, and to document the preexposure health status. Periodic medical screening is conducted at routine intervals and should always include an interim history. The content of periodic screening need not always include the entire spectrum of screening tests, but the appropriate tests should be selected based on the interim history, the latency period of the most likely health effect, and the time required for physiological or physical changes to be of sufficient magnitude for detection.

To determine the appropriate time of the day or the week for screening, the occupational health physician must consider the reason for the screening. For example, in searching for long-term cumulative effects, or in documenting fitness to work, screening might best be conducted early in the day and early in the week, to decrease the likelihood that test results will reflect transient effects. Hearing tests, for example, are done after a 48-hour quiet period (such as a weekend). However, if acute effects are being sought, or if the extent of exposure is being documented, screening

both later in the day and later in the week may be more appropriate. Thus, the easiest way to ensure that screening is appropriate is to (*a*) conduct the initial interview at any convenient time, and then (*b*) conduct further screening at a specifically appropriate time.

Using Medical Surveillance Results

The success of a medical surveillance program depends on how the collected data are used. Whether the data show normal or abnormal findings, the results must be used to prevent any negative job-health interaction. Normal medical screening results, for example, can be used as a basis for comparison with future screening, for altering the content of future screening, for documenting that the employee is fit for work, and for ensuring that control measures are adequate.

Abnormal screening results require more action. First, the physician, physician's assistant, or nurse must inform the employee of the results and recommend appropriate medical follow-up. If, after the first-level screening, a diagnosis or relationship to the job cannot be determined, the staff must conduct more comprehensive testing until a negative job–health relationship is either verified or eliminated. Furthermore, when abnormal findings demonstrate that an employee is unfit for work, according to either medical standards or physical requirements, the staff must work with the Civilian Personnel Office and recommend a job change.

When published medical standards do not exist, the staff must use their professional judgment about the possible relationship between screening results and the job. However, if surveillance results indicate that the job has affected an employee's health, then the staff cannot assume that only one employee is at risk. They must assume that a sentinel event has been detected and vigorously pursue surveillance of the potentially at-risk population. In addition, the staff, together with the industrial hygienist, safety officer, and engineer, must intervene at the job site to

- substitute nonhazardous substances;
- reduce exposure with engineering controls;
- reduce exposure with administrative controls;
- limit internal doses by using PPE, and;
- when necessary, remove employees from the job.

Far too often, occupational health staff are uninformed. They equate medical surveillance with occupational health. Furthermore, they equate medical screening with medical surveillance. While both are clearly very important to the Employee Health Program, if they are not (*a*) performed with insight and planning and (*b*) followed up with prevention-oriented actions, not only are time and money wasted, but the job-related health effects that *are* occurring may be undetected until it is too late to help the workers.

OCCUPATIONAL HEALTHCARE SERVICES

A number of Employee Health Programs, including those for medical, dental, and veterinary personnel, provide preventive medicine services based on the concept of surveillance, including (*a*) the Employee Health Program for healthcare workers, (*b*) health education, (*c*) health promotion, (*d*) administrative medical examinations, (*e*) monitoring absences due to illness, (*f*) job-related immunizations, (*g*) reproductive-system surveillance, (*h*) surveillance of personnel with chronic diseases or physical disabilities, and (*i*) epidemiological studies.

Other health services are clinical, including (*a*) emergency treatment of illness and injury and (*b*) prevention and control of alcohol and drug abuse. All of these preventive measures generate a great deal of information about the employee's health status that must not only be documented in records and reports but also be used to support the ultimate goal of the prevention of negative job-health interactions.

Preventive Medicine Services

The Employee Health Program for Healthcare Workers

Due to the wide range of potential health hazards present in healthcare facilities, healthcare personnel must also be included in the installation's Employee Health Program. Compared to the total civilian workforce, hospital workers have a higher rate of workers' compensation claims for sprains and strains, infectious and parasitic diseases, dermatitis, hepatitis, mental disorders, eye diseases, influenza, and toxic hepatitis.[24]

Some of the health hazards encountered in the healthcare environment differ from the hazards at installations, but the Employee Health Program for healthcare personnel is the same as that for other workers. Furthermore, the same staff provides em-

ployee health services to both populations. The program attempts to achieve two objectives: first, to provide a safe and healthy working environment; and second, to assist the employee in maintaining optimal health and efficiency in his or her job.

Infectious diseases are a major concern for healthcare personnel. Not only can infections be transmitted to healthcare personnel, but through them, *secondary transmission* to patients can also occur. Close coordination with the infection-control nurse and the infection-control committee, continuing education, and environmental control, are required in the MTF. Strict compliance with regulations and with the guidance of the infection-control program is essential. These regulations include

- DoD 6055.5-M, *Occupational Health Surveillance Manual*;
- U.S. Army Environmental Hygiene Agency (USAEHA) Technical Guide 143, *Evaluation of Occupational Exposure to Ethylene Oxide in Health-Care Facilities*, which will be published in Technical Bulletin Medical (TB MED) 512;
- USAEHA Technical Guide 149, *Guidelines for the Preparation, Administration, and Disposal of Cytotoxic Drugs*;
- TB MED 510, *Interim Guidelines for the Evaluation and Control of Occupational Exposure to Waste Anesthetic Gases*; and
- AR 40-14, *Control and Recording Procedures for Exposure to Ionizing Radiation and Radioactive Materials*.

Employees who work in hemodialysis units, blood banks, and biological laboratories face significant health risks as the result of occupational exposures to blood and other potentially infectious materials that contain blood-borne pathogens. Blood-borne pathogens include the hepatitis B virus, which causes hepatitis B, and the human immunodeficiency virus (HIV), which causes the acquired immunodeficiency syndrome (AIDS). *Hepatitis B is the major infectious occupational health hazard in the healthcare industry.* Both the hepatitis B virus and the HIV virus can lead to a number of life-threatening conditions including cancer. (The risks associated with these blood-borne pathogens are discussed further in Chapter 5, Health Hazards to Healthcare Workers.) OSHA is currently developing an exposure standard for occupational exposure to blood-borne pathogens.

Certain aspects of the Employee Health Program are important to healthcare personnel because they can help prevent nosocomial infections, including immunizations, monitoring absences due to illness, and pregnancy surveillance, which are discussed later in this chapter. Monitoring absences due to illness is especially important in controlling the spread of infections from healthcare personnel to patients, and to identify and document the occupational diseases that are transmitted from patients to employees. The transmission of infections signals that prevention mechanisms may not be operating optimally and may dictate that an epidemiological investigation be initiated.

Healthcare personnel are at risk for potential exposure to chemical, physical, and biological hazards. As in any other work area, the industrial hygienist must develop a comprehensive health-hazard inventory that identifies the hazards in the MTF. (These hazards are addressed in Chapter 4, Industrial Hygiene.)

Employee Health Education

Job-related health education, which trains employees about the health hazards associated with their occupations, is mandated by law and is primarily the responsibility of supervisors.[20,25] They need the support of several disciplines—safety, nursing and medicine, industrial hygiene—and the civilian and military personnel office training staff to adequately train their employees regarding the diverse hazards of the work environment.

The nurses and physicians educate the employees regarding the health consequences of workplace hazards. The information they provide should include the signs and symptoms of exposure to each hazard, the appropriate emergency medical treatment for acute exposure to each hazard, the required medical surveillance for each hazard, and the necessity for PPE or clothing for each hazard. The Employee Health Program staff may provide job-related health education individually during job-related health evaluations, or to groups of employees who are exposed to the same hazards. Documentation of the education is required in the occupational medical record.[5]

Job-related health education also encompasses other areas that need the support of the Employee Health Program staff. These include

- orientation and guidance of supervisors regarding their responsibilities for employee health,
- orientation of employees to the services that the Employee Health Program provides, and
- modification of the work practices that can be changed by health education to prevent injury or illness.

Physicians and nurses also provide general health education to assist the employee to achieve optimal health. This education is usually given at the time that the employee receives healthcare or approaches the employee health staff with questions or problems. Small-group sessions may address specific conditions or habits when a group of workers is identified to have a common problem and help is requested. Group education may be especially effective in dealing with health problems or habits such as diabetes (or other chronic diseases), obesity, and smoking.

Healthcare personnel may distribute educational pamphlets to employees as a supplement either to group sessions or to individual education. This will help to reinforce the training provided. They may also publish health information as articles of interest within the installation, which can be disseminated to the employee population.

Health Promotion

The U.S. Army Health Promotion Program, an installation command program, is designed to promote and maintain the physical well-being and fitness of both military personnel and civilian employees.[26] Although civilian employees are encouraged to participate in fitness and exercise programs, only employees in jobs with physical fitness requirements, like firefighters, will be granted regular time off from work to participate in physical fitness training.

The commander may approve up to 3 hours of administrative leave per week to allow other civilian employees to participate in command-sponsored physical fitness exercise training, monitoring, or education. These activities must be an integral part of a total fitness program and be limited to 6 to 8 weeks in duration. Employees may, however, participate in these programs in their off-duty time.

The physical fitness program responsibilities of the Employee Health Program staff are minimal. They may provide medical examinations for the employees in jobs that have physical fitness standards in order to determine their ability to participate in an exercise program. The occupational health nurse may refer employees or may seek consultation from the health promotion program staff for certain programs such as nutrition or smoking cessation, in order to provide these in the Employee Health Program.

The Employee Health Program services include health promotion activities such as (*a*) small-group counseling, (*b*) mass disease screening, and (*c*) voluntary health maintenance examinations. All health promotion activities for civilian personnel are the lowest priority and are offered only when the resources are available.

Small-Group Counseling. The occupational health nurse may conduct small-group counseling sessions on specific problems or habits that affect employee health. Before planning these programs, it is essential to perform a *needs assessment* (that is, to determine the perceived medical needs and interests of the employees). Small-group counseling programs require their participants to make a lifestyle or a behavioral change. The programs must be designed to help individuals adopt positive health-related behaviors, such as smoking cessation, stress management, and good nutrition, to help them attain a higher level of well-being. The planners of these programs should optimally utilize available MTFs, installations, or local community health resources such as the American Heart Association or the American Cancer Society.

Mass Screening for Diseases. Another voluntary health promotion activity that the Employee Health Program may perform is mass screening for diseases—either single-disease or multiphasic-disease screening. Single-disease screening may detect one medical condition such as high blood pressure, while multiphasic-disease screening offers tests such as those for blood sugar, hearing, and vision. In planning a mass screening, coordination with the MTF and other community resources can be advantageous. In addition, the following questions need to be considered:

- Do the prevalence and seriousness of the disease or condition justify the cost of intervention?
- Is the procedure appropriate to the health goals of the age group, and is it acceptable to the population?
- Is the procedure relatively easy to administer, easy to interpret by healthcare professionals, and available at reasonable cost?
- Are resources available for follow-up diagnosis or therapeutic intervention?
- Will appropriate referrals be made as indicated?
- Is there an evaluation of the mass screening program's effectiveness?

Health Maintenance Examinations. While health maintenance examinations can be offered to civilian employees, they are not a requirement for the job; however, employees are encouraged to participate. The examinations should be tailored to specific health goals and professional health services that are appropriate for different age groups, rather than performing identical tests and examinations for the entire employee population. Regardless of the scope of the examinations, appropriate follow-up is crucial.

Administrative Medical Examinations

A basic premise of employment by the federal government is that employees must be fully qualified to perform the essential duties and responsibilities of their positions safely and efficiently, without undue risk to themselves or others. However, employees need to have only the minimum physical abilities that are necessary to fulfill this requirement. The purpose of performing an administrative medical examination is to determine the employee's physical and mental ability to perform the job. Management needs this information to make employment decisions: virtually all employment-related decisions involving an applicant's health status are made by management, not by physicians. The role of the examining physician in employment decisions is limited to determining the stability of the individual's medical condition and whether the individual meets the medical requirements of the job.

The Office of Personnel Management has established *medical standards* and *physical requirements* for a few specific jobs.[27] Medical standards describe (*a*) the minimum health status or fitness level that has been determined to be necessary for safe and efficient performance and (*b*) the medical conditions that are considered to be disqualifying for certain jobs. Physical requirements differ from medical standards in that they describe the physical abilities that an employee must have to perform the tasks included in a job, such as the ability to lift 50 lb.

The types of physical examinations that are administrative include (*a*) preplacement examinations, (*b*) periodic examinations, (*c*) fitness-for-duty examinations, and (*d*) disability retirement examinations.

Preplacement Examinations. Preplacement examinations (that is, examinations that are performed before the employee commences working) enable the occupational health physician to assess the employee's physical abilities and limitations with respect to job requirements, and to document baseline data for future use in the evaluation of potential workplace exposures. Preplacement examinations also identify susceptible individuals who might be at higher risk for developing diseases related to specific occupational exposures; for example, people of Mediterranean heritage can develop hemolytic anemia after being exposed to reducing agents, whereas their similarly exposed but non-Mediterranean coworkers will not. This helps to ensure that employees' job placements are safe.

Office of Personnel Management policy limits mandatory preplacement medical examinations to personnel who are applying for positions that have specific physical fitness standards, potentially hazardous duty exposures, or when the examination is required by the employing agency.[27] The local Civilian Personnel Officer determines the positions that require preplace-ment health evaluations. Generally, most wage-grade positions are considered arduous or hazardous and require a preplacement examination.[28] By comparison, GS positions are considered light duty and do not require a preplacement examination, except for a few occupational series.[11]

The local occupational health physician determines the specific content of preplacement examinations. The physician must consider the duties and requirements of the position including environmental factors, legal and regulatory requirements, and any other factors that are directly relevant to determining the applicant's ability to perform the job safely and efficiently. Additionally, if the applicant is assigned to a work environment that is potentially hazardous to his or her health, the occupational health physician must administer baseline screening tests and examinations (an audiogram for noise exposure or an electrocardiogram for nitroglycerin exposure) that are specific to the hazards. All assessments should include

- a personal and family health history, including a reproductive history for both men and women, and a smoking and alcohol history;
- a detailed work history, including the length of employment in each job and the nature and duration of exposure to hazardous conditions; and
- a general medical history.

Certain forms must be completed to document the administration and findings of the preplacement examination. The SF 78, *Certificate of Medical Examination*, and the SF 93, *Report of Medical History*, are required for all appropriated-fund applicants who are required to undergo a preplacement examination. Similarly, DA Form 3437, *Certificate of Medical Examination*, and the SF 93 are required for nonappropriated-fund applicants. The Civilian Personnel Office usually forwards the SF 78 and DA Form 3437 to Employee Health Program staff members, indicating the specific job's physical requirements and environmental factors.

Although the Office of Personnel Management does not require a preplacement examination for applicants for positions with duties that are usually sedentary or only moderately active, these applicants must complete forms prior to employment to establish their medical qualifications. Appropriated-fund applicants must complete the SF 177, *Statement of Physical Ability for Light Duty Work* and nonappropriated-fund appli-

cants must complete DA Form 3666, *Statement of Physical Ability for Light Duty Work*. Even though a preplacement examination is not required for light-duty workers, Employee Health Program personnel must obtain a general medical history for these applicants using the SF 93, *Report of Medical History*. Baseline screening, such as for blood pressure, vision, and hearing, is recommended if resources are available. Additionally, hazard-specific baseline screening tests must be done if the light-duty applicant will be assigned to a potentially hazardous work environment.

Periodic Examinations. The purpose of administrative periodic examinations is to verify an employee's continuing ability to perform the job. However, the purpose of periodic job-related examinations is to determine the effect of the job on the health status of the employee. Although the Office of Personnel Management specifically requires that only a few positions have periodic examinations, it is good occupational health practice to perform annual examinations on all employees whose positions have medical standards or physical requirements.[27,29,30] Several ARs address periodic examinations, including AR 420-90, *Fire Protection*; AR 190-56, *The Civilian Police and Army Security Guard Program*; and AR 600-55, *Motor Vehicle Driver and Equipment Operator Selection, Training, Testing, and Licensing*.

The administrative periodic examination requires that the Employee Health Program staff record the results. For appropriated-fund civilian employees, either the SF 78, *Certificate of Medical Examination*, or SF 88, *Report of Medical Examination*, is used to record results. The results of administrative periodic examinations for military personnel are recorded only on SF 88.

Fitness-for-Duty and Disability Retirement Examinations. Fitness-for-duty and disability retirement examinations determine the employee's continued capability to meet the physical or medical requirements of a position.[27,31] A federal agency may offer a medical examination that includes a psychiatric evaluation or psychological assessment, or it may request the employee to submit medical documentation in any situation in which it is in the government's interest to obtain medical information that is relevant to an individual's ability to perform safely and efficiently. Whenever an agency either orders or offers a medical examination, or requests medical documentation, the employee must be informed in writing of the following:

- the reasons for the examination,
- the individual's right to submit medical information from his or her own physician, and
- the agency's obligation to consider information from the individual's physician.[27]

The employee must submit medical documentation when a change in duty status, working conditions, or any other benefit or special treatment for medical reasons is requested. The agency requesting the medical examination or documentation must pay the reasonable costs that are associated with obtaining the examination or information. Should the employee request the examination while in the process of applying for a benefit or special consideration (such as extended sick leave or reassignment), the employee is responsible for paying the cost of the examination.[27]

The supervisor is responsible for making requests for fitness-for-duty examinations through the Civilian Personnel Office. The Civilian Personnel Office then forwards all background data that pertains to the request to the Employee Health Program staff. This information is essential for the physician to make a valid medical determination.

Monitoring Absences due to Illness

Supervisors and the Civilian Personnel Office are responsible for absentee personnel. However, the Employee Health Program staff should contribute significantly to keeping employees healthy and present on the job, to minimize the cost of the time lost because of absences due to illness. Medical monitoring ensures that the employee is well enough to perform his job safely, but it is not a means to monitor the use of sick leave. At no time should the Employee Health Program staff be requested or used to check on suspected malingerers when they are out of work on personal, sick, or workers' compensation leave. The identification and control of the abuse of leave benefits is a supervisory and Civilian Personnel Office responsibility. Management, employees, and unions should understand this for the monitoring of absences due to illness to be effective.

The requirement and responsibilities for monitoring absences due to illness must be included in the installation occupational health regulation so that the medical aspects can be implemented. The medical monitoring of absences due to illness includes evaluating, treating, or referring employees who become ill or are injured during duty hours. The purposes of this service include the appropriate disposition of ill employees, the staff's provision of health education, and the staff's increased awareness of the types of health problems in the employee population. The monitoring program also increases the staff's capability to detect sentinel job-related health effects by knowing

the reason for employees' absences from work. (Man-hours can also be conserved if palliative treatment is provided for minor illnesses or injuries and employees are able to quickly return to their jobs.)

The Employee Health Program staff should evaluate the health status of civilian employees who are returning to work after an absence due to illness.[5] This evaluation is essential whether or not the absence was occupationally related: it ensures that the employee is well enough to work. The results of the evaluation may reveal that the employee cannot return to his or her regular job, but is able to perform some other type of work. The occupational health physician can then recommend work limitations. An evaluation after an absence due to job-related illness is also essential to document the accident or illness accurately in the occupational health record.

The occupational health physician and the Civilian Personnel Office determine the duration of the absences and the illnesses that require an evaluation for all personnel except those who are off due to job-related cases, personnel in patient-care positions, and personnel who handle food. These employees are required to report to the staff for evaluations after any illness.[5] As a rule, instructing all other employees to clear through the Employee Health Program after a nonoccupational absence due to illness that is longer than 5 working days will meet the medical monitoring objective without overburdening the Employee Health Program staff.

Monitoring absences due to illness includes performing medical evaluations when they are necessary in support of the Federal Employee's Compensation Act claim *controversions* (that is, legal actions that are taken when the employer does not agree with the employee that a compensable illness or injury has occurred). Medical evaluations are also necessary for employees who are expected to be absent from work for 2 or more weeks due to a job-related illness or injury.[5] These evaluations may require only a review of medical reports or they may call for an appropriate examination. The occupational health physician should request specialty consultation when it is indicated.

Immunizations

Some occupational settings may increase an employee's risk of infection. For example, the potential for increased exposure to biological hazards exists in hospitals, medical and dental clinics, animal-care facilities, child-care centers, biological research laboratories, and waste-disposal facilities. Employees who travel to foreign countries in an official capacity are also considered to have an increased risk of infection.

The immunization program for healthcare personnel provides those who are at risk with appropriate immunizations and chemoprophylaxis. An OTSG policy letter mandates hepatitis B immunizations for all active-duty members of AMEDD.[32] This policy letter also advises that civilian healthcare personnel at risk should individually be encouraged to be immunized, unless immunization is specifically mandated in their work agreements or job descriptions. In addition to hepatitis B immunizations, the Employee Health Program may provide

- rubella, tetanus, and influenza immunizations for medical and dental personnel;
- rabies prophylaxis for veterinary staff and animal handlers;
- specific vaccinations for the staff who work with pathogens in research and medical laboratories; and
- tuberculosis screening for high-risk dental, medical, and veterinary personnel.

The staff provides or arranges for appropriate immunizations, chemoprophylaxis, and other preventive measures against communicable diseases such as tetanus, rubella, and tuberculosis. Before determining which immunizations and chemoprophylaxes should be offered to civilian personnel, the occupational health physician must assess the specific biological hazard and the potential effectiveness of a vaccine to control the problem. The occupational health physician should use the current *Recommendations of the Immunization Practices Advisory Committee*, which is published by the U.S. Public Health Service, Centers for Disease Control, as a reference in making these determinations. Immunizations for military personnel must comply with AR 40-562[33] and guidance from the OTSG.

The staff may also offer immunizations that are not job-related. For example, influenza immunizations are offered to civilian personnel in an effort to reduce absenteeism due to illness.

Surveillance of Employees Exposed to Reproductive Hazards

Surveillance minimizes occupationally engendered risks to the health of the pregnant employee and her fetus, and to the health of the reproductive system of the male employee. Therefore, this surveillance must include both male and female civilian and military employees, because the biology of reproduction demonstrates clearly that both males and females are at risk from workplace hazards to the reproductive system,[34] and is emphasized for nursing, dental, medical, and veterinary personnel.

In addition to evaluating pregnant women for potential exposures to chemical, physical, and biological hazards, exposures to nosocomial hazards (such as cytomegalovirus, herpesvirus, and rubella) in the MTF must also be evaluated. Pregnant women should avoid unnecessary or regular contact with patients who either have hepatitis or who could be carriers of the hepatitis virus: maternal infection with hepatitis B virus in the latter stages of pregnancy may cause significant illness and death to the newborn.

A pregnancy surveillance program is the responsibility primarily of the occupational health nurse, in accordance with guidelines that the occupational health physician develops. The NIOSH Research Report is an excellent reference for pregnancy surveillance.[35]

One of the first steps in implementing a pregnancy surveillance program is for the occupational health nurse to coordinate with the Civilian Personnel Office and supervisors in instituting a policy and procedure that ensures that civilian workers contact the Employee Health Program staff as soon as they know they are pregnant. The program for military women should be coordinated with the obstetrical or gynecological nursing staff or the community health nurse.

Work areas or occupations that contain potential hazards to the reproductive system must be identified through the health-hazard inventory developed by the industrial hygienist. All female employees who are of childbearing age and all male employees who are assigned to these areas must not only be informed that potential hazards to their reproductive systems exist, but also be informed of the effects of those hazards during their preplacement, periodic, and termination examinations.[5] Any history of infertility should also be evaluated from an occupational standpoint. Women must be provided information on the availability of job accommodation or transfer in the event of pregnancy, if this is necessary to protect the mother or her fetus. In addition, the potential hazards to the reproductive system that are identified and the education and counseling that are provided must be documented in the individual's occupational medical record.

When an employee contacts the Employee Health Program staff to inform them of her pregnancy, a nurse or physician must interview the employee and document a health and work history. The staff must determine at that time if the employee may continue working safely in her current job. In addition, the staff must obtain and record data in the employee's occupational medical record. These data include the expected date of confinement, previous pregnancies, home exposures, hours of work, and other pertinent information.

If the environment is safe, the Employee Health Program staff need not periodically follow up this initial evaluation. However, the interviewer should advise the employee during the initial evaluation that the occupational health nurse should be contacted immediately if any changes occur in her work environment.

Coordination between the Employee Health Program staff and the pregnant employee's attending physician is essential. The occupational health physician is familiar with the demands and exposures of the job, but the attending physician might be unfamiliar with the potential hazards that are present in the employee's work environment. When questions that are related to the safe job placement of a pregnant employee arise, a discussion will lead to a more valid mutual decision as to whether the employee may continue to work in her present position or will require a transfer for job accommodation.

The coordination between the employee's physician and the Employee Health Program staff continues even after the employee's pregnancy. While the employee's attending physician must clear the employee's return to work after maternity leave, the occupational health nurse must also evaluate the employee. The occupational health nurse should evaluate the pregnancy outcome and document the results in the employee's medical record.

Surveillance of Employees with Chronic Diseases or Physical Disabilities

Surveillance of personnel with chronic diseases or physical disabilities ensures that the employees' optimal health status is maintained and that no adverse effects result from interactions of the job with the chronic illness or disability. If this surveillance is effective, these employees can remain active members of the workforce.

The staff should identify employees who have chronic diseases or disabilities that may affect or be affected by their work assignments. This can be accomplished by

- reviewing SF 177, *Statement of Physical Ability for Light Duty Work*;
- reviewing SF 93, *Report of Medical History*;
- performing preplacement, periodic, and return-to-work examinations; and
- performing mass screening programs.

Once employees with chronic diseases or physical disabilities have been identified, standard medical practice dictates that they be medically evaluated to determine their work capabilities and to ensure safe

job placement. If the evaluation indicates that the employee is unable to perform all of his or her job duties, the Employee Health Program staff should notify the employee's supervisor.

The frequency of follow-up evaluations varies depending on the employee's specific condition. A follow-up evaluation may consist of either a telephone call by the Employee Health Program staff to the employee to inquire about the health status and to offer counsel, or a visit by the employee to the employee health service for further evaluation and counseling. During these evaluations, the employee should inform the staff of any changes in his or her condition.

The staff should document medical evaluations in the employee's medical record. Documentation should include clinical data regarding the disease or physical disability, its current treatment, and the name of the employee's personal physician. DA Form 5571, *Master Problem List*, is used to document current diagnoses and medications used currently or recently. The staff should update this information whenever the employee is examined or counseled.

Epidemiological Investigations of Occupational Illnesses and Injuries

Epidemiological investigations must be conducted after a suspected or proven occupational illness has occurred and after excessive numbers of occupational injuries have been identified.[5] For example, CTS among workers in specific job categories such as clerks and computer operators has recently been a topic of concern (Figure 3-7):

> CTS results from repetitive flexing and bending of the wrist, which causes tendons to swell, increasing pressure in the carpal channel and pinching the median nerve.[36]

The association between the illness or injury and the potential presence of an unhealthy or unsafe work environment is evaluated in an epidemiological investigation. Inquiries must extend beyond individual cases to the identification of the total population at risk for the same illness or injury. The investigation must be coordinated with the industrial hygienist and other preventive medicine personnel as needed, safety officials, and other personnel who may have a responsibility or an interest in the nature and the magnitude of the problem.

Epidemiological investigations range from a simple review of the individual's work and health history with an evaluation of the exposure at the worksite, to a detailed study involving sampling and laboratory analysis of suspected agents, medical examinations and tests, and a literature review. Frequently, investigations require the assistance of the supporting medical center. If the MEDCEN's capabilities are limited, epidemiological consultation is available through command channels from the USAEHA and the Walter Reed Army Institute of Research.[5]

Clinical Services

Clinical services are also provided to civilians who work for the army, including (*a*) emergency treatment of illnesses and injuries and (*b*) alcohol and drug-abuse prevention and control programs. (The latter is included in this section because it can be clinically relevant; however, the cause is not considered to be job related.)

Emergency Treatment of Illnesses and Injuries

Civilian employees are generally not eligible for definitive diagnoses and treatments of nonoccupational injuries and illnesses under the Employee Health Program. However, there are two exceptions to this. First, in an emergency, the civilian employee will be given the medical attention that is required to prevent the loss of life or limb, or to relieve suffering until he or she can be cared for by a private physician. And second, civilian employees may also be treated for minor disorders, including first aid or palliative treatment, when the employee would not reasonably be expected to seek attention from a private physician. This reduces absences due to illness by enabling the employee to complete the current workshift before consulting a private physician. However, requests for recurrent treatment of the same nonoccupational disorders are discouraged. If continued care is necessary, the employee should be referred to his or her private physician.

Minor treatments or services for nonoccupational conditions, such as administering allergy injections, monitoring blood pressure, and changing dressings, can be provided at the discretion of the occupational health physician in charge. Requests for allergy injections must be submitted in writing and signed by the employee's private physician, and the employee must provide the medications that are required. These services are provided so that lost work time can be avoided.

Arrangements for emergency medical care during nonduty hours of the MTF should be made for those employees who work hours other than the normal day

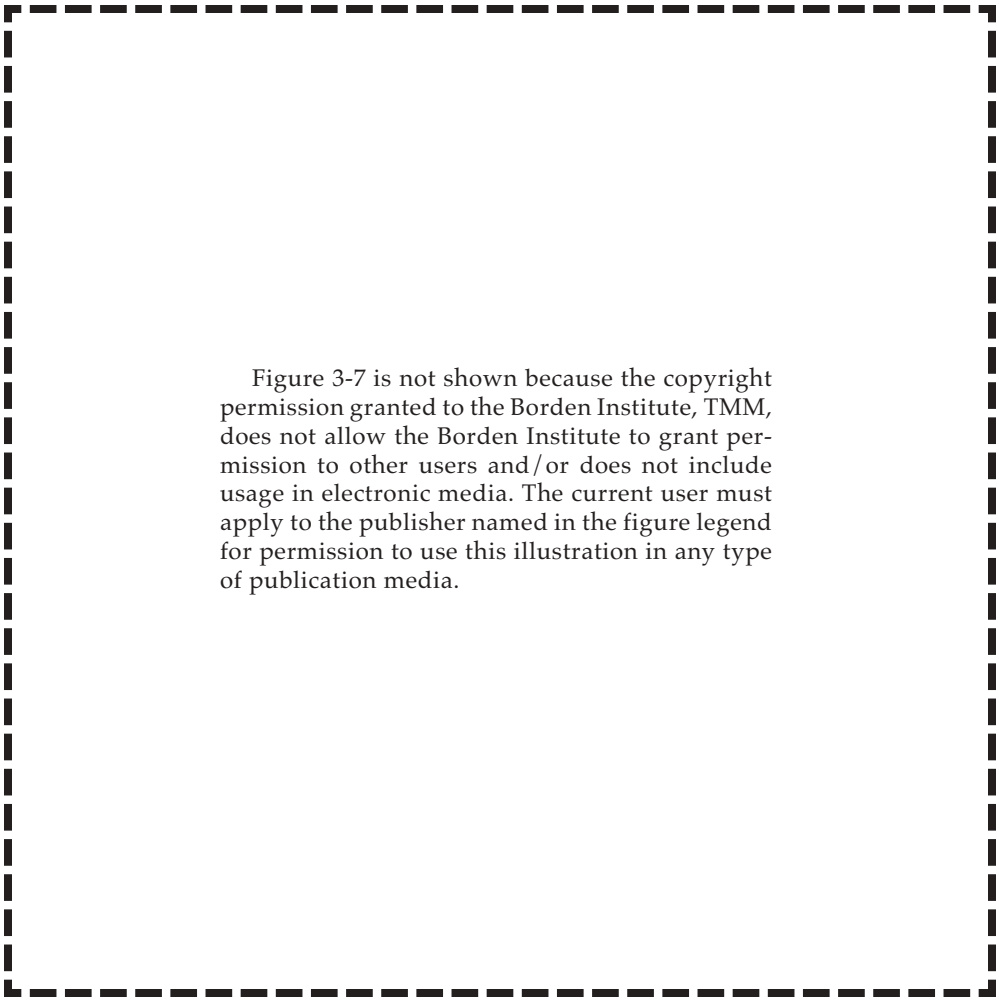


Fig. 3-7. The section through the wrist at the distal row of carpal bones shows the carpal tunnel. Increase in size of the tunnel structures caused by edema (trauma), inflammation (rheumatoid disease), ganglion, amyloid deposits, or diabetic neuropathy may compress the median nerve. The person with carpal tunnel syndrome will develop atrophy of thenar muscles due to long-standing compression of the median nerve, will oftentimes experience gradual numbness of the fingers while driving, and may be awakened at night by tingling and/or pain in the thumb, index, and middle fingers. Reprinted with permission from Netter FH. The CIBA Collection of Medical Illustrations. Vol 1, *Nervous System.* Part 2, *Neurologic and Neuromuscular Disorders.* West Caldwell, NJ: CIBA-Geigy; Slide 3485; 212.

shift. Firefighters or guards who are appropriately trained may provide emergency care, or employees might be referred to nearby community hospitals or physicians.

Prevention and Control of Alcohol and Drug Abuse

The U.S. Army Alcohol and Drug Abuse Prevention and Control Program (ADAPCP) is an installation command-sponsored program that addresses alcohol and other drug abuses and related activities in a single program. Military employees are not just eligible for the program; participation is mandatory for all soldiers who are enrolled in the ADAPCP by their commanders. Medical services and clinical support for soldiers being treated in ADAPCP are the responsibilities of the MEDCEN-MEDDAC commander. While civilian employees are eligible for the program, their enrollment is voluntary. Employees with an alcohol- or drug-abuse problem are encouraged to seek assistance and counsel from ADAPCP.[37,38] In the program for civilians, the functions of the Employee Health Program staff include initial counseling, referring employees to treatment resources, and performing the initial medical evaluations of employees who enter the program.

SUMMARY

The U.S. Army operates over 130 Employee Health Programs worldwide for its military and civilian employees. Although these programs' administrative structure, professional staffing, and areas of emphasis are quite diverse, they all are based on the same set of laws, DoDIs, and ARs. All have the same basic missions: to prevent negative interactions between the job and the workers' health and to provide job-related, clinical healthcare services.

The health program for the army's civilian employees is composed of (*a*) preventive medicine services and (*b*) clinical services. The preventive elements include job-related medical surveillance, administrative medical examinations, surveillance of employees exposed to reproductive hazards, monitoring of absences due to illness, surveillance of personnel with chronic diseases or physical disabilities, job-related immunizations, health education, epidemiological investigations, and health-promotion programs. The clinical elements include treatment of job-related illnesses and injuries, palliative treatment of minor illnesses, and alcohol- and drug-abuse programs. Because military personnel receive routine healthcare through MTFs, job-related medical surveillance is the only Employee Health Program element that is usually provided to soldiers.

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