

## CHAPTER 10

# EMERGENCY DENTAL CARE AND PREVENTIVE MEDICINE

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**TERMINAL OBJECTIVE:** *Be familiar with the subject matter and technical publications relating to emergency dental care and preventive medicine.*

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Because of the nature of our rating and the many responsibilities placed upon us, Hospital Corpsmen must have a general understanding of many areas of medicine. Emergency dental care and preventive medicine practices are two of those areas. Both of these subjects are extremely important, but because they are both already discussed in great detail in other Navy publications, this chapter will present only a brief overview of them. Emergency Dental Care is covered in Section I, and Preventive Medicine is addressed in Section II. For in-depth information, refer to the publications outlined respectively in table 10-1.

### SECTION I

#### EMERGENCY DENTAL CARE

In the absence of a dental officer you, as the medical department representative (MDR), will be required to perform basic emergency dental first aid associated with the most common oral conditions and injuries. While this section will introduce you to the basics of dental anatomy and histology, dental terminology, oral diseases and injuries, and the dental record, you will find in-depth discussion of these areas in the DT and HM Advancement Handbooks; chapter 6 of *Dental Technician Training Manual, Volume 1*, NAVEDTRA 12572; and in chapter 6 of the *Manual of the Medical Department*, NAVMED P-117.

The primary function of this emergency dental care is to alleviate pain, arrest hemorrhage, or prevent further or complicating injury to dental structures. Ensuring that the entire crew is in good dental health before deployment will prevent most dental-related

**Table 10-1.—Publication List**

<b>Dental</b>	<i>DT Advancement Handbook</i>
	<i>HM Advancement Handbook</i>
	<i>Dental Technician Training Manual, Vol. 1</i> , NAVEDTRA 12572
	<i>Dental Technician Training Manual, Vol. 2</i> , NAVEDTRA 12573
	<i>Manual of the Medical Department</i> , NAVMED P-117, chapter 6
	Various BUMED notes and instructions
<b>Preventive Medicine</b>	<i>HM Advancement Handbook</i>
	<i>Manual of Naval Preventive Medicine</i> , NAVMED P-5010
	<i>Control of Communicable Diseases Manual</i> , NAVMED P-5038
	<i>Naval Supply Publication 486</i>
	Various BUMED notes and instructions
	Various SECNAV and OPNAV notes and instructions

problems. Therefore, predeployment examinations are very important.

You must administer only **emergency** dental care. Refer routine cases to a dental treatment facility, and refer any cases treated by nondental personnel for follow-up at the earliest opportunity.

#### **DENTAL ANATOMY AND HISTOLOGY**

To provide emergency dental care, you will need to be familiar with dental anatomy and histology. The following sections will provide you with basic information; however, if you require more detailed

information on dental anatomy and histology, consult the *Dental Technician Training Manual, Volume 1*, NAVEDTRA 12572, or contact your local dental treatment facility for references.

### Dental Anatomy

The adult mouth normally has 32 permanent teeth. On board ship, you will usually be able to refer a patient to a dentist for a dental problem. When you do have to make such a referral, you must be able to correctly describe the problem and its location (e.g., which tooth, which surface of the tooth, etc.) in appropriate dental terminology. Because referrals are infrequent, this required information will not be covered here. However, the information is available in detail in the *Dental Technician Training Manual, Volume 2*, NAVEDTRA 12573.

### Dental Histology

Dental anatomy deals with the external form and appearance of the teeth. Dental histology studies the tissues and internal structure of the teeth, along with the tissues that surround and support them. It will be helpful to have a knowledge of dental histology in case you need to provide emergency dental treatment.

### Dental Terminology

Knowledge of dental terminology is important to interpret emergency treatment plans prepared by dentists and to prepare consultation sheets for referral to dental treatment facilities. Make sure you use standard dental abbreviations when recording entries in a patient's dental record. You will find some important basic dental-related words and definitions in the next section, "Oral Diseases and Injuries." Both the *Dental Technician Training Manual Volume 2*, NAVEDTRA 12573, and the *Manual of the Medical Department*, NAVMED P-117, will provide you with a more in-depth listing of dental terminology.

## ORAL EXAMINATION

Before performing an oral examination, you should review the patient's medical and dental histories. Note the medications the patient is currently taking. The dental health questionnaire should be updated if any significant changes in the patient's health status have occurred since the form was last updated by the patient.

When you examine the oral cavity, use a thorough and systematic approach. You must have a knowledge

of the normal dental anatomy and histology to recognize oral diseases and injuries. The chief complaint that brought the patient to seek treatment will fall into the category of either an oral disease or condition or an oral injury.

The following are brief descriptions of the major oral diseases or conditions and oral injuries that may be seen during an oral examination.

- **Dental caries** are the result of localized decay of the calcified tissues of teeth. Bacterial plaque is the most common cause of dental caries. Bacteria release acids and other toxins that attack tooth enamel and produce carious lesions called **cavities**.
- **Acute pulpitis** is a severe inflammation of the tooth pulp. Usually, it is the result of dental caries.
- A **periapical abscess** usually results from an infection of the tooth pulp, often developing as a result of unchecked pulpitis.
- **Gingivitis** is an inflammation of the gingival tissue. The most frequent cause of marginal gingivitis is poor oral hygiene.
- **Necrotizing ulcerative gingivitis (NUG)** is a severe inflammation of the gingival tissue. NUG may be also referred to as **trench mouth**. NUG is not contagious.
- **Periodontitis** is an inflammatory condition that involves the gingivae, the crest of the alveolar bone, and the periodontal membrane above the alveolar crest.
- A **periodontal abscess** is caused by an infection in the periodontal tissues.
- **Pericoronitis** is an inflammation of the gingiva around a partially erupted tooth. It may also result from constant contact between the tissue flap and a tooth in the opposing arch.
- **Stomatitis** is an inflammation of the oral mucosa.
- **Recurrent labial herpes** is an infection that produces a fever blister or cold sore. Such a lesion is usually found on the lip.
- **Postoperative hemorrhage** may occur any time from a few hours to several days after a tooth extraction. The bleeding from the extraction site may be light or heavy. Treat all abnormal postextraction bleeding as serious.

- **Alveolar osteitis**, also known as **dry socket**, results when a normal clot fails to form in the socket of a recently extracted tooth. Since this condition is usually very painful, always consider it a serious emergency.
- Pain in **fractured teeth** usually results from the irritation of the pulp tissue. Additional information concerning the types of fractures is contained in chapter 6 of the *Dental Technician Training Manual, Volume 1*, NAVEDTRA 12572.

## DENTAL RECORD

Each service member's military dental treatment record consists of a *Dental Record Jacket*, NAVMED 6150/21-30, containing dental treatment forms. The form used to record dental treatment is EZ603A. It is imperative that all forms documenting patient care contain adequate treatment information. Additional information concerning dental forms is contained in chapter 2 of the *Dental Technician Training Manual, Volume 2*, NAVEDTRA 12573; and chapter 6 of the *Manual of the Medical Department*, NAVMED P-117.

## SECTION SUMMARY

When dental emergencies occur and dental facilities are not readily available, medical personnel are expected to perform basic emergency dental care. This section has provided basic information on fundamental dental histology and a variety of dental conditions. We also discussed the importance of dental record maintenance and dental forms used by medical personnel.

## SECTION II

### PREVENTIVE MEDICINE

Prevention and control of disease are considered the most desirable means of maintaining good health. Information included in this overview should provide you with a general knowledge of the principles and practices of the Navy's Preventive Medicine afloat and ashore. This information is discussed in detail in the *Manual of Naval Preventive Medicine*, NAVMED P-5010.

### SANITATION

Sanitation is defined as the formulation and application of measures designed to protect (military) public health, and the disposal of waste. The goal of

the Navy's sanitation program is to provide personnel with a clean and healthy work and living environment.

### Personal Hygiene

Because of the close living quarters in the Navy, particularly aboard ships, personal hygiene is of utmost importance: Uncleanliness or disagreeable order will surely affect the morale of your shipmates. Disease and other health problems can spread and rapidly affect an entire compartment or division. Good personal hygiene promotes health and prevents disease. You are responsible for presenting health education training programs to the personnel in your unit, including information on the basics of personal hygiene, and proper exercise, sleep, and nutritional requirements.

### Sanitation of Living Spaces

You, as the MDR, perform sanitation inspections and provide recommendations to the commanding officer. The living spaces, their inspection, and living space cleaning and maintenance practices are discussed in detail in the *Manual of Preventive Medicine*, NAVMED P-5010.

### HABITABILITY

Factors that can effect habitability of working and berthing spaces are air ventilation, heating, and air conditioning.

Measurements of thermal stress are used to monitor environmental conditions in which personnel work, live, and exercise. Monitoring environmental conditions is crucial to maintaining a safe environment for personnel. For more detailed information on the items discussed in this section, you should refer to *Manual of Naval Preventive Medicine*, NAVMED P-5010.

### VECTOR AND PEST CONTROL

A **vector** is any animal capable of transmitting pathogens or producing human or animal discomfort or injury. Some of the commonly encountered vectors are insects, arthropods (insects with hard, jointed exoskeleton and paired, jointed legs), and rodents. **Pests**, on the other hand, are organisms (insects, rodents, fungi, bacteria, snakes, etc.) that adversely affect military operations and the well-being of man and animal; attack real property, supplies, and equipment; or are otherwise undesirable. For more detailed information on the items discussed in this

section, you should refer to *Manual of Naval Preventive Medicine*, NAVMED P-5010.

## **FOOD-SERVICE SANITATION**

Food-borne illnesses represent an ever-present threat to the health and morale of our military personnel. To prevent food-borne illnesses, you will need to ensure that all foods are procured from approved sources and processed, prepared, and served with careful adherence to recommended sanitary practices. When assigned as a medical department representative for a command or station, you may be given the responsibility of inspecting food, food-service facilities, and investigating food-borne illness outbreaks.

For guidance on safe time limits for keeping food, proper storage temperatures, and storage life of perishable and semi-perishable items, refer to tables in Naval Supply Publication 486.

### **Training and Hygiene of Food-Service Personnel**

Food-service personnel should be thoroughly indoctrinated in personal hygiene and food sanitation procedures and in the methods and importance of preventing food-borne illness. Requirements for food service training are addressed in *Food Service Training Program*, SECNAVINST 4061.1.

### **Food-Service Inspection Report**

Navy and Marine Corps food-service facilities are required to be inspected by a medical department representative, together with the food-service manager or officer or designated representative. The findings of the inspection are reported on a NAVMED Form 6240/1, *Food Service Sanitation Inspection*. A system has been established in which maximum defect points are awarded for each stated requirement. The inspector assigns an appropriate number of defect points up to the maximum possible and computes a sanitary compliance score (SCS). Complete step-by-step procedures for filing the report and computing the SCS are provided in the *Manual of Naval Preventive Medicine*, NAVMED P-5010.

## **IMMUNIZATIONS AND COMMUNICABLE DISEASES**

Navy and Marine Corps personnel are exposed to a wide variety of environmental conditions, including

climatic extremes, stressful situations, and close living quarters. Many of these personnel travel to foreign lands where conditions may not only be unsanitary, but where a high level of disease may also exist. Preventive medicine's major role is to minimize disability by emphasizing immunization programs.

### **Immunizations**

Vaccines used to protect Navy and Marine Corps personnel against certain diseases before exposure to infection are called **prophylactic immunizations**. Prophylactic immunizations are limited to very serious diseases for which effective and reliable immunizing agents have been developed.

Immunizations procured for the Armed Forces are required to meet the minimum standards set by the Department of Health and Human Services (DHHS).

### **Immunizations for Military Personnel**

Navy and Marine Corps personnel are required to be ready to deploy on a moment's notice. To make sure personnel are prepared for deployment, you should review their immunization records on a routine basis, and, before deployments, also review BUMEDINST 6230.15, *Immunizations and Chemoprophylaxis*. Initial and booster dosages and routes of administration are dictated by the vaccine manufacture, the U.S. Public Health Service Immunization Practices Advisory Committee (ACIP), or both.

### **Communicable Diseases**

Communicable diseases, as the name implies, are diseases that may be transmitted from a carrier to a susceptible host. They may be transmitted from an infected person or animal or indirectly through an intermediate host, vector, or inanimate object. The illness produced is the result of infectious agents invading and multiplying in the host, or from the release of their toxins (poisons).

An important step in the control of communicable disease is the expeditious preparation and submission of the **Medical Event Report**. Instructions and requirements for reporting to local, state, national, and international health authorities can be found in the preface of the *Control of Communicable Diseases Manual*, NAVMED P-5038. In addition, you should follow instructions for the *Medical Event Report* (MER), BUMEDINST 6220.12, when reporting

communicable diseases affecting Navy and Marine Corps personnel.

## **WATER SUPPLY**

A hygienically safe and continuously dependable water supply is a necessity of life. Drinking water should be free of disease-producing organisms, poisonous chemicals, as well as from objectionable color, odor, and taste. For more detailed instruction on these topics, you should review the *Manual of Naval Preventive Medicine*, NAVMED P-5010.

### **Water Supply Ashore**

With rare exceptions, Navy and Marine Corps activities ashore within the continental limits of the United States are situated where a municipal water supply is available. BUMEDINST 6240.1, *Standards for Potable Water*, sets drinking water standards for U.S. naval establishments worldwide, both ashore and afloat.

### **Water Supply in the Field**

Hospital Corpsmen are frequently called upon to approve field water sources and to recommend disinfection methods before water is considered safe to drink. Consider water acquired in the field as unsafe until it has been disinfected and tested. Approval of water sources should be based on a thorough surveillance of available water sources.

#### **WATER QUANTITY REQUIREMENTS.—**

The daily water requirements for personnel in the field vary with a number of factors, including the season of the year, geographical location, and the tactical situation. Personnel who do not drink enough water can quickly become dehydrated both in extremely hot or extremely cold climates.

**WATER TREATMENT.—**Water treatment is the process of purifying water to make it potable (safe to drink). Various processes can be used to purify water. These processes include **aeration, coagulation, flocculation, filtration, reverse osmosis, and disinfection**, all of which are discussed in depth in NAVMED P-5010.

### **Water Supply Afloat**

Potable water for shipboard use comes from one of several sources: the ship's distillation plant, shore-to-ship delivery, or ship-to-ship transfer. The

ship's medical department is responsible for determining the quality of the water. The ship's engineering section determines the quantity stored or produced, and performs the actual chlorination or bromination.

### **Water Testing**

Naval vessels follow water testing requirements and procedures outlined in the latest edition of *Standard Methods for the Examination of Water and Wastewater*, published by the American Public Health Association (APHA), American Water Works Association (AWWA), and the Water Pollution Control Federation (WPCF).

### **Manufacture and Handling of Ice**

Most ships and shore activities use ice machines to make ice. To reduce bacterial growth, ice used around food or in food or drink must be made from potable water. All ice must be prepared in a sanitary manner and afforded the same protection as potable water. The medical departments aboard ships are required to include ice samples in any bacteriological analyses they perform on water.

## **WASTEWATER TREATMENT AND DISPOSAL**

Wastewater is the spent water of a ship, base, industrial plant, or other activity. This spent water contains wastes, such as soil, detergent, and sewage. The proper disposal of these waste materials is one of the most important measures for controlling water-borne diseases, such as cholera and typhoid fever.

### **Wastewater Treatment and Disposal Systems Ashore**

The use of approved municipal or regional wastewater collection and disposal systems is the preferred method for disposing of wastes from shore activities. Accordingly, municipal or regional wastewater disposal systems are used by Navy shore activities whenever feasible.

### **Wastewater Treatment and Disposal Systems Afloat**

The overboard discharge of untreated sewage from DoD ships within the navigable waters of the United

States and the territorial seas (within three nautical miles of shore) is prohibited by federal law. To comply with the law, naval vessels are being equipped with marine sanitation devices (MSDs) that either treat sewage before discharge or collect and hold it until it can be properly disposed of through dockside sewer connections or pumped overboard in unrestricted waters. For more detailed instruction on these topics, you should review *Manual of Naval Preventive Medicine*, NAVMED P-5010.

### **SECTION SUMMARY**

This section discussed basic information pertaining to sanitation, habitability management, pest and vector control, food-borne illness, food-service sanitation, food-service inspections, and food-borne illness outbreak investigations.

We also discussed communicable diseases, water supply, and wastewater treatment and disposal

procedures. This section discussed information on the safe and proper handling of potable water, bacteriological tests, treatment, and disinfection. A general review of wastewater treatment and disposal procedures for shore and afloat activities was also included in this section.

### **SUMMARY**

This chapter has provided a general overview on a variety of fundamental dental conditions and preventive medicine situations. Because of the nature of our rating and the many responsibilities placed upon us, Hospital Corpsmen must have a general understanding of many areas of medicine. Dentistry and preventive medicine practices are two of those areas. For additional detailed information on these subjects, you should refer to the references listed at the beginning of this chapter.