

ATP 4-02.10

Theater Hospitalization

AUGUST 2020

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Preface

Army Techniques Publication 4-02.10 provides a doctrinal foundation for theater hospitalization, as one of the ten medical functions, as well as tactics, techniques, and procedures to plan and employ a Role 3 Army hospital and hospital augmentation organizations within an area of operations.

The principal audience for Army Techniques Publication 4-02.10 is commanders, staffs, command surgeons, Army Health System planners, medical force managers, and Army medical personnel and units.

Army Medicine's analyses of future Role 3 medical and surgical requirements contrasted with current Role 3 capabilities and led to the development of a new modular hospital organization to replace the combat support hospital. The hospital center's modular design and ability to task-organize requisite medical and surgical capabilities rectifies major drawbacks found in the current combat support hospital. Required revisions in organizational design, medical and surgical capabilities, and ability to perform split or geographically dispersed operations were critical factors in the decision to replace the combat support hospital with the hospital center. This publication was also developed to address hospitalization requirements to support a range of military operations, including large-scale combat as described in Field Manual 3-0.

This publication introduces the medical function and the medical care typically associated with hospitalization and then describes the combat support hospital and hospital center's organizational design, mission, rules of allocation, assignment and capabilities, dependencies, mobility, employment, functions, and requirements. The publication also provides essential information pertaining to the medical and surgical teams and detachments that augment the hospital, medical planning factors for medical materiel consumption and replenishment, water requirements for patients and staff, blood requirements and operations, patient and staff nutrition care, and information technology systems utilized by hospitals.

The organizational structures and positions presented in this publication are established in tables of organization and equipment. These tables are current at the time of publication. The organization of these units is subject to change in order to comply with manpower requirements criteria. These organizations are also subject to change at the unit level to meet wartime requirements with changes reflected in the units' modified table of organization and equipment.

Commanders, staffs, and subordinates ensure that their decisions and actions comply with applicable United States, international, and in some cases host-nation laws and regulations. Commanders at all levels ensure that their Soldiers operate in accordance with the law of war and the rules of engagement. (See Field Manual 6-27).

This publication implements or is in consonance with the following North Atlantic Treaty Organization (NATO) International Standardization Agreements (STANAG) and American, British, Canadian, Australian, and New Zealand Armies' (ABCANZ) standards and publications:

TITLE	NATO STANAG	ABCANZ STANDARD	ABCANZ PUBLICATION
Coalition Health Interoperability Handbook (Edition 3)			256
Levels of Medical Support (Edition 2)		423	
Blood Supply in the Area of Operations		815	
Emergency Alarms of Hazard or Attack (CBRN and Air Attack Only) (Edition 9)—ATP-85	2047		
Identification of Medical Material for Field Medical Installations (Edition 5)—AMedP-1.5	2060		
Trauma Registry		2082	

TITLE	NATO STANAG	ABCANZ STANDARD	ABCANZ PUBLICATION
Requirement for Training in Casualty Care and Basic Hygiene for Military Personnel (Edition 4)—AMedP-8.15	2122		
Documentation Relative to Initial Medical Treatment and Evacuation (Edition 3)—AMedP-8.1	2132		
Requirements for Water Potability During Field Operations and in Emergency Situations (Edition 6)—AMedP-4.9	2136		
Basic Military Medical Record (Edition 6)—AMedP-8.2, Basic Military Medical Report (Edition B)	2348		
Road Movements and Movement Control (Edition 3)—AMovP-1(A)	2454		
Emergency Supply of Water in Operations (Edition 5)	2885		
Orders for the Camouflage of Protective Medical Emblems on Land in Tactical Operations (Edition 4)—ATP-79	2931		
Requirements of Individual Operational Rations for Military Use (Edition 4)—AMedP-1.11	2937		
Minimum Requirements for Blood, Blood Donors and Associated Equipment (Edition 6)	2939		
Essential Field Sanitary Requirements (Edition 1)	2982		

Publication Army Techniques Publication 4-02.10 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. Terms for which Army Techniques Publication 4-02.10 is the proponent publication (the authority) are italicized in the text and are marked with an asterisk (*) in the glossary. Terms and definitions for which Army Techniques Publication 4-02.10 is the proponent publication are bold faced in the text. For other definitions shown in the text, the term is italicized and the number of the proponent publication follows the definition.

Publication Army Techniques Publication 4-02.10 applies to the Active Army, Army National Guard/Army National Guard of the United States and United States Army Reserve unless otherwise stated. Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

The proponent and preparing agency of Army Techniques Publication 4-02.10 is the United States Army Medical Center of Excellence. Send comments and recommendations on Department of the Army Form 2028 (*Recommended Changes to Publications and Blank Forms*) to **Commander, United States Army Medical Center of Excellence, ATTN: MCCS-FD (Army Techniques Publication 4-02.10), 2377 Greeley Road, Suite D, JBSA Fort Sam Houston, TX 78234-7731**; by e-mail to usarmy.jbsa.medical-coe.mbx.ameddcs-medical-doctrine@mail.mil or submit an electronic Department of the Army Form 2028. A rationale for each proposed change is required to aid in the evaluation and adjudication of each comment.

Introduction

Army Medicine executed a critical assessment focused on meeting the needs of future hospitalization design to support large-scale combat operations and the requirements throughout the competition continuum. The Medical Center of Excellence evaluated the combat support hospital's organizational structure, mobility, operational capabilities, internal medical capabilities, surgical capabilities, personnel specialties, dependencies, and other factors that affected its support across the range of military operations.

The redesign effort culminated in the development of the hospital center, a new and innovative Role 3 hospital structure comprised of five modular units with inherent capabilities that provide mission-specific medical and surgical support for up to 240 inpatients. The hospital modules provide the ability to accommodate dual-based operations with both surgical and medical support.

Publication Army Techniques Publication 4-02.10 consists of six chapters and six appendices:

Chapter 1 presents commanders and staff with a description of hospitalization as a medical function within the Army Health System, the care provided by deployed hospitals, and an overview of the two types of Army hospitals employed in a theater of operations.

Chapter 2 provides information on the combat support hospital's mission, organization, and functions.

Chapter 3 provides information on the hospital center's mission, organization, and functions.

Chapter 4 describes hospital surgical and medical augmentation team's missions, organizations, and functions.

Chapter 5 provides commanders and staff with operational considerations such as employment of medical units, hospital medical supply and logistics, Army Health System support in specific operational environments, and deceased personnel.

Chapter 6 provides commanders and staff information regarding the Law of Armed Conflict and Geneva Convention compliance.

Appendix A examines operational considerations for employing Role 3 hospital organizations, basic planning factors for water consumption, medical materiel consumption, blood and oxygen requirements, and hospital feeding.

Appendix B describes nutrition care operations in Role 3 facilities, including patients and staff.

Appendix C examines internal and external information systems used in Role 3 facilities, patient information, and reporting.

Appendix D provides information pertaining to waste disposal responsibilities, categories of waste, and waste disposal of solid, hazardous, medical, human, and waste water.

Appendix E provides an overview of safety considerations specific to medical treatment facility organizations to include accident reporting and safety programs.

Appendix F describes hospitalization support during the four Army strategic roles: operations to shape, operations to prevent, large-scale combat operations, and operations to consolidate gains.

The Medical Center of Excellence Doctrine Literature Division is reorganizing the placement of terms and definitions found in proponent publications within the Medical Center of Excellence doctrine publication library. Based on doctrinal changes, the terms identified in Introductory Table-1 on page ix will remain the same except that the proponent publication of the term will change. The glossary contains acronyms and terms.

Introductory Table-1. New and modified Army terms

<i>Term</i>	<i>Remarks</i>
Hospital	The term hospital has been rescinded and will no longer include a definition
Inpatient	ATP 4-02.10 is now the proponent publication
Outpatient	ATP 4-02.10 is now the proponent publication

Chapter 1

Theater Hospitalization Overview

Hospitalization is one of the ten medical functions and is part of the theater-wide Army Health System (AHS) for managing sick, injured, and wounded personnel. The term hospitalization is used to describe that portion of health care delivery provided at hospitals for all classes of patients whose conditions cannot be managed on an outpatient or patient holding status. This publication concentrates on Role 3 medical treatment facilities (MTFs). Role 4 hospitals are a part of the AHS, but are located outside of a theater. The Defense Health Agency is the command and control headquarters for all Role 4 hospitals located outside of a theater.

SECTION I — HOSPITALIZATION AS A MEDICAL FUNCTION

1-1. Hospitalization occurs primarily under the health service support (HSS) mission set of the AHS within the sustainment warfighting function. However, some medical support within a hospital falls into both HSS and force health protection (FHP), a part of the protection warfighting function. For more on HSS, FHP, and the other medical functions, see Field Manual (FM) 4-02.

1-2. A *medical treatment facility* (Joint) is a facility established for the purpose of furnishing medical and/or dental care to eligible individuals (JP 4-02); (Army) is any facility established for the purpose of providing medical treatment. This includes battalion aid stations, Role 2 facilities, dispensaries, clinics, and hospitals (FM 4-02). A hospital is a medical treatment facility capable of providing inpatient care. It is appropriately staffed and equipped to provide diagnostic and therapeutic services, as well as the necessary supporting services required to perform its assigned mission and functions. In addition, a hospital may discharge the functions of a clinic. Often, the terms hospital and MTF are misused interchangeably. While a Role 3 MTF provides hospitalization, and is therefore a hospital, Role 1 and 2 MTFs do not provide all of the capabilities included in hospitalization. Thus, Role 1 and 2 MTFs are not hospitals.

1-3. The combat support hospital (CSH) and hospital center provide essential care on an area support basis to treat and return to duty patients who can be treated in accordance with the evacuation policy, or to stabilize patients that require evacuation out of theater for further definitive, convalescent, or rehabilitative care. *Essential care* is medical care and treatment within the joint operations area and which is mission, enemy, terrain and weather, troops and support available, time available, and civil considerations-dependent. It includes first responder care, initial resuscitation and stabilization as well as treatment and hospitalization. Forward care may include stabilizing surgery to ensure the patient can tolerate further evacuation as well as en route care during evacuation. The objective is to either return the patient to duty within the theater evacuation policy, or to begin initial treatment required for optimization of outcome (FM 4-02). *Return to duty* is a patient disposition which, after medical evaluation and treatment when necessary, returns a Soldier for duty in his unit (FM 4-02).

1-4. Hospital capabilities include triage and emergency care, outpatient services, inpatient care, clinical laboratory and microbiology, blood banking, radiology, physical therapy, medical logistics (MEDLOG), operational dental care, general and specialty surgery, nutrition care, behavioral health, and patient administration services.

1-5. The CSHs and hospital centers can be augmented by one or more specialty teams and detachments, further increasing the capabilities and capacities of the hospital (see Chapters 3 and 4 of this publication for further information).

SECTION II — HOSPITALIZATION TASKS

1-6. A Role 3 hospital performs several functions that are either not possible at a Role 1 or 2 MTF or are significantly more robust than Role 1 and 2 medical unit capabilities. Several of these functions are described below, and with augmentation, a Role 3 hospital's capabilities can be significantly enhanced. A more detailed description of the functions and sections of the CSH and hospital center performing these functions is provided in Chapters 2 through 4. See Appendix A for hospital planning factors and considerations.

1-7. Hospitalization includes highly robust services that encompass primary inpatient and outpatient care; emergent care; and enhanced medical, surgical, and ancillary capabilities. ***Inpatient refers to a person admitted to and treated within a Role 3 or 4 hospital and who cannot be returned to duty within the same calendar day. An outpatient is a person receiving medical/dental examination and/or treatment from medical personnel and in a status other than being admitted to a hospital. Included in this category is the person who is treated and retained (held) in a medical treatment facility (such as a Role 2 facility) other than a hospital.*** Patient holding at a Role 2 medical company is not equivalent to hospitalization. A *patient* is a sick, injured, or wounded individual who receives medical care or treatment from medically trained personnel. (FM 4-02).

1-8. Medical units often provide damage control resuscitation (DCR) prior to a patient reaching a Role 3 hospital. Damage control surgery (DCS) and forward resuscitative surgery can also be accomplished at a Role 2 MTF if augmented by a forward surgical team (FST) or forward resuscitative and surgical detachment (FRSD). However, a severely wounded or ill patient may be evacuated from near the point of injury directly to a Role 3 hospital, which possesses specialty care and increased capabilities to perform DCR and DCS. *Forward resuscitative surgery* is urgent initial surgery required to render a patient transportable for further evacuation to a medical treatment facility staffed and equipped to provide for the patient's care (FM 4-02).

1-9. Hospitals provide clinical laboratory services, which includes basic microbiology screening and blood banking. Role 3 hospital laboratories have a much more robust capability and capacity than what is provided by a Role 2 MTF.

1-10. Radiology services provided by the CSH are more capable than that of a Role 2 MTF. However, the newly designed and reorganized hospital center, and more specifically the subordinate field hospital (32 bed), has the added capability of providing computed tomography (CT) services.

1-11. Role 1 and 2 MTFs maintain a limited supply of medications. A Role 3 hospital operates a fully functioning pharmacy and exercises appropriate control, accountability, and distribution of medications and controlled substances.

1-12. Medical logistics occurs at all roles of care. At Roles 1 and 2, MEDLOG is focused on maintaining required supplies and ensuring operator level equipment services are conducted. However, a hospital has a robust MEDLOG capability, and most notably, is capable of conducting much of its own medical equipment repair and maintenance.

1-13. A Role 3 hospital is the first place in the continuum of care where specifically trained nutrition care personnel provide nutrition expertise and support. Appendix B discusses the robust nutrition care operations of a hospital.

1-14. Patient administration at Role 1 and 2 is essentially patient accountability and disposition of treatment records. At a CSH or hospital center, it entails the admission and disposition of patients, maintaining patient records, security of patient valuables, statistical reporting, patient privacy policies, and coordination for patient evacuation out of theater.

1-15. Respiratory care performed at a Role 3 hospital is much more than simply administering oxygen. Hospitalization includes respiratory therapy by specifically trained technicians and the ability to provide support for patients that require supplementation of oxygen, administration of aerosolized medicines, general care of the patient with ventilatory compromise, and mechanical respiratory assistance in intensive care units (ICUs).

1-16. Role 1 and 2 MTFs have a very limited number of medical providers, physicians, physician assistants, nurses, and medical specialty enlisted personnel. As a result, there are not typically a great deal of medical

specialties represented among the physicians at battalion aid stations and medical companies. The CSHs and hospital centers are designed to employ numerous medical specialists. Therefore, commanders, medical leaders, and planners should take full advantage and ensure Roles 1 and 2 medical providers have access to the hospital for medical consultation by these specialists. In some cases, it could avoid evacuating a patient to a hospital that could have been managed at a Role 1 or 2 MTF. This reachback capability can enhance the care given in areas of responsibility (AORs) and maximizes the utilization and employment of scarce medical resources.

SECTION III — PRINCIPLES OF THE ARMY HEALTH SYSTEM

1-17. The principles of the AHS are the enduring tenets upon which the delivery of health care in a field environment is founded. The principles guide medical planners in developing operation plans which are effective, efficient, flexible, and executable. Army Health System plans are designed to support the tactical commander's scheme of maneuver while still retaining a focus on Soldiers' medical needs. The *Army Health System* is a component of the Military Health System that is responsible for operational management of the HSS and FHP missions for training, predeployment, deployment, and postdeployment operations. Army Health System support includes all mission support services performed, provided, or arranged by Army Medicine to support HSS and FHP mission requirements for the Army and as directed, for joint, intergovernmental agencies, coalition, and multinational forces. (FM 4-02).

1-18. The AHS principles apply across all medical functions and are synchronized through medical command and control and close coordination and synchronization of all deployed medical assets through medical technical channels. The AHS principles are conformity, continuity, control, proximity, flexibility, and mobility. While it is important to consider all six principles in planning for and executing AHS support, described below are the principles that are most applicable to theater hospitalization. Refer to FM 4-02 for a complete discussion of how all of these principles relate to the overall AHS mission.

CONTINUITY

1-19. Continuity in care and treatment is achieved by moving the patient through progressive, phased roles of care, extending from the point of injury to the continental United States (U.S.) support base. Each type of AHS unit contributes a measured, logical increment in care appropriate to its location and capabilities. In recent operations, lower casualty rates, availability of rotary-wing air ambulances, and other factors often enabled a patient to be evacuated from the point of injury directly to the supporting hospital. However, in large-scale combat operations (LSCO) higher casualty rates, extended distances, and patient condition may necessitate that patients receive care at each role of care to maintain their physiologic status and enhance the chances of survival. Lack of air superiority, which will make medical evacuation much more difficult, may require that those patients stay at a MTF for longer periods of time than previously required. *Medical evacuation* is the timely and effective movement of the wounded, injured, or ill to and between medical treatment facilities on dedicated and properly marked medical platforms with en-route care provided by medical personnel (ATP 4-02.2). A major consideration and an emerging concern in future conflicts is providing prolonged care at any location along the continuum of care (point of injury through Role 3) when evacuation is delayed. A *casualty* is any person who is lost to the organization by having been declared dead, duty status-whereabouts unknown, missing, ill, or injured (JP 4-02). The Army's future employment is likely to be complex and challenging and widely differs from recent conflicts. The medical commander, with a depth of medical knowledge, an ability to anticipate follow-on medical treatment requirements, and an assessment of the availability of specialized medical resources can adjust the patient flow to ensure each Soldier receives the care required to optimize patient outcome.

PROXIMITY

1-20. Proximity is to provide hospitalization support to sick, injured, and wounded Soldiers at the right time and the right place and to keep morbidity and mortality to a minimum. Army Health System assets are placed within a suitable distance from the maneuver forces which they are supporting, but not close enough to impede ongoing operations. To support the operational commander's plan, it is essential that hospitals are positioned to rapidly receive, treat, stabilize, and coordinate for the evacuation of combat casualties. Given

all of the additional difficulties associated with large-scale combat, establishing a hospital in the right place to best support maneuver forces is a more important consideration than planners have dealt with since Desert Shield and Desert Storm. Refer to FM 3-0 for a complete discussion about LSCO.

FLEXIBILITY

1-21. Flexibility is being prepared to, and empowered to, shift AHS resources to meet changing requirements. Changes in plans or operations make flexibility in AHS planning and execution essential. The hospital commander must ensure that the unit can rapidly transition from supporting one level of violence to another across the range of military operations, or to simultaneously be supporting more than one type of operation such as offensive, defensive, or stability tasks. The medical commander exercises command authority to effectively manage limited medical resources so that they benefit the greatest number of Soldiers in the area of operations (AO).

SECTION IV — ROLE 3 MEDICAL TREATMENT FACILITIES

1-22. The remainder of this publication is dedicated to describing the mission, capabilities, organization, and functions of the CSH and hospital center. The conversion of all CSHs to hospital centers will take several more years. Therefore, it is important for commanders, leaders, Soldiers, and planners to understand and consider the distinctions of both when planning for and conducting tactical operations, at least for the foreseeable future.

COMBAT SUPPORT HOSPITAL

1-23. The CSH provides hospitalization and outpatient care for all classes of patients within an operational area. It is comprised of a headquarters and headquarters detachment (HHD) and two hospital companies (one 84-bed and one 164-bed company; 248 beds, total).

1-24. Surgical capacity is based on six operating room (OR) tables staffed for 96 operating table hours per day. The six OR tables are contained in three shelters. Surgical capabilities include general, orthopedic, thoracic, urological, gynecological, and oral maxillofacial.

1-25. For maximum use of the CSH, the entire organization should deploy together. However, due to its limited mobility and the availability of transportation support, it may be necessary to deploy by modules or echelons. This is not to say that CSHs should be or were designed to be capable of split-based or multi-based employment. They were designed to be employed as an entire unit in one location. Chapter 3 will describe the early entry element that was designed to precede the rest of the CSH in a deployment and be employed for a short period of time awaiting the remainder of the CSH to flow into theater.

HOSPITAL CENTER

1-26. The redesign effort culminated in the development of the hospital center, a Role 3 hospital structure task-organized using five modular units with inherent capabilities providing mission-specific medical and surgical support. The modular design has integral capabilities providing an enhanced hospital with the ability to provide a maximum of 240 beds to the AO. The characteristics of the hospital modules and their coalesced competencies provide the ability to accommodate multi-based operations with both surgical and medical support. Commanders can task-organize the medical forces to support unified land operations, matching the anticipated mix of required capabilities and medical specialties to the population supported and the clinical challenges they present. The hospital center in combination with varying augmentation detachments provides the medical and staffing capabilities to provide the appropriate Role 3 medical care suitable to support a full range of military operations.

1-27. The organization was designed to support the Army's requirement to conduct a mix of offensive, defensive, stability tasks, and defense support of civil authorities simultaneously in a variety of scenarios. There are five distinct elements, with associated Tables of Organization and Equipment (TO&Es), that make up the new hospital:

- Headquarters and headquarters detachment, hospital center;

- Field hospital (32 bed);
- Hospital augmentation detachment (medical 32 bed);
- Hospital augmentation detachment (surgical 24 bed) and;
- Hospital augmentation detachment (intermediate care ward [ICW]) 60 bed).

1-28. When referring to the organization as a whole (or at least the HHD and one or more of the subordinate units), it is generally called the hospital center (not field hospital). The field hospital is simply the 32 bed subordinate unit that is one piece of the hospital center.

1-29. The modular design of the hospital center provides the ability to tailor and deploy capabilities as modules or multiple individual capabilities that provide incrementally increased medical services. It may be augmented by one or more detachments or medical teams designed to enhance the hospital's capabilities to provide HSS to the AOR. The enhanced organizational design replaces the current CSH providing a more agile, deployable, versatile and medically capable hospital.

1-30. The HHD, hospital center and field hospital (32 bed) are the core and lowest denominator of the hospital organization. The field hospital (32 bed) represents the smallest unit that can provide the complete clinical capabilities of a Role 3 MTF. This unit is deliberately designed to be self-supporting while remaining light, highly mobile, and expandable. The HHD, hospital center and field hospital (32 bed) are designed as the first increment to be deployed in support of an expeditionary force. The HHD, hospital center and field hospital (32 bed) can be expanded incrementally to a maximum 240 bed hospitalization capability. The HHD, hospital center can provide command and control for one or two field hospitals (32 bed) in separate locations without augmentation. The field hospital (32 bed) was not designed to be split into two parts, but rather two field hospitals (32 bed) can establish operations in two separate locations while task-organized under one HHD, hospital center. Combinations of the modular units within the hospitalization capability would be suitable to support across the range of military operations and fully integrating operations with joint, interagency, and multinational partners.

1-31. Increases in overall clinical functions of the hospitalization capability include—

- Computed tomography services.
- Microbiology laboratory services.
- Critical care physicians (intensivists) to manage patients in the ICU.
- Internal medicine physicians (hospitalists) to manage patients in the ICW.
- Emergency room physician assistants in the triage, preoperative care and emergency medical treatment (EMT) section.
- Psychiatry and inpatient neuropsychiatric consultation services.
- Minimal psychiatry inpatient capabilities.
- Increased capacity of intensive care beds.
- Improvements in versatility and agility.
- Command and communications capability to conduct multi-based operations indefinitely without augmentation.
- Hospital augmentation detachments with specific clinical specialties can be adapted to better support the mission.
- The hospitalization capability can be built up or scaled down based on the tactical situation.

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Chapter 2

Combat Support Hospital Organizations and Functions

The CSH provides essential care within the theater evacuation policy to either return the patient to duty or stabilize the patient for evacuation to a definitive care facility outside of the area of operations (AO). *Theater evacuation policy* is a command decision indicating the length in days of the maximum period of noneffectiveness that patients may be held within the command for treatment, and the medical determination of patients that cannot return to duty status within the period prescribed requiring evacuation by the first available means, provided the travel involved will not aggravate their disabilities or medical condition (ATP 4-02.2). The hospital's assigned medical personnel, facilities, equipment, and materials provide the requisite capabilities to render significant preventive and curative health care. These highly robust services encompass primary inpatient and outpatient care; emergent care; and enhanced medical, surgical, and ancillary capabilities. The modular design of the hospital provides the capability to tailor and deploy capabilities as modules or multiple individual capabilities that provide incrementally increased medical services. The CSH may be augmented by one or more medical detachments, hospital augmentation teams, or medical teams designed to enhance the hospital's capabilities to provide HSS to the AO.

SECTION I — THE 248-BED COMBAT SUPPORT HOSPITAL

2-1. This section provides an overall discussion of the CSH, its mission, allocation, assignment and capabilities, organization, and functions. It makes reference to other sections of this chapter that discusses the hospital's adaptive medical increments and its ability to conduct split-based support during early entry operations.

MISSION

2-2. The mission of this hospital is to provide hospitalization and outpatient services for all classes of patients within the AO.

BASIS OF ALLOCATION

2-3. This hospital variant supports the requirement for all AO ICU/ICW bed requirements (75 percent of the total conventional [wounded in action (WIA)/disease and nonbattle injury (DNBI)] bed requirements; 78.5 percent of the unconventional blister agent exposures; and 45 percent of nerve agent exposures). *Disease and nonbattle injury* is all illnesses and injuries not resulting from hostile action or terrorist activity or caused by conflict. Also called DNBI. (JP 4-02).

ASSIGNMENT AND CAPABILITIES

2-4. The CSH will normally be assigned to a medical brigade (support), but may be assigned to a medical command (deployment support) or a joint/combined task force.

2-5. The CSH provides hospitalization for up to 248 patients and treatment for all classes of patients.

2-6. Surgical capacity is based on six OR tables staffed for 96 operating table hours per day. The six OR tables are contained in three OR shelters. Surgical capabilities include general, orthopedic, thoracic, urological, gynecological, and oral maxillofacial.

2-7. Other capabilities include—

- Command and control of organic and attached elements to include AHS planning, policies, and support operations within the hospital AO.
- Emergency treatment to receive, triage, and resuscitate casualties to include civilians and enemy prisoners of war (EPW), as required.
- Consultation services for inpatient and outpatient support.
- Pharmacy, psychiatry, public health nursing, clinical laboratory, blood banking, radiology, physical therapy, and nutrition care services.
- Medical administrative and logistical services.
- Operational dental care.
- Medical logistics support to the FST or FRSD, when attached.
- Reconstitution of the FST or FRSD as directed by higher headquarters or the operation plan.

2-8. For maximum use of the CSH, the entire organization should deploy together. However, due to its limited mobility and the availability of transportation support, it may be necessary to deploy by modules or echelons.

HOSPITAL SUPPORT REQUIREMENTS

2-9. The CSH is dependent upon appropriate elements of echelons above brigade (EAB), medical command (deployment support), Army Service component command, or supporting elements within the AO for personnel and administrative services; legal; finance; mortuary affairs; security of detained personnel; transportation support; vehicle recovery operations; equipping return to duty personnel, and shower and laundry services for other than patient-related linens. Other support requirements include—

- Quartermaster supply company for Class I rations and the medical diet supplement required for patient feeding.
- Engineer construction company for site preparation, construction or modification of waste disposal areas, force protection measures, and minor construction.
- Medical detachment (veterinary service support) for food protection and veterinary public health support. The food protection mission includes food safety; food defense; quality assurance inspection and surveillance activities associated with rations, food, bottled water, and ice manufacturing sources; and food and water risk assessments. The veterinary public health reduces transmission of zoonotic diseases; monitors animals as sentinels of threats to humans by investigating unexplained animal deaths; and investigates potential rabies exposures to humans. The potential of foodborne disease, the threat of chemical, biological, radiological, and nuclear (CBRN) contamination of subsistence, and the need to assess and mitigate the zoonotic disease threat requires a veterinary presence.
- Medical detachment (preventive medicine) for inspections of food service facilities; water potability; field sanitation activities; wet bulb globe temperature index; medical and nonmedical waste disposal management and industrial hygiene; waste anesthetic gases; and provision of pest management support, including retrograde cargo inspections that are beyond the capabilities of the hospital staff.
- Area medical laboratory for theater validation (CBRN and other public health threats) levels of identification support; analytical chemistry support; analytical microbiology support; and environmental surveillance support for identification of CBRN and other public health threats in air, water, soil; and diagnostic capability. Quickly identifying hazards allows for more rapid treatment.
- Medical company (air ambulance) to provide intratheater aeromedical evacuation support to and between roles of care within the AO, transportation of emergency Class VIII resupply, and movement of medical personnel to support the AHS mission.

- Expeditionary signal battalion support to provide secure and nonsecure communications and data transport between roles of care as well as to maintain communications with other medical organizations within the medical brigade (support).

HOSPITAL ORGANIZATION AND FUNCTIONS

2-10. The CSH is a modular-designed facility that consists of an HHD and two hospital companies (one 84-bed hospital company and one 164-bed hospital company).

HEADQUARTERS AND HEADQUARTERS DETACHMENT

2-11. The HHD provides command and control of all organic and attached units, to include AHS planning, policies, and support operations within an operational area. It is dependent upon other support units in EAB and will be located where elements of these support units can provide support.

Command Section

2-12. The command section provides internal command and control and management of the hospital. It provides administrative support, prepares unit plans for movement, routine and specialized operations, and mission-related task organization. Personnel of this section supervise and coordinate surgical, nursing, medical, pastoral, operations, information management (IM)/communications, logistical, and administrative services of the HHD and the hospital, when consolidated. When deployed with the hospital Company A (84 bed), these personnel will augment the surgical, nursing, pastoral, administrative, and operation services. The chiefs of surgical and nursing services are trained in providing trauma care to patients to save life or limb and to prepare them for further evacuation.

2-13. The chief, surgical service may also function as the deputy commander for professional services. The chief, nursing service is the principal advisor to the hospital commander for nursing activities. All operational element functions will be under the direct supervision of the deputy commander for operations and administrative services (this officer will also function as the hospital executive officer).

S-1 Section

2-14. Administrative services (personnel staff officer [S-1]) section provides overall administrative services for the hospital, to include personnel administration, mail distribution, awards and decorations, leaves, and correspondence preparation. This section coordinates with elements at EAB for finance, personnel, and administrative services.

S-2/S-3 Section

2-15. Hospital operations (intelligence staff officer [S-2]/operations staff officer [S-3]) section is responsible for plans, operations, security, deployment, and relocation of the hospital. It establishes and operates a net control station for radio communications. It uses automated tools for movement control and terrain analysis for unit lay down and security plans. It provides the commander with the necessary summary data to facilitate course of action analysis, resource management, and planning.

S-4 Section

2-16. The logistics staff officer (S-4) section serves as the focal point for coordination/communication with other general logistics supply and service units. Refer to Appendix A for hospital planning factors. This section coordinates logistics functions throughout the hospital, to include general and medical supplies and maintenance; blood management; utilities such as water distribution, waste disposal, and environmental control of patient treatment areas; power and vehicle maintenance; and equipment records and repair parts and fuel distribution. This section coordinates with EAB elements for materiel handling equipment for movement of the hospital's Deployable Medical System (DEPMEDS) equipment, environmental control units, and power distribution equipment.

2-17. This section requests resupply from the supporting medical battalion (multifunctional) and EAB elements, using the Theater Army Medical Management Information System or a functional module of the Theater Medical Information Program-Joint (TMIP-J), and Medical Communications for Combat Casualty Care (MC4) Systems. The MC4 is the seamless, integrated, automated medical information system to support an AO and will rely on the Army communications architecture for transmission of medical data.

2-18. This section—

- Plans and coordinates contractual support requirements for the hospital. Examples where contracting support may be used are: food service for staff and hospitalized patients, shower and laundry, general housekeeping, health care providers who meet U.S. credentialing requirements, and medical equipment operators. The MEDLOG officer identifies and coordinates contract support requirements with higher headquarters, which in turn coordinates with the supporting contracting support brigade. When possible, contract support requirements should be identified by higher headquarters in contingency plans and operation orders.
- Maintains the unit property book and establishes a temporary morgue for handling remains until transported to supporting mortuary affairs organization.
- Ensures each return to duty Soldier has or is issued one basic serviceable uniform and coordinates with the theater sustainment command for the transportation of return to duty Soldiers.
- Coordinates patient movement item requirements with the supporting MEDLOG company. Refer to Army Techniques Publication (ATP) 4-02.2 and ATP 4-02.1 for additional information on patient movement items and logistical support, respectively.

2-19. If the CSH is conducting early entry operations and is temporarily split in more than one place, assets of the S-4 section and headquarters detachment augment the supply and service section, hospital Company A (84 bed) and hospital Company B (164 bed), to provide continuity of logistics support.

S-6 Section

2-20. The signal staff officer (S-6) section is responsible for the installation, operation, management, security, and maintenance of the local area network, to include medical information systems and servers, archive devices and data storage procedures, medical devices resident on the local area network, and peripheral equipment in all sections of the hospital and attached units. It also plans for the integration of the hospital elements when consolidated. Other responsibilities include coordinating with the supporting signal unit for—

- Command and Control Network support.
- Hospital connectivity to area network.
- Hardware and software maintenance support.
- Managing network (frequency allocation, communications security).

2-21. This section also provides unit-level maintenance and troubleshooting for all communications equipment. The S-6 is the primary interface between the hospital and the signal unit for all signal support requirements.

Automation Support Section

2-22. This section is responsible for the planning and operation of the unit IM systems to include MC4 hardware and medical information systems. Each hospital section, with the exception of the hospital ministry, will be equipped with MC4 systems to support healthcare delivery utilizing the suite of information systems described in Appendix C. The automation support section assists the commander and staff in the use of automated tools and plans for the horizontal and vertical internet of the hospital for any given mission. It coordinates with organic and attached hospital units to ensure integration of IM systems. The health service systems management officer is the hospital commander's advisor on the implementation of medical information systems.

Laundry Section

2-23. The laundry section provides laundry services for patient-related linens. It coordinates with the higher headquarters for all other laundry support.

Detachment Headquarters

2-24. The detachment headquarters is responsible for company-level command and control, administrative issues, duty rosters, weapons control, general supply support, and individual Soldier training.

HOSPITAL COMPANY A (84 BED)

2-25. This company provides hospitalization for up to 84 patients consisting of two wards providing critical care nursing for up to 24 patients and three wards providing intermediate care nursing for up to 60 patients. Surgical capability includes general surgery and orthopedic surgery and is based on two OR tables staffed for 36 operating table hours per day. Requirements for additional surgical specialties in hospital Company A (84 bed) can be met by elements of hospital Company B (164 bed), the FST, or FRSD (when not deployed forward), or the hospital augmentation team (head and neck). Hospital Company A (84 bed) provides emergency treatment to receive, triage, and prepare incoming patients for surgery and to provide consultation and outpatient clinic services for patients referred from other MTFs.

2-26. This company also provides pharmaceutical, radiology and clinical laboratory services, to include limited basic microbiology screening and blood banking. It provides the administrative, patient administration, logistics, and nutrition care services required for full hospitalization. Organic hospital personnel set up and break down the unit shelter systems in preparation for unit operations or movement.

Company Headquarters

2-27. This section is responsible for company-level command and control, administrative issues, duty rosters, weapons control, general supply support, and individual Soldier training.

S-6 Section

2-28. This section is responsible for installation, operation, management, and maintenance of the IM system and internal and external communications links for the company and attached elements. It plans for the communications and electronics integration of the company with the CSH when consolidated. This section establishes the local area network connectivity for this company's module, as well as integration with the full CSH and attached units.

Patient Administration Section

2-29. This section is responsible for the admission and disposition of patients; maintenance of patient records; security of patients' valuables; preparation of patient statistical reports; and ensures the development and implementation of privacy policies and procedures to include the Health Insurance Portability and Accountability Act (Public Law 104-191 and Department of Defense Instruction [DODI] 6025.18) for the company. It also coordinates requests for patient evacuation and provides reports to higher headquarters.

Nutrition Care Section

2-30. This section is responsible for the provision of comprehensive nutrition services, including procurement of food/rations, regular and therapeutic meal preparation and distribution to patients, and hospital staff when resources permit (Army Regulation [AR] 30-22), nutritional assessment and medical nutrition therapy, patient education, providing the command advice and guidance on nutrition for health, human performance, stability tasks, FHP and health promotion programs. Hospital Company A (84 bed) has field feeding capability for its company. Refer to Appendix B for additional information on nutrition care operations.

Supply and Services Section

2-31. This section provides logistical functions for the hospital company and attached units, to include general and medical supplies; medical maintenance; blood management; waste disposal, water distribution, and environmental control of patient treatment areas; power and vehicle maintenance; fuel distribution; and equipment records and repair parts management. See Appendix D for details regarding waste disposal.

Triage/Preoperative/Emergency Medical Treatment Section

2-32. This section provides for the receiving, triaging, and stabilizing of incoming patients. The staff will receive patients, assess their medical condition, provide EMT, and transfer them to the appropriate areas of the hospital unit. *Emergency medical treatment* is the immediate application of medical procedures to the wounded, injured, or sick by specially trained medical personnel (FM 4-02). The staff is trained in EMT and managing trauma patients, as appropriate to grade and skill level. The staff monitors patient conditions and prepares those requiring immediate surgery for the OR. The litter bearers are responsible for the transportation of patients within the hospital unit. The EMT personnel read from and input to the automated clinical record, using available information systems for both inpatients and outpatients. They use automated tools for access to medical and essential operational information.

Specialty Clinic Section

2-33. This section combines an outpatient medical treatment section, orthopedic services, behavioral health services, preventive medicine surveillance capability of disease and nonbattle injuries, and facilities support.

2-34. The staff provides inpatient and outpatient on-site and remote consultations, as requested; evaluation and treatment of infectious disease and internal medicine disorders; evaluation and treatment of skin disorders; and treatment of patients with gynecological disease, injury or disorders. They also provide inpatient and outpatient assessment and inpatient stabilization of neuropsychiatric patients. Neuropsychiatric stabilization is undertaken in the ICW under the supervision of the staff and attending physician. The section also provides casting, splinting, and traction services. They also provide environmental and medical surveillance of conditions leading to disease and nonbattle injuries in consultation with public health experts.

Operating Room/Central Materiel Services Section

2-35. This section provides supervision of the OR and central materiel services (CMS). It schedules the nursing staff, prepares and maintains the OR and central materiel section, and maintains surgical and nursing standards within these areas. It functions with the anesthesia service section to perform initial surgery for battle and nonbattle injuries and follow-on surgery for patients who have received initial surgery at other MTFs. It provides general and orthopedic surgical services with two operating tables for a total of 36 hours of operating table time per day. When augmented by specialty surgeons and equipment from other elements of the hospital and the augmentation team (head and neck), it can provide thoracic, urological, obstetrics/gynecological, and oral maxillofacial surgical services. The FST or FRSD, when not deployed forward, is an additional augmentation for the hospital. The OR and CMS section provides records and reports to the commander for input to the commander's situation report. The staff reads from and inputs to automated clinical records, using available information systems. When consolidated, this section functions as one OR/central service entity.

Anesthesia Services Section

2-36. This section provides and manages the anesthesia program and respiratory services for the unit. It provides supervision and administration of anesthetics to patients undergoing surgery. It ensures appropriate supervision of respiratory therapy for patients. It ensures the clinical validation of medical equipment and supply sets for each mission, the readiness of clinical standard operating procedures, and the proficiency of a nurse anesthetist and an OR specialist to execute the mission of this section. The staff coordinates with and assists the EMT section in trauma care services. When consolidated, this section functions with the anesthesia and respiratory services section as one service.

Nursing Services Section

2-37. The chief, nursing services, is the chief nurse for this section. This section is responsible for the management of daily operations of nursing services throughout the unit, to include scheduling and supervision of nursing staff; preparation and coordination of duty rosters; emergency mass casualty (MASCAL) plans; and contingency staffing. It plans, organizes, executes, and directs nursing care practices and activities of the unit. This section ensures training and readiness for deployment of the nurse anesthetist and OR specialist. It also ensures the clinical validation of medical equipment and supply sets of the unit for each mission, the readiness of clinical standard operating procedures, and the proficiency of the nurse anesthetist and the OR specialist to execute the mission of this unit.

Intensive Care Unit

2-38. Two 12-bed intensive care wards provide for critically injured or ill patients. The ICU manages surgical or medical patients, adult and/or pediatric, whose physiological status is so disrupted that they require immediate and continuous medical or nursing care. The staff is specially trained with the clinical and managerial skills necessary to deliver safe nursing care to patients with complex medical problems. The ICU is also used as a preoperative stabilization area and postanesthesia recovery area for patients either awaiting surgery or recovering from surgery.

Intermediate Care Ward

2-39. The three ICWs manage surgical or medical patients whose conditions require observation for real or potential life-threatening disease or injury. The acuity of care may range from those requiring constant observation to those patients able to ambulate and to begin to assume responsibility for their own care. The level of care and acuity of these patients may fluctuate depending on the intensity of conflict. Although not routine, ICW patients may require monitoring devices and ventilator support. Each ward consists of 20 beds.

Patient Facilities

2-40. Patient facilities are required for each ward regardless of the type of ward or the hospital's bed configuration. They are required in both the hospital Company A (84-bed) and hospital Company B (164 bed).

2-41. Ambulatory patients will use the same latrines as the staff. The number of latrines established will be based on both the number of staff and the anticipated patient load. However, male and female latrines are required. Latrines need to be close enough to the ward areas for convenience of access while maintaining distances from dining facilities and water sources.

2-42. Nonambulatory patients require the use of bedpans and urinals. Disposal of fecal matter and urine and the sanitation of bedpans and urinals are major concerns. The sinks within the hospital will not be used for disposal of waste or for washing bedpans and urinals. One or more of the hospital latrines should be designated for emptying bedpans and urinals. Once the bedpans and urinals are emptied, they are washed (using a brush) with the wastewater disposed of in the latrine or designated area. An area should be established similar to that of a mess kit laundry line using metal garbage cans and immersion heater. One container must have warm soapy water and the other must have clear boiling water. These cans must be clearly marked for use in washing bedpans and urinals only. The bedpans are then sanitized by submerging into boiling water for 30 seconds. The bedpans and urinals are then placed on hanging devices to air dry.

Note. Personnel working with immersion heaters should be aware of the safety precautions and be trained in immersion heater lighting and operation. See Appendix E for more information on hospital safety.

2-43. An alternative consideration is the use of plastic bedpan liners. If plastic liners are used, they will reduce the requirement for cleaning and sanitizing the bedpan. The plastic liners will then be managed as solid waste.

Ancillary Services

2-44. One of the senior officers in the pharmacy, laboratory, or radiology section is dual-hatted as the chief, ancillary services. This person reports to either the chief, professional services or directly to the hospital commander, depending on unit policy. The chief, ancillary services is responsible for overseeing the daily operations of these three clinical support sections, to include tracking critical supplies, equipment, manpower issues, emergency MASCAL plans, and contingency staffing. This officer represents these sections at command/staff meetings and hospital committees. The chief, ancillary services, ensures training, readiness, and cooperation of personnel in these sections. The chief, ancillary services validates readiness and suitability of medical materiel sets of these sections for each mission, the readiness of section standard operating procedures, and the proficiency of personnel assigned to execute the mission. The chief, ancillary services plans, coordinates, and supervises the layout and design of these sections of the hospital.

Pharmacy Services Section

2-45. The pharmacy services section is responsible for developing, coordinating, and executing programs and policies that ensure the safe and appropriate use of medication. The following are key functions performed by the pharmacy services personnel:

- Develop, maintain, and publish the approved hospital formulary; screen all medication orders for drug-nutrient interactions or medication allergies.
- Monitor individual medication therapies for safe and appropriate disease state management; recommend alternative drug regimens to meet situational requirements.
- Monitor and report on all medication-related patient safety issues.
- Provide consultation services to medical and logistical staff.
- Monitor and enforce hospital wide quality control of pharmaceuticals.
- Provide outpatient pharmacy services.
- Provide inpatient pharmacy services, including sterile products preparation services.
- Provide drug/medication information services.
- Provide bulk drug and controlled substance distribution support for patient care areas.
- Provide direct patient care services and pharmacy supply and support services.

2-46. The pharmacy services section exercises appropriate control and accountability for all controlled substances and rosters with signature documentation for all individuals approved by the commander to prescribe, receive, order, or distribute controlled drugs. The pharmacy provides outpatient medications for the required number of days to complete therapy and/or the supply of medications required for air evacuation out of the theater. It uses automated systems for requisition of pharmacy supplies and interfaces with other unit sections for bulk pharmacy orders and with the supply and services section for resupply. When consolidated, the pharmacy sections of hospital Company A and hospital Company B function as one service.

Laboratory Services/Blood Bank Section

2-47. This section performs analytical procedures in hematology, urinalysis, chemistry, blood banking, and limited basic microbiology screening. The staff provides blood banking services, including all routine blood grouping and typing, abbreviated cross matching procedures, emergency blood collection, and blood inventory management. This section stores and issues liquid and frozen blood products, such red blood cells, platelets, low titer group O whole blood, and liquid plasma. It coordinates with the supply and services section and directly with the MEDLOG company and, as required, with the blood program office for blood supply and resupply requirements. It provides automated records and reports of current and projected blood status to the commander and higher headquarters. The hospital Company A (84 bed) and hospital Company B (164 bed) have laboratory and blood support capabilities. When consolidated, the laboratory services and blood bank of hospital Company A and hospital Company B function as one service. This section coordinates with environmental laboratories for data regarding potential toxic exposures from the operating environment.

Radiology Services Section

2-48. This section provides radiological services to all areas of the hospital unit and operates on a 24-hour basis. It prepares digital x-rays for transmission to the hospital radiologist or other consulting radiologists as requested by physicians. This section is responsible to the radiologist for standard operating procedures and policies. The radiology section is found in both the hospital Company A (84 bed) and hospital Company B (164 bed). When consolidated, the radiology sections of hospital Company A (84 bed) and hospital Company B (164 bed) function as one service.

Hospital Ministry Team

2-49. This team is responsible to the commander for religious support and pastoral care ministry for all staff and patients. It promotes spiritual health within the unit and performs liaison and consultative functions to ensure continuity of patient care between the hospital unit, combat and operational stress control support, and the patient's unit of origin. The team advises the commander on the spiritual health of unit personnel. It is responsible for providing inpatient daily clinical ministry to all nursing wards and the EMT section, as required. The hospital ministry team is found in both hospital Company A (84 bed) and hospital Company B (164 bed). When consolidated, the hospital ministry team of both companies function as one service. The senior chaplain in each hospital is in the command section of the HHD.

HOSPITAL COMPANY B (164 BED)

2-50. This company provides hospitalization for up to 164 patients, consisting of two wards providing critical care nursing for up to 24 patients and seven wards providing intermediate care nursing for up to 140 patients. Surgical capability, including general, orthopedic, thoracic, urological, gynecological, and oral maxillofacial, is based on four OR tables staffed for 60 operating table hours per day. This company, when attached, also provides OR space and time and table hours required by the hospital augmentation team, head and neck. Additional surgical support in the hospital Company B (164 bed) can be provided by the hospital augmentation team, head and neck and FST or FRSD (when not deployed forward).

2-51. The hospital Company B (164 bed) provides emergency treatment to receive, triage, and prepare incoming patients for surgery and provides consultation and outpatient clinic services for patients referred from other MTFs. This company also provides a clinical laboratory, to include limited basic microbiology, blood banking, and radiology services. It provides the administrative, logistical, patient administration, and nutrition care services required for full hospitalization. Organic hospital personnel set up and break down the unit shelter systems in preparation for unit operations or movement.

Company Headquarters

2-52. This headquarters is responsible for company-level command and control, administrative issues, duty rosters, weapons control, general supply support, and individual Soldier training.

Patient Administration Section

2-53. This section is responsible for the admission and disposition of patients, maintenance of patient records, security of patient valuables, and preparation of patient statistical reports for the company. It also coordinates requests for patient evacuation and provides reports to the hospital commander.

Nutrition Care Section

2-54. This section is responsible for the provision of comprehensive nutrition services, including procurement of food/rations, regular and therapeutic meal preparation and distribution to patients, and hospital staff when resources permit (AR 30-22), nutrition assessment and medical nutrition therapy, patient education, providing the command advice and guidance on nutrition for health, human performance, stability tasks, FHP and health promotion programs. Hospital Company B (164 bed) has field feeding capability for its company. Refer to Appendix B for additional information on nutrition care operations.

Supply and Services Division

2-55. This division is responsible for the logistical functions of the hospital company and attached units, to include general and medical supplies; medical maintenance; blood management; water distribution, waste disposal, and environmental control of patient treatment areas; power and vehicle maintenance; fuel distribution; and equipment records and repair parts management. Additionally, this division is responsible for coordinating with the supporting element of the MEDLOG company for the return of patient movement items.

Triage/Preoperative/Emergency Medical Treatment Section

2-56. This section provides for the receiving, triaging, and stabilizing of incoming patients. The staff will receive patients, assess their medical condition, provide EMT, and transfer them to the appropriate areas of the hospital unit. The staff will be trained in basic and advanced cardiac life support, EMT, and managing trauma patients as appropriate to grade and skill level. The staff monitors patient conditions and prepares those requiring immediate surgery for the OR. The litter bearers are responsible for transportation of patients within the hospital unit. The EMT section personnel read from and input to the automated clinical records using available information systems for both inpatients and outpatients. They use automated tools to access medical and essential operational information. The section communicates directly with incoming evacuation platforms (ground and air) to provide en route consultation and to ensure readiness of the section to receive patients.

Operating Room/Central Materiel Services Section

2-57. This section provides supervision of the OR and central materiel service. It schedules nursing staff, prepares and maintains the OR and central materiel service section, and maintains surgical and nursing standards within these areas. It functions with the anesthesia section to perform initial surgery for battle and nonbattle injuries and follow-on surgery for patients received from other MTFs. It provides general, orthopedic, thoracic, urological, gynecological, and oral maxillofacial surgical services with four OR tables for a total of 60 hours of table time per day. It uses automated tools to maintain projected OR schedules and determine surgical backlog in terms of projected hours to complete each surgery and numbers of patients. It provides records and reports to the commander for input to the commander's situation report. The staff reads from and inputs to the automated clinical record using available information systems. It accesses digital x-ray files for patient care during surgery. The section functions with the 84-bed hospital company and performs as one surgical service when consolidated.

Anesthesia Services Section

2-58. This section provides and manages the anesthesia program and respiratory services for the unit. It provides supervision and administration of anesthetics to patients undergoing surgery. The staff ensures the clinical validation of medical equipment and supply sets for each mission, the readiness of clinical standard operating procedures, and the proficiency of the nurse anesthetist and the OR specialist to execute the mission of this section. The section coordinates with and assists the EMT section in trauma care services. When consolidated with the hospital Company A (84 bed) anesthesia and respiratory services, the sections operate as one service section.

Specialty Clinic Section

2-59. This clinic provides patient services including sick call for staff and attached units. The clinic staff provides primary care and internal medicine consultation services for hospital patients and patients referred from other MTFs. This clinic functions in conjunction with the EMT section to efficiently provide treatment for incoming ambulatory patients. It evaluates and treats dermatological and gynecological diseases, injuries, and disorders. It provides orthopedic and physical therapy services. It also provides preventive medical treatment surveillance capability to monitor DNBI. This clinic also provides outpatient behavioral health and inpatient behavioral health consultation services. Behavioral health condition stabilization is undertaken in the ICW beds, minimal care detachment, or utilizing restoration center resources for combat and operational stress reaction symptoms under the care of the attending physician and behavioral health staff, with additional support as needed to ensure safe patient monitoring when indicated.

Dental Services Section

2-60. This section provides operational dental care, hygienist support, and consultation services for patients and staff. The alternate wartime role for this section is to augment the hospital with an additional combat casualty care capability. During MASCAL situations, the dentists assist in the triage, treatment, and management of trauma patients. The staff reads from and inputs to the electronic dental record using available information systems for both inpatients and outpatients.

Nursing Services Section

2-61. This section is responsible to the chief nurse for the management of daily operations of nursing services throughout the unit to include scheduling and supervision of nursing staff, preparation and coordination of duty rosters, emergency MASCAL plans, and contingency staffing. It plans, organizes, executes, and directs nursing care practices and activities of the unit. This section ensures training and readiness for deployment of a nurse anesthetist and an OR specialist. It also ensures the clinical validation of medical equipment and supply sets of the unit for each mission, the readiness of clinical standard operating procedures, and the proficiency of nurse anesthetist and OR specialist to execute the mission of this unit. It functions as a single nursing services section when the hospital functions as a 248-bed MTF.

Intensive Care Units

2-62. There are two intensive care wards in this hospital company. The capabilities of these ICUs are the same as what is discussed in paragraph 2-38.

Intermediate Care Wards

2-63. There are seven ICWs in this hospital company. The capabilities of these wards are the same as what is discussed in paragraph 2-39.

Ancillary Services

2-64. Ancillary services includes the pharmacy services section, laboratory services/blood bank section, and radiology services section. Refer to paragraphs 2-44 through 2-48 for information and functions of the ancillary services.

Hospital Ministry Team

2-65. For information on the functions of the hospital ministry team refer to paragraph 2-49.

SECTION II — HEADQUARTERS AND HEADQUARTERS DETACHMENT 248-BED COMBAT SUPPORT HOSPITAL

2-66. The HHD, CSH is modularly designed to provide command and control and enhance the ability to tailor AHS support to adapt to mission requirements of a smaller magnitude. This section discusses the headquarters section, early entry hospitalization element (44 bed); the headquarters section, hospitalization augmentation element (40 bed); the headquarters section, hospital Company B (164 bed); and the transportation element, HHD (248 bed CSH).

HEADQUARTERS SECTION, EARLY ENTRY HOSPITALIZATION ELEMENT (44 BED)

2-67. This headquarters section, early entry hospitalization element (44 bed) provides command and control, administrative services, logistics support, and communications support to include IM to the early entry hospitalization element (44 bed) and hospital Company A (84 bed), and assigned and attached units. It is authorized on the basis of one per CSH (248 bed). It will be deployed with the early entry hospitalization element (44 bed), hospital Company A (84 bed) during the initial phase of split-base operation to form stand-alone hospitalization for up to 72 hours without further logistical support. When the headquarters section is

deployed with the early entry hospitalization element (44 bed), it requires sustainment support as identified in paragraph 2-9. Additionally, the headquarters section requires field feeding, power generation for power consumers not requiring a dedicated generator, and unit maintenance of all organic equipment except communications equipment from the unit of attachment.

2-68. The headquarters section is capable of transporting 5,000 pounds (208 cubic feet) of TO&E equipment with organic vehicles. It has 1,659 pounds (67 cubic feet) of TO&E equipment requiring transportation.

HEADQUARTERS SECTION, HOSPITALIZATION AUGMENTATION ELEMENT (40 BED)

2-69. The headquarters section, hospitalization augmentation element (40 bed) provides command and control, administrative services, and logistics augmentation to the hospitalization augmentation element (40 bed), hospital Company A (84 bed), and to assigned and attached units during split-base operations. It is authorized on the basis of one per CSH (248 bed). It provides augmentation to operations and personnel section and logistical and communications support to include IM. It also provides patient-related linen and coordination for all other laundry support. It requires sustainment support as identified in paragraph 2-9. Conceptually, this section reunites with the early entry hospitalization element (44 bed) and its supporting headquarters section within 72 hours to form the hospital Company A (84 bed).

2-70. The headquarters section is capable of transporting 10,200 pounds (502 cubic feet) of TO&E equipment with organic vehicles. It has 6,637 pounds (333 cubic feet) of TO&E equipment requiring transportation.

HEADQUARTERS SECTION, HOSPITAL COMPANY B (164 BED)

2-71. The headquarters section, hospital Company B (164 bed) provides command and control, administrative services, and logistics augmentation to hospital Company B (164 bed) and to assigned and attached units during split-base operations. It is authorized on the basis of one per CSH (248 bed). It provides augmentation to operations and personnel sections and logistics and communications support to include IM. It also provides patient-related linen and coordination for all other laundry support. When this headquarters section is deployed with the hospitalization augmentation element (164 bed), it requires sustainment support as identified in paragraph 2-9.

TRANSPORTATION ELEMENT, HEADQUARTERS AND HEADQUARTERS DETACHMENT, 248-BED COMBAT SUPPORT HOSPITAL

2-72. The transportation element, HHD, 248-bed CSH provides organic transportation for the HHD, CSH (248 bed). It is authorized on the basis of one per CSH (248 bed). This element has no personnel authorizations. It is dependent upon the unit of attachment for vehicle operations, accountability, and maintenance.

2-73. The transportation element is capable of transporting 9,000 pounds (722 cubic feet) of TO&E equipment with organic vehicles. It has 40 pounds (0 cubic feet) of TO&E equipment requiring transportation.

SECTION III — HOSPITAL COMPANY A (84 BED)

2-74. Hospital Company A (84 bed) is modularly designed to provide split-base operations and to enhance the ability to tailor AHS support to adapt to mission requirements of a smaller magnitude. It consists of three separate organizations: early entry hospitalization element (44 bed), hospitalization augmentation element (40 bed), and transportation element. This section discusses each of the TO&Es and their application in support of hospital deployment.

EARLY ENTRY ELEMENT (44 BED), HOSPITAL COMPANY A (84 BED)

2-75. The modular design of the CSH allows specialized support capabilities to match mission requirements. The split-base operations capability of the CSH reduces strategic-lift requirements and AO support requirements. The early entry hospitalization element (44 bed) with its supporting headquarters section and transportation element can be readily deployed to support Army, joint, multinational, and humanitarian contingencies when a complete CSH is not required. This element, with augmentation from the headquarters section and transportation element, has the capability for 72 hours of stand-alone operations without resupply. If the force needs additional hospital assets later, medical commanders and AHS planners can deploy the remaining hospital augmentation element (40 bed), hospital Company B (164 bed) and supporting headquarters sections. When it is determined that medical assets are no longer required they could be incrementally redeployed back to home station or to other locations.

2-76. The early entry hospitalization element (44 bed) provides hospitalization services for all classes of patients. It is authorized on the basis of one per CSH (248 bed). It provides all clinical, ancillary, and sustainment support as discussed in paragraph 2-9.

2-77. The early entry hospitalization element (44 bed) is capable of transporting 773,099 pounds (50,050 cubic feet) of TO&E equipment with organic vehicles. It has 306,892 pounds (35,419 cubic feet) of TO&E equipment requiring transportation.

HOSPITALIZATION AUGMENTATION ELEMENT (40 BED)

2-78. The hospitalization augmentation element (40 bed) augments the early entry hospitalization element (44 bed), hospital Company A (84 bed) by providing outpatient specialty clinic services, 40 intermediate care beds, and augmentation to the company headquarters and supply and service section. This unit is authorized on the basis of one per CSH (248 bed). It requires sustainment support as identified in paragraph 2-9.

2-79. This element has no organic transportation assets. When augmented by the transportation element, hospital Company A (84 bed), it is capable of transporting 200,000 pounds (11,890 cubic feet) of TO&E equipment. It has 71,598 pounds (10,955 cubic feet) of equipment requiring transportation.

TRANSPORTATION ELEMENT, HOSPITAL COMPANY A (84 BED), COMBAT SUPPORT HOSPITAL

2-80. This transportation element provides organic transportation for elements of hospital Company A. It is authorized on the basis of one per CSH (248 bed). It is assigned to the CSH (248 bed) and further attached to the hospital Company A (84 bed). It is dependent upon the unit of attachment for vehicle operations, accountability, and maintenance. This element has no personnel authorizations.

2-81. The transportation element is capable of transporting 282,500 pounds (10,706 cubic feet) of TO&E equipment with organic vehicles. It provides 100 percent mobility to meet mission and function of the early entry hospitalization element (44 bed), and 35 percent to the remaining hospital company A (84 bed).

2-82. The transportation element has 363,201 pounds (43,504 cubic feet) of TO&E equipment requiring transportation.

SECTION IV — COMBAT SUPPORT HOSPITAL LAYOUT EXAMPLE

2-83. Figure 2-1, on the next page, represents an example of how a CSH could possibly be established. There is no one or only way to set up a CSH. Laying out the hospital will depend on mission, space available, terrain, time, and personnel. However, it is always important to consider the most effective and efficient patient flow through the hospital. For example, lab and x-ray should be close to the triage and EMT area to avoid long patient transfers to a distant part of the facility during initial treatment of a trauma patient.

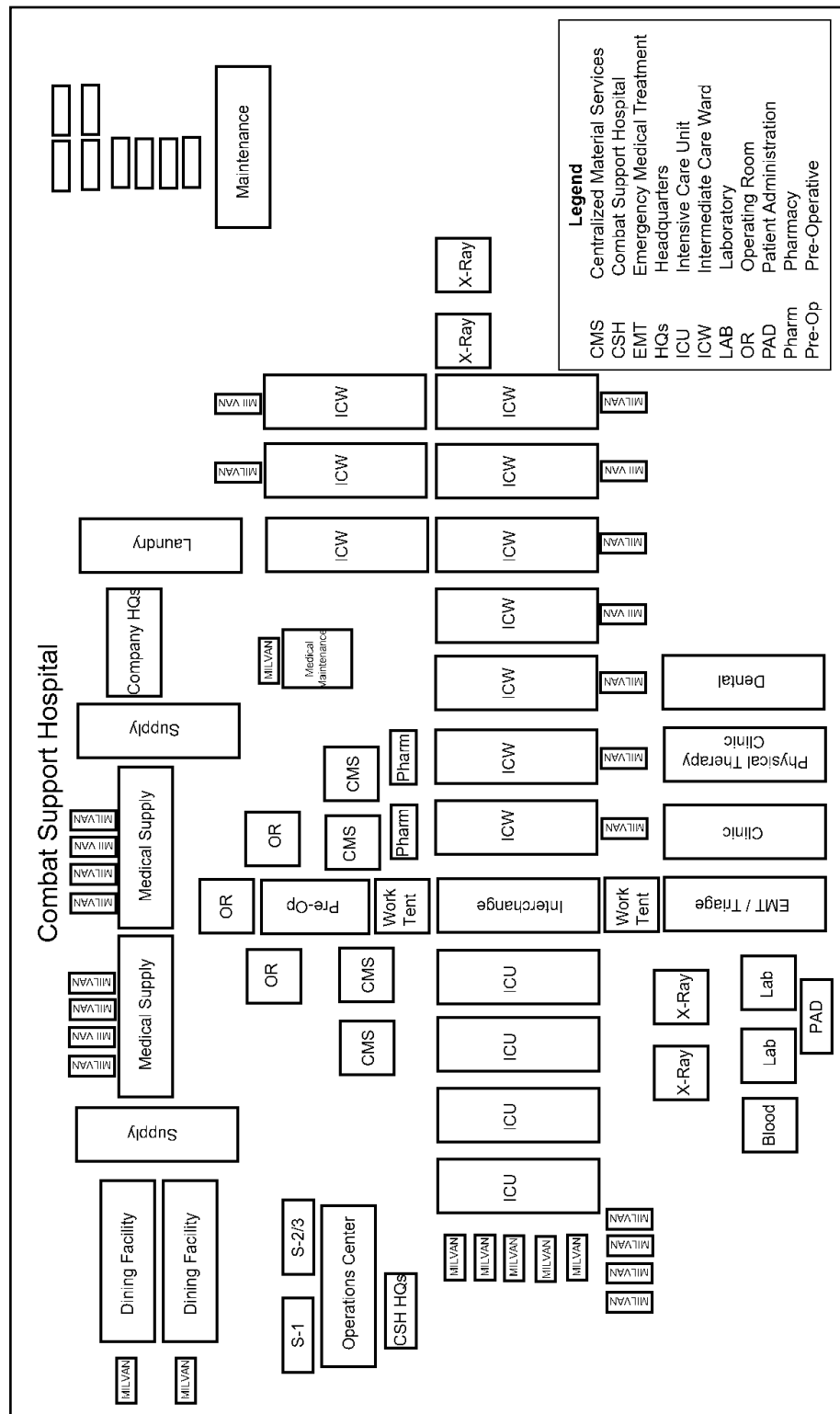


Figure 2-1. 248 bed combat support hospital layout

Chapter 3

Hospital Center Organizations and Functions

The hospital center provides essential care within the theater evacuation policy to either return the patient to duty or stabilize the patient for evacuation to a Role 4 MTF outside the AO. The hospital center's assigned medical personnel, facilities, equipment, and materials provide the requisite capabilities to render significant preventive and curative health care. These highly robust services encompass primary inpatient and outpatient care; emergency care; and enhanced medical, surgical, psychiatric, and ancillary capabilities. The modular design of the hospital provides the capability to tailor and deploy capabilities as modules or multiple individual capabilities that provide incrementally increased medical services.

SECTION I — INTRODUCTION TO THE HOSPITAL CENTER

3-1. For the past several years, the concept for converting the current CSH to a more modular, scalable, flexible hospital has been planned, implemented, and is being executed. There are five distinct elements, with associated TO&Es, that make up the hospital center: 1) a HHD; 2) the field hospital (32 bed); 3) hospital augmentation detachment (medical 32 bed); 4) hospital augmentation detachment (surgical 24 bed); and 5) hospital augmentation detachment (ICW 60 bed). When referring to the organization as a whole (or at least the HHD and one or more of the subordinate units), it is generally called the hospital center (not field hospital). The field hospital is the 32 bed subordinate unit that is only one component within the hospital center.

3-2. The hospital center is a modular MTF designed to provide Role 3 medical capability in a tailored organizational structure to support the Army's varied unified land operation missions. The organization was designed to support the Army's decisive action requirement to conduct a mix of offensive, defensive, stability tasks, and defense support of civil authorities simultaneously in a variety of scenarios. The hospital provides essential care within the theater evacuation policy to either return the patient to duty or stabilize the patient for evacuation to a definitive care facility outside the AO. The hospital center may be augmented by one or more hospital augmentation detachments, other medical detachments, or smaller medical teams designed to enhance its capabilities to provide AHS support to unified land operations within the AO. These augmentation detachments or teams should normally be assigned or attached to the field hospital (32 bed) and absorbed into sections with like functions. In many respects, the augmentation units will essentially lose their identity as a separate unit when deployed and employed with the hospital center. More discussion concerning the types of units that can augment the hospital is later in this chapter and in Chapter 4.

3-3. The HHD and field hospital (32 bed) comprise the core and lowest denominator of the hospital center. The field hospital (32 bed) is the only unit that provides complete clinical capabilities/staffing required to be designated as a Role 3 MTF. This hospital is deliberately designed to be self-supporting while remaining light, transportable, and expandable. The HHD, hospital center and field hospital (32 bed) are designed as the first increments to be deployed in support of an expeditionary force and can be expanded incrementally to a maximum of a 240 bed hospital by adding augmentation detachments. The HHD, hospital center can command one to two field hospitals (32 bed), with requisite augmentation detachments and teams, in one or separate locations (dual-based operations) without staff augmentation.

Note. Planning and providing AHS support presents unique challenges to the medical commander, medical planner, and staff. Based on a myriad of mission variables it may be necessary, but not by design, to employ the field hospital (32 bed) independent from the HHD, hospital center for a short period of time. Simultaneous or near simultaneous employment of the two organizations is ideal for command and control, consultative services, and utilization of equipment resources. If mission variables or resource constraints prohibit the simultaneous employment of these organizations, the field hospital (32 bed) is capable of employing and providing Role 3 hospitalization without the HHD, hospital center. The field hospital (32 bed) would be task-organized to the senior medical commander (such as the medical brigade [support]) until the HHD, hospital center, is deployed to the AO.

3-4. Specific capabilities of the new hospital design increase the capabilities of the current CSH design with inclusion or revision of the following:

- Computed tomography equipment reallocated to the field hospital (32 bed) from the hospital augmentation team (head and neck).
- Microbiology laboratory services.
- Critical care physicians (intensivists) to manage patients in the ICU.
- Internal medicine physicians (hospitalists) to manage patients in the ICW.
- Emergency room physician assistants in the triage, EMT section, and preoperative care.
- Inpatient behavioral health capabilities and behavioral health consultation and education.
- Increased ICU capacity.

3-5. Improvements in versatility and agility:

- Command and control and enhanced communications capability to conduct dual-based operations indefinitely without augmentation.
- Augmentation detachments and additional medical teams with specific clinical specialties can be adapted to better support the mission.

3-6. Deployability and adaptability:

- Initial hospitalization capabilities are provided by a HHD, hospital center, and field hospital (32 bed).
- The HHD, hospital center, field hospital (32 bed), and all hospital augmentation detachments have separate modular TO&E structures.
- Each hospital augmentation detachment is designed to expand the field hospital's (32 bed) medical or surgical capacities.
- Commanders can tailor the medical forces to support unified land operations, matching the anticipated mix of capabilities and medical specialties to the population supported and the clinical challenges they present.
- The modular composition of the hospital center makes planning for required medical capabilities much easier; planners can design and take only the field hospital (32 bed) and medical augmentation detachments that contain the medical treatment capabilities needed, as determined in mission analysis. However, once the hospital is established and operating in the AO, it becomes very difficult to unplug an augmentation detachment and plug it back into to another hospital elsewhere. The augmentation detachments become a very integral part of the hospital operations (personnel, equipment, and functions) and disconnecting one of them will be a challenge, but not impossible.

SECTION II — HEADQUARTERS AND HEADQUARTERS DETACHMENT, HOSPITAL CENTER

3-7. This section provides an overall discussion of the HHD, hospital center mission, basis of allocation, assignment and capabilities, dependencies, employment, and organization and functions.

MISSION

3-8. The HHD, hospital center provides command and control for up to two field hospitals (32 bed) and requisite augmentation detachments all in one location or dual-based.

BASIS OF ALLOCATION

3-9. The basis of allocation for an HHD, hospital center is one per a maximum of two field hospitals (32 bed), and hospital augmentation detachments, up to a total of 240 beds. If medical planners determine that one HHD, hospital center cannot adequately provide command and control of two separated field hospitals (32 bed) due to distance and insufficient communications, a second HHD, hospital center should be requested.

ASSIGNMENT AND CAPABILITIES

3-10. The HHD, hospital center is assigned to the headquarters and headquarters company, medical brigade (support).

3-11. This unit provides the following:

- Command and control of organic and attached elements, to include AHS support planning, policies, and support operations within the hospital's AO.
- Information to commanders and staff on the health of the command and on health aspects affecting the unit's mission or AHS support.
- Command and control for dual-based operations as required.
- Augmentation to the field hospital, (32 bed) motor maintenance section.
- Individual weapons for personal defense and protection of the patients under their care.
- Additional maintenance capabilities of the field hospital (32 bed).

DEPENDENCIES

3-12. This unit is dependent upon appropriate elements within the AO for religious; legal; AHS support; finance; personnel and administrative services; mortuary affairs; security of EPWs and detained patients and prisoner patients; transportation support when mobility requirements exceed unit capability; vehicle recovery operations; and transportation and equipping for return to duty personnel (to include individual clothing and equipment, seasonal outer garments, chemical protection garments, and shower and laundry services not related to patient care). This unit is also dependent upon the following:

- The quartermaster supply company (modular) for Class I, II, III, and VII supplies and to provide potable water and unclassified map support.
- The MEDLOG company for Class VIII support and augmentation of personnel for medical equipment maintenance and repair, as required.
- The field hospital (32 bed), nutrition care section for feeding of headquarters staff as resources permit, in accordance with AR 30-22.
- The horizontal construction company to construct hospital platforms.
- The prime power battalion to generate long-term hard-stand electrical power and provide advice and technical assistance for electrical power and distribution, and for relief of tactical generators as required for the hospital.
- The medical detachment (veterinary service support) for food protection and veterinary public health support. The food protection mission includes food safety; food defense; quality assurance inspection and surveillance activities associated with rations, food, bottled water, and ice manufacturing sources; and food and water risk assessments. The veterinary public health reduces transmission of zoonotic diseases; monitors animals as sentinels of threats to humans by investigating unexplained animal deaths; and investigates potential rabies exposures to humans. The potential of foodborne disease, the threat of CBRN contamination of subsistence, and the need to assess and mitigate the zoonotic disease threat requires a veterinary presence.

- The expeditionary signal company provides communications support in theater primarily for echelons above corps Army units. They also provide automatic switching services for secure, unsecure analog, and digital voice and data traffic, tactical multichannel high capacity transmissions systems, multichannel satellite ground terminals, and access to the Defense Systems Network services.
- The casualty liaison team for accurate and timely casualty information, facilitates real-time casualty information for commanders, and assists in the management of casualty operations as needed.
- The medical company (air ambulance) to provide intratheater aeromedical evacuation support to and between roles of care within the AO, transportation of emergency Class VIII resupply, and movement of medical personnel to support the AHS mission.
- The Air Force aeromedical evacuation liaison team for coordinating intertheater patient evacuations to higher roles of care, generally out of the AO.
- In addition to the augmentation detachments habitually associated with the hospital center, the following specialty augmentation teams/detachments are required to increase medical specialty and AHS support capabilities as needed:
 - Medical team, forward surgical.
 - Medical team, forward surgical (airborne).
 - Medical team, forward resuscitative and surgical.
 - Medical team, forward resuscitative and surgical (airborne).
 - Medical detachment, minimal care.

MOBILITY

3-13. The unit's organic vehicles are capable of transporting 100 percent of its TO&E equipment and provide limited transportation for the field hospital (32 bed). The unit's organic vehicles can transport 35 percent of the field hospital's (32 bed) TO&E equipment in a single lift with personnel augmentation from the field hospital (32 bed) to assist in driving the vehicles.

EMPLOYMENT

3-14. The HHD, hospital center deploys into a joint operations area providing command and control to assigned and attached units engaged in the operational support of hospitalization and outpatient services for all classes of patients within the AO. It is important to note that the HHD, hospital center is designed to be able to provide command and control of two field hospitals (32 bed) in two separate locations, not one field hospital (32 bed) split in two locations. The field hospital (32 bed) is not designed to be split.

FUNCTIONS AND REQUIREMENTS

3-15. The following information describes the organization's functions and requirements specified in the section one of the TO&E.

COMMAND SECTION

3-16. The command section provides command and control for elements of the hospital and coordination for hospitalization support within the hospital's AO. The command section provides advice to supported tactical commanders on the health of the command and provides medical surveillance activities within the AO. Command and staff personnel provide supervision and coordination of administrative, logistics, operations, medical, surgical, nursing, and hospital ministry services.

CLINICAL OPERATIONS SECTION

3-17. The clinical operations section—

- Consists of the principal consultants and technical advisors for the command in medical, surgical, and nursing care.
- Manages medical provider credentialing and administration, as well as clinical care quality assurance, treatment protocol management, and AHS support and training.
- Establishes patient management policies, and ensures facilities and resources are adequate to treat all types of disease and injury, to include CBRN casualties.
- Provides staff supervision of clinical activities throughout the hospital to include proper staffing of the subordinate hospital elements.
- Plans and coordinates health services clinical resources within the hospital.
- Plans and coordinates clinical medical resources to provide effective and consistent treatment of wounded, injured, or sick personnel so as to return to duty or evacuate from the AO.
- Monitors clinical policies, protocols, and procedures pertaining to the medical and surgical treatment of sick, injured, and wounded personnel.
- Plans and monitors the provision of combat casualty care within assigned or attached hospital elements.
- Monitors the management of clinical specialties including professional medical provider rotation policies, if applicable.

PERSONNEL STAFF OFFICER SECTION

3-18. The S-1 section—

- Provides human resources services for the hospital center and subordinate elements attached and assigned, to include personnel administration, mail distribution, and awards and decorations.
- Maintains leave and rest and recuperation schedules.
- Coordinates for morale, welfare, and recreation support.
- Prepares and manages correspondence for the command.
- Maintains unit personnel readiness status.
- Ensures personnel and deployment manifests are maintained and manages the personnel replacement program.
- Coordinates with the senior medical unit's public affairs officer for protocol and public affairs support.

INTELLIGENCE STAFF OFFICER/OPERATIONS STAFF OFFICER SECTION

3-19. The S-2/S-3 section—

- Plans and coordinates medical resources to provide effective and consistent treatment of wounded, injured, or sick personnel so as to return to full duty or evacuate from the AO.
- Plans and coordinates health services resources within the hospital.
- Assists in maintaining situational understanding by coordinating for current medical threat analysis and the common operating picture with the medical brigade (support) and medical command (deployment support) S-2/S-3/G-3.
- Maintains tactical situational understanding through coordination with supported units.
- Assists in coordinating training requirements and execution within the hospital.
- Develops MASCAL plans and determines the medical workload requirements based upon the casualty estimate within the hospital's AO.
- Develops, synchronizes, and coordinates hospitalization support within the AO to support the commander's decisions, planning guidance, and intent.
- Evaluates and interprets medical statistical data.

- Provides support to the commander for plans, intelligence, operations, security, deployment, redeployment, and relocation of the hospital center and subordinate elements.

LOGISTICS STAFF OFFICER SECTION

3-20. The S-4 section—

- Monitors MEDLOG services within the hospital and supported units.
- Monitors health services and FHP resources within the hospital.
- Determines MEDLOG requirements and priorities.
- Adapts medical equipment sets (MESs) for a specific scenario to include adding items based on forecasted types of injuries.
- Monitors the requisition, procurement, storage, maintenance, distribution, management, and documentation of Class VIII materiel and special hospital items of subsistence required for patient care.
- Provides planning, programming, coordinating, and supervision of all activities concerning the internal logistical operations of the hospital center and subordinate elements.
- Maintains and manages the hospital's property book.
- Coordinates for external logistical support requirements such as equipment transportation support, inbound resupply tracking, and contracts.
- Coordinates for resupply of all classes of supply.
- Monitors equipment (medical and nonmedical) status, reporting, and repair programs.

S-6 SECTION

3-21. The S-6 section—

- Provides for all aspects of automation and communications-electronics for the command.
- Determines signal requirements, capabilities, and operations.
- Provides advice and consultation on medical information systems used within the hospital center and subordinate elements.
- Ensures internal and external communication connectivity within the hospital and subordinate elements.
- Establishes and maintains internal information systems, servers, devices, and tele-health systems.

TRANSPORTATION SECTION

3-22. The transportation section—

- Provides organic transportation required for mission accomplishment of the hospital.
- Provides transportation for the HHD, hospital center.
- Coordinates for external transportation support when the mission requirements exceed organic assets.

SECTION III — FIELD HOSPITAL (32 BED)

3-23. This section provides a discussion of the field hospital (32 bed), allocation, assignment and capabilities, dependencies, employment, and organization and functions.

MISSION

3-24. The field hospital (32 bed) provides hospitalization and outpatient services for all classes of patients within the AO.

BASIS OF ALLOCATION

3-25. Refer to Section X, on page 3-28, for specific information referencing the unit's basis of allocation.

ASSIGNMENT AND CAPABILITIES

3-26. The field hospital (32 bed) is assigned to the HHD, hospital center.

3-27. This unit provides—

- Company-level command and control of organic elements to include AHS support, planning, policies, and support operations within the hospital's AO and is capable of operating up to 72 hours with its initial basic load of supply.
- Information to commanders and their staff on the health of their command and on health aspects affecting the unit's missions.
- Hospitalization for up to 32 patients consisting of one ward providing intensive nursing care for up to 12 patients and one ward providing intermediate nursing care for up to 20 patients.
- Surgical capability, including general, orthopedic, and obstetrics-gynecological based on two OR tables capable of providing 36 OR hours per day.
- Emergency treatment to receive, triage, and resuscitate patients to include not only military personnel, but eligible Department of Defense (DOD) Civilian employees and contractors, local nationals, and detainees.
- Army Health System support for organic personnel (unit-level support).
- Pharmacy, clinical laboratory, blood banking, radiology/CT and nutrition care service for patients and organic staff.
- Personnel administration, patient administration, unit maintenance, medical and non-MEDLOG, preventive medicine, and laundry services for direct patient-related linen and shower facilities for ambulatory patients, and direct patient care providers.
- Coordinates with the United States Air Force Theater Patient Movement Requirements Center for medical regulating and movement of patients from the AO.
- Technical advice and consultation on medical information systems and programs such as the MC4 system comprised of the TMIP-J software suite.
- All work areas and assemblages with three days of supply within identified medical materiel sets.
- Field maintenance support to all elements of the hospital and all attached and assigned units.
- Weapons for personal defense and protection of the patients.

DEPENDENCIES

3-28. This unit is dependent upon the following:

- Appropriate elements within the AO for religious; legal; AHS support; finance; personnel and administrative and logistical services; mortuary affairs; security of EPW patients and U.S. prisoner patients; transportation support when single lift requirements exceed unit capability; vehicle recovery operations; and transportation and equipping for return to duty personnel (to include individual clothing and equipment, seasonal outer garments, chemical protection garments, and shower and laundry services not related to patient care).
- The quartermaster supply company (modular) for Class I, II, III, and VII supplies and to provide potable water and unclassified map support.
- The MEDLOG company for Class VIII support. Augmentation of personnel for medical equipment maintenance and repair, as required.
- The horizontal construction company to construct field hospital platforms.
- The prime power battalion to generate electrical power and to provide advice and technical assistance for electrical power and distribution.
- The medical detachment (veterinary service support) for food protection and veterinary public health support. The food protection mission includes food safety; food defense; quality assurance

inspection and surveillance activities associated with rations, food, bottled water, and ice manufacturing sources; and food and water risk assessments. The veterinary public health reduces transmission of zoonotic diseases; monitors animals as sentinels of threats to humans by investigating unexplained animal deaths; and investigates potential rabies exposures to humans. The potential of foodborne disease, the threat of CBRN contamination of subsistence, and the need to assess and mitigate the zoonotic disease threat requires a veterinary presence.

- The expeditionary signal company to provide automatic switching services for both analog and digital voice and data traffic, tactical multichannel high capacity transmission systems, and multichannel satellite ground terminals.
- The casualty liaison team for accurate and timely casualty information, facilitates real-time casualty information for commanders, and assists in the management of casualty operations as needed.
- The medical company (air ambulance) to provide intratheater aeromedical evacuation support to and between roles of care within the AO, transportation of emergency Class VIII resupply, and movement of medical personnel to support the AHS mission.
- Air Force aeromedical evacuation liaison team for coordinating intertheater patient evacuations to higher roles of care, generally out of the AO.
- In addition to the augmentation detachments habitually associated with the hospital center, the following specialty hospital augmentation teams/detachments are required to increase medical specialty and AHS capabilities as needed:
 - Hospital augmentation team, head and neck.
 - Medical team, forward surgical.
 - Medical team, forward surgical (airborne).
 - Medical team, forward resuscitative and surgical.
 - Medical team, forward resuscitative and surgical (airborne).
 - Medical detachment, minimal care.

MOBILITY

3-29. This unit requires 35 percent of its TO&E equipment to be transported in a single lift using authorized vehicles in the HHD, hospital center.

EMPLOYMENT

3-30. The field hospital (32 bed) is designed to be employed with the HHD, hospital center, and will provide command and control, Role 3 hospitalization, and outpatient services in an AO. It is important to note that providing Role 3 medical capabilities in two locations, controlled by one HHD, hospital center is performed by two field hospitals (32 bed) in two separate locations, not one field hospital (32 bed) split in two locations. An individual field hospital (32 bed) is not designed to be split.

FUNCTIONS AND REQUIREMENTS

3-31. The following information provides the organization's functions and requirements specified in the section one of the TO&E.

COMMAND SECTION

3-32. The command section—

- Provides internal command and control and management of the field hospital (32 bed) and attached hospital augmentation detachments and teams.
- Provides administrative support, prepares unit plans for movement, routine and medical support operations, and mission-related task organization.

COMPANY HEADQUARTERS

3-33. The company headquarters—

- Provides command and control of the field hospital (32 bed) and attached hospital augmentation detachment and teams.
- Supervises and coordinates the operations and administrative services.
- Provides logistical functions for the hospital elements and attached units, to include general and medical supplies; environmental control of patient treatment areas; power and vehicle maintenance; fuel distribution; and equipment records and repair parts management.
- Provides laundry services for direct patient care providers and patients and coordinates through the higher headquarters for all other laundry support.
- Provides shower services for patients and medical providers.

OPERATIONS SECTION

3-34. The operations section—

- Plans and coordinates medical resources to provide effective and consistent treatment of wounded, injured, or sick personnel involving return to full duty or evacuation from the hospital's AO.
- Plans and coordinates AHS resources within the hospital's AO.
- Assists in maintaining situational understanding by coordinating for current AHS support information with medical operations of the next higher, adjacent, and subordinate headquarters.
- Assists in coordinating training requirements and execution within the hospital.
- Develops MASCAL plans, and determines the medical workload requirements based upon the casualty estimate within the hospital's AO.
- Develops, synchronizes, and coordinates AHS within the hospital's AO to support the commander's decisions, planning guidance, and intent.
- Coordinates AHS training requirements and execution.
- Provides support to the commander for plans, intelligence, operations, security, deployment, redeployment and relocation of the field hospital (32 bed) and subordinate elements.
- Provides for the installation, operation, management and maintenance of the IM systems. Establishes and maintains secure and nonsecure local area network.
- Manages the IM applications and MC4. Ensures automated logistics interfaces in all sections of the hospital and attached units.

PATIENT ADMINISTRATION SECTION

3-35. The patient administration section—

- Secures and accounts for patients' valuables.
- Prepares patient-statistical reports for the hospital and coordinates reporting to the appropriate command and control structure.
- Coordinates requests for patient evacuation and provides reports to higher headquarters.
- Coordinates with patient's unit and mortuary affairs for prompt removal of remains and personal effects.

NUTRITION CARE SECTION

3-36. See Appendix B for more detailed discussion about nutrition care in a Role 3 hospital. The nutrition care section—

- Supervises, manages and controls all nutrition care operations within the hospital.
- Provides food service management, including meal preparation, modified diet food preparation, and distribution of food and beverages to patients, and to staff when resources permit.
- Provides the full complement of medical nutrition therapy to inpatients and outpatients.
- Serves as the command advisor on health and nutrition for patients and MTF staff.

- May serve as dietitian in general support of units in the hospital's AO.
- Provides nutrition care services for patients, including EPWs or retained/detained personnel while ensuring culturally appropriate foods are provided according to command guidance.

SUPPLY AND SERVICE SECTION

3-37. See Chapter 5 for more detailed discussion about logistics management in a Role 3 hospital. Supply and services section provides logistical functions for the hospital and attached units to include—

- Medical supplies.
- Medical maintenance management.
- Blood management.
- Water distribution.
- Waste disposal.
- Environmental control of patient treatment areas.
- Temporary hospital morgue (only for those that expired while under care at the MTF).

MOTOR MAINTENANCE SECTION

3-38. Motor maintenance section performs field maintenance functions on—

- Organic wheeled vehicles.
- Power generation.
- Quartermaster CBRN defense equipment.
- Environmental control units.

LAUNDRY AND SHOWER SECTION

3-39. Laundry and shower section—

- Provides laundry services for direct patient care providers and patients.
- Coordinates with supporting element for all other laundry support not directly related to patient care.
- Provides shower services for patients and medical providers.

TRIAGE, PREOPERATIVE, EMERGENCY MEDICAL TREATMENT SECTION

3-40. Triage, preoperative, EMT section—

- Provides for the receiving, triaging, and stabilizing of incoming patients as follows:
 - Receives patients.
 - Assesses their medical condition.
 - Provides EMT services.
 - Transfers the patient to the appropriate functional area within the hospital.
- Monitors patient conditions and prepares those requiring immediate surgery for the OR.
- Communicates directly with incoming evacuation platforms (ground and air) to provide en route consultation and to ensure readiness to receive incoming patients.
- Provides on-site and remote consultation services via digital means when available.

OPERATING ROOM AND CENTRAL MATERIEL SERVICES SECTION

3-41. The OR and CMS section—

- Provides supervision of the OR and CMS.
- Schedules nursing staff, prepares and maintains the OR and CMS, and maintains surgical and nursing standards within these areas.

- Works with the anesthesia section to perform initial surgery for battle and nonbattle injuries and follow-on surgery for patients received from other MTFs.
- Provides general, orthopedic, and obstetrics-gynecological surgical services with two OR tables for a total of 36 hours of table time per day. An additional surgical table is available in the radiology section and can be utilized to increase the total OR capacity, if necessary.
- Projects OR schedules and determines OR surgical backlog in terms of projected hours to complete each surgery and numbers of patients.
- Provides records and reports to the commander. The staff reads from and inputs to the automated clinical record using available information systems.
- Functions with the hospital augmentation detachment (surgical 24 bed), OR and CMS as one surgical service, when consolidated.

ANESTHESIA SERVICE SECTION

3-42. The anesthesia service section—

- Provides anesthesia and respiratory services for the hospital.
- Provides supervision and administration of anesthetics to patients undergoing surgery.
- Provides clinical validation of medical equipment and supply sets for each mission.
- Reviews the readiness of clinical standard operating procedures.
- Reviews the proficiency of area of concentration (AOC) 66F and career management field 68V to execute the mission of the section.
- Coordinates with and assists the EMT section in trauma care services. When consolidated, it functions with the hospital augmentation detachment (surgical 24 bed), anesthesia, and respiratory services as one service.

NURSING SERVICE SECTION

3-43. Nursing service section—

- Manages daily operations of nursing services throughout the hospital.
- Provides scheduling and supervision of nursing staff to include preparation and coordination of duty rosters; emergency MASCAL plans, and contingency staffing.
- Plans, organizes, executes, and directs nursing care practices and activities of the hospital.
- Ensures training and readiness for deployment of nurses and other medical personnel as required.
- Provides clinical validation of medical equipment and supply sets of the hospital for each mission, the readiness of clinical standard operating procedures, and the proficiency of nurse officers and enlisted nursing personnel to execute the mission of the hospital.
- Plans, coordinates, and supervises the layout and design of the clinical aspects of the physical facilities.

INTENSIVE CARE UNIT

3-44. Intensive care unit—

- Provides one 12-bed ICU for critically injured or ill patients requiring the most intensive monitoring and care.
- Manages surgical and medical patients, adult and pediatric, whose physiological status is so disrupted that they require immediate and continuous medical and nursing care.
- Provides preoperative stabilization area and postanesthesia recovery area for patients either awaiting surgery or recovering from surgery.

Note. Of the 12 beds, only 10 are resourced with all of the requisite capabilities of a fully functioning ICU bed (nursing staff, intravenous pumps, and ventilators). These two beds can be and are typically used as transition beds for patients awaiting evacuation, for patients that are too complex for the ICW, or simply as overflow beds.

INTERMEDIATE CARE WARD

3-45. Intermediate care ward—

- Provides one 20-bed ICW.
- Manages surgical or medical patients whose conditions require observation for real or potential life-threatening disease or injury. The acuity of care may range from those requiring constant observation to those patients able to ambulate and begin to assume responsibility for their care.

Note. The level of care and acuity of the ICW patients may fluctuate, and although not routine, ICW patients may require monitoring devices and ventilator support.

PHARMACY SECTION

3-46. Pharmacy section—

- Develops, coordinates, and executes programs and policies ensuring safe and appropriate medication use within the hospital.
- Develops, maintains, and publishes the approved hospital formulary; screens all medication orders for drug-drug and drug-nutrient interactions, or medication allergies.
- Monitors individual medication therapies for safe and appropriate disease state management and recommends alternative drug regimens to meet situational requirements.
- Monitors and reports on all medication-related patient safety problems.
- Provides consultation services to medical and logistical staff.
- Monitors and enforces hospital-wide quality control of pharmaceuticals.
- Provides outpatient pharmacy services.
- Provides inpatient pharmacy services, including sterile products preparation services.
- Provides drug and medication information services and provides bulk drug and controlled substance distribution support for patient care areas.
- Provides direct patient care services, and provides pharmacy supply and support services.
- Provides and exercises appropriate control and accountability for all controlled substances and rosters with signature documentation for all individuals approved by the hospital commander to prescribe, receive, order, or distribute controlled drugs.
- Provides outpatient medications for the required number of days to complete therapy or the supply of medications required for medical evacuation out of the AO.

LABORATORY SERVICES AND BLOOD BANK SECTION

3-47. Laboratory services and blood bank section—

- Performs analytical procedures in hematology, urinalysis, chemistry, blood banking, and limited basic microbiology screening. Attachment of the hospital augmentation detachment (surgical 24 bed) and the hospital augmentation detachment (medical 32 bed) is required if analytical microbiology capability is required.
- Coordinates with environmental laboratories for data regarding potential toxic exposures from the operating environment.
- Provides blood banking services, including all routine blood grouping and typing, abbreviated cross-matching procedures, emergency blood collection, and blood inventory management.
- Stores and issues liquid and frozen blood products, such as red blood cells, platelets, low titer group O whole blood, and liquid plasma.
- Coordinates with the supply and services section and directly with the medical detachment (blood support) and with the blood program office for blood supply and resupply requirements.
- Provides automated records and reports of current and projected blood status to the commander and higher headquarters.

RADIOLOGY SECTION

3-48. Radiology section provides radiological services to all areas of the hospital and operates on a 24-hour basis.

COMPUTED TOMOGRAPHY SECTION

3-49. Computed tomography section—

- Provides radiological services to all areas of the hospital.
- Provides the ability to support CT services for all areas of the hospital and operates on a 24-hour basis.

HOSPITAL MINISTRY TEAM

3-50. Hospital ministry team, provides religious support and pastoral care ministry for patients, assigned staff, and subordinate organizations.

SECTION IV — HOSPITAL AUGMENTATION DETACHMENT (SURGICAL 24 BED)

3-51. This section provides a discussion of the hospital augmentation detachment (surgical 24 bed) allocation, assignments and capabilities, dependencies, employment, and organization and functions.

MISSION

3-52. The hospital augmentation detachment (surgical 24 bed) augments the capabilities of the field hospital (32 bed) with thoracic, urology, oral maxillofacial surgical capabilities, 24 additional ICU beds, outpatient services, and microbiology.

BASIS OF ALLOCATION

3-53. See Section X, on page 3-28, for specifics referencing the unit's basis of allocation.

ASSIGNMENT AND CAPABILITIES

3-54. Assigned to the HHD, hospital center and further attached to the field hospital (32 bed). Once attached to the field hospital (32 bed), this unit loses much of its own autonomy and identity. It is intended to augment a hospital that already possesses much of its capabilities and therefore, gets absorbed into the field hospital's (32 bed) medical and surgical structure.

3-55. This unit provides—

- Augmentation of surgical capability for thoracic, orthopedic, and oral maxillofacial surgery based on two OR tables for a total of 36 operating table hours per day.
- Augmentation of hospitalization with up to 24 patients consisting of two wards providing intensive care nursing.
- Consultation and outpatient clinic services for patients referred from other MTFs.
- Behavioral health, public health nursing, microbiology, and physical therapy services.
- Three-day supply of basic load within identified medical materiel sets in all work areas and deployed assemblages.
- Weapons for personal defense and protection of the patients under their care.

DEPENDENCIES

3-56. This unit is dependent upon the following:

- Appropriate elements within AO for religious; legal; AHS support; finance; personnel; administrative and logistical services; mortuary affairs; security of EPWs, retained, and detained patients and U.S. prisoner patients, transportation support when mobility requirements exceed unit capability; vehicle recovery operations; and transportation and equipping for return to duty personnel (to include individual clothing and equipment, seasonal outer garments, chemical protection garments, and shower and laundry services not related to patient care).
- The quartermaster supply company (modular) for Class I, II, III, and VII supplies and to provide potable water and unclassified map support.
- The MEDLOG company for Class VIII support. Augmentation of personnel for medical equipment maintenance and repair, as required.
- The field hospital (32 bed), nutrition care section for feeding of patients, and to hospital staff based on resources available.
- The horizontal construction company to construct field hospital platforms.
- The prime power battalion to generate electrical power and to provide advice and technical assistance for electrical power and distribution.
- The medical detachment (veterinary service support) for food protection and veterinary public health support. The food protection mission includes food safety; food defense; quality assurance inspection and surveillance activities associated with rations, food, bottled water, and ice manufacturing sources; and food and water risk assessments. The veterinary public health reduces transmission of zoonotic diseases; monitors animals as sentinels of threats to humans by investigating unexplained animal deaths; and investigates potential rabies exposures to humans. The potential of foodborne disease, the threat of CBRN contamination of subsistence, and the need to assess and mitigate the zoonotic disease threat requires a veterinary presence.
- The expeditionary signal company to provide automatic switching services for both analog and digital voice and data traffic, tactical multichannel high capacity transmission systems, and multichannel satellite ground terminals.
- The casualty liaison team for accurate and timely casualty information, facilitates real-time casualty information for commanders, and assists in the management of casualty operations as needed.
- The medical company (air ambulance) to provide intratheater aeromedical evacuation support to and between roles of care within the AO, transportation of emergency Class VIII resupply, and movement of medical personnel to support the AHS mission.
- Air Force aeromedical evacuation liaison team for coordinating intertheater patient evacuations to higher roles of care, generally out of the AO.
- The following specialty hospital augmentation teams and detachments are required to increase medical specialty and AHS support capabilities as needed:
 - Hospital augmentation team, head and neck.
 - Medical team, forward surgical.
 - Medical team, forward surgical (airborne).
 - Medical team, forward resuscitative and surgical.
 - Medical team, forward resuscitative and surgical (airborne).
 - Medical detachment, minimal care.

MOBILITY

3-57. This unit has no organic vehicles and relies on external assets for mobility.

EMPLOYMENT

3-58. The detachment deploys to an AO providing additional surgical capabilities, 24 ICU beds, an outpatient clinic, and provides microbiology services to the field hospital (32 bed).

FUNCTIONS AND REQUIREMENTS

3-59. The following information provides the organization's functions and requirements specified in the section one of the TO&E.

DETACHMENT HEADQUARTERS

3-60. The detachment headquarters may augment the HHD, hospital center or field hospital (32 bed) with additional personnel to assist with administrative oversight of personnel and equipment. However, the personnel in the detachment's headquarters primarily have patient care responsibilities once the detachment is integrated in the hospital operations and may not have the ability to focus on administrative or command and control responsibilities.

SUPPLY AND SERVICE SECTION

3-61. The supply and services section augments the supply and services functions within the field hospital (32 bed) to increase the hospital logistics capabilities.

OPERATING ROOM AND CENTRAL MATERIEL SERVICES SECTION

3-62. The OR and CMS section—

- Provide resources to expand the operative capacities of the field hospital (32 bed) with two OR tables and staff for 36 operating table hours per day.
- Provide sterilization and operator maintenance of equipment.
- Provide augmentation to the field hospital (32 bed) OR and CMS and, when combined, function as one surgical service.

ANESTHESIA SERVICE SECTION

3-63. Anesthesia service section—

- Incrementally expands the anesthesia and respiratory service capacities of the hospital.
- Provides supervision and administration of anesthetics to patients undergoing surgery.
- Provides augmentation to the field hospital (32 bed) OR and CMS and, when combined, function as one service.

INTENSIVE CARE UNIT

3-64. Intensive care unit A—

- Incrementally expands the capacity of the hospital to care for critically injured or ill patients.
- Provides nursing care for those patients who require close observation and vital sign monitoring, complex nursing care, and mechanical respiratory assistance.
- Serves as preoperative stabilization and postanesthesia recovery area.

3-65. Intensive care unit B—

- Incrementally expands the capacity of the hospital to care for critically injured or ill patients.
- Provides nursing care for those patients who require close observation and vital sign monitoring, complex nursing care, and mechanical respiratory assistance.
- Serves as preoperative stabilization and postanesthesia recovery area.

SPECIALTY CLINICS SECTION

3-66. Specialty clinics section provides—

- Ambulatory care expansion capabilities of the field hospital (32-bed) to primary care, family practice, and behavioral health.
- Patient care and family medicine consultation services, evaluation and treatment of dermatological and gynecological diseases, injuries, disorders, orthopedic and physical therapy services.
- Outpatient behavioral health and inpatient behavioral health consultation and education services.
- Obstetrics-gynecology clinic with the basic medical supplies and equipment necessary to evaluate, diagnose, and clinically manage routine patient complaints related to the female reproductive system.
- Orthopedic clinic with the basic medical supplies and equipment necessary to evaluate, diagnose and clinically manage musculoskeletal conditions, to include mobile cast capability.
- Supplies and equipment to conduct sick call operations and comprehensive routine medical care to include electrocardiographs in the medical services clinic.
- Physical-occupational clinic to evaluate and treat neuromusculoskeletal injuries, minor soft tissue wounds to include burn wound treatment, injury prevention, and human performance optimization.

MICROBIOLOGY SECTION

3-67. Microbiology section provides additional capability to the field hospital (32 bed) to accomplish aerobic and anaerobic cultures, limited parasitology and antibiotic susceptibility testing.

SECTION V — HOSPITAL AUGMENTATION DETACHMENT (MEDICAL 32 BED)

3-68. This section provides a discussion of the hospital augmentation detachment (medical 32 bed) allocation, assignments and capabilities, dependencies, employment, and organization and functions.

MISSION

3-69. The hospital augmentation detachment (medical 32 bed) augments the field hospital (32 bed) with operational dental care, one additional ICU ward (12 beds), one ICW (20 beds), additional microbiology capabilities, and outpatient services for all classes of patients within the AO.

BASIS OF ALLOCATION

3-70. Refer to Section X, on page 3-28, for specifics referencing the unit's basis of allocation.

ASSIGNMENT AND CAPABILITIES

3-71. The detachment is assigned to the HHD, hospital center and further attached to the field hospital (32 bed). Once attached to the field hospital (32 bed), this unit loses much of its own autonomy and identity. It is intended to augment a hospital that already possesses much of its capabilities and therefore, gets absorbed into the field hospital (32 bed) operations.

3-72. This unit provides—

- Augmentation to the field hospital (32 bed) for up to 32 patients consisting of one ward providing intensive care nursing for up to 12 patients, requiring the most intensive monitoring and care, and one ward providing intermediate care nursing for up to 20 patients.
- Augmentation to the specialty clinic of the hospital with consultation and outpatient clinic services for patients referred from other MTFs.
- Augmentation to the specialty clinic with additional behavioral health, community health nursing, and physical therapy capabilities.

- Operational dental care consisting of emergency dental care and essential dental care designed to circumvent potential dental emergencies.
- Augmentation to the field hospital (32 bed) with additional personnel for patient administration, logistical, and nutrition care services.
- Three days of supply within all sections and medical materiel sets.
- Weapons for personal defense and protection of the patients under their care.
- Augmentation to the maintenance capabilities of the field hospital (32 bed).

DEPENDENCIES

3-73. This unit is dependent upon the following:

- Appropriate elements within theater army for religious; legal; AHS support; finance; personnel; administrative and logistical services; mortuary affairs; security of EPW patients and U.S. prisoner patients; transportation support when mobility requirements exceed unit capability; vehicle recovery operations; and transportation and equipping for return to duty personnel (to include individual clothing and equipment, seasonal outer garments, chemical protection garments, and shower and laundry services not related to patient care).
- The quartermaster supply company (modular) for Class I, II, III, and VII supplies and to provide potable water and unclassified map support.
- The MEDLOG company for medical resupply. Augmentation of personnel for medical equipment maintenance and repair, as required.
- The horizontal construction company to construct hospital platforms.
- The prime power battalion to generate electrical power and to provide advice and technical assistance for electrical power and distribution.
- The medical detachment (veterinary services support) for food protection and veterinary public health support. The food protection mission includes food safety; food defense; quality assurance inspection and surveillance activities associated with rations, food, bottled water, and ice manufacturing sources; and food and water risk assessments. The veterinary public health reduces transmission of zoonotic diseases; monitors animals as sentinels of threats to humans by investigating unexplained animal deaths; and investigates potential rabies exposures to humans. The potential of foodborne disease, the threat of CBRN contamination of subsistence, and the need to assess and mitigate the zoonotic disease threat requires a veterinary presence.
- The expeditionary signal company to provide automatic switching services for both analog and digital voice and data traffic, tactical multichannel high capacity transmission systems, and multichannel satellite ground terminals.
- The casualty liaison team for accurate and timely casualty information, facilitates real-time casualty information for commanders, and assists in the management of casualty operations as needed.
- The medical company, (air ambulance) to provide intratheater aeromedical evacuation support to and between roles of care within the AO, transportation of emergency Class VIII resupply, and movement of medical personnel to support the AHS mission.
- Air Force aeromedical evacuation liaison team for coordinating intertheater patient evacuations.

3-74. The following specialty hospital augmentation teams and detachments are required to increase medical specialty and AHS capabilities as needed:

- Hospital augmentation team, head and neck.
- Medical team, forward surgical.
- Medical team, forward surgical (airborne).
- Medical team, forward resuscitative and surgical.
- Medical team, forward resuscitative and surgical (airborne).
- Medical detachment, minimal care.

MOBILITY

3-75. This unit has no organic vehicles and relies on external assets for mobility.

EMPLOYMENT

3-76. This detachment deploys to an AO providing augmentation of additional intensive and intermediate medical care, additional microbiology capabilities, and outpatient services to the field hospital (32 bed).

FUNCTIONS AND REQUIREMENTS

3-77. The following information provides the organization's functions and requirements specified in the section one of the TO&E.

DETACHMENT HEADQUARTERS

3-78. Detachment headquarters may augment the command and control capabilities of the HHD, hospital center or field hospital (32 bed) depending on patient population. The officer in charge and noncommissioned officer in charge functions as the clinical head nurse and ward master when attached to field hospital (32 bed) and therefore, are primarily focused on patient care once integrated into the hospital.

NUTRITION CARE SECTION

3-79. The nutrition care section augments the field hospital's (32 bed) nutrition care section providing nutrition services.

SUPPLY AND SERVICES SECTION

3-80. The supply and services section augments the supply and services section of the field hospital (32 bed) with additional personnel to expand the logistical support capability and capacity.

ANESTHESIA SECTION

3-81. Anesthesia service section—

- Provides augmentation to the field hospital (32 bed) with additional personnel to incrementally expand the anesthesia and respiratory service capacities of the hospital.
- Provides supervision and administration of anesthetics to patients undergoing surgery.

INTENSIVE CARE UNIT

3-82. The ICU—

- Provides augmentation to the field hospital (32 bed) with one 12 bed ICU providing for critically injured or ill patients.
- Manages surgical and medical patients, adult and pediatric patients whose physiological state is so disrupted that they require immediate and continuous medical and nursing care.
- Provides preoperative stabilization area and postanesthesia recovery area for patients either awaiting surgery or recovering from surgery.

INTERMEDIATE CARE WARD

3-83. The ICW augments the field hospital (32 bed) with one 20 bed ICW managing surgical or medical patients whose conditions require observation for real or potential life-threatening disease or injury. The acuity of care may range from those requiring constant observation to those patients able to ambulate and begin to assume responsibility for their care. The level of care and acuity of these patients may fluctuate depending on the intensity of their injury or illness. Although not routine, ICW patients may require monitoring devices and ventilator support.

SPECIALTY CLINICS SECTION

3-84. The specialty clinics section provides—

- Ambulatory care expansion capabilities of the field hospital (32 Bed) for primary care, family practice and behavioral health.
- Patient care and family medicine consultation services, evaluation and treatment of dermatological and gynecological diseases, injuries, disorders, orthopedic, and physical therapy services.
- Outpatient behavioral health and inpatient behavioral health consultation and education services.
- Obstetrics-gynecology clinic with the basic medical supplies and equipment necessary to evaluate, diagnose, and clinically manage routine patient complaints related to the female reproductive system.
- Orthopedic clinic with the basic medical supplies and equipment necessary to evaluate, diagnose, and clinically manage musculoskeletal conditions to include mobile cast capability.
- Supplies and equipment to conduct sick call operations and comprehensive routine medical care to include electrocardiographs in the medical services clinic.
- Physical-occupational clinic to evaluate and treat neuromusculoskeletal injuries, minor soft tissue wounds to include burn wound treatment, behavioral health, injury prevention, and human performance optimization.

DENTAL SECTION

3-85. This section provides operational dental care, hygienist support, and consultation services for patients and staff. The alternate wartime role for this section is to augment the hospital with an additional combat casualty care capability. During MASCAL situations, the dentists assist in the triage, treatment, and management of trauma patients. The staff reads from and inputs to the electronic dental record using available information systems for both inpatients and outpatients.

MICROBIOLOGY SECTION

3-86. The microbiology section augments the field hospital with additional microbiology capabilities.

SECTION VI — HOSPITAL AUGMENTATION DETACHMENT (INTERMEDIATE CARE WARD 60 BED)

3-87. This section provides a discussion of the hospital augmentation detachment (ICW 60 bed) allocation, assignments and capabilities, dependencies, employment, and organization and functions.

MISSION

3-88. The hospital augmentation detachment (ICW 60 bed) augments the capabilities of the field hospital (32 bed) with three additional ICWs providing intermediate nursing care and additional personnel to support nutrition and patient administration capabilities.

BASIS OF ALLOCATION

3-89. Refer to Section X, on page 3-28, for specifics referencing the unit's basis of allocation.

ASSIGNMENT AND CAPABILITIES

3-90. The detachment is assigned to the HHD, hospital center and further attached to the field hospital (32 bed). Once attached to the field hospital (32 bed), this unit loses much of its own autonomy and identity. It is intended to augment a hospital that already possesses much of its capabilities and therefore, gets absorbed into the field hospital (32 bed) operations.

3-91. This unit provides—

- Hospitalization for up to 60 patients consisting of three wards providing intermediate nursing care.
- Augmentation to the patient administration and nutrition care sections.
- Weapons for personal defense and protection of the patients under their care.
- Augmentation to the nutrition care capabilities of the field hospital (32 bed).
- Limited maintenance on organic equipment.

DEPENDENCIES

3-92. This unit is dependent upon the following:

- Appropriate elements within theater army for religious; legal; AHS support; finance; personnel; administrative and logistical services; mortuary affairs; security of EPW patients and U.S. prisoner patients; transportation support when mobility requirements exceed unit capability; vehicle recovery operations; transportation and equipping for return to duty personnel (to include individual clothing and equipment, seasonal outer garments, chemical protection garments, and shower and laundry services not related to patient care).
- The quartermaster supply company for Class I, II, III, and VII supplies and to provide potable water and unclassified map support.
- The MEDLOG company for (modular) Class VIII support. Augmentation of personnel for medical equipment maintenance and repair, as required.
- The horizontal construction company to construct hospital platforms.
- The prime power battalion to generate electrical power and to provide advice and technical assistance for electrical power and distribution.
- The medical detachment (veterinary service support) for food protection and veterinary public health support. The food protection mission includes food safety; food defense; quality assurance inspection and surveillance activities associated with rations, food, bottled water, and ice manufacturing sources; and food and water risk assessments. The veterinary public health reduces transmission of zoonotic diseases; monitors animals as sentinels of threats to humans by investigating unexplained animal deaths; and investigates potential rabies exposures to humans. The potential of foodborne disease, the threat of CBRN contamination of subsistence, and the need to assess and mitigate the zoonotic disease threat requires a veterinary presence.
- The expeditionary signal company to provide automatic switching services for both analog and digital voice and data traffic, tactical multichannel high capacity transmission systems, and multichannel satellite ground terminals.
- The casualty liaison team for accurate and timely casualty information, facilities real-time casualty information for commanders, and assists in the management of casualty operations as needed.
- The medical company (air ambulance) to provide intratheater aeromedical evacuation support to and between roles of care within the AO, transportation of emergency Class VIII resupply, and movement of medical personnel to support the AHS mission.
- Air Force aeromedical evacuation liaison team for coordinating intertheater patient evacuations to higher roles of care, generally out of the AO.

3-93. The following specialty hospital augmentation teams and detachments are required to increase medical specialty and AHS capabilities as needed:

- Hospital augmentation team, head and neck.
- Medical team, forward surgical.
- Medical team, forward surgical (airborne).
- Medical team, forward resuscitative and surgical.
- Medical team, forward resuscitative and surgical (airborne).
- Medical detachment, minimal care.

MOBILITY

3-94. This unit has no organic vehicles and relies on external assets for mobility.

EMPLOYMENT

3-95. The detachment deploys into an AO to augment the field hospital (32 bed) in support of hospitalization and outpatient services for all classes of patients.

FUNCTIONS AND REQUIREMENTS

3-96. The following information provides the organization's functions and requirements specified in the section one of the TO&E.

DETACHMENT HEADQUARTERS

3-97. Detachment headquarters may augment the HHD, hospital center or field hospital (32 bed) with additional personnel to increase command and control capabilities. However, the officer in charge and noncommissioned officer in charge are medical providers in the ICW, absorbed in patient care, and may not be able to primarily focus on administrative or command and control responsibilities.

NUTRITION CARE SECTION

3-98. The nutrition care section augments the field hospital (32 bed) with additional personnel to increase nutrition services.

PATIENT ADMINISTRATION SECTION

3-99. The patient administration section augments the hospital with additional personnel to increase patient administration services.

INTERMEDIATE CARE WARD

3-100. The ICW augments the hospital with three ICWs to increase the intermediate nursing care by managing surgical or medical patients whose conditions require observation for real or potential life-threatening disease or injury. The acuity of care may range from those requiring constant observation to those patients able to ambulate and begin to assume responsibility for their own care. The acuity of care of these patients may fluctuate depending on the intensity of their injury or illness. Although not routine, ICW patients may require monitoring devices and ventilator support.

SECTION VII — CONCEPT OF EMPLOYMENT

3-101. This section provides an overall discussion of the employment of the hospital center and examples of how it can be configured, depending on the required bed capacity and medical capabilities. For more information regarding hospitalization support of the Army's four strategic roles, see Appendix F.

HOSPITAL CENTER COMPONENTS AND EMPLOYMENT

3-102. As stated earlier, the HHD, hospital center and field hospital (32) bed should be deployed and employed together as the smallest element to provide Role 3 medical care. When referring to the organization as a whole (or at least the HHD and one or more of the subordinate units), it is generally called the hospital center (not field hospital). The field hospital is simply the 32 bed subordinate unit that is one piece of the hospital center. The two do not necessarily need to be collocated upon initial employment, but the HHD, hospital center possesses command and control, logistics, maintenance, and equipment capabilities that make the employment of both units together much more effective and efficient. Further, the field hospital (32 bed) was not designed to be split between two locations. A requirement to provide all of the Role 3 capabilities

of a field hospital (32 bed) in two locations cannot be accomplished by one. Therefore, a second field hospital (32 bed) would be required and one HHD, hospital center can provide command and control for both.

HEADQUARTERS AND HEADQUARTERS DETACHMENT, HOSPITAL CENTER

3-103. The HHD, hospital center provides command and control for up to two functioning, field hospitals (32 bed), as well as additional medical augmentation detachments with a combined maximum of 240 beds. The hospital center's modular design has the capability to provide differing bed quantities and types of beds as well as surgical and medical augmentation to project a hospital structure that can support variable medical mission requirements.

3-104. Dual-based operations present unique hospitalization planning requirements. The distance between separated hospital elements as well as requisite surgical and patient bed requirements for each location have a significant impact on the planning and employment process. Medical planners may want to consider employing two HHD, hospital centers if dual-based operations significantly impede command and control capabilities. The term split-based is not applicable since the HHD, hospital center or individual subordinate hospital elements were not designed to be broken apart and function in two separate locations. For purposes of this publication, dual-based operations better describes how a HHD can provide command and control for two distinct subordinate units operating in two separate locations, like two complete field hospitals (32 bed) establishing medical support in two separate locations.

3-105. The HHD, hospital center is dependent on the field hospital (32 bed) for administrative support, feeding, unit-level maintenance, security, power, and classes of supply. The HHD, hospital center does not have a very robust or large staff. When it is assigned two field hospitals (32 bed) and associated augmentation detachments, operating in two separate locations, the HHD, hospital center may have to rely on the field hospital (32 bed) staff that it is collocated with. Combining the two staffs allows for a large enough staff to operate 24 hours a day with key leaders present all the time. A technique, in order to keep the functions of the two separate staffs distinct, is to have the HHD, hospital center staff focus on mid and long range planning, coordination with the medical brigade (support), and synchronization with other external units ("up and out"). The field hospital (32 bed) staff can remain mostly focused on the internal operations of the hospital and augmentation detachments as well as current and short range operational planning ("down and in"). When necessary, the staffs can be utilized cross-functionally due the nature of them working in the same operations center.

FIELD HOSPITAL (32 BED)

3-106. The field hospital (32 bed) is the cornerstone of the deployed hospital. It represents the smallest hospital element with complete requisite clinical capabilities of a Role 3 MTF. This hospital is deliberately designed to be self-supporting while remaining light, transportable, and expandable. Combinations of the modular units within the hospitalization capability would be suitable to support peacetime military engagements, limited intervention, peace operations, and irregular warfare. It is the basis for any combinations of capabilities (bed types/numbers and functions). The other augmentation detachments described above are not designed to be autonomous in a deployed scenario; they are intended to augment and complement the field hospital (32 bed).

3-107. The field hospital (32 bed) is capable of providing complete Role 3 hospitalization under the command and control of the HHD, hospital center with a 72-hour basic load of medical and nonmedical supplies. Hospitalization is provided for up to 32 patients consisting of one ward with intensive care nursing for up to 12 patients (10 beds are fully equipped for patients requiring the most intensive monitoring or care) and one ward providing intermediate care nursing for up to 20 patients; emergency treatment to receive, triage, and prepare incoming patients for surgery; and surgical capability consisting of general, orthopedic, obstetrical-gynecological surgery based on 2 operating tables staffed for 36 operating table hours per day. An additional 36 hours of surgical capacity is available by utilizing the remaining 12-hour capacity from the original 2 OR tables and an additional 24-hour capacity from an OR table established in the x-ray section. This additional surgical capacity was designed to facilitate augmentation by surgical teams and detachments as well as to accommodate temporary peaks in surgical requirements. The hospital also includes pharmacy

and clinical laboratory services with limited basic microbiology screening, blood banking, CT and radiology services, personnel administration, patient administration, logistical, nutrition care services, and a hospital ministry team for hospital staff and patients.

3-108. The field hospital (32 bed), as an individual unit, was not designed to perform split operations. If the capabilities of the field hospital (32 bed) are required in two separate geographical locations, then two field hospitals (32 bed) and requisite hospital augmentation detachments will be required to support the mission.

EARLY ENTRY PLANNING AND OPERATIONS

3-109. Commanders may be expected to task-organize portions of the field hospital (32 bed) and HHD, hospital center to provide a limited early entry Role 3 capability until the remainder of the field hospital (32 bed), HHD, and augmentation detachments arrive later in the deployment progression. Commanders and planners should anticipate the minimum requirements for an early entry medical package to include DCR, DCS, and hospitalization.

3-110. There are many ways to task-organize units, or components of units, to establish a light, flexible, and mobile early entry capability. For example, using an FRSD as the base unit for an early entry package provides the DCR and DCS capability. Providing a portion of the hospitalization capabilities from the hospital center, such as ICU beds with requisite equipment, staffing, and vehicles, provides for the FRSD more than what it would normally depend upon when employed with a Role 2 medical company. Finally, adding limited pharmacy, lab, and x-ray to the early entry package meets the minimum Role 3 capabilities while retaining a more expeditionary response than a complete field hospital (32 bed).

3-111. Commanders and staffs should be prepared to provide a Role 3 capable early entry element, which may not look the same for each mission. Its composition, size, personnel, equipment, and capability may be different based on the uniqueness of the units and mission they are required to support.

HOSPITAL AUGMENTATION DETACHMENTS

3-112. Hospital augmentation detachments may be attached to the field hospital (32 bed) to increase its bed, surgical, staffing and medical specialty capabilities. Medical planners should refer to the detailed information in Appendix A of this publication.

HOSPITAL CENTER CONFIGURATIONS

3-113. The hospital center has the capability of being deployed in multiple configurations to provide requisite care to any military or foreign humanitarian assistance operation. The hospital center has the capability to perform dual-based operations within an AO. The HHD, hospital center has the capability to provide command and control for up to a 240 bed hospital when configured to operate in one or two locations. Table 3-1 on page 3-24 depicts the bed types and numbers as well as surgical capabilities available per hospital module.

Table 3-1. Hospital center modules bed and surgical capabilities

<i>Organization</i>	<i>Intensive care beds</i>	<i>Intermediate care beds</i>	<i>Minimal care beds</i>	<i>Surgical tables</i>	<i>Surgical hours per 24 hours</i>
Headquarters and Headquarters Detachment, Hospital Center	0	0	0	0	0
Field Hospital, (32 bed)	12	20	0	2	36
Hospital Augmentation Detachment (Surgical 24 bed)	24	0	0	2	36
Hospital Augmentation Detachment (Medical 32 bed)	12	20	0	0	0
Hospital Augmentation Detachment (Intermediate Care Ward 60 bed)	0	60	0	0	0
TOTALS	48	100	0	4	72

3-114. The field hospital (32 bed) is dependent on transportation support from the HHD, hospital center, and may require additional transportation support based on employment criteria.

3-115. Refer to Tables 3-2 and 3-3 for examples of hospital center configurations that would support a range of military operations. Table 3-2 depicts a sample configuration of the hospital center designed to support a high surgical and intensive care and intermediate care planning scenario. Table 3-3 depicts a sample configuration emphasizing a treat and return to duty capability in support of foreign humanitarian assistance or stability tasks.

Table 3-2. Example hospital center configuration (maximum 240 beds)

<i>Hospital Units</i>	<i>Intensive care beds</i>	<i>Intermediat e care beds</i>	<i>Minimal care beds</i>	<i>Surgical tables</i>	<i>Surgical hours per 24 hours</i>
Field Hospital (32 bed)	12	20	0	2	36
Field Hospital (32 bed)	12	20	0	2	36
Hospital Augmentation Detachment (Surgical 24 bed)	24	0	0	2	36
Hospital Augmentation Detachment (Medical 32 bed)	12	20	0	0	0
Hospital Augmentation Detachment, (Intermediate Care Ward 60 bed)	0	60	0	0	0
Hospital Augmentation Detachment, (Intermediate Care Ward 60 bed)	0	60	0	0	0
TOTALS	60	180	0	6	108

Table 3-3. Example hospital center configuration

<i>Hospital Units</i>	<i>Intensive care beds</i>	<i>Intermediate care beds</i>	<i>Minimal care beds</i>	<i>Surgical tables</i>	<i>Surgical hours per 24 hours</i>
Field Hospital (32 bed)	12	20	0	2	36
Hospital Augmentation Detachment (Surgical 24 bed)	0	0	0	0	0
Hospital Augmentation Detachment (Medical 32 bed)	24	40	0	0	0
Hospital Augmentation Detachment (Intermediate Care Ward 60 bed)	0	60	0	0	0
TOTALS	36	120	0	2	36

SECTION VIII — HOSPITAL CENTER COMMAND RELATIONSHIPS

3-116. The HHD, hospital center provides command and control for the hospital comprised of one or two field hospitals (32 bed) and other assigned or attached medical augmentation detachments. The HHD, hospital center is assigned to the medical brigade (support) or medical command (deployment support).

3-117. Hospital augmentation detachments will be assigned to an HHD, hospital center, and further attached or assigned to a field hospital (32 bed). Medical augmentation detachments lose their identity as a separate and distinct unit when they are employed. While there will likely still be a supervisory chain of command similar to what the personnel were used to prior to deploying, their medical functions are absorbed into those similar capabilities, wards, and sections of the hospital once they become attached to the field hospital (32 bed).

3-118. Figure 3-1 represents various task organizations for the hospital center, depending on how many field hospitals (32 bed) and augmentation detachments are required. As stated earlier, the advantage with the hospital center is the modularity and flexibility these various ways of task organizing presents.

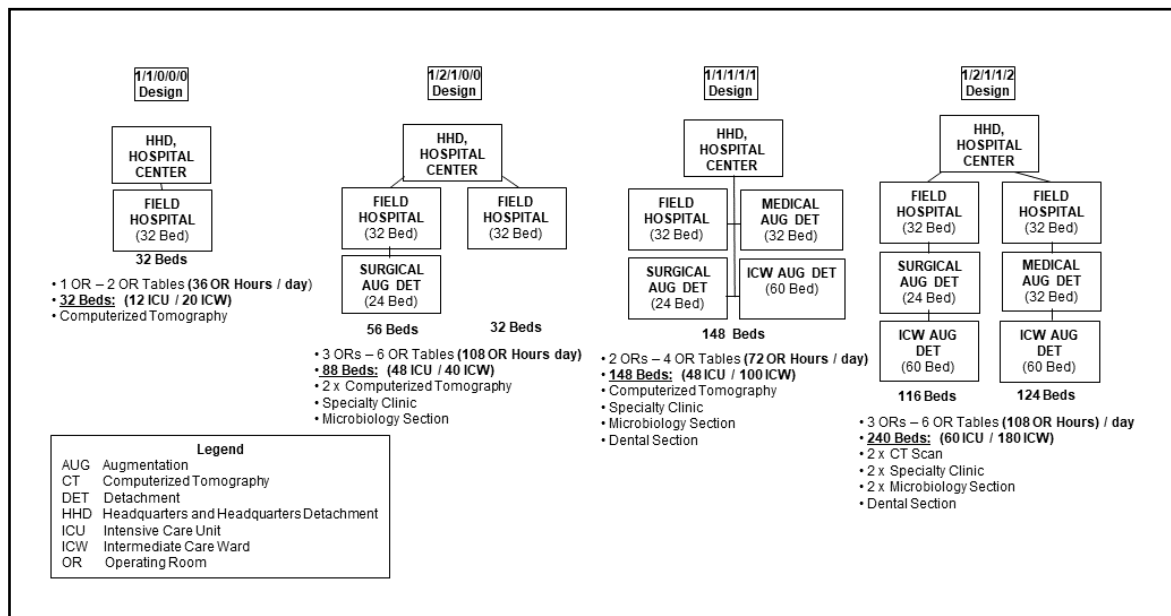


Figure 3-1. Hospital center configurations

SECTION IX — HOSPITAL CENTER LAYOUT EXAMPLES

3-119. There are many ways to layout and establish hospital centers and it depends on factors such as the mission, task organization, single- or dual-based operations, terrain, space available, personnel, and time. Like the CSH, the layout should be established with effective and efficient movement of patients through the facility in mind. Additionally, functions of the hospital that support other capabilities should be as close as possible to those supported sections. For example, CMS should be near the OR. Figures 3-2 through 3-4 on pages 3-26 through 3-27 provide examples of how hospital centers can be set up, depending on the task organization of the hospital. While it creates extra distance from the EMT to the surgical area, the four-tent baseline (EMT, interchange, interchange, pre-operative) is the most effective way to ensure additional capabilities can be added to the field hospital (32 bed) without having to disestablish and rebuild any of the base capabilities.

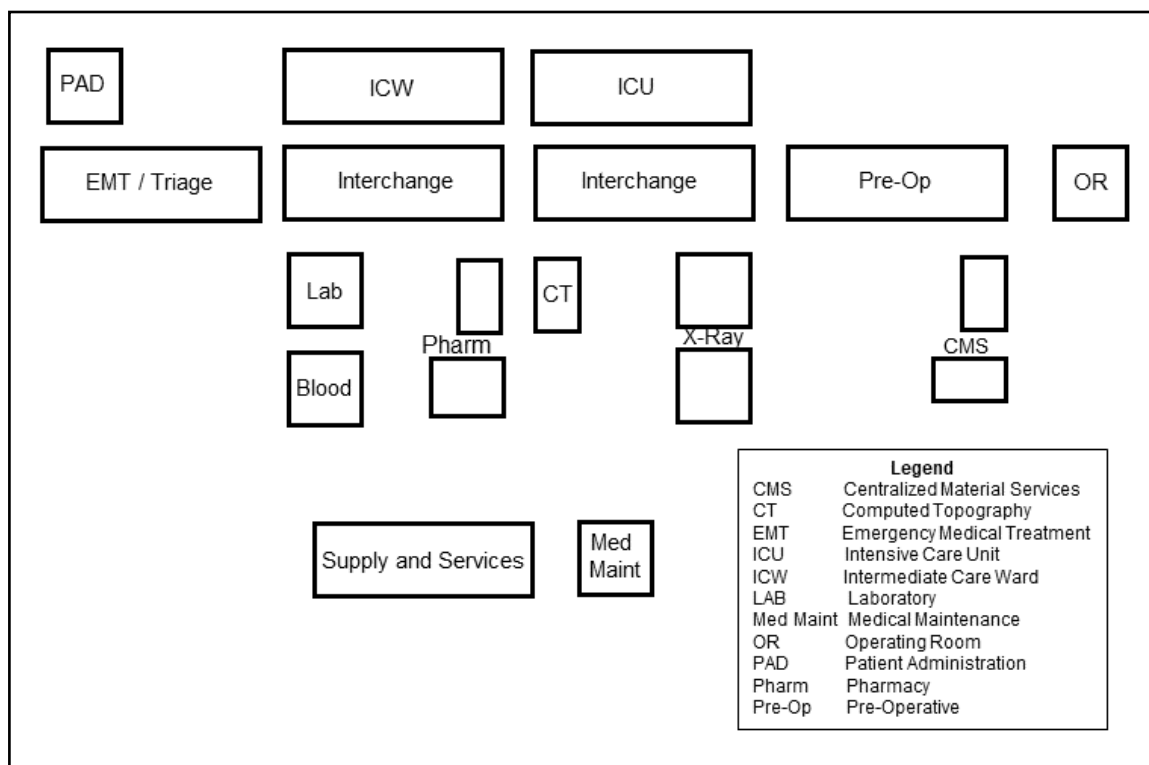


Figure 3-2. Headquarters and headquarters detachment, hospital center and field hospital (32 bed)

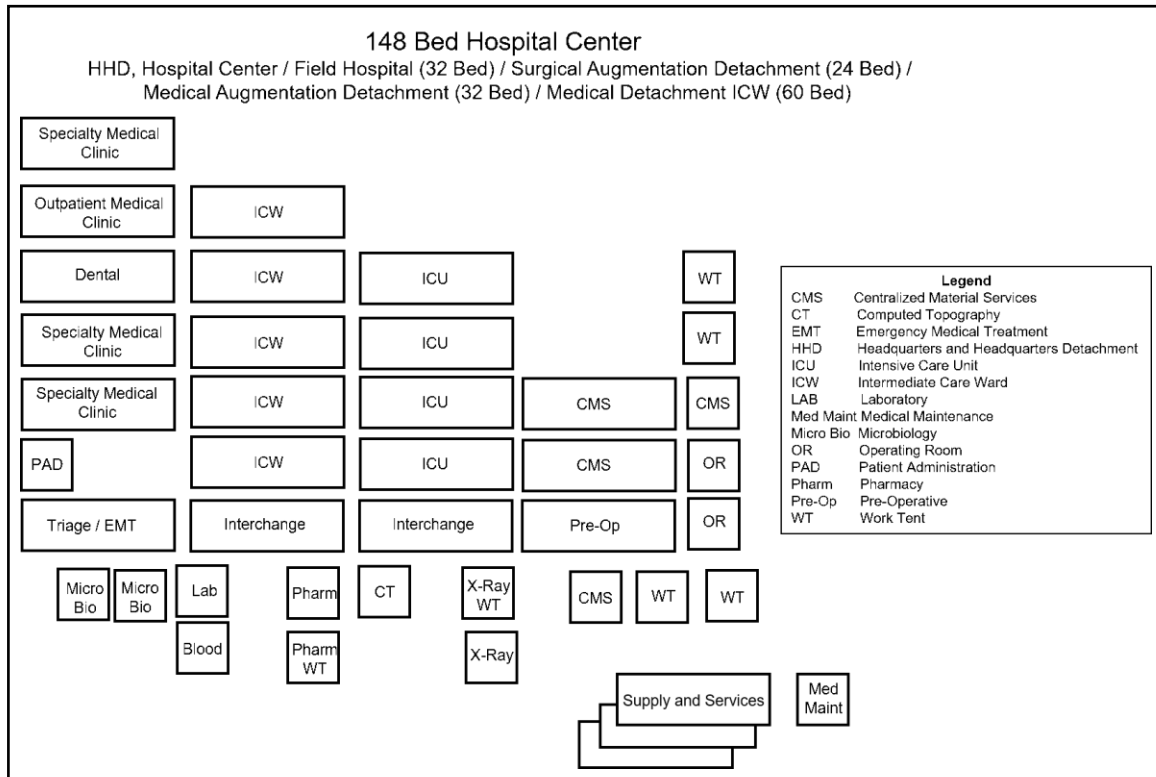


Figure 3-3. Headquarters and headquarters detachment, hospital center, field hospital (32 bed), and one of each augmentation detachments

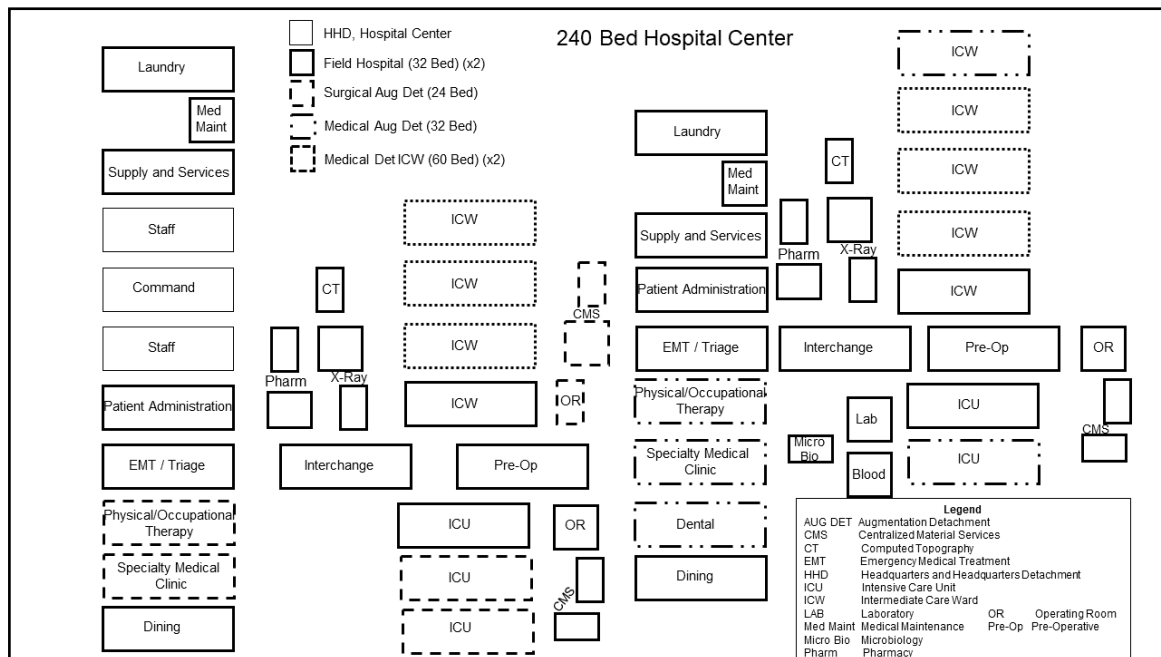


Figure 3-4. Headquarters and headquarters detachment, hospital center, 2 field hospitals (32 bed), 2 Intermediate Care Ward detachments (60 bed), and one each other augmentation detachments

SECTION X — HOSPITAL CENTER REQUIREMENTS COMPUTATIONS

3-120. The rules of allocation for the field hospital (32 bed) and hospital augmentation detachments are depicted in Table 3-4, to simplify the rules of allocation found in the section one of the corresponding TO&Es. The rules of allocation in the TO&Es are based on computer simulation models and although they can be calculated and produce an accurate number, it is a difficult process. The United States Army Medical Center of Excellence (MEDCoE), Computational Sciences Division, developed tools to assist the medical planner in determining the appropriate hospital elements to provide Role 3 medical support in an AO. The tools provide the resources to plan for hospitalization as a system of components that can be employed to build a hospital varying from 32 beds to 240 beds. The appropriate mix of components can be calculated from casualty estimates and application of the rules of allocation for 1,000 beds occupied by WIA, DNBI, nerve, and blister patients.

3-121. Allocations based on single components (without considering other components) will not provide the full complement of beds or operating tables and surgical hours for the hospital. The exception would be employment of a single HHD, hospital center and one field hospital (32 bed) component that would provide all necessary services until all 32 beds are filled. At that point, augmentation component(s) to provide additional capacity for holding patients or evacuation would be needed to maintain the operational capability.

3-122. If CBRN casualties are not anticipated, the planner can build the unit based only on WIA and DNBI casualty estimates. The MEDCoE Medical and Casualty Estimator model can be used to estimate a casualty stream based on the variables for the opposing forces, weather, and terrain and other factors. The number of WIA and DNBI casualties expected daily multiplied by the factors in the table below for each type of casualty will determine the number of each component that will be needed. The planner will have to round down or up for each unit to arrive at the integer number of components necessary to support the operation. For detailed information on this process refer to ATP 4-02.55. The tables and instructions for calculating rules of allocation in paragraphs 3-123 through 3-127 provide an example based on arbitrary expected bed occupancy numbers.

3-123. A dispersion allowance of 20 percent is normally used for hospitals in the theater. This is to accommodate the occasional shut-down and movement of hospitals to follow the maneuver forces and other reasons why a totally full hospital system is not feasible. The dispersion factor for that 20 percent allowance is 1.25. The allocation rules in the Table 3-4 below incorporate dispersion factors.

Table 3-4. Rules of allocation per patient type per 1000 patients

<i>Allocation rules by type of patient</i>					
<i>Hospital component</i>	<i>Modules per 1,000 occupied beds</i>				
	<i>Beds per unit</i>	<i>Wounded in action</i>	<i>Disease and nonbattle injury</i>	<i>Nerve</i>	<i>Blister</i>
Headquarters and Headquarters Detachment, Hospital Center	0	The Hospital Center is allocated 1 per 2 field hospitals (it must deploy with the first 32-bed field hospital component).			
Field Hospital (32 bed)	32	12.40	5.56	3.27	1.56
Hospital Augmentation Detachment, (Surgical 24 bed)	24	12.92	0.00	0.00	3.13
Hospital Augmentation Detachment, (Medical 32 bed)	32	11.88	7.21	6.55	0.00
Hospital Augmentation Detachment, (Intermediate Care Ward 60 bed)	60	0.01	9.45	2.63	0.00
Medical Detachment, Minimal Care	120	1.35	2.28	6.48	9.38

3-124. Instructions for computing the number of field hospitals (32 bed) and augmentation detachments required to provide Role 3 care with expected WIA and DNBI occupied beds—

- Obtain the daily casualty counts by WIA and DNBI (this example will not address chemical casualties). Table 3-5 below shows the expected daily bed occupancy for this example.

Table 3-5. Expected daily bed occupancy

<i>Day</i>	<i>Expected bed occupancy by type</i>	
	<i>Wounded in action</i>	<i>Disease and nonbattle injury</i>
1	20	15
2	50	40
3	80	65
4	100	80
5	120	95

- At the end of 5 days, the anticipated bed occupancy will be 120 WIA and 95 DNBI patients (after removing any return-to-duty patients, died-in-hospital patients and evacuated patients from the occupied beds census).
- The planner should consult the rules of allocation table from the previous page, partially reproduced in Table 3-6, to find the WIA and DNBI factors for each component of the hospital system.

Table 3-6. Rules of allocation

<i>Component</i>	<i>Modules per 1,000 occupied beds</i>		
	<i>Beds per unit</i>	<i>Wounded in action</i>	<i>Disease and nonbattle injury</i>
Field Hospital (32 bed)	32	12.40	5.56
Hospital Augmentation Detachment (Surgical 24 bed)	24	12.92	0.0
Hospital Augmentation Detachment (Medical 32 bed)	32	11.88	7.21
Hospital Augmentation Detachment (Intermediate Care Ward 60 bed)	60	0.01	9.45
Medical Detachment, Minimal Care	120	1.35	2.28

3-125. To compute the components required to support this bed occupancy workload, multiply the factors in the WIA and DNBI columns and the beds occupied on day 5 (example from Table 3-5), and divide by 1,000. Thus—

- Field hospital (32 bed) = WIA bed occupancy X WIA factor /1000 + DNBI bed occupancy X DNBI factor /1000.

$$\text{Field hospital (32 bed)} = 120 \times 12.40 / 1000 + 95 \times 5.56 / 1000.$$

$$\text{Field hospital (32 bed)} = 1.49 + 0.52 = 2.01 \text{ or 2 field hospitals (32 bed) components (plus one HHD, hospital center).}$$
- Hospital augmentation detachment surgical (24 bed) = $120 \times 12.9 / 1000 + 95 \times 0.00 / 1000$

$$\text{Hospital augmentation detachment surgical (24 bed)} = 1.55 + 0 = 1.55 \text{ or 2 hospital augmentation detachments, surgical (24 bed).}$$
- Hospital augmentation detachment (medical 32 bed) = $120 \times 11.9 / 1000 + 95 \times 7.21 / 1000$

$$\text{Hospital augmentation detachment (medical 32 bed)} = 1.43 + 0.68 = 2.11 \text{ or 2 hospital augmentation detachment (medical 32 bed).}$$

- Hospital augmentation detachment (ICW 60 bed) = $120 \times .01 / 1000 + 95 \times 9.45 / 1000$
Hospital augmentation detachment (ICW 60 bed) = $0.01 + .90 = .91$ or 1 hospital augmentation detachment (ICW 60 bed).

Note. Minimal care beds are not calculated in the computation of the 240 maximum number of beds in the hospital center. The beds are considered as an augmentation of the hospital and established to provide care for patients requiring minimal medical care or assistance and meet the criteria to be returned to duty within the prescribed theater evacuation policy.

- Medical detachment (minimal care) = $120 \times 1.35 / 1000 + 95 \times 2.28 / 1000$
Medical detachment (minimal care) = $0.16 + 0.27 = .43$ or 1 medical detachment (minimal care).

3-126. These calculations result in several fractions—2.01 field hospitals (32 bed) (and one HHD, hospital center); 1.55 hospital augmentation detachments (surgical 24 beds); 2.11 hospital augmentation detachments (medical 32 bed); .91 hospital augmentation detachment (ICW 60 bed); and .43 medical detachments, minimal care. The planner should then look at the capabilities of the components and round the fractions to estimate the correct number of beds, OR capacity, and type of hospital capabilities required. One possibility is—HHD, hospital center; 2 field hospitals (32 bed); 2 hospital augmentation detachments (surgical 24 beds); 2 hospital augmentation detachments (medical 32 bed); and 1 hospital augmentation detachment (ICW 60 bed). The medical detachment (minimal care) can be ignored because in this example there is enough available capacity for the expected minimal care patients in the ICW wards. The results of the computations are illustrated in Table 3-7, below.

Table 3-7. Rules of allocation computation results

<i>Component</i>	<i>Beds available</i>	<i># Units</i>	<i>Beds required</i>	<i>Beds occupied</i>
Hospital Center Headquarters and Headquarters Detachment	0	1	0	
Field Hospital (32 bed)	32	2	64	
Hospital Augmentation Detachment (Surgical 24 bed)	24	2	48	
Hospital Augmentation Detachment (Medical 32 bed)	32	2	64	
Hospital Augmentation Detachment (Intermediate Care Ward 60 bed)	60	1	60	
Medical Detachment, (Minimal Care)	120	1	120	
TOTAL BEDS			356	215

3-127. There are enough beds to provide for the dispersion factor. However, the beds required appears to exceed what one HHD, hospital center, can support by 116 beds. Due to command and control limitations and span of control, the maximum bed configuration for a single HHD, hospital center, is restricted to 240 beds. However, the medical detachment, minimal care beds do not count against the maximum 240 bed limitation of the hospital center. It may, however, be considered a good option to deploy a second HHD, hospital center in this example.

3-128. A spreadsheet modeling tool to assist planners in determining the requisite hospital elements for Role 3 medical care in an AO is available on the MEDCoE, Doctrine Literature Division website provided in the reference section.

SECTION XI — TIME TO ESTABLISH THE HOSPITAL

3-129. The hospital center and subordinate detachments require a significant amount of logistical and transportation support getting to and once in theater. When planning for placement of Role 3 medical treatment facilities, medical planners should consider the transportation requirements, external support

available, and the amount of time it will take to disestablish, containerize, move, and reestablish a hospital. Planners and commanders cannot expect a hospital to relocate from one location to another and be able to provide the full complement of Role 3 medical care in the new location in just two to three days. Executing the move of a hospital center may take weeks (depending upon the distance required to move and training proficiency of the unit) considering the required planning, coordination for resources, evacuation of all patients, systematically discontinuing services, de-complexing the facility and packing it, conducting the move, and then re-complexing the facility is a significant undertaking.

3-130. Since the hospital center is relatively new, there have not been many operational employments or training exercises conducted that would inform how long it will take to complex, erect, and become operational. Based on a limited number of training exercise observations, an HHD, hospital center and field hospital (32 bed) should be able to provide limited command and control, emergency medical services, surgical services, intensive care, and ancillary services within 72 hours of site selection. Prioritizing how these services are established is up to commanders, but there should be an incremental increase in medical support capabilities throughout the period it takes to fully reach all services provided by the hospital.

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Chapter 4

Hospital Surgical and Medical Augmentation

Specialized augmentation teams are available to provide additional surgical and medical capabilities to supplement the existing capabilities of the hospital and attached augmentation detachments. This chapter provides information on augmentation teams consisting of the hospital augmentation team (head and neck), medical team (minimal care), medical team (forward surgical), and medical detachment (forward resuscitative and surgical). The organizations' mission, rules of allocation, assignment, dependencies, employment, and capabilities are described in detail within the sections of this chapter.

SECTION I — HOSPITAL AUGMENTATION TEAM (HEAD AND NECK)

4-1. This section provides a discussion of the hospital augmentation team (head and neck) allocation, assignments and capabilities, dependencies, employment, and organization and functions.

MISSION

4-2. The mission of this team is to provide ear, nose, and throat surgery; neurosurgery; and eye surgery augmentation in support of the theater hospitals and consultative services as required.

BASIS OF ALLOCATION

4-3. The basis of allocation is one head and neck team per 650 conventional hospital patients in the theater.

ASSIGNMENT AND CAPABILITIES

4-4. The team is assigned to a medical brigade (support) or medical command (deployment support) and normally will be attached to a hospital.

4-5. This detachment provides—

- Initial and secondary ear, nose, and throat surgery and consultation services in support of theater hospitals.
- Initial and secondary neurosurgery and consultation services in support of theater hospitals.
- Initial and secondary eye surgery and consultation services in support of theater hospitals.
- Augmentation of the hospital OR surgical and nursing services.
- Three days of supply for all organic elements upon deployment and during routine operations.

DEPENDENCIES

4-6. This detachment is dependent upon—

- Appropriate elements of the theater for legal; religious; finance; human resources and administrative services; shower and laundry support; clothing exchange; patient decontamination; mortuary affairs; and EPW security during processing and evacuation.
- The hospital to which it is attached to provide sheltered ORs; commonly used equipment; pre- and postoperative nursing care for all patients; field feeding (to include patient food service); AHS support; water distribution; security; human resources and administrative services; transportation,

unit maintenance for generator; power support for all equipment; patient administration; coordination of medical evacuation; and all classes of supply.

MOBILITY

4-7. This unit has no organic mobility. This unit has 55,046 pounds (5,031 cubic feet) of TO&E assets requiring transportation by external resources.

EMPLOYMENT

4-8. This team will be deployed with and further attached to Role 3 hospitals.

FUNCTIONS AND REQUIREMENTS

4-9. The function of the hospital augmentation team (head and neck) is to provide preoperative assessment and perform neurosurgery; ear, nose, and throat surgery; and ophthalmic surgery for patients admitted to the hospital to which the unit is attached. The team will also provide the hospital with neurosurgical, ophthalmic, and otolaryngological consultation services and postoperative follow up.

4-10. The equipment for the hospital augmentation team (head and neck) no longer includes the medical materiel set (radiology, CT). This set is provided by the field hospital (32 bed) so the hospital augmentation team (head and neck) can perform CT scans prior to surgery and will decrease the requirement for exploratory surgery. The hospital augmentation team (head and neck) does not include an OR and work areas and will perform surgery utilizing the OR and central materiel supply complex of the hospital to which it is attached. When attached to the hospital, it falls under the supervision of the chief, professional services.

SECTION II — MEDICAL DETACHMENT (MINIMAL CARE)

4-11. This section provides a discussion of the hospital augmentation detachment (minimal care) allocation, assignments and capabilities, dependencies, employment, and organization and functions.

MISSION

4-12. This detachment provides minimal and convalescent care, nursing, and rehabilitative services in support of theater hospitalization. It provides oversight of holding and monitoring facilities for decontaminated biological warfare agent patients, patients with highly communicable diseases, and communicable disease contacts.

BASIS OF ALLOCATION

4-13. This detachment supports the requirement for all AO minimal care ward bed requirements. For programming purposes, the basis of allocation is 2.6 minimal care detachments per 1,000 hospital patients in theater.

ASSIGNMENT AND CAPABILITIES

4-14. This detachment will be assigned to a medical brigade (support) and normally attached to a hospital.

4-15. This detachment provides—

- Command and control of organic elements to include health support planning, policies, and support operations within the detachment's AO.
- Information to commanders and their staffs on the health and status of Soldiers in their command.
- Augmentation of the hospital to which attached to provide hospitalization and minimal nursing care, for up to 120 patients and for reconditioning and rehabilitation for those patients who can return to duty within the theater evacuation policy or who are awaiting further medical evacuation.
- Physical therapy and occupational therapy services for patients.

- Augmentation of the emergency nursing capabilities of the hospital to which attached during MASCAL situations.
- Augmentation to the nutrition care capabilities of the hospital to which attached to support patient feeding of this detachment.
- Augmentation to the patient administration section capabilities of the hospital to which attached.
- Three days of supply for all organic elements upon deployment and during routine operations.

DEPENDENCIES

4-16. This unit is dependent upon—

- Appropriate elements of the theater army for religious; legal; finance; human resources services; laundry and shower; clothing exchange; mortuary affairs; transportation; maintenance; and communication and IM support.
- The hospital to which attached for food service; water distribution; personnel and administrative services; unit health services; medical treatment; patient administration; medical maintenance; supply (all classes); and unit maintenance for the detachment's communications equipment and power generator.
- The hospital to which attached for additional power requirements.
- The dental company (area support) and the medical detachment (combat and operational stress control) for augmentation of treatment capabilities. *Combat and operational stress control* is a coordinated program of actions taken by military leadership to prevent, identify, and manage reactions to traumatic events that may affect exposed organizations and individuals during unified land operations. Also called COSC. (FM 4-02).

MOBILITY

4-17. This organization does not have organic lift capability and requires transportation support for movement. This unit has 181,305 pounds (16,600 cubic feet) of TO&E assets requiring transportation.

EMPLOYMENT

4-18. The medical brigade (support) will provide command and control to an assigned medical detachment (minimal care) and will ensure continuous provisions of minimal care beds as required to hospitals. The medical detachment (minimal care) will be further attached to the hospital for support and is designed to provide 120 beds of minimal and convalescent care. Each squad of the detachment may be employed separately providing 40 minimal care beds per squad. The medical detachment (minimal care) provides nursing, physical therapy, and occupational therapy services for those patients expected to return to duty within the theater evacuation policy or who are awaiting further medical evacuation. The dental company (area support) and the medical detachment (combat and operational stress control) can provide appropriate support to augment the medical detachment (minimal care) treatment capabilities, if required.

FUNCTIONS AND REQUIREMENTS

4-19. The function of this detachment is to perform minimal care nursing, occupational therapy, and physical therapy for the patients admitted to the hospital to which attached and to other eligible personnel as determined by the medical command (deployment support) and medical brigade (support). Organic personnel of the detachment set up and break down unit shelters and power-generating equipment in preparation for detachment operations or detachment movement, set up the nursing care and occupational therapy, physical therapy areas, and perform routine minimal care nursing and rehabilitation and reconditioning for patients expected to return to duty within the theater evacuation policy or who are awaiting medical evacuation and require continued nursing supervision to include those individuals being monitored after suspected biological warfare agent and communicable disease contact. The detachment is normally attached to the hospital and provides a detachment headquarters, an occupational and physical therapy section, and three minimal care wards.

DETACHMENT HEADQUARTERS

4-20. The detachment headquarters provides command and control and administrative support. It performs unit plans, coordinates movement requirements, routine and specialized operations, mission-related task organization, and coordinates directly with the hospital to which attached. Personnel of the detachment headquarters provide maintenance and supply and services to augment the respective sections of the hospital to which attached.

OCCUPATIONAL AND PHYSICAL THERAPY SECTION

4-21. This section provides occupational therapy and physical therapy services to the detachment's inpatients. Personnel in this section augment the respective sections of the hospital to which attached.

MINIMAL CARE WARDS

4-22. Three minimal care wards provide nursing supervision and management of medical or surgical patients who are ambulatory and partially self-sufficient and are in the final stages of recovery awaiting return to duty or who are awaiting further medical evacuation. The focus of nursing management is on an aggressive therapeutic environment which speeds recovery for return to duty or which ensures stabilization and preparation for medical evacuation. Nursing personnel administer medications and treatments which cannot be done by the patient and provide instruction in self-care and post-hospitalization health maintenance. Nursing personnel coordinate with occupational and physical therapy personnel for rehabilitation and reconditioning of patients. Nursing personnel also coordinate with the hospital to which attached for routine and EMT needs of patients. Nursing personnel also monitor individuals who may have been exposed to an infectious agent and require isolation until disease manifests or the individual is determined not to be infected or infectious. When attached to the hospital, it falls under the supervision of the chief nurse.

SECTION III — MEDICAL TEAM, FORWARD SURGICAL

4-23. This section provides an overall discussion of the medical team (forward surgical) allocation, assignments and capabilities, dependencies, employment, and organization and functions.

4-24. The FST is a 20-Soldier team which provides far forward surgical intervention to render nontransportable patients sufficiently stable to allow for medical evacuation to a Role 3 hospital. A *nontransportable patient* is a patient whose medical condition is such that he could not survive further evacuation to the rear without surgical intervention to stabilize his medical condition (ATP 4-02.2). Surgery performed by the FST is resuscitative surgery. Patients remain with the FST until they recover from anesthesia and once stabilized they are evacuated as soon as possible. The postoperative intensive care capacity of the FST is extremely limited and there is no organic holding capability. When collocated with a medical company, the patient holding squad can provide a limited holding capability for the FST. The FST is not a self-sustaining unit and must be deployed with or attached to a medical company or hospital for support. Further, the FST is neither staffed nor equipped to provide routine sick call functions.

MISSION

4-25. The mission of this unit is to provide a rapidly deployable urgent initial surgical service forward in a brigade combat team (BCT) or at EAB.

BASIS OF ALLOCATION

4-26. The following information provides basis of allocation for the medical team, (forward surgical) and the medical team, (forward surgical [airborne]) organizations.

MEDICAL TEAM (FORWARD SURGICAL)

4-27. The basis of allocation for the medical team (forward surgical) is one per BCT.

MEDICAL TEAM (FORWARD SURGICAL [AIRBORNE])

4-28. The basis of allocation for the medical team (forward surgical [airborne]) is one per BCT.

ASSIGNMENT AND CAPABILITIES

4-29. The medical team (forward surgical) and the medical team (forward surgical [airborne]) are assigned to the medical command (deployment support) or medical brigade (support) and further attached to the hospital center, field hospital (32 bed) or CSH. When operationally employed the medical team (forward surgical) can be further attached to a medical company.

4-30. This team is designed to provide—

- Continuous operations in conjunction with a supporting medical company for up to 72 hours.
- Urgent initial surgery for otherwise nontransportable patients.
- Emergency treatment to receive, triage, and prepare incoming patients for surgery; provide the required surgery; and continued postoperative care for up to 30 critically wounded or injured patients over a period of 72 hours with its organic MESs.
- Postoperative acute nursing care for up to eight patients simultaneously per team prior to further patient evacuation.
- Technical advice and assistance to the division surgeon and the division surgeon's section for the surgical services portion of the division plans and policies.
- Current information concerning surgical augmentation of Role 2 MTFs to higher headquarters.
- Team augmentation of the surgical capability of Role 3 hospitals.

DEPENDENCIES

4-31. The medical teams, (forward surgical) are designed to be dependent upon the appropriate elements in the AO to provide religious; legal; unit-level AHS support; finance; food service; personnel and administrative services; logistical support; generator support; unit maintenance; communications; and IM. These teams are further dependent upon—

- The HHD, medical battalion (multifunctional) or brigade support medical company and the general support aviation battalion for patient evacuation.
- Medical battalion (multifunctional) or BCT medical supply office for medical equipment maintenance and repair, blood distribution, and Class VIII resupply.
- Appropriate elements of the theater sustainment command for—
 - Rigging when airdrop operations are required (airborne only).
 - Sling load operations.

CAUTION

Current operations have demonstrated the need for flexibility and dictate that the FST may be required to conduct limited stand-alone operations. If deployed as a part of a multinational force, joint task force, or in support of special operations forces, the conventional medical support base the FST relies on may not be present in the AO. In order to operate successfully under these conditions, it is critical that the AHS planner consider personnel and equipment augmentation in the following areas: command, control and communications support; medical operations planning; power generation; vehicle maintenance; food service; protection (security); patient administration; pharmacy; patient holding; instrument sterilization; Class VIII resupply; medical equipment maintenance and repair; x-ray; medical laboratory; and sick call (primary care physician).

MOBILITY

4-32. This unit is capable of transporting 100 percent of its TO&E (personnel and equipment) and supplies in a single lift using its organic vehicles.

EMPLOYMENT OF THE FORWARD SURGICAL TEAM

4-33. Forward surgical teams are normally employed in BCTs on the basis of one per maneuver brigade. They are normally assigned to the medical command (deployment support) or medical brigade (support) and then attached to a hospital for general support when not operationally employed. When operationally employed, FSTs are attached to medical companies. The FSTs may also be a part of a medical task force in support of special operations forces missions.

4-34. On arrival in the AO, the FST establishes contact with the supporting unit to coordinate its support requirements. They also obtain situational updates and arrange for x-ray, medical laboratory, medical records administration, patient movement items, and operational requirements support.

ESTABLISHING THE SURGICAL FACILITY

4-35. Operationally, the FST requires less than 1,000 square feet of space (equivalent to one general purpose large tent) to set up and operate in. Tents for the FST is a common table of allowances item and may vary from one specific unit to the next. Ideally, the FST will have a lightweight shelter system with an environmental control unit for heating and cooling which provides clean air ventilation of the surgery area. A mechanism for heating is necessary for management of expected hypothermia in patients in temperate and cold environments. Clean air ventilation in the operating area is ideal for controlling contamination of surgical incisions and sterile supplies.

4-36. The FST establishes itself in an area selected by the supported medical company (site selection criteria for the FST is the same as that for the supported unit) and is collocated with the medical company. Once established, the FST, its vehicles, and generator should be sandbagged. Bunkers should be established for the protection of patients and FST personnel, as required.

4-37. The FST sets up based on the type of tents or shelter systems that are available. The configuration layout of the FST is normally mission, enemy, terrain and weather, troops and support available, time available, mission variable-driven and may be based on the anticipated patient load and the frequency with which they anticipate being displaced. The internal configuration of the surgical facility is at the discretion of the FST chief and the operational needs.

DISPLACEMENT AND REDEPLOYMENT

4-38. The medical command (deployment support) or medical brigade (support) commander attaches the FST to BCTs or a division headquarters to be further attached in support of medical companies. Normally, the medical command (deployment support) or medical brigade (support) commander issues orders, either verbally or in writing, to the FST. Frequently, the time to respond to orders is short; therefore, the FST must be constantly prepared to move. It is critical that the FST have a flexible entry and exit strategy in order to minimize confusion during entry into and withdrawal from the AO. After receiving the commander's guidance, the chief of the FST and the headquarters element conduct a mission analysis, incorporating changes based on the tactical situation. Once the FST collocates with a medical company, it may be subject to frequent displacements.

4-39. The FST is normally attached for up to 72 hours, after which it will normally redeploy to a Role 3 hospital for reconstitution. However, the situation may require it to remain on station and be reconstituted or augmented by additional FSTs.

X-RAY, LABORATORY, AND BLOOD SUPPORT

4-40. The x-ray support is provided by the supported MTF. The FST does not have organic x-ray capability.

4-41. The need for x-rays (especially for patients requiring orthopedic surgery) is normally determined during the assessment phase in the triage and preoperative area. However, x-ray follow-up may be required.

4-42. Clinical laboratory capabilities at the level at which the FST operates are limited only to those procedures determined to be essential for far forward resuscitative surgery. These include—

- Blood holding capability: up to 50 units of Group O red blood cells or Low Titer Group O whole blood and 50 units of frozen or liquid plasma.
- Electrolyte level (sodium; potassium; chloride; and carbon dioxide) using a handheld assay.
- Hematocrit determination using micro-hematocrit capillary tubes and battery-powered centrifuge.
- Urinalysis using dipsticks.
- Blood gas analysis using sensor-based module.

4-43. Nursing personnel perform near-patient testing and perform operator maintenance on medical laboratory equipment according to appropriate technical manuals and manufacturer's instructions. Quality control is done by personnel operating the equipment assisted by medical laboratory personnel of the supporting medical company.

FUNCTIONS AND REQUIREMENTS

4-44. The FST is a 20-Soldier team whose function is to perform triage and preoperative resuscitation, initial surgery, and postoperative nursing care. Organic personnel set up and break down the shelter system in preparation of operations or unit movement, prepare the patient for surgery, perform essential surgeries for a maximum of 30 patients within 72 hours, and provide postoperative nursing care and stabilization for medical evacuation to the next role of medical care. The FST performs unit plans and movement, routine and specialized operations, and mission-related task organization, and coordinates directly with the Role 2 MTF to which it may be attached or collocated.

ADMINISTRATIVE FUNCTION

4-45. Administrative support for this team is accomplished by the assigned field medical assistant and detachment sergeant. The FST chief must be apprised of ongoing tactical operations, requirements to disestablish, move, and reestablish the surgical facility, status of organization and medical supply, resupply, planning for FST current and future operations, status of individual and unit training, and status of communications connectivity. As the FST is dependent upon its supporting medical company or hospital for a significant share of its administrative and logistics requirements, continuous coordination is required to ensure that shortfalls in support do not adversely impact patient care.

TRIAGE AND PREOPERATIVE RESUSCITATION FUNCTION

4-46. The surgical staff assesses patients as they are received at or by the FST to determine the extent of injuries and wounds and to identify the required surgical procedures to be performed. Patients are provided emergency treatment if required prior to preparation for surgery. Patients are prepared for surgery by the nursing staff.

INITIAL SURGERY FUNCTION

4-47. Once triaged and prepared for surgery, patients undergo surgery required to render them transportable to the next role of care where more complete or extensive surgery can be accomplished. An orthopedic surgeon is available to perform required surgery for injuries of the musculoskeletal system and provides specialized care and consultation on the necessary life- and limb-saving procedures in patients with injuries to the spine and limbs. Clinical nurse anesthetists administer anesthesia during surgery. The FST is capable of performing two surgeries simultaneously, if required.

POSTOPERATIVE NURSING CARE FUNCTION

4-48. Postoperative nursing care, under the supervision of the surgeon, is provided to patients from the completion of surgery, through postanesthesia recovery, and until they are sufficiently stable to withstand the

rigors of medical evacuation to the next role of care. Acute nursing care is required for each patient postoperatively, as patients have received life-threatening injuries and may require further medical intervention. Once the patient is stabilized, he is prepared for medical evacuation. When collocated with a medical company, the patient holding squad can provide limited holding for postoperative surgical patients.

CLINICAL PLANNING FACTORS

4-49. Below is a list of clinical planning factors for the FST or FRSD (when employed as one complete team) that may be used in determining the full potential and limitations of the team:

- Requires a minimum of 1.5 hours set up to become fully functional.
- Must not begin surgery unless they can guarantee sufficient time on station to safely begin and conclude the required procedures and permit postoperative recovery.
- Two operating tables per team.
- Average time per patient is 135 minutes.
- Maximum caseload per 24 hours is 10 cases. The MES will only support 30 cases without reconstitution.
- Postoperative care up to six hours with maximum of eight simultaneous patients.
- Relief, reconstitution, or augmentation is required after 72 hours.

SECTION IV — MEDICAL DETACHMENT, (FORWARD RESUSCITATIVE AND SURGICAL)

4-50. This section provides an overall discussion of the medical detachment (forward resuscitative and surgical) allocation, assignments and capabilities, dependencies, employment, and organization and functions.

4-51. The FRSD is a 20-Soldier detachment which provides far forward resuscitative surgical intervention to render nontransportable patients sufficiently stable to allow for medical evacuation to a Role 3 hospital. The FRSD provides the capability to perform resuscitative surgery (often referred to as damage control surgery) within the AO. Patients remain at the FRSD until they recover from anesthesia; once stabilized they are evacuated as soon as possible. The postoperative intensive care capacity of the FRSD is extremely limited and there is no organic holding capability. When collocated with a medical company, the patient holding squad can provide a limited holding capability for the FRSD. The FRSD is not a self-sustaining unit and must be deployed with or attached to a medical company or hospital for support. Further, the FRSD is neither staffed nor equipped to provide routine sick call functions.

MISSION

4-52. The FRSD provides forward DCR and DCS in support of unified land operations, either independently, or as part of a future unified action partner for short and extended military operations.

Note 1. Damage control resuscitation refers to those rapidly implemented medical interventions that prevent or mitigate a casualty's irreversible physiologic deterioration such as hypothermia, acidosis, and coagulopathy that lead to shock and death. These interventions include rapid hemorrhage control, hypotensive resuscitation (permissive hypotension), rapid replacement of circulating volume, prevention or alleviation of hypothermia and amelioration of acidosis through judicious use of blood products and medications.

Note 2. Damage control surgery refers to those rapidly implemented surgical interventions that include initial surgical control of hemorrhage using surgical packing, hemostatic agents and repair of damaged vascular structures, organs and other tissues, as well as control of contamination by lavage, surgical debridement, or excision, followed by resuscitation in the ICU and subsequent surgical exploration and definitive repair once normal physiology has been restored.

BASIS OF ALLOCATION

4-53. The following information provides basis of allocation for the medical detachment, (forward resuscitative and surgical) and the medical detachment, (forward resuscitative and surgical [airborne]) organizations.

MEDICAL DETACHMENT (FORWARD RESUSCITATIVE AND SURGICAL)

4-54. The basis of allocation for the Forward Resuscitative and Surgical Detachment (FRSD) is one per BCT.

MEDICAL DETACHMENT (FORWARD RESUSCITATIVE AND SURGICAL [AIRBORNE])

4-55. The basis of allocation for the FRSD (airborne) is one per BCT.

ASSIGNMENT AND CAPABILITIES

4-56. Assigned to the medical command (deployment support) or medical brigade (support) and attached to a hospital center or CSH when not operationally employed and further attached forward to a medical company. When operationally employed this unit provides—

- A standardized, rapidly deployable, networked, self-mobile, modular and scalable resuscitative and surgical team capable of supporting short (<72 hours) and extended (>72 hours) operations, including the ability to support split operations. The team is modular and scalable, with the ability to provide emergency treatment to receive, triage, and prepare incoming patients for surgery; and provide the required surgery and continued postoperative care.
- A complete FRSD consisting of the following components: administration, supply, two surgical and two resuscitative elements (20 personnel). In this configuration, the FRSD provides emergency treatment to receive, triage, and prepare 30 incoming patients for surgery over a 72-hour period; provides the required surgery and continued postoperative care for critically wounded and injured patients with organic MES. Postoperative care can manage eight patients over six hours postsurgery.
- Two resuscitative and surgical teams, capable of supporting split operations, each consisting of administration, supply, surgical, and resuscitative sections (10 personnel). In this configuration each team provides emergency treatment to receive, triage, and prepare 12 incoming patients for surgery over a 72-hour period; provides the required surgery and continued postoperative care for critically wounded or injured patients with organic MES. Postoperative care can manage four patients over six hours postsurgery.
- Two surgical elements, capable of supporting very short duration (24-hours) operations, consisting of only a surgical element (six personnel). In its smallest configuration, the single surgical element provides emergency treatment to receive, triage, and prepare four incoming patients for surgery; provides the required surgery; and limited continued postoperative care for those critically wounded or injured patients over a period of 24 hours with its organic MES.
- Urgent initial surgery for otherwise nontransportable patients, primarily when attached to a Role 2 MTF to maximize health system synergies (for example, access to x-ray, ancillary support, patient holding, and proximity to evacuation modalities) or when collocated with another organization capable of meeting its support requirements.
- Health service support operations for both short (<72 hours) and extended (>72 hours) duration missions dependent on mission, enemy, terrain and weather, troops and support available, time available and civil considerations (mission variables), provided that it achieves its personnel work rest cycles and gains associated dependency support.
- Postoperative acute nursing care for up to eight patients simultaneously for up to six hours prior to further patient evacuation.
- Technical advice and assistance to the supported unit surgeon and the surgeon section or medical operations center for the surgical services portion of the supported unit plans and policies.
- Surgical augmentation of the of Role 3 MTFs surgical capability.

- Limited coordinated defense of the unit's area or installation.

MOBILITY

4-57. This unit is capable of transporting 100 percent of its TO&E (equipment) and supplies in a single lift using its organic vehicles.

DEPENDENCIES

4-58. This unit is dependent upon—

- Appropriate elements within the theater for religious, legal, AHS support, finance, and personnel and administrative services.
- The brigade medical supply office or to provide medical equipment maintenance and repair and Class VIII A and B (Blood) resupply, when operationally attached to a BCT medical company. When not attached forward, the hospital or the medical battalion (multifunctional) provides medical maintenance and repair and Class VIII A and B (blood) resupply and the medical company (ground ambulance) provides ground ambulance evacuation of patients.
- The general support aviation battalion, to provide air movement of the FRSD equipment and supplies, when required.
- The medical company (air ambulance), to provide Army aeromedical evacuation support to and between roles of care within the AO, emergency Class VIII resupply, emergency movement of medical personnel to support the AHS mission.
- Appropriate elements of the sustainment brigade, quartermaster company (aerial delivery support) or the brigade support battalion (airborne), infantry BCT airborne for rigging when airdrop operations are required (airborne only).

4-59. If deployed as part of a multinational force, joint task force, or in support of special operations forces, it is critical that the medical planner consider personnel and equipment augmentation in the following areas: command, control and communications, medical operations planning, power generation, vehicle maintenance, food service, FHP, patient administration, pharmacy, patient holding, instrument sterilization, Class VIII resupply, medical equipment maintenance and repair, x-ray services, medical laboratory services, and sick call (primary care physician).

EMPLOYMENT

4-60. Forward resuscitative and surgical detachments are normally employed in BCTs on the basis of one per maneuver brigade. They are normally attached to a HHD, hospital center or CSH for general support. When operationally employed, FRSDs are attached to medical companies. The FRSD may also be a part of a medical task force in support of special operations forces missions.

4-61. On arrival in the AO, the FRSD establishes contact with the supporting unit to coordinate its support requirements. They also obtain situational updates and arrange for x-ray, medical laboratory, medical records administration, patient movement items, and operational requirements support.

FUNCTIONS AND REQUIREMENTS

4-62. The administration and supply section provides unit-level administration, supplies management, maintenance, and operational planning support.

4-63. The surgical section provides surgical services including anesthesia services, infection control, and DCS as well as postoperative care including initial burn management, continuing trauma resuscitation (blood products, parenteral fluids, advanced airway management, intravenous, intraosseous infusion, and central line placement), and critical care services management of mechanical ventilation, advanced wound management, and postoperative recovery care (pain management, pulmonary therapy, and fluid resuscitation). To enable the most efficient surgical throughput, each surgical section is designed to be supported by a resuscitation section. A surgical section can be employed separately from the FRSD for very short duration operation (24 hours), normally conducted in support of special operations forces missions.

The surgical section can provide limited ancillary services to include point of care laboratory assay measurement and imaging modalities to assist with ongoing assessment and to guide further treatments and interventions.

4-64. The resuscitative section manages trauma patients which includes initial burn management and trauma resuscitation (blood products, parenteral fluids, advanced airway management, intravenous, intraosseous infusion, and central line placement). The resuscitative section can also provide limited ancillary services with point of care laboratory assay measurement and imaging modalities to assist with initial assessment and ongoing patient management and treatment.

4-65. This unit does not perform field maintenance on organic equipment to include communications security equipment.

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Chapter 5

Operational Considerations

The employment of medical units and hospitals requires knowledge not only of military field craft but also what impact mission, enemy, terrain and weather, troops and support available, time available, and mission variables have on patient care operations. This chapter discusses topics which are generally applicable to all types of field medical units, regardless of organizational structure. It includes information on the tactical employment of hospitals, MEDLOG in a hospital, AHS in specific operational environments, reconstitution, and deceased personnel.

SECTION I — EMPLOYMENT OF FIELD MEDICAL UNITS AND HOSPITALS

5-1. This section provides guidance and references for employing medical units and hospitals in an AO. Detailed planning can be found in the references provided.

DISPLACEMENT

5-2. The displacement and reestablishment of medical units is dependent upon the mission and other mission variables. Unit displacements are normally conducted as a result of orders issued by the higher headquarters. Frequently, the time to respond to orders is short; therefore, the medical commander must disseminate guidance to the staff in the most expedient method. Upon receiving the commander's guidance, the staff conducts the mission analysis, incorporating changes based on new information or situation. The medical unit saves time by rehearsing moves, using knowledge from past experience, and maintaining a detailed tactical standard operating procedure.

5-3. The unit's operations section develops the operation order according to the higher headquarters' plan and the tactical standard operating procedure. The medical commander reviews and approves the operation order. The medical commander ensures that the move is coordinated with higher headquarters and all supported elements. All supported elements must be aware of when medical operations at the current location will be curtailed and the date and time of opening medical operations at the new site. Medical unit displacements necessitate the transfer of patients and medical operations to other MTFs. To minimize disruption of treatment operations, the medical unit should move in echelons. Displacement by echelons is contingent upon the higher commander's intent, the tactical situation, and the availability of support requirements.

WARNING ORDER

5-4. A move is usually initiated by a warning order issued by the higher headquarters. The warning order serves notice of a contemplated action or order that is to follow. Warning orders are brief oral or written orders. The amount of detail included in a warning order depends on the time available, the means of communications, and the information requested by the medical commander.

5-5. Upon receiving the warning order, the medical commander analyzes the mission and provides planning guidance to the staff. Using the higher headquarters' service support annex, status reports, and other appropriate documents, the staff formulates their running estimates for the commander's approval. With the acceptance and approval of the running estimates, the commander provides a decision and concept of operations. Concurrently with the running estimate sequence, other unit personnel conduct preliminary equipment checks and equipment loading procedures. Based on the commander's decision the staff coordinates with the higher headquarters to affect the transfer of patients to other MTFs.

5-6. In preparation for displacement, the commander should organize the unit into manageable echelons, preserving unit integrity as much as possible. Preparation for displacement requires—

- Identifying external support requirements (for example, a hospital may require additional materiel handling equipment and security escorts).
- Phasing down and transferring MTF operations.
- Evacuating, moving, and transferring patients to other MTFs.
- Performing map, ground, and air reconnaissance of the routes and selecting the new site when possible.
- Selecting routes.
- Designating start points and release points.
- Reconnoitering the route to the starting point.
- Providing for fuel, security, maintenance, supply, and equipment evacuation.
- Determining the order (echelons), rate of march, maximum speed of vehicles, catch-up speed, and distance between vehicles.
- Establishing checkpoints and halts.
- Establishing communications security procedures.
- Establishing mission-oriented protective posture (MOPP)-level.
- Dispatching reconnaissance and advanced parties.
- Controlling traffic.
- Planning for environmental considerations, policies, and requirements.
- Issuing orders.

OPERATION ORDER

5-7. The operations officer has staff responsibility for formulating, publishing, and obtaining the commander's approval of and distributing the operation order. The operation order provides unit staff and personnel the information needed to carry out an operation. Preparation of this order normally follows the completion of area reconnaissance and an estimate of the situation. When time is available and the existing tactical situation conditions prevent detailed planning or area reconnaissance, the higher headquarters prepares an initial march plan and issues fragmentary orders to modify these plans as needed. If conditions and time permit, information in the operation order includes—

- Destination and routes.
- Rate of march, maximum speeds, and order of march.
- Start points and times.
- Scheduled halts, vehicle distances, and release points.
- Required communications.

5-8. Each unit section reports its supply, vehicle, equipment, workload, and maintenance status to the operations officer. This information is used in coordination with higher headquarters to finalize the convoy organization, compute additional transportation and external support requirements, and perform march computations.

AREA RECONNAISSANCE

5-9. The higher headquarters normally prescribes the reconnaissance route. The operations section uses a map reconnaissance in such cases to confirm checkpoints, identify problem areas, and begin planning positions of the unit in the new area. This effort includes the gathering of data already generated, if any, on the route and the new area that includes specific environmental health risks, environmental considerations, and related information. If the route is not prescribed and the unit is not included as part of a reconnaissance party with other units, the operations section briefs the reconnaissance team on the displacement plan and provides the team with a strip map and the designated MOPP-level and notifies higher headquarters of the route selected. The composition of the reconnaissance team is directed by the unit commander.

5-10. The reconnaissance party wears the appropriate protective gear based on the threat analysis and monitors all radiological and chemical detection devices. It performs duties to—

- Verify map information.
- Note capabilities of road networks.
- List significant terrain features and potential problem areas.
- Identify and mark contaminated areas and minefields.
- Compute travel times and distances.
- Perform route and ground reconnaissance to include site selection.

ADVANCED PARTY

5-11. The advanced party moves before the main body and is dispatched as directed by the commander. Its composition is recommended by the operations officer and approved by the commander. It prepares the new site for arrival of the main body. The advanced party performs duties to—

- Conduct a security sweep of the new site to ensure the area is free of enemy activity and monitor radiation exposure measurements within the area of the new site. This is normally done by security support forces.
- Position chemical alarms.
- Establish communications with higher headquarters and old location.
- Designate boundaries of hospital elements, based on unit defense plans and consistent with types of weapons and personnel availability.
- Increase security by manning key points along the perimeter.
- Establish a command post.
- Ensure personnel follow dispersion and other measures.
- Position personnel to guide main body from the release point to designated locations.
- Initiate initial staking plan for hospital.

MAIN BODY

5-12. The main body moves as directed in the operation order. The last echelon normally closes out any remaining operations ensuring the old site is clear of anything that could be of intelligence value to the enemy and then moves to the new site. This echelon includes maintenance elements to deal with disabled vehicles from the rest of the convoy. It also picks up guides and markers along the route. As the main body arrives at the new site, it is met by the advanced party and guided to designated positions. Erection of the MTF and the establishment of treatment operations follow the priorities set by the commander.

SITE SELECTION

5-13. Site selection is an important factor impacting on the accomplishment of the hospital's mission. Improper site selection can result in inefficiency and possible danger to unit personnel and patients. For example, if there is insufficient space available for ambulances to turnaround, congestion and traffic jams around the MTF can result; or, if the area selected does not have proper drainage, heavy rains may cause flooding in the unit and treatment areas. The MTF should not be placed near hazardous materials (HM)(such as petroleum, oils, lubricants, and ammunition) or storage areas and motor pools. The selected site is cleared of mines, booby traps, and CBRN hazards. The selected site is not located near potential areas of contamination such as a garbage dump, landfill, or other waste disposal site. Another important feature that must be considered is a space sufficient enough to support a helicopter landing zone for medical evacuation aircraft, ensuring the site is free of hazards such as power lines, poles, or debris.

COMMANDER'S PLAN AND MISSION

5-14. The specifics of the operation plan, the manner in which it will be executed, and the unit's assigned mission can affect the selection of a site. The requirements for an area that is only to be used for a short period of time can differ significantly from an area which is expected to be used on an extended basis. For

example, if the medical unit's mission requires that it relocates several times a week, complete treatment and holding areas will not be established; only essential services, shelters, and equipment will be used. On the other hand, if it is anticipated that the unit will be located at one site for an extended period of time, buildings or pre-established shelters, if available, may be used.

ROUTES OF EVACUATION AND ACCESSIBILITY

5-15. The air ambulance is the preferred means of evacuating all patients and the primary means of evacuating URGENT, and URGENT-SURG precedence patients. The ground ambulance is the primary means of medical evacuation for ROUTINE and CONVENIENCE precedence patients, and CBRN patients. The MTF must be situated so that it is accessible from a number of different directions and areas. It should be situated near and be accessible to main road networks and air corridors, but not placed near lucrative targets of opportunity. The site should not be so secluded that incoming ambulances have difficulty locating the MTF. Refer to ATP 4-02.2 for additional information on medical evacuation.

EXPECTED AREA OF PATIENT DENSITY

5-16. To ensure the timely delivery of AHS support, the Role 3 MTF must be located in a location proximate enough to the supported units to provide timely hospitalization support. Without proximity to the areas of patient density, the evacuation routes will be unnecessarily long, resulting in delays in both treatment and evacuation. The longer the distance that must be traveled, the longer it takes for the patient to reach the next role of care. Further, this time delay reduces the number of ambulances available for medical evacuation support.

HARDSTAND, DRAINAGE, OBSTACLES, AND SPACE

5-17. The site should provide good drainage during inclement weather. Care must be taken to ensure that the site selected is not in or near a dry river or stream bed, has drainage that slopes away from the MTF location and not through the operational area, and that there are no areas where water can pool.

5-18. The ground, in the selected area, should be of a hard composition that is not likely to become marshy or excessively muddy during inclement weather or temperature changes. This is particularly true in extreme cold-weather operations where the ground is frozen at night and begins to thaw and become marshy during daylight hours. Further, the area must be able to withstand a heavy traffic flow of incoming and departing ambulances in various types of weather.

5-19. The area selected should be free of major obstacles that will adversely impact on the unit layout (such as disrupting the traffic pattern); cause difficulties in erecting shelters (overly rocky soil); or require extensive preparation of the area before the MTF can be established. Engineer site preparation is required for the establishment of hospitals.

5-20. The space to establish the treatment and administrative areas of the unit is dependent upon the mission, expected duration of the operation, and whether CBRN operations are anticipated. The site should provide adequate space for establishment of all unit elements including possible augmentation. It must be adequate in size to accommodate dispersion of unit assets according to the tactical standard operating procedure. The land space required for a hospital varies a great deal, depending on how much of the MTF will be established. For example, one CSH medical company requires approximately six acres and one field hospital (32 bed) requires nearly eight acres.

COMMUNICATIONS SITE SELECTION

5-21. The S-6 should conduct a signal site analysis of the entire AO, if possible. Signal site analysis and selection is a collaborative effort between the S-6 and the S-3. A thorough site analysis facilitates course of action comparison during planning and provides flexibility when executing operations. The S-6 analysis focuses on the ability of communications systems to provide coverage from the proposed site. The S-3 analysis focuses on mobility, survivability, and sustainability. If the mission changes and operations move into another area, planners should know the best alternative areas to provide effective communications.

LIKELY ENEMY TARGETS

5-22. The site must not be too closely located to likely enemy targets including—

- Ammunition storage facilities.
- Petroleum, oils, and lubricants points.
- Motor pools.
- Main supply routes (the facility should be located in the vicinity of the main supply route for accessibility but not directly on it).
- Bridges.
- River crossing points.
- Strategic towns and cities.
- Industrial complexes and factories.

COVER AND CONCEALMENT

5-23. The area should provide maximum cover and concealment without hampering mission accomplishment or communications capability. Overhead cover is desirable for protection from biological and chemical warfare agent contamination in the event of an attack.

LANDING SITES

5-24. The site selected must have sufficient space available to serve as a landing site for incoming and outgoing air ambulances. Sufficient space must be allocated for establishing a landing site for contaminated aircraft downwind and at a safe distance from the patient decontamination site, the unit and treatment areas. Refer to ATP 4-02.2 for additional information on medical evacuation.

PERIMETER SECURITY

5-25. The site selected should be easily defensible and maximize the use of available terrain features and defilade for cover and concealment. The extent of perimeter security requirements is dependent upon whether the unit is included in a base-cluster or is solely responsible for its own security.

FLOW OF TRAFFIC (PATIENTS AND VEHICLES)

5-26. In establishing the traffic patterns within the unit area, consider the following:

- The selected site must permit the establishment of the treatment and administrative areas in such a manner as to maximize the smooth flow of patients through the triage, diagnostic, treatment, and holding areas. Using overlapping internal traffic patterns should be minimized.
- The external traffic pattern must afford a smooth flow of vehicle traffic through the unit area. There must be sufficient space allocated for ambulance turnaround once the patient has been delivered to the triage area. Intersections accommodating cross traffic should be avoided as they present the potential for traffic jams and accidents.
- A route from the landing site to the triage area must be established which minimizes the distance the patient must be carried and which affords easy access to the treatment area.
- Traffic patterns of the other units in the base-cluster must be considered when determining internal routes.

EQUIPMENT

5-27. Certain pieces of equipment require strategic placement within the unit area. In selecting the site, the placement of this type of equipment must be considered. For example, trailer-mounted 10-kilowatt generators must be placed in such a manner as to enhance their safe operation and to reduce their heat signature and noise level, yet be close enough to unit and treatment areas that the limited amount of cable can reach. It is preferable to maximize the use of natural terrain features within the site to provide a portion of the needed shielding rather than having to rely solely on the use of sandbags.

DECONTAMINATION AREA

5-28. The site should be large enough to provide an area for patient decontamination. The specific site selected to establish the decontamination site must be downwind of the unit and treatment areas and a safe enough distance to prevent contamination if rotary wing aircraft are used to transport contaminated patients. Refer to ATP 4-02.7/MCRP 4-11.1F/NTTP 4-02.7/AFTTP 3-42.3 for additional information for establishing a patient decontamination site and how to conduct patient decontamination in a CBRN environment.

GENEVA CONVENTIONS ADHERENCE

5-29. The Geneva Conventions afford the medical unit a certain degree of protection from attack. The extent to which the combatants and irregular forces on the battlefield are adhering to the provisions of the Geneva Conventions has a bearing on site selection in that it may dictate the degree of required security for the unit.

SHELTERING THE MEDICAL TREATMENT FACILITY

5-30. When providing medical care in a field environment the MTF should be established so that the patients and staff are sheltered from the elements. It is also desirable to have some degree of environmental control.

EXPEDIENT SHELTERS

5-31. Expedient shelters are generally more convenient and easier to establish and use when a unit is conducting a movement and must provide emergency care. Expedient shelters may be as simple as a tarp being erected to shield the patient and care providers from the sun or rain. In situations where weather and terrain permit, a shaded area adjacent to the route of march will suffice. It may be as simple as setting up on the tailgate of a vehicle which may be adequate for the immediate situation.

TENTAGE

5-32. All field medical and dental units are equipped with tents. The types of tents available to a unit are based on common tables of allowance and the unit's modified table of organization and equipment.

Note. When a unit replaces existing tents, selection criteria for new tents must include compatibility with the unit's existing heating, cooling, and electrical requirements and capabilities.

5-33. Tents provide medical and dental personnel with a shelter system that is quick to setup and strike. Their portability and convenience are especially useful for forward deployed medical and dental treatment teams. Tents are easy to camouflage and conceal and allow flexibility in site selection.

SEMIPERMANENT BUILDINGS

5-34. Semipermanent buildings are generally constructed and used in base-clusters or forward operating bases particularly in long-term operations predominated by stability tasks. Semipermanent buildings offer a number of features that make them very desirable. The structures can be built to specific dimensions which are required to establish and operate a treatment facility. Shelters for a hospital complex are often a mixture of shelter types. The two most prevalent shelter systems are the International Organization for Standardization shelter and the tent, expandable, modular, personnel shelter (temper). The positioning of the shelter requires materiel handling equipment. Additionally, engineer support is required to prepare the site prior to establishing a hospital facility.

BUILDINGS OF OPPORTUNITY

5-35. Buildings of opportunity present a number of distinct advantages and should be used whenever possible. These may include electrical lighting, air conditioning and central heat, telephones, running water, and toilets. Prior to establishing an MTF in an existing structure, the building must first be inspected and approved for occupancy by the supporting engineers. The building's existing layout may pose a significant challenge to medical and dental personnel when trying to establish an efficient layout.

HEALTH FACILITY MANAGEMENT

5-36. The facility management capability at a Role 3 hospital consists of the utilities operation and maintenance warrant officer who generally serves as the overall maintenance officer (nonmedical). This individual provides technical expertise to operate, maintain, and repair the Army's utility systems. Units should plan for long-term sustainment of power generation equipment and may consider the use of commercial support assets via theater support or external support contracts and task orders. Additional capabilities available at a hospital include utilities equipment repairers, motor pool, and laundry and bath. Other personnel may be further assigned or tasked to perform repairs or facility management functions.

5-37. There is one health facility planner on the medical brigade (support) staff and is responsible for monitoring facility engineer support to subordinate medical units, assisting medical units with facility project requirements, establishing facility management policies in accordance with theater policies, and coordinating for external facility engineering support for extended sustainability of MTFs and infrastructure. For a comprehensive discussion of facility planning considerations, refer to ATP 4-02.1, Chapter 8.

This paragraph implements North Atlantic Treaty Organization (NATO) International Standardization Agreement (STANAG) 2931.

CAMOUFLAGE OF MEDICAL UNITS

5-38. If the failure to camouflage endangers or compromises tactical operations, the camouflage of the MTF may be ordered by a NATO commander of at least brigade-level or equivalent. Dispersion of tents and equipment is accomplished to the maximum extent possible. A controlled entry into the medical unit's area is established. North Atlantic Treaty Organization STANAG 2931 provides for camouflage of the Geneva emblem and Red Crescent on medical facilities where the lack of camouflage might compromise tactical operations. The STANAG defines medical facilities as medical units, medical vehicles, and medical aircraft on the ground. Camouflage of the Red Cross means covering it up or taking it down.

Note. The black cross on an olive background is not a recognized emblem of the Geneva Conventions.

5-39. It is not envisioned that hospital facilities will be camouflaged. For an in-depth discussion of the Law of Land Warfare refer to FM 6-27/MCTP 11-10C.

This paragraph implements American, British, Canadian, Australian, and New Zealand (ABCANZ) Armies' Standard 2082.

JOINT TRAUMA SYSTEM

5-40. The Joint Trauma System is an organized approach to providing the improved trauma care across the continuum of care to trauma patients, battle and nonbattle injuries. The Joint Trauma System is dedicated to the reduction of morbidity and mortality of combat casualties and is engaged in a systematic fashion to determine the acute and long-term outcomes of casualties, the quality of their care, improvements in prevention and treatment, and logistical considerations. The Joint Trauma System addresses all components identified with optimal care of a patient from prevention through acute care, rehabilitation, and return to duty. For additional information, go to the Joint Trauma System website listed in the references section of this publication.

5-41. The DOD Trauma Registry is part of the Theater Medical Information Program and supports the capture of theater trauma care information across the continuum of trauma care, from the deployed AO to garrison-based MTFs. Trauma information collected and reported by the DOD Trauma Registry includes trauma care and outcomes for military and civilian casualties. This information combined with Armed Forces

Medical Examiner data in a central repository is provided to the DOD for use in the requirements development process to enhance medical care in future operations.

TRAINING CONSIDERATIONS

5-42. Operations in Iraq and Afghanistan prevented the employment of hospitals as they were designed and resourced. Commanders and planners employed hospitals in a variety of ways in order to meet the medical support requirements presented at a given time or for a given maneuver plan. In many cases, hospital personnel lost many skills required to deploy, establish, and relocate hospitals utilizing the personnel and equipment on their TO&Es. It is important, as the Army transitions to LSCO, to ensure units are prepared to employ hospitals without the luxury of established buildings, long-standing standard operating procedures, and left-behind equipment.

5-43. Hospitals are receiving new equipment as the Army moves into a period of modernization. The new air beam tents, for example, create challenges for Soldiers and leaders, not because they are not suitable, but simply because they are new and different. The new air beam tents have slightly different dimensions than previous generations of tents and therefore, change how ward masters develop staking plans and complex the hospital. However, simply requiring the unit to practice erecting and taking down the tents will pay dividends when establishing the hospital in an operational environment in support of maneuver forces.

5-44. Another skill that has likely diminished over the last several years is the ability to develop layout options and staking plans for the hospital complex. It is a difficult task and takes a lot of practice to become proficient at developing ways to organize hospital capabilities that efficiently support patient care and allow for the timely establishment of hospitalization. Planning the layout is more complicated when considering whether hospital augmentation detachments will be added or taken away from the MTF throughout the course of operations. Complexing a base hospital that, in the best ability possible, allows detachments to integrate or be removed comes with a great deal of practice, trial and error, and planning.

5-45. Rarely, in the last several years of supporting operations in Iraq and Afghanistan, have hospitals been required to use TO&E equipment to establish water and power distribution or use collective protection throughout the MTF. In conjunction with a well thought out staking plan, ensuring the power and water distribution (to include waste water removal) supports the requirements throughout the hospital is essential. Furthermore, the distribution of power and water is obviously best if established very early in the complexing of the facility. Once tents are erected and equipment established inside, it would be detrimental to realize adequate water and power supply have not been established.

SECTION II — CLASS VIII SUPPLY AND LOGISTICS OPERATIONS IN A HOSPITAL

5-46. Class VIII support for Role 3 MTFs is a vital part of the AHS mission and includes management of a commodity that must be adapted to specific theater health care requirements, distribution plans, and capabilities provided by theater sustainment organizations.

5-47. During port operations and reception, staging, onward movement, and integration Role 3 MTFs must be capable of operations immediately upon initial entry of forces. It is imperative that Role 3 MTFs deploy with their complete unit basic load or have it pushed into theater for integration prior to the required date for patient reception. Therefore, MEDLOG support must be included in planning for port opening and early entry operations. Port operations may include the issue of medical unit sets from Army Pre-positioned Stock, receipt of unit deployment packages, and integration of refrigerated and controlled substances. Early entry operations may also include reachback support to a designated installation medical supply activity.

5-48. Class VIII sustainment of hospitals present the most complex medical materiel requirements and may consume materiel at a tremendous rate when providing trauma care in support of combat operations. Specialty care for burn injuries, orthopedic injuries and surgeries, and neurosurgery often require materiel and equipment that is not standard and may not have been anticipated or stocked in sufficient quantities prior to deployment. Role 3 hospitals are typically made direct customers of a MEDLOG company that is capable of meeting the unit's mission requirements. Forward surgical teams deployed from the hospital are dependent

on the medical company they are attached to for Class VIII resupply, medical equipment maintenance and repair, and blood distribution support.

5-49. The HHD, hospital center, field hospital (32 bed), and its associated augmentation detachments and specialty teams have been approved to replace the CSH. The extended fielding of these new organizations will result in a mixed inventory of hospitalization capabilities in the near term. However, like the CSH, the hospital center will rely on the supporting MEDLOG company for Class VIII support and augmentation of personnel for medical equipment maintenance and repair, as required. See ATP 4-02.1 for additional information.

MAJOR MEDICAL ASSEMBLAGES

5-50. Major medical assemblages or medical materiel sets are DEPMEDS-equivalent Army-unique sets that consist of a grouping of medical and nonmedical items under a single stock number used primarily by the Army.

5-51. Each medical materiel set is developed specifically for EAB medical units and is designed to meet the minimum mission essential wartime requirements to sustain a range of military operations for 72 hours.

5-52. Potency and dated medical materiel is not included in the medical materiel set, but is provided separately upon deployment as part of the unit deployment package.

SPECIALTY SETS

5-53. Stability and defense support of civil authorities' tasks require more definitive or tailored assemblages such as Humanitarian Assistance Sets. There are three types of Humanitarian Assistance Sets as follows:

- Humanitarian Assistance Surgical Augmentation Set.
- Humanitarian Assistance Pediatric Augmentation Set.
- Humanitarian Assistance Adult Augmentation Set.

5-54. These sets were established to augment an existing CSH or hospital center and are not intended for use as standalone sets. They contain special medical and surgical supplies and equipment that are essential for providing AHS support to a civilian population during operations where stability (as part of a Global Health Engagement) or defense support of civil authorities are the primary focus.

5-55. The sets do not have an assigned line item number and are not authorized by TO&E or modified TO&E. There is no basis of issue for these sets. Units must determine if there is a need for the sets during planning or as dictated by the Office of The Surgeon General and medical mission requirements.

5-56. Humanitarian assistance sets are managed by the United States Army Medical Materiel Agency (USAMMA). The Deputy Chief of Staff, Logistics is the release authority for these sets. For additional information and questions concerning the humanitarian assistance sets refer to the USAMMA Website as identified in the references section of this publication.

POTENCY AND DATED MATERIEL PROGRAM

5-57. The Centrally Managed Medical Potency and Dated Materiel Program provides unit deployment packages for early deploying EAB medical units departing the continental United States (CONUS) home stations. Unit deployment package is a term coined within the Centrally Managed Medical Potency and Dated Materiel Program that represents a unit's basic load of medical potency and dated materiel.

5-58. In the event of a deployment, this program gives USAMMA the ability to push unit deployment packages (minus support kit items) to early deploying EAB medical units at home station or another location. The unit deployment package quantities are based on the same days of supply schedule as the unit assemblages it is authorized.

5-59. The USAMMA Army War Reserve Sustainment stocks, in conjunction with theater single integrated MEDLOG manager operations, support and maintain the medical requirements of deployed units after initial issue of a deployment package. The Office of The Surgeon General is the release authority for this materiel.

5-60. Unit deployment packages are released at no cost for validated EAB units that deploy on or before deployment plus 31 days of a declared contingency operation or conflict. The unit deployment packages may also be released to support humanitarian relief efforts. Refer to ATP 4-02.1 and Supply Bulletin 8-75-S7 for additional information.

MEDICAL EQUIPMENT MAINTENANCE

5-61. The biomedical equipment specialists and the health services maintenance technician are responsible for field maintenance of medical equipment assigned or attached to the hospital including the FST or FRSD, collocated with the hospital when not deployed to supported units. The MEDLOG company provides augmentation support for sustainment maintenance and biomedical equipment specialists at the hospital.

5-62. The hospital provides limited field maintenance for special and augmentation medical equipment on an area basis and medical elements assigned or attached to the hospital. The hospital should also maintain automated maintenance records on assigned medical equipment and supported units in the approved medical maintenance management system.

BLOOD SUPPORT

5-63. Blood support has evolved significantly with the fielding of the DEPMEDS blood laboratory and shelters, tactical expandable (also known as the International Organization for Standardization shelters). These shelters are hard-walled shelters used in the DEPMEDS-equipped hospitals.

5-64. Hospital blood inventory management and resupply operations are coordinated directly with the supporting medical detachment (blood support) or other supporting blood supply unit. The hospitals have the storage capacity to maintain—

- 480 units of A, B, and O liquid red blood cells or low titer group O whole blood, both rhesus (Rh) positive and negative.
- 100 units of Groups A, B, O, and AB frozen plasma.
- Five units of Groups A, B, O, and AB platelets.
- 50 units of Groups A, B, O, and AB cryoprecipitate (antihemophilic factor).

5-65. The above storage capacity is for both the CSH and the field hospital (32 bed). If a second field hospital (32 bed) is task-organized under the HHD, hospital center and is fully established and collocated with the first field hospital (32 bed), it is important to understand that the blood storage capacity is twice that of what the current CSH can maintain.

5-66. The hospital has the capability to conduct limited emergency fresh whole blood and apheresis platelet collections, but does not have the capability to perform infectious disease testing of the donor units (rapid screening methods for hepatitis, human immunodeficiency virus, and syphilis testing may be available). The decision to transfuse blood collected in a theater is governed by theater policy.

5-67. The relatively large quantity of blood maintained requires the use of large-capacity, blood bank-type refrigerators equipped with audible and visual temperature alarm systems. Freezers for fresh frozen plasma storage are similarly monitored. (Refer to TM 4-02.70/NAVMED P-5120/AFMAN 41-111_IP for additional information on blood banking and transfusions).

EMERGENCY BLOOD COLLECTION

5-68. With proper planning, the Armed Services Blood Program will normally be able to provide adequate inventories of blood products to meet mission requirements. However, emergency situations may arise where the amount of blood products needed to complete a transfusion exceeds the available supply. In such cases, in-theater collection and processing is required to provide apheresis platelets and fresh whole blood. In-theater collections are not conducted using the same rigorous screening and viral marker testing as CONUS-based donor centers. When conducting emergency collections, there are two general types of non-Food and Drug Administration compliant blood products that may be used including—

- Blood products (usually whole blood or apheresis platelets) collected in theater and released for transfusion prior to the completion of required Food and Drug Administration testing.

- Blood products, acquired from the host nation or other countries, which may not be subject to the same set of stringent standards as is required by the Food and Drug Administration.

5-69. Whenever emergency blood collections are required, every attempt will be made to ensure that donors are pre-screened with the required Food and Drug Administration-licensed blood donor testing not more than 90 days prior to donation. On the day of donation, donors should be tested using Armed Services Blood Program Office and/or Joint Blood Program Office-approved rapid infectious disease screening test kits. A set of specimen sample tubes must also be collected for retrospective Food and Drug Administration-required blood donor testing using licensed methodologies. Patients receiving blood products from in-theater collection must be followed for up to one year after transfusion for infectious diseases such as human immunodeficiency virus and Hepatitis B and C. Experience has shown in-theater collection to be the only choice for massively transfused patients when platelets and/or fresh frozen plasma are not available in sufficient quantities. Refer to TM 8-227-12/NAVMED P-6530/AFH 44-152_IP for additional information on emergency blood collection including donor selection and apheresis collection.

5-70. The employment of emergency transfusion protocols involving the use of non-Food and Drug Administration compliant blood products should be limited to instances where such products are not available or when these products cannot be delivered at an acceptable rate to sustain resuscitation of a bleeding patient. The decision to use fresh whole blood that has not been screened using rapid field tests and/or complete Food and Drug Administration-approved donor testing for infectious agents is a medical decision that must be made after thorough consideration of the risks and benefits.

5-71. Transfusing Rh positive red blood cells to Rh negative females at facilities where blood grouping and typing capabilities are not available, can result in future complications if the patient is of child-bearing age and develops an anti-D antibody. If a future fetus of the patient is Rh positive, hemolytic disease of the newborn may result. Once a D antibody is formed, Rh immune globulin is no longer effective. Therefore, it is paramount to reduce the transfusion of Rh positive blood to Rh negative females of child-bearing age. The impact of sensitization in males is not as great. For this reason, priority for Rh negative blood is given to females of child-bearing age. In extreme cases where there may not be enough Rh negative blood to meet all the needs of female patients, the use of Rh positive blood becomes an emergency requirement in saving a patient's life.

5-72. Unless otherwise specified, 10 to 15 percent of blood requested should be Rh negative. The blood distribution system plans for 10 to 15 percent of all blood distributed in theater to be Rh negative. This is true for all MTFs in theater.

SECTION III — ARMY HEALTH SYSTEM SUPPORT IN SPECIFIC OPERATIONAL ENVIRONMENTS

5-73. This section provides a brief discussion, references, and required protection in order to operate in CBRN environments, provide medical care for detainees, and conduct subterranean operations, reconstitution, and MASCAL operations.

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR ENVIRONMENT

5-74. Army Health System support operations conducted in a CBRN environment are described in detail in ATP 4-02.7/MCRP 4-11.1F/NTTP 4-02.7/AFTTP 3-42.3. Medical units must be prepared to set up collective protection for their MTF, establish a patient decontamination site in proximity to the MTF, plan for isolation of contagious casualties, provide medical treatment with medical CBRN defense materials, and provide patient protection from CBRN during patient evacuation. Health service support for patients in a CBRN environment activities are further described in ATP 4-02.7/MCRP 4-11.1F/NTTP 4-02.7/AFTTP 3-42.3; treatment of radiological and nuclear casualties is delineated in TP 4-02.83/ MCRP 4-11.1B/NTRP 4-02.21/AFMAN 44-161(I); treatment of biological warfare casualties is delineated in ATP 4-02.84/MCRP 3-40A.3/NTRP 4-02.23/AFMAN 44-156_IP; and treatment of chemical warfare casualties is delineated in ATP 4-02.85/MCRP 3-40A.1/NTRP 4-02.22/AFTTP(I) 3-2.69.

COLLECTIVE PROTECTION

5-75. Collective protection for all roles of care must be established prior to a CBRN event. Capabilities such as Chemically Protected Deployable Medical System for Role 3 (or a Chemical Biological Protective Shelter for Roles 1 and 2) serve as the medical shelter system providing respiratory, ocular, and percutaneous protection for patients and medical providers and allows lifesaving efforts to continue during a CBRN event. Additionally, collective protection provides an environmentally controlled, clean surgical environment while offering some CBRN survivability for low density, critical care equipment.

PATIENT DECONTAMINATION

5-76. Medical units are not staffed to conduct patient decontamination operations alone and require augmentation from the supported units. All patients who have been exposed to CBRN hazards are decontaminated at an established patient decontamination site prior to entry into a MTF. Initial triage, emergency care, and decontamination are accomplished on the dirty side of the hot line of the patient decontamination site. Life-sustaining care is rendered, as required, without regard to contamination. Secondary triage, treating trauma patients, and patient disposition are accomplished on the clean side of the hot line. Decontamination of patients can be largely accomplished by removing the outer layer of clothing and washing with soap and water and/or using Reactive Skin Decontamination Lotion. Soap and water will not neutralize radioactive material; however, it will remove the material from the skin, hair, or material surface. Radiological waste can become a concentrated point of radiation and requires coordination with CBRN personnel and the supporting engineer unit. While contamination control measures should be practiced for all decontamination activities, lifesaving medical care should be administered as soon as possible with priority over thorough decontamination.

EQUIPMENT DECONTAMINATION AND PROTECTION

5-77. Leaving equipment packed and loaded until actually needed for operations will help protect materiel in a CBRN environment and decrease equipment decontamination requirements. Protection of materiel, especially expendable supplies, requires covers and barriers. All materiel not required for immediate use is kept in shipping containers, medical chests, or under cover (such as tentage, plastic sheeting, or tarpaulin) for protection against particulate or liquid hazard. Protection against vapor hazards may require multiple barriers through which the vapor must penetrate. For example, a situation where intravenous solutions are in their individual plastic bags, in the cardboard shipping box, on a covered pallet, or in a military van container represents four barriers against the vapor hazard. These principles should be used to the maximum extent practicable.

5-78. Providing emergency services will be complicated by several factors:

- Varying levels of treatment received prior to arrival at the MTF.
- Combined conventional wounds and CBRN agent effects.
- Heat-related complications associated with MOPP use.
- Increased numbers of psychological casualties who must be triaged quickly to allow for treatment of those who need emergency management.
- The need to have EMT personnel at the patient drop-off point for triage.
- The potential of having to triage and provide casualty care while in MOPP gear.
- Reduced ability for EMT personnel to communicate between the various phases of the decontamination/treatment process.
- The need to provide supervision/guidance to the nonmedical decontamination augmentation personnel from the supported units.

CHEMICAL

5-79. Treatment of patients exposed to chemical agents generally starts at point of exposure with self and buddy aid followed by medic care until patient can reach hospitalization for follow on care. Individual soldier carried items used as initial treatment include Antidote Treatment-Nerve Agent Auto-Injector, Convulsant Antidote for Nerve Agent, and pyridostigmine bromide tablets to treat nerve agent exposure. Additional

treatment drugs are located in MESs at each role of care and include drugs for nerve agent exposure along with drugs for other types of chemical agents. See ATP 4-02.85/MCRP 3-40A.1/NTRP 4-02.22/AFTTP(I) 3-2.69 for additional instructions on treating chemically exposed patients.

5-80. Patients that will be evacuated through a potential chemical environment must have protection. Patient protection depends on ensuring that patients have adequate individual protection. If the patient is unable to wear a mask or MOPP suit, the chemical patient protective wrap should be used. It is found in the medical equipment set (M23673, Chemical Agent Patient Protective Wrap) issued to MTFs at all roles of care. See ATP 4-02.85/MCRP 3-40A.1/NTRP 4-02.22/AFTTP(I) 3-2.69 for detailed description of the use of the chemical agent patient protective wrap.

BIOLOGICAL

5-81. A biological agent attack (such as the use of bomblets, rockets, spray or aerosol dispersal, release of arthropod vectors, and contamination of food and water) may be difficult to recognize. Airborne dissemination is a likely means of delivery of biological agents. While such biological agents may produce large numbers of casualties, initial casualties may be seen at the MTF in small numbers. Biological agent attack protective measures are the same as the measures for chemical agents when bombs, sprays, or aerosols are used. General protective measures are the same as for any infectious disease; specific protective measures are used once the method of transmission has been identified. The difficulty in rapidly identifying biological agents may force the use of higher levels of MOPP for longer periods of time. Passive defensive measures (such as immunizations, good personal hygiene, physical conditioning, using insect repellents, wearing the protective mask, and practicing good sanitation) will mitigate the effects of many biological agent intrusions.

5-82. Medical surveillance is essential. Frequently, biological agent exposure does not have an immediate effect on exposed personnel. All hospital personnel must monitor for biological agent indicators such as increases in disease incidence or fatality rates, sudden presentation of an exotic disease, or other sequential epidemiological events. Most biological agent patients initially present with common nonspecific symptoms such as low-grade fever, chills, headache, malaise, and coughing. A higher than normal rate of patients, based on the number and location of personnel, known disease vectors, and endemic diseases may be the first, best, or only indication of biological agent attack. Clinical diagnostics is available in Role 3 laboratories and should be employed when any biological agent exposure is suspected. There are very few specific drugs available to patients exposed to biological warfare agents, so broad-spectrum antibiotics or antivirals are usually the first line treatment for biological agent exposure. Some vaccines given prophylactically may also be used as post exposure treatment. See ATP 4-02.48 for detailed description on treatment regimens for specific biological agents.

5-83. Biological agent attack protective measures are the same as the measures for chemical agents when bombs, sprays, or aerosols are used. General protective measures are the same as for any infectious disease; specific protective measures are used once the method of transmission has been identified. The difficulty in rapidly identifying biological agents may force the use of higher levels of MOPP for longer periods of time. Passive defensive measures (such as immunizations, good personal hygiene, physical conditioning, using insect repellents, wearing the protective mask, and practicing good sanitation) will mitigate the effects of many biological agent intrusions.

5-84. Designating a single MTF to care for these patients (from a casualty care or disease transmission standpoint) may not be necessary. However, if there are a limited number of cases, consolidating them all at one facility maximizes the use of limited diagnostic laboratory and personnel assets. Quarantine of exposed personnel or isolation of casualties may be warranted in some cases, particularly with infectious biological agent exposure. Due to difficulties in transporting contagious casualties across country borders and a reluctance to bring biological agents into the U.S., patients with biological diseases may be held for extended times within the theater. This may increase the requirement for isolation facilities and additional medical support including a need to bring additional medical personnel to the isolation facilities rather than evacuating patients out of theater.

RADIOLOGICAL AND NUCLEAR

5-85. The health care mission must continue in a nuclear environment. Chemical-biological protective shelters will provide protection against radiological particulates but may be ineffective in a nuclear environment. Well-constructed shelters with overhead cover and expedient shelters (reinforced concrete structures, basements, railroad tunnels, or trenches) provide good protection from radiological and nuclear attacks. Most protective measures against nuclear attack require engineer and/or intensive logistics support. This support includes placing sandbag walls around tents, digging trenches for casualty occupation, or constructing earthen berms. Occupying existing structures, depending upon their strength and potential flammability, may be the best protection against the effects of a nuclear strike.

5-86. Medical units operating in a radiation fallout environment will face three problems:

- The MTF may be immersed in fallout, requiring decontamination and relocation efforts.
- Patients may continue to be produced from continued radiation exposure.
- The contaminated environment hinders medical evacuation operations.

5-87. There are very few specific radiological or nuclear drugs available in theater; however, treatment will require extensive supportive care including respiratory/ventilator support, antibiotics, antiemetics, fluid management, and diagnostic laboratory capabilities to monitor radiation biomarkers. See ATP 4-02.83/MCRP 4-11.1B/NTRP 4-02.21/AFMAN 44-161(I) for details on treating radiation and nuclear casualties.

SUBTERRANEAN MEDICAL OPERATIONS

5-88. Conducting operations in a subterranean environment provide unique challenges for the Soldiers and medics that are supporting them. While disease, trauma, and behavioral health issues are common in all operational environments, there is a greater risk of an increase in the number of casualties, severity of wounds, and psychological stressors impacting Soldiers operating in confined spaces with little or no light.

5-89. The types of traumatic injuries likely are similar to any environment. However, more so in subterranean operations, the effects of blast and blast overpressure is a unique challenge that Role 3 hospitals need to be prepared for. Recently, ATP 3-21.51, Subterranean Operations, was published due to the increased risk to ground maneuver forces in large-scale combat. Appendix A, ATP 3-21.51, provides detailed medical considerations for units supporting subterranean operations.

5-90. It is important for hospital commanders, leaders, and planners to remain situationally aware and connected to the maneuver plans in order to be prepared for any situation. This includes knowing when units are preparing for and engaged in subterranean operations in order to be staffed and equipped for the unique injuries that may accompany these types of operations.

DETAINEE MEDICAL OPERATIONS

5-91. All MTFs may be required to provide medical care to a detainee or a detainee population. For information on the conduct of detainee medical operations, refer to ATP 4-02.46.

ELIGIBILITY FOR CARE DETERMINATION

5-92. During unified partner operations, one of the most pressing questions is who is eligible for care in a United States Army-established MTF and the extent of care authorized. Numerous categories of personnel seek care in U.S. facilities that are located in austere areas where the host-nation civilian medical infrastructure is not sufficient to provide adequate care. A determination of eligibility and whether reimbursement for services is required is made at the highest level possible and in conjunction with the supporting staff judge advocate. Additionally, Department of State and other military staff sections (such as the assistant chief of staff, plans) may also need to be involved in the determination process. Each operation is unique and the authorization for care is based on the appropriate U.S. and international law, DOD directives, DOD instructions, ARs, doctrine, and standard operating procedures. Other factors impacting on the determination of eligibility are command guidance, practical humanitarian and medical ethics considerations, availability of U.S. medical assets (in relationship to the threat faced by the force), and the potential training opportunities for medical forces.

5-93. Medical commanders should ensure that the eligibility for care matrix is widely disseminated throughout the command and that all medical personnel are aware of the process and how to obtain additional guidance, if required. For an in-depth discussion of the eligibility for care and a sample matrix refer to FM 4-02.

5-94. Government-owned animals such as DOD military working dogs, partner nations' military working dogs, or working dogs contracted to support U.S. and partner nation operations may require laboratory or radiology support from a Role 3 MTF. Veterinary service use is based on the MTF's mission priority and availability. The requesting veterinarian or animal care specialists coordinates for support prior to transporting the medical specimen or working dog to the MTF. The handler and veterinarian or animal care specialist must accompany the animal to the Role 3 and must notify personnel in the area prior to the animal entering the MTF to ensure staff and patient safety. Refer to Appendix A, ATP 4-02.8, for assistance in determining the eligibility of military working dogs and other government owned animals for care by United States Army veterinary service assets.

RECONSTITUTION

5-95. The Army has not been prepared to have to conduct reconstitution as a part of LSCO in many years. However, it is a priority to plan for reconstitution, and Role 3 hospitals will play a key part in it. One of the most important things a hospital can focus on in support of reconstitution is returning Soldiers to duty when possible. Every Soldier will be important to mission accomplishment and every one that can be kept in theater and returned to the unit is one less replacement that has to be taken from elsewhere.

5-96. Reconstitution consists of those actions that commanders plan and implement to restore units to a desired level of combat effectiveness commensurate with mission requirements and available resources (ATP 3-21.20). Reconstitution may include removing a unit from combat, assessing it with external assets, reestablishing a chain of command, training a unit for future operations, and reestablishing unit cohesion. Reconstitution operations include reorganization and regeneration. For more information on reconstitution, refer to FM 4-0 and Army Doctrine Publication 3-90.

- Reorganization is the action to shift resources within a degraded unit to increase its combat effectiveness. Medical commanders use reorganization to restore capability and improve HSS effectiveness within a degraded unit. Reorganization is possible at tactical level.
- Regeneration is the rebuilding of a unit. It requires large-scale replacement of personnel, equipment, and supplies. Medical units also undergo regeneration and are rebuilt through large-scale replacement of personnel, equipment, and Class VIII resupply. Regeneration requires support from higher, is time sensitive, and more resource intensive.

MASS CASUALTY OPERATIONS

5-97. Procedures for MASCAL operations should be contained in the standard operating procedures of each unit. Standard operating procedures for MASCAL operations are coordinated through the principal staff, approved by the commander, coordinated with higher headquarters as well as subordinate, adjacent, and supported commands. If MASCAL operations are viewed as part of the area damage control missions, then the medical requirements will be integrated into the overall plan. *Mass casualty* is any large number of casualties produced in a relatively short period of time, usually as the result of a single incident such as a military aircraft accident, hurricane, flood, earthquake, or armed attack that exceeds local logistics support capabilities (FM 4-02). Refer to ATP 4-02.3 for additional information on the conduct of MASCAL operations.

SECTION IV — DECEASED PERSONNEL

5-98. This section provides information and references for a MTF to establish a temporary morgue and coordinate with mortuary affairs for remains disposition. Refer to Joint Publication (JP) 4-0 for additional information on mortuary affairs.

PRINCIPLES GOVERNING MEDICAL DISPOSITION OF DECEASED PERSONNEL

5-99. The following principles will be used in the coordination process and handling and disposition of deceased personnel:

- All personnel assigned to medical units must be knowledgeable as to the proper procedure for handling deceased personnel.
- Deceased personnel are segregated from other casualties.
- Medical evacuation resources should not be used to transport deceased personnel.
- The deceased as determined by the senior medical authority are not evacuated with other casualties.
- A DD Form 1380 (*Tactical Combat Casualty Care* [TCCC] Card) should be initiated and attached to the remains if possible.
- The DD Form 1380 is signed by a medical officer prior to their departure from the mortuary affairs collection point.
- A certified medical officer will pronounce death and complete a DD Form 2064 (*Certificate of Death Overseas*) or appropriate documents. Cause of death on the form will be listed as “pending Armed Forces Medical Examiner determination.”
- Medical treatment facilities are responsible for establishing a temporary morgue for handling remains until transported to the supporting mortuary affairs organization.

5-100. The hospital patient administration division is responsible for reporting the death of a patient to the unit, casualty liaison team, and coordinating with mortuary affairs for the prompt disposition and removal of remains.

Note. In the United States Army, United States Navy, and United States Marine Corps, transportation and handling of human remains is a logistics function and not a medical function.

5-101. Careful contingency planning that provides workable guidelines for the disposition of casualties and human remains must be conducted prior to the operation and prior to rotating personnel out of the AO. If biological warfare agents have been used in the theater of operation, redeployment planning must include the health screening of personnel before their movement out of the theater to prevent the spread of disease. Planning must also incorporate close coordination with multinational unit commanders, who have forces in the theater to ensure disease containment.

RESPONSIBILITIES

5-102. Mortuary affairs personnel are responsible for coordinating the disposition of human remains. The joint mortuary affairs office acts as the theater central point of contact for coordination for the mortuary affairs.

5-103. Combatant commanders are responsible for searching, recovering, tentatively identifying, and evacuating remains from their AOR. Commanders are responsible for providing or arranging for mortuary affairs support for their personnel. Subordinate commanders at all levels are responsible for the initial search for recovery, tentative identification, and evacuation of all deceased unit personnel within their AO (see JP 4-0).

5-104. Medical treatment facilities will establish temporary morgues to briefly hold deceased personnel. Supported units do not bring their dead to this area. This is only for the short-term storage of the remains of those who died at the MTF. For additional information on MTF and mortuary affairs responsibilities refer to ATP 4-02.7/MCRP 4-11.1F/NTTP 4-02.7/AFTTP 3-42.3 and JP 4-0.

Chapter 6

Law of Armed Conflict and Geneva Conventions

The employment of medical units and hospitals requires knowledge not only of military field craft but also what else can impact patient care operations. This chapter discusses the Law of Armed Conflict and Geneva Conventions.

SECTION I — LAW OF ARMED CONFLICT

6-1. The conduct of armed hostilities on land is regulated by the Law of Armed Conflict, sometimes referred to as the Law of War of International Humanitarian Law. The main purposes of the law of war are—

- Protecting combatants, noncombatants, and civilians from unnecessary suffering.
- Providing certain fundamental protections for persons who fall into the hands of the enemy, particularly prisoners of war, civilians, and military wounded, sick, and shipwrecked.
- Facilitating the restoration of peace.
- Assisting military commanders in ensuring the disciplined and efficient use of military.

6-2. The Law of Armed Conflict places limits on the exercise of a belligerent's power. Military necessity justifies certain actions necessary to defeat the enemy as quickly and efficiently as possible. Conversely, humanity forbids actions unnecessary to achieve that object. Proportionality requires that even when actions may be justified by military necessity, such actions not be unreasonable or excessive. Distinction underpins the parties' responsibility to comport their behavior with military necessity, humanity, and proportionality by requiring parties to a conflict to apply certain legal categories, principally the distinction between the armed forces and the civilian population. Lastly, honor supports the entire system and gives parties confidence in it.

6-3. Refer to the DOD Law of War Manual, FM 6-27/MCTP 11-10C, and DOD Directive 2310.01E for additional information on the Law of Armed Conflict.

SECTION II — GENEVA CONVENTIONS

6-4. This section details the treatment and protection of patients, regardless of their status as a combatant, civilian, enemy, or friendly. It also discusses provisions afforded medical personnel and units.

PROTECTION OF THE WOUNDED AND SICK

6-5. The essential and dominant idea of the Geneva Convention for the Amelioration of the Condition of the Wounded and Sick Armed Forces in the Field (GWS) is that the Soldier who has been wounded or who is sick, and for that reason is out of combat in a disabled condition, is from that moment protected. Friend or foe must be tended with the same care. From this principle, numerous obligations are imposed upon parties to a conflict.

PROTECTION AND CARE

6-6. Article 12 of the GWS imposes several specific obligations regarding the protection and care of the wounded and sick.

- The first paragraph of Article 12, GWS, states: "Members of the armed forces and other persons mentioned in the following article, who are wounded or sick, shall be respected and protected in all circumstances."

- The word respect means “to spare, not to attack” and protect means “to come to someone’s defense, to lend help and support.” These words make it unlawful to attack, kill, ill-treat, or in any way harm a fallen and unarmed enemy Soldier. At the same time, these words impose an obligation to provide aid and give such care as the medical condition requires.
- This obligation is applicable in all circumstances. The wounded and sick are to be respected just as much when they are with their own army or in no man’s land as when they have fallen into the hands of the enemy.
- Combatants, as well as noncombatants, are required to respect the wounded. The obligation also applies to civilians; Article 18, GWS, specifically states: “The civilian population shall respect these wounded and sick, and in particular abstain from offering them violence.”
- The GWS does not define what wounded or sick means, nor has there ever been any definition of the degree of severity of a wound or a sickness entitling the wounded or sick combatant to respect. Any definition would necessarily be restrictive in character and would thereby open the door to misinterpretation and abuse. The meaning of the words wounded and sick is thus a matter of common sense and good faith. It is the act of falling or laying down of arms because of a wound or sickness which constitutes the claim to protection. Only the Soldier who is himself seeking to kill may be killed.
- The benefits afforded the wounded and sick extend not only to members of the armed forces, but to other categories of persons as well, classes of whom are specified in Article 13, GWS. Even though a wounded person is not in one of the categories enumerated in the article, we must still respect and protect that person. There is a universal principle which says that any wounded or sick person is entitled to respect and humane treatment and the care which his condition requires. Wounded and sick civilians have the benefit of the safeguards of the Geneva Conventions.
- The second paragraph of Article 12, GWS, provides that the sick “...shall be treated humanely and cared for by the Party to the conflict in whose power they may be, without any adverse distinction founded on sex, race, nationality, religion, political opinions, or any other similar criteria.”
 - All adverse distinctions are prohibited. Nothing can justify a belligerent in making any adverse distinction between wounded or sick that require his attention, whether they are friend or foe. Both are on equal footing in the matter of their claims to protection, respect, and care. The foregoing is not intended to prohibit concessions, particularly with respect to food, clothing, and shelter, which take into account the different national habits and backgrounds of the wounded and sick.
 - The wounded and sick shall not be made the subjects of biological, scientific, or medical experiments of any kind which are not justified on medical grounds and dictated by a desire to improve their condition.
 - The wounded and sick shall not willfully be left without medical assistance, nor shall conditions exposing them to contagion or infection be created.
- The only reasons which can justify priority in the order of treatment are reasons of medical urgency. This is the only justified exception to the principle of equality of treatment of the wounded.
- Paragraph 5 of Article 12, GWS, provides that if we must abandon wounded or sick, we have a moral obligation to, “as far as military considerations permit,” leave medical supplies and personnel to assist in their care. This provision is in no way bound up with the absolute obligation imposed by paragraph 2 of Article 12 to care for the wounded. A belligerent can never refuse to care for enemy wounded on the pretext that his adversary has abandoned them without medical personnel and equipment.

ENEMY WOUNDED AND SICK

6-7. The protections afforded the wounded and sick apply to friend and foe alike without distinction. Certain provisions of the GWS, however, specifically concern enemy wounded and sick. There are also

provisions in the Geneva Convention Relative to the Treatment of prisoners of War (GPW) which, because they apply to prisoners of war (POW) generally, also apply to enemy wounded or sick.

- Article 14 of the GWS states that persons who are wounded and then captured have the status of POWs. However, that wounded Soldier is also a person who needs treatment. Therefore, a wounded Soldier who falls into the hands of an enemy who is a Party to the GWS and the GPW, such as the U.S., will enjoy protection under both Conventions until his recovery. The GWS will take precedence over the GPW where the two overlap.
- Article 16 of the GWS requires the recording and forwarding of information regarding enemy wounded, sick, or dead. (See AR 190-8/OPNAVINST 3461.6/AFJI 31-304/MCO 3461.1 for disposition of EPWs after hospital care.)
- When intelligence indicates that large numbers of detainees may result from an operation, medical units may require reinforcement to support the anticipated additional detainee patient workload.

SEARCH FOR AND COLLECTION OF CASUALTIES

6-8. Article 15 of the GWS imposes a duty on combatants to search for and collect the dead and wounded and sick as soon as circumstances permit. It is left to the operational commander to judge what is possible and to decide to commit his medical personnel to this effort. If circumstances permit, an armistice or suspension of fire should be arranged to permit this effort.

ASSISTANCE OF THE CIVILIAN POPULATION

6-9. Article 18, GWS, addresses the civilian population. It allows a belligerent to ask the civilians to collect and care for wounded or sick of whatever nationality. The assistance of the civilian population must be voluntary, and this provision does not relieve the military authorities of their responsibility to give both physical and moral care to the wounded and sick. Further, Article 18, GWS, states that no person may be “molested or convicted for having nursed the wounded or sick.” The GWS also reminds the civilian population that they must respect the wounded and sick, and in particular, must not injure them.

ENEMY CIVILIAN WOUNDED AND SICK

6-10. Certain provisions of the other Geneva Conventions are relevant to the medical mission.

- Article 16 of the Fourth Geneva Conventions provides that enemy civilians who are “. . . wounded and sick, as well as the infirm, and expectant mothers, shall be the object of particular protection and respect.” The Article also requires that, “As far as military considerations allow, each Party to the conflict shall facilitate the steps taken to search for the killed and wounded [civilians], to assist . . . other persons exposed to grave danger, and to protect them against pillage and ill-treatment [emphasis added].”
 - The “protection and respect” to which wounded and sick enemy civilians are entitled is the same as that accorded to wounded and sick enemy military personnel.
 - While Article 15 of the GWS requires Parties to a conflict to search for and collect the dead, wounded, and sick members of the armed forces, Article 16 of the Fourth Geneva Convention states that the Parties must “facilitate the steps taken” in regard to civilians. This recognizes the fact that saving civilians is the responsibility of the civilian authorities rather than of the military. The military is not required to provide injured civilians with medical care in a combat zone. However, if we start providing treatment, we are bound by the provisions of the GWS. Provisions for treating civilians (enemy or friendly) will be addressed in EAB regulations.
- In occupied territories, the Occupying Power must accord the inhabitants numerous protections as required by the Geneva Conventions. The provisions relevant to medical care include the—
 - Requirement to bring in medical supplies for the population if the resources of the occupied territory are inadequate.
 - Prohibition on requisitioning medical supplies unless the requirements of the civilian population have been taken into account.

- Duty of ensuring and maintaining, with the cooperation of national and local authorities, the medical and hospital establishments and services, public health, and hygiene in the occupied territory.
- Requirement that medical personnel of all categories be allowed to carry out their duties.
- Prohibition on requisitioning civilian hospitals on other than a temporary basis and then only in cases of urgent necessity for the care of military wounded and sick and after suitable arrangements have been made for the civilian patients.
- Requirement to provide adequate medical treatment to detained persons.
- Requirement to provide adequate medical care in internment camps.

MEDICAL REPATRIATION

6-11. The Geneva Conventions provide for the repatriation of—

- Retained health care personnel once they are no longer needed to provide health care to members of their own forces (Articles 28 and 30, GWS).
- Seriously wounded and sick POWs (Articles 109 and 110, GPW).

6-12. Parties to the conflict are bound to send back to their own country, regardless of number or rank, seriously wounded and seriously sick POWs, after having cared for them until they are fit to travel. No sick or injured POW may be repatriated against his will during hostilities (Article 109, GPW).

6-13. The following shall be directly repatriated (Article 110, GPW):

- Incurably wounded and sick whose mental or physical fitness seems to have been gravely diminished.
- Wounded and sick who, according to medical opinion, are not likely to recover within one year, whose condition requires treatment, and whose mental or physical fitness seems to have been gravely diminished.
- Wounded and sick who have recovered, but whose mental or physical fitness seems to have been gravely and permanently diminished.

6-14. The following may be accommodated in a neutral country (Article 110, GPW):

- Wounded and sick whose recovery may be expected within one year of the date of the wound or the beginning of the illness, if treatment in a neutral country might increase prospects of a more certain and speedy recovery.
- Prisoners of war whose behavioral or physical health, according to medical opinion, is seriously threatened by continued captivity.

6-15. When POWs are kept in a neutral country, the conditions that must be fulfilled in order to permit their repatriation will be fixed, as shall likewise their status, by agreement between the Powers concerned. In general, POWs who have been accommodated in a neutral country, and who belong to the following categories, should be repatriated:

- Those whose state of health has deteriorated so as to fulfill the conditions laid down for direct repatriation.
- Those whose mental or physical powers remain, even after treatment, considerably impaired.

6-16. Upon the outbreak of hostilities, Mixed Medical Commissions will be appointed to examine sick and wounded POWs and to make all appropriate decisions regarding them (Article 112, GPW). However, POWs who, in the opinion of the medical authorities of the Detaining Power, are manifestly seriously injured or seriously sick, may be repatriated without having been examined by a Mixed Medical Commission.

PROTECTION AND IDENTIFICATION OF MEDICAL PERSONNEL

6-17. Article 24 of the GWS provides special protection for “Medical personnel exclusively engaged in the search for, or the collection, transport or treatment of the wounded or sick, or in the prevention of disease, [and] staff exclusively engaged in the administration of medical units and establishments . . . [emphasis added].” Article 25 provides limited protection for “Members of the armed forces specially trained for

employment, should the need arise, as hospital orderlies, nurses or auxiliary stretcher-bearers, in the search for or the collection, transport or treatment of the wounded and sick . . . if they are carrying out these duties at the time when they come into contact with the enemy or fall into his hands [emphasis added].”

PROTECTION

6-18. There are two separate and distinct forms of protection—

- The first is protection from intentional attack if medical personnel are identifiable as such by an enemy in a combat environment and refrain from acts of hostility. Normally, this is facilitated by medical personnel wearing an armband bearing the distinctive emblem (a Red Cross, Red Crescent, or Red Crystal on a white background), or by their permanent assignment in a medical unit, establishment, or vehicle (including medical aircraft and hospital ships) that displays the distinctive emblem. Persons protected by Article 25 may wear an armband bearing a miniature distinctive emblem only while executing medical duties.
- The second protection provided by the GWS pertains to medical personnel who fall into the hands of the enemy. Article 24 personnel are entitled to “retained person” status. They are not deemed to be POWs, but otherwise benefit from the protections of the GPW. Article 28 of the GWS states they are authorized to carry out medical duties only, and “. . . shall be retained only in so far as the state of health . . . and the number of POWs require.” Article 25 personnel are POWs, but shall be employed to perform medical duties in so far as the need arises. They may be required to perform other duties or labor, and they may be held until a general repatriation of POWs is accomplished upon the cessation of hostilities.

SPECIFIC CASES

6-19. Army Medicine personnel and nonmedical personnel assigned to medical units fall into the category identified in Article 24 provided they meet the exclusively engaged criteria of that article.

- Army Medicine personnel exclusively engaged in the administration of medical units and facilities, without being directly concerned in the treatment of the wounded and sick, are nevertheless protected under Article 24.
- While it is not a violation of the GWS for Article 24 personnel to perform nonmedical duties, it should be understood that Article 24 personnel lose their protected status under that article if they perform duties or tasks inconsistent with their noncombatant role. Should those personnel later take up their medical duties again, a reasonable argument might be made that they cannot regain Article 24 status since they have not been exclusively engaged in medical duties and that such switching of roles might at best cause such personnel to fall under the category identified in Article 25.
- While only Article 25 refers to nurses, nurses are Article 24 personnel if they meet the criteria of that article.
- The medical officers and noncommissioned officers assigned to nonmedical positions in a brigade support battalion or a sustainment brigade are neither Article 24 nor Article 25 personnel. Such assignments place them in the role of a combatant. Examples of such personnel are—
 - The medical officers serving as commanders of brigade support battalions with responsibility for base or base-cluster defense, as well as command and control of medical and nonmedical units.
 - The medical officers and noncommissioned officers assigned to nonmedical staff positions with a brigade support battalion with responsibility for planning and supervising the sustainment support for a BCT or other combat unit.
 - Members of the armed forces do not acquire Article 25 status simply by performing medical duties. To acquire Article 25 status, a person must receive appropriate training and be designated as such by the armed force to which they belong.
- Article 24 personnel who might become Article 25 personnel by virtue of their switching roles could include the following:

- A medical company commander, a physician, or the executive officer (a Medical Service Corps officer) detailed as a convoy commander with responsibility for medical and nonmedical unit routes of march, convoy control, defense, and repulsing attacks.
- Helicopter pilots, who are permanently assigned to a dedicated air ambulance unit, but fly helicopters not bearing the Red Cross emblem on standard combat missions during other times.

Whether GWS prohibits the use of Article 24 personnel in perimeter defense of nonmedical units such as areas or base clusters under overall security defense plans is not entirely clear. However, the policy of the United States Army is that Article 24 personnel will not be used in these roles. Medical personnel do not lose their protected status by virtue of being armed or using arms in their own defense or defense of their patients. However, medical personnel may not employ such arms against enemy forces acting in conformity with the law of armed conflict.

IDENTIFICATION CARDS AND ARMBANDS

6-20. Medical personnel who meet the exclusively engaged criteria of Article 24, GWS, are entitled to wear an armband bearing the distinctive emblem of the Red Cross and carry the medical personnel identification card authorized in Article 40, GWS (in the U.S. armed services, DD Form 1934 [*Geneva Conventions Identity Card for Medical and Religious Personnel Who Serve in or Accompany Armed Forces*]). Article 25 personnel and medical personnel serving in positions that do not meet the exclusively engaged criteria of Article 24 are not entitled to carry the medical personnel identification card or wear the distinctive emblem armband. Such personnel carry a DOD Common Access Card, and under Article 25, may wear an armband bearing a miniature distinctive emblem when executing medical duties.

The following paragraph implements STANAGs 2060, 2454, and 2931.

PROTECTION AND IDENTIFICATION OF MEDICAL UNITS, ESTABLISHMENTS, BUILDINGS, MATERIEL, AND MEDICAL TRANSPORTS

6-21. There are two separate and distinct forms of protection—protection from intentional attack and protection when falling into the hands of the enemy.

PROTECTION FROM INTENTIONAL ATTACK

6-22. The first is protection from intentional attack if medical units, establishments, or transports are identifiable as such by an enemy in a combat environment. Normally, this is facilitated by medical units or establishments flying a white flag with a Red Cross and by marking buildings and transport vehicles (aircraft or ground) with the distinctive emblem.

- It follows that if we cannot attack recognizable medical units, establishments, or transports, we should allow them to continue to give treatment to the wounded in their care as long as this is necessary.
- All vehicles employed exclusively on medical transport duty are protected in the AO. Medical vehicles being used for both military and medical purposes, such as moving wounded personnel during an evacuation and carrying retreating belligerents, are not entitled to protection and must not bear the distinctive emblem while engaged in such activity.
- Medical aircraft, like medical transports, are protected from intentional attack, but with a major difference—they are protected “. . . while flying at heights, times and on routes specifically agreed upon between the belligerents concerned.” (Article 36, GWS.) Such agreements may be made for each specific case or may be of a general nature, concluded for the duration of hostilities. If there is no agreement, belligerents use medical aircraft at their own risk and peril. Nevertheless, known medical aircraft shall be respected and protected when performing their humanitarian functions.

- Article 37, GWS specifies that “. . . medical aircraft of Parties to the conflict may fly over the territory of neutral Powers, land on it in case of necessity, or use it as a port of call.” The medical aircraft will “. . . give the neutral Powers previous notice of their passage over the said territory and obey all summons to alight, on land or water.” The aircraft will be “. . . immune from attack only when flying on routes, at heights and at times specifically agreed upon between the Parties to the conflict and the neutral Power concerned.” It further states that “The neutral Powers may, however, place conditions or restrictions on the passage or landing of medical aircraft on their territory.”
- The second paragraph of Article 19 imposes an obligation upon those responsible to “. . . ensure that the said medical establishments and units are, as far as possible, situated in such a manner that attacks against military objectives cannot imperil their safety.” Hospitals should be sited alone, as far as possible from military objectives. The unintentional bombardment of a medical establishment or unit due to its presence among or in proximity to valid military objectives is not a violation of the GWS. Legal protection is certainly valuable, but it is more valuable when accompanied by practical safeguards.

PROTECTION WHEN FALLING INTO THE HANDS OF THE ENEMY

6-23. The second protection provided by the GWS pertains to medical units, establishments, materiel, and transports that fall into the hands of the enemy.

- Captured mobile medical unit materiel is to be used first to treat the patients in the captured unit. If there are no patients in the captured unit, or when those who were there have been moved, the materiel is to be used for the treatment of other wounded and sick persons.
- Generally, the buildings, materiel, and stores of fixed medical establishments will continue to be used to treat wounded and sick. However, after provision is made to care for remaining patients, operational commanders may make other use of them. All distinctive markings must be removed if the buildings are to be used for other than medical purposes.
- The materiel and stores of fixed establishments and mobile medical units are not to be intentionally destroyed, even to prevent them from falling into enemy hands. In certain extreme cases, buildings may have to be destroyed for operational reasons.
- Medical transports that fall into enemy hands may be used for any purpose once arrangement has been made for the medical care of the wounded and sick they contain. The distinctive markings must be removed if they are to be used for nonmedical purposes.
- A medical aircraft is supposed to obey a summons to land for inspection. If it is performing its medical mission, it is supposed to be released to continue its flight. If examination reveals that an act “harmful to the enemy” (for example, if the aircraft is carrying munitions) has been committed, it loses the protections of the Conventions and may be seized. If a medical aircraft makes an involuntary landing, all aboard, except the medical personnel, will be POWs. A medical aircraft refusing a summons to land is a fair target. Before resorting to an attack, other reasonable efforts to ensure compliance should be attempted.

IDENTIFICATION

6-24. The GWS contains several provisions regarding the use of the distinctive emblem (Red Cross, Red Crescent, Red Crystal) on medical units, establishments, and transports. (The identification of medical personnel has been previously discussed.)

- Article 39 of the GWS reads as follows: “Under the direction of the competent military authority, the emblem shall be displayed on the flags, armlets and on all equipment employed in the Medical Service.”
 - There is no obligation on a belligerent to mark his units with the emblem. A commander (generally no lower than a brigade commander for NATO forces) may order the camouflage of his medical units in order to conceal the presence or real strength of his forces. The enemy must respect a medical unit if its presence is known, even if the unit is camouflaged or not marked. The absence of a visible emblem, however, coupled with a lack of knowledge on the part of the enemy as to the unit’s protected status, may render that unit’s protection valueless.

- The distinctive emblem is not a Red Cross alone; it is a Red Cross on a white background. Should there be some good reason, however, why an object protected by the Convention can only be marked with a Red Cross without a white background, belligerents may not make the fact that it is so marked a pretext for refusing to respect it.
- Some countries use the Red Crescent on a white background in place of the Red Cross. This emblem is recognized as an authorized exception under Article 38, GWS. Additional Protocol III to the Geneva Conventions also recognizes the Red Crystal.
- The initial phrase of Article 39 shows that it is the military commander who controls the emblem and can give or withhold permission to use it. He is at all times responsible for the use made of the emblem and must see that it is not improperly used by the troops or by individuals.
- Article 42 of the GWS specifically addresses the marking of medical units and establishments.
 - “The distinctive flag of the Convention shall be hoisted only over such medical units and establishments as are entitled to be respected under the Convention, and only with the consent of the military authorities.” (paragraph 1, Article 42, GWS.) Although the Convention does not define “the distinctive flag of the Convention,” what is meant is a white flag with a Red Cross in its center. Also, the word “flag” must be taken in its broadest sense. Hospitals are often marked by one or several Red Cross emblems painted on the roof. Finally, the military authority must consent to the use of the flag (see the above comments on Article 39) and must ensure that the flag is used only on buildings entitled to protection.
 - “In mobile units, as in fixed establishments, it [the distinctive flag] may be accompanied by the national flag of the Party to the conflict to which the unit or establishment belongs.” (Article 42, GWS.) This provision makes it optional to fly the national flag with the Red Cross flag. It should be noted that in an AO the national flag is a symbol of belligerency and is therefore likely to provoke attack.
 - In a NATO conflict, NATO STANAG 2931 provides for camouflage of the Geneva emblem on medical facilities where the lack of camouflage might compromise operations. Medical facilities on land, supporting forces of other nations, will display or camouflage the Geneva emblem in accordance with national regulations and procedures. When failure to camouflage would endanger or compromise operational operations, the camouflage of medical facilities may be ordered by a NATO commander of at least brigade level or equivalent. Such an order is to be temporary and local in nature and countermanded as soon as the circumstances permit. It is not envisaged that fixed, large, medical facilities would be camouflaged. The STANAG defines “medical facilities” as “medical units, medical vehicles, and medical aircraft on the ground.”

Note. There is no such thing as a “camouflaged” Red Cross. When camouflaging a medical unit either cover up the Red Cross or take it down. A black cross on an olive drab or any other background is not a symbol recognized under the Geneva Conventions.

LOSS OF PROTECTION OF MEDICAL ESTABLISHMENTS AND UNITS

6-25. Medical assets lose their protected status by committing acts “harmful to the enemy.” (Article 21, GWS.) A warning must be given to the offending unit and a reasonable amount of time allowed to cease such activity.

ACTS HARMFUL TO THE ENEMY

6-26. The phrase “acts harmful to the enemy” is not defined in the Convention, but should be considered to include acts the purpose or effect of which is to harm the enemy, by facilitating or impeding military operations. Such harmful acts would include, for example, the use of a hospital as a shelter for able-bodied

combatants, as an arms or ammunition dump, or as a military observation post. Another instance would be the deliberate siting of a medical unit in a position where it would impede an enemy attack.

WARNING AND TIME LIMIT

6-27. The enemy has to warn the unit to put an end to the harmful acts and must fix a time limit on the conclusion of which he may open fire or attack if the warning has not been complied with. The phrase in all appropriate cases recognizes that there might obviously be cases where no time limit could be allowed. A body of troops approaching a hospital and met by heavy fire from every window would return fire without delay.

USE OF SMOKE AND OBSCURANTS

6-28. The use of smoke and obscurants during medical evacuation operations for signaling or marking landing zones does not constitute an act harmful to the enemy. However, employing such devices to obfuscate a medical element's position or location is tantamount to camouflaging; it would jeopardize its entitlement privilege status under the GWS. Refer to Army ATP 4-02.2 for additional information on the use of smoke and obscurants for medical evacuation operations.

CONDITIONS NOT DEPRIVING MEDICAL UNITS AND ESTABLISHMENTS OF PROTECTION

6-29. Article 22 of the GWS reads as follows: "The following conditions shall not be considered as depriving a medical unit or establishment of the protection guaranteed by Article 19: (1) That the personnel of the unit or establishment are armed, and that they use the arms in their own defence (sic), or in that of the wounded and sick in their charge. (2) That in the absence of armed orderlies, the unit or establishment is protected by a picket or by sentries or by an escort. (3) That small arms and ammunition taken from the wounded and sick and not yet handed to the proper service, are found in the unit or establishment. (4) That personnel and material (sic) of the veterinary service are found in the unit or establishment, without forming an integral part thereof. (5) That the humanitarian activities of medical units and establishments or of their personnel extend to the care of civilian wounded or sick."

ACTS

6-30. These five conditions are not to be regarded as acts harmful to the enemy. These are particular cases where a medical unit retains its character and its right to immunity, in spite of certain appearances which might lead to a contrary conclusion or, at least, create some doubt.

DEFENSE OF MEDICAL UNITS AND SELF-DEFENSE BY MEDICAL PERSONNEL

6-31. A medical unit is granted a privileged status under the Law of Armed Conflict. This status is based on the view that medical personnel are not combatants and that their role in the combat area is exclusively a humanitarian one. In recognition of the necessity of self-defense, however, medical personnel may be armed for their own defense or for the protection of the wounded and sick under their charge. To retain this privileged status, they must refrain from all aggressive action and may only employ their weapons if attacked in violation of the Conventions. They may not employ arms against enemy forces acting in conformity with the Law of Armed Conflict and may not use force to prevent the capture of their unit by the enemy (it is, on the other hand, perfectly legitimate for a medical unit to withdraw in the face of the enemy). Medical personnel who use their arms in circumstances not justified by the Law of War expose themselves to penalties for violation of the Law of Armed Conflict. Provided they have been given due warning to cease such acts, they may also forfeit the protection of the medical unit or establishment which they are protecting.

- Medical personnel are not authorized crew-served or offensive weapons. They may carry small arms, such as rifles, pistols, squad automatic weapons, or authorized substitutes in the defense of medical facilities, equipment, and personnel/patients without surrendering the protections afforded by the Geneva Conventions. Further, medical and non-medical personnel in medical units are not required to train and qualify on crew-served weapons. However, medical personnel

attending training at Noncommissioned Officer Education System courses will receive weapons instruction that is part of the curriculum. This will ensure the successful completion of the course is not jeopardized by failure to attend the weapons training portion of the curriculum. (Refer to AR 350-1 for further information).

- The presence of machine guns, grenade launchers, booby traps, hand grenades, light antitank weapons, or mines (regardless of the method by which they are detonated) in or around a medical unit or establishment would seriously jeopardize its entitlement privilege status under the GWS. The deliberate arming of a medical unit with such items could constitute an act harmful to the enemy and cause the medical unit to lose its protection, regardless of the location of the medical unit.

GUARDING MEDICAL UNITS

6-32. As a general rule, a medical unit is to be guarded by its own personnel. However, it will not lose its protected status if the guard is performed by a number of armed Soldiers. The military guard attached to a medical unit may use its weapons, just as armed medical personnel may, to ensure the protection of the unit. But, as in the case of medical personnel, the Soldiers may only act in a purely defensive manner and may not oppose the occupation or control of the unit by an enemy who is respecting the unit's privileged status. The status of such Soldiers is that of ordinary members of the armed forces. The mere fact of their presence with a medical unit will shelter them from attack. In case of capture, they will be POWs.

ARMS AND AMMUNITION TAKEN FROM THE WOUNDED

6-33. Wounded persons arriving in a medical unit may still be in possession of small arms and ammunition, which will be taken from them and handed to authorities outside the medical unit. Should a unit be captured by the enemy before it is able to get rid of these arms, their presence is not of itself cause for denying the protection to be accorded the medical unit under the GWS.

PERSONNEL AND MATERIEL OF THE VETERINARY CORPS

6-34. The presence of personnel and materiel of the Veterinary Corps with a medical unit is authorized, even where they do not form an integral part of such unit.

CARE OF CIVILIAN WOUNDED AND SICK

6-35. A medical unit or establishment protected by the GWS may take in civilians, as well as military wounded and sick, without jeopardizing its privileged status. This clause merely sanctions what is actually done in practice.

MEDICAL CARE FOR DETAINED PERSONNEL

6-36. Detainees shall in all circumstances be treated humanely and protected against any cruel, inhuman, or degrading treatment. This requirement has been reflected in international law, domestic law, national policy, and DOD policies. Wounded and sick detainees shall be cared for. They should receive the medical care and attention required by their condition. Health care personnel charged with the medical care of detainees have a duty to protect detainees' physical and mental health and provide appropriate treatment for disease. To the extent practicable, treatment of detainees should be guided by professional judgments and standards similar to those applied to personnel of the U.S. Armed Forces. For further guidance on medical care for detained personnel, refer to DODD 2310.01E, DODI 2310.08E, JP 3-63, JP 4-02, AR 40-400, and AR 190-8/OPNAVINST 3461.6/AFJI 31-304/MCO 3461.1.

COMPLIANCE WITH THE GENEVA CONVENTIONS

6-37. The U.S. is a party to the 1949 Geneva Conventions. Two of these Conventions afford protection for medical personnel, facilities, and evacuation platforms (to include aircraft on the ground). All medical personnel should thoroughly understand the provisions of the Geneva Conventions that apply to medical activities.

6-38. There are three Additional Protocols to the Geneva Conventions. The United States has signed, but not ratified, the First and Second Additional Protocols. Consequently, they are not legally binding on the United States. Nevertheless, they may provide helpful guidance and certain portions may reflect customary international law. Moreover, many of our allies and potential adversaries have ratified the First and Second Additional Protocols. The United States has ratified the Third Additional Protocol. As such, it is legally binding on the United States.

VIOLATIONS

6-39. The following acts of medical personnel or MTFs are violations of the Geneva Conventions:

- Making medical treatment decisions for the wounded and sick on any basis other than medical priority, urgency, and severity of wounds.
- Allowing anyone to kill, torture, mistreat, or in any way harm a wounded or sick enemy soldier that is out of the fight.
- Marking nonmedical unit facilities or vehicles with the distinctive Geneva emblem (Red Cross, Red Crescent or Red Crystal on a white background) or any other unlawful use of the Geneva emblem.
- Using medical personnel, units, or facilities to commit acts harmful to the enemy.
- Using medical personnel to guard or help guard the perimeter of nonmedical facilities.
- Ordering medical personnel to engage enemy forces other than in self-defense or in the defense of patients in their care or MTFs.
- Using medical personnel to operate or help operate any offensive-type weapon or weapons system.
- Issuing hand grenades, light antitank weapons, grenade launchers, or any weapons other than rifles, pistols, or squad automatic weapons to a medical unit or its personnel.
- Using the site of a medical unit as an observation post or a dump or storage site for arms, ammunition, or fuel for combat.

6-40. Because even the perception of impropriety can be detrimental to the mission and U.S. interests, medical commanders must ensure that they do not give the impression of impropriety in the conduct of medical operations. For example, if a MTF commander included in the unit standard operating procedures rules governing the use of crew-served weapons, it would give the impression that the unit possessed and intended to use these types of weapons. Under the provisions of the Geneva Conventions, medical units are only authorized to use small arms in the defense of themselves or the patients under their care. Even though the unit did not possess these types of weapons, the entry in the unit procedures could be misinterpreted and a case made that the commander intended to use these weapons in violation of the Geneva Conventions.

6-41. The following acts of medical personnel or MTFs are inconsistent with U.S. policy regarding medical personnel and MTFs:

- Mounting a crew-served weapon on a medical vehicle.
- Placing mines in and around medical units or facilities regardless of their type of detonation device; placing booby traps in or around medical units or facilities.
- The interrogation of an enemy wounded or sick soldier when medically contraindicated.

POSSIBLE CONSEQUENCES

6-42. The tactical commander should be made aware of the consequences for violating the Geneva Conventions or U.S. policy. Possible consequences include —

- Criminal prosecution for war crimes.
- Loss of protected status for medical personnel, medical units, and medical facilities.
- Medical personnel considered POWs rather than retained personnel when captured.

Appendix A

Hospital Planning Factors

Appendix A provides planning factors and data to compute hospital water, supply, blood, oxygen consumption, patient and personnel feeding, and waste disposal. The data and planning factors should be reviewed and updated to reflect any special considerations based on the operational environment and mission assigned to the unit.

SECTION I — GENERAL PLANNING CONSIDERATIONS

A-1. This section discusses health threat assessments, and hospital planning.

HEALTH THREAT ASSESSMENT

A-2. A critical element in medical planning is performing a thorough appraisal of the health threat. This assessment includes the health threat to Service members, Department of the Army Civilians, multinational partners, contractors and local populace within the AO. The health threat is a composite of ongoing potential enemy actions; adverse environmental, occupational, geographic and meteorological conditions; endemic diseases; and employment of CBRN weapons (to include weapons of mass destruction that have the potential to affect the short- or long-term health effects [including psychological impact] of personnel). Table A-1 represents minimal subject areas considered in the health threat assessment.

Table A-1. Health threats

<i>Threats</i>	<i>Description of threats</i>
Diseases	Endemic and Epidemic. Foodborne. Waterborne. Arthropodborne. Zoonotic. Vectors.
Occupational and Environmental Health Hazards	Climatic (heat, cold, humidity, and significant elevations above sea level). Toxic industrial materials. Accidental or deliberate dispersion of radiological and biological material. Disruption of sanitation services or facilities (such as sewage and waste disposal). Disruption of industrial operations or industrial noise. Accidental injuries (falls, crush injuries, sports injuries, vehicle accidents).
Poisonous or Toxic Flora and Fauna	Toxic poisonous plants and bacteria. Poisonous reptiles, amphibians, arthropods, and animals.
Medical Effects of Weapons	Conventional (to include blast and mild traumatic brain injury). Improvised (to include improvised explosive devices). Chemical, biological, radiological, and nuclear warfare agents. Directed energy. Weapons of mass destruction.
Physiological and Psychological Stressors	Continuous operations. Misconduct stress behaviors. Wear of mission-oriented protective posture ensemble. Stability tasks.

HOSPITAL PLANNING

A-3. Army Health System planning encompasses the integration of the operational management of the HSS and FHP missions for training, predeployment, deployment, and postdeployment operations. Army Health System includes all mission support services performed, provided, or arranged by Army Medicine to support HSS and FHP mission requirements for the Army and as directed, for joint operations, intergovernmental agencies, and multinational forces. Refer to ATP 4-02.55 for additional AHS planning guidance and terminology.

A-4. The planning factors in the remainder of this appendix complement the considerations regarding the employment of theater hospitalization discussed in previous chapters. When planning and executing theater hospitalization, it is important to consider and use the existing planning factors available for the various commodities within a hospital. This is where the art of planning (based on experience) combines with the science of data analysis to produce the best possible execution of theater hospitalization.

A-5. Military operations may require AHS support for a wide category of potential patients. The diverse and varied potential AHS demands should be carefully considered in initial planning. Categories that require careful consideration include indigenous allies, friendly and unfriendly civilians, paramilitary organizations, representatives of various U.S. agencies, U.S. civilian contractor personnel, and other individuals that may be entitled to care based on agreements with multinational forces and the host nation. There are fine lines of distinction that must be clarified by the command. For example, wounded unfriendly civilians may be detainees subject to restrictions and regulations which do not apply to EPWs for their treatment.

DETAINEE MEDICAL PLANNING

A-6. The law of land warfare (refer to FM 6-27/MCTP 11-10C), states that detainees should be afforded the same medical care as patients of the detaining power. Seriously injured, sick, or wounded detainees will be evacuated through medical channels, but will be segregated from U.S. and multinational patients. Enemy prisoners of war will be evacuated from the combat zone as soon as possible. They will not be hospitalized in hospital wards with U.S. military patients. Except in emergencies, detainees will be hospitalized in housing equal to that used for U.S. military personnel. Accountability and security of detainee patients will be processed through appropriate channels following treatment. Qualified medical retained personnel will be used as much as possible in medical and hygiene work needed for the well-being of detainees. For additional information on AHS support to detainee operations refer to ATP 4-02.46.

SECTION II — WATER CONSUMPTION FOR PATIENTS AND STAFF

A-7. This section provides planning guidance for water consumption and waste water disposal.

HOSPITAL WATER PLANNING FACTORS

A-8. Table A-2 represents water consumption planning factors for all Army units regardless of location in the AO. The data includes consumption factors for drinking, personal hygiene (brushing teeth, shaving, washing hands, and sponge bathing), food preparation, heat injury treatment, and vehicle maintenance.

Table A-2. Estimate water planning factors

<i>Conditions</i>	<i>Gallons required per day</i>
Tropical (sustaining)	6.91 per person
Arid (sustaining)	7.27 per person
Temperate (sustaining)	5.26 per person
Cold (sustaining)	5.81 per person

A-9. Table A-3 provides estimated water planning factors that are unique to Role 3 hospitals. The estimated water requirement for the CSH or hospital center, including the field hospital (32 bed) and augmentation detachments, can be determined by the data in Table A-3. The table excludes water planning factors common to all Army units.

Table A-3. Estimated hospital water planning factors

Activity	Gallons required per day
Patient care	
Bed bath	5.00 per bed patient
Bedpan wash	1.50 per bed
Laboratory test	0.20 per bed
Sterilizer	45.00 per sterilizer
X-ray processor	5.00 per x-ray
Handwashing	2.00 per bed
Showers	3.40 per ambulatory patient
Surgical	
Scrub	8.00 per case
Instrument rinse	2.00 per case
Instrument cleaning	7.00 per unit
Operating room clean-up	3.00 per case
Hospital laundry	
Hospital linen	3.00 per pound
Staff/patient	
Direct care worker	3.20 per direct care worker
Showers	3.40 per direct care worker
Food preparation	1.00 per meal

SHOWERS

A-10. The Office of The Surgeon General recommends, from a health maintenance perspective, a minimum of one shower and one change of uniform per Soldier per week. While this meets the minimum health standard requirements, from a morale standpoint, the Army goal is one standard shower and one expedient shower per week with two changes of uniform. The central hygiene and laundry planning factors are based on these two showers and 15 pounds of laundry per Soldier per week.

A-11. Centralized hygiene, shower, and laundry water is required by theater quartermaster elements to provide individual Soldier laundry and shower field services. Water for centralized hygiene, such as field showers, can be disinfected nonpotable fresh water when approved by preventive medicine personnel. Water for laundry services can be nonpotable fresh water. Water used for personal hygiene will be potable water only. The health threat may impact the water quality standards and limit the use of nonpotable water for field services.

WASTEWATER AND SOLID WASTE PLANNING FACTORS

A-12. The hospital should plan for all patient and staff water and all laundry water requirements to become wastewater. Solid waste calculation (estimated): Total patients (beds) x 15 pounds = total patient solid waste per day; staff x 12.5 pounds = total staff solid waste per day. Hospital infectious waste planning factors (estimated): 3 pounds (1 cubic foot) of infectious waste generated per bed per day.

SECTION III — MEDICAL MATERIAL CONSUMPTION AND REPLENISHMENT

A-13. This section provides planning guidance for the consumption and replenishment and reference publications to assist in planning operations.

CLASSES OF SUPPLY PLANNING FACTORS

A-14. Information on available operational rations and menu planning in an AO is available in ATP 4-41. Menu planning should be coordinated with the theater Class I (subsistence) manager and the designated theater dietitian to ensure the availability of the ration mix needed to support medical requirements. At a minimum a 21-day basic load of operational rations (Class I) and medical nutrition supplements (Class VIII) should be deployed until the logistics system is fully capable.

A-15. All Soldiers should deploy with at least a 30-day supply of personal-demand items. If exchange support is not readily available or cannot be established, health and comfort items are packaged and issued as a health and comfort pack. Army Regulation 710-2 provides guidance on planning and requisition of these items. Adjustments in quantity or selection of items in the health and comfort pack should be submitted to the theater Class I manager. The issue of health and comfort packs will cease when exchange facilities are available. Table A-4 provides planning factors for several classes of supply (minus Class VIII) common in a hospital center or CSH.

Table A-4. Classes of supply (Classes I through IV and VI) factor rates

<i>Class of supply</i>	<i>Planning factor</i>
Class I—Subsistence	4.03 pounds per person per day
Class II—General Support Items	3.67 pounds per person per day
Class III—Petroleum, Oils, Lubricants	53.70 pounds per person per day (bulk) 0.59 pounds per person per day (packaged)
Class IV—Construction Materials	8.500 pounds per person per day (includes 4.0 barrier materiel and 4.5 base construction)
Class VI—Personal Demand Items	3.20 pounds per person per day

CLASS VIII PLANNING FACTORS

A-16. Tables A-5 and A-6, on the next page, provide planning factors for determining Class VIII medical materiel supply support requirements. These include the computation of MEDLOG support and transportation requirements during early entry operations. Medical resupply sets and preconfigured push-packages are the primary means of resupply within the BCT prior to the establishment of line item requisitioning. Demand history, casualty estimates, and specialty sets are used when basic mission requirements become more definitive. Refer to ATP 4-02.55 and ATP 4-02.1 for additional information on support planning.

A-17. Pounds per Soldier per day and pounds per wounded are planning factors used by medical logisticians when planning for Class VIII medical materiel support and transportation requirements. The patient estimate (derived from the casualty estimate) is the basis for applying these computations. Table A-5 lists the Class VIII medical materiel planning factor for each role of care and illustrates the consumption computation for the WIA patient category. The Class VIII medical materiel planning factors were developed using generic patient streams that are intended to include various types of patients.

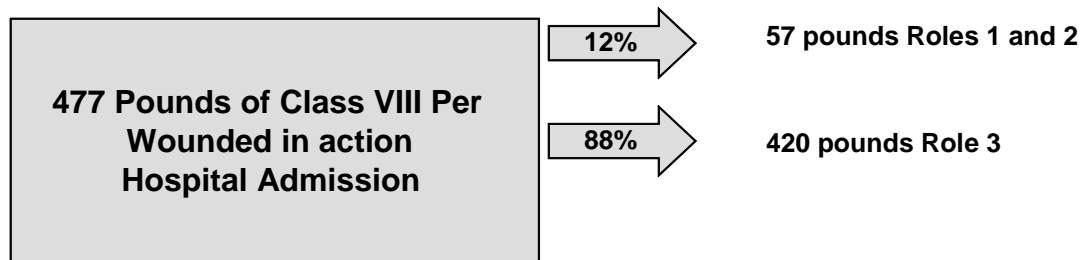
Table A-5. Class VIII planning factors

CLASS VIII—MEDICAL MATERIEL PLANNING FACTOR PERCENTAGES BY ROLE OF CARE

<i>Role of care</i>	<i>Wounded in action planning factor = 477 pounds/hospital admission</i>	<i>Disease and nonbattle injuries planning factor = 122 pounds/hospital admission</i>	<i>Blister planning factor = 36 pounds/hospital admission</i>	<i>Nerve planning factor = 110 pounds/hospital admission</i>
Roles 1 and 2	12%	22%	7%	6%
Role 3	88%	69%	55%	81%

Note. Population Supported Items Planning Factor = 0.19 pounds per Soldier per day (such as sunscreen, foot powder, and other items as provided under Common Table of Allowance 8-100).

ILLUSTRATION



Note. The percentages and information presented in Table A-5 are provided as a guide and are not intended as a substitute for more specific data.

A-18. Table A-6 expands on the information provided in Table A-5 by converting the percentages to pounds per type of admission.

Table A-6. Class VIII pounds per admission type

<i>Roles of care</i>	<i>Wounded in action planning factor as pounds per wounded in action hospital admission</i>	<i>Disease and-nonbattle injuries planning factor as pounds per disease and nonbattle injury hospital admission</i>	<i>Blister planning factor as pounds per blister hospital admission</i>	<i>Nerve planning factor as pounds per nerve hospital admission</i>
Roles 1 and 2	57 pounds	27 pounds	3 pounds	7 pounds
Role 3	420 pounds	84 pounds	19 pounds	89 pounds

Note: Population supported items planning factor = 0.19 pounds per Soldier per day.

SECTION IV — BLOOD REQUIREMENTS AND OXYGEN

A-19. This section provides planning factors and references for planning blood requirements and oxygen. Planners must update the planning factors for their AO.

MANAGEMENT AND PLANNING OF BLOOD REQUIREMENTS

A-20. The management and distribution of blood in the AO is a function of the combatant command Joint Blood Program and MEDLOG. In the long-term and in a mature AO, blood management is based on resupply from the continental U.S. blood donor base, using a combination of liquid and frozen blood products. Each hospital stores a combination of liquid and frozen blood products of various blood types.

LIQUID BLOOD PRODUCTS

A-21. Liquid blood products enter the AO through the United States Air Force Blood Transshipment Centers for further distribution to the Army blood support detachment, located with the medical battalion (multifunctional).

A-22. The medical detachment (blood support) provides collection, manufacturing, storage, and distribution of blood and blood products to AO MTFs (Roles 2 and 3). The detachment is resupplied from a supporting United States Air Force Blood Transshipment Center. The detachment commander may also serve as the area joint blood program officer if a DOD Area Joint Blood Program Officer is not available.

A-23. Blood collection in the AO is governed by AO policy, but normally is done to provide platelets for emergency situations. Limited testing of blood drawn in the AO is done to minimize danger to recipients.

A-24. Blood shipped into the AO will be a combination of liquid and frozen blood products. For additional information on blood planning and products refer to TM 8-227-12/NAVMED P-6530/AFH 44-152_IP.

A-25. Blood planning factors are depicted in Table A-7.

Table A-7. Blood planning factors

<i>Blood component</i>	<i>Distribution</i>
Red blood cells	*3 units for each wounded in action and nonbattle injury casualty initially admitted to a hospital
Frozen plasma	1.60 units for each wounded in action and nonbattle injury casualty
Platelet products	0.15 units for each hospitalized wounded in action and nonbattle injury casualty
Cryoprecipitate	0.40 units for each hospitalized wounded in action and nonbattle injury casualty
Low titer group O whole blood	2 units for each hospitalized wounded in action and nonbattle injury casualty
*For blood planning purposes, count the wounded in action and nonbattle injury only one time in the system and not each time the patient is seen or admitted.	

A-26. The expected admission rates per day are critical in computing initial blood requirements. These rates, along with the above blood planning factors, provide the AHS planner with an initial estimate of daily blood requirements. Table A-8, provides a sample calculation for initial blood requirements.

Table A-8. Sample calculation for initial blood requirements

<i>Expected initial admission rate for wounded in action and nonbattle injury = 8 per 1,000 per day</i>
Total personnel = 10,000
Red blood cell planning factor = 4 units
<i>Formula</i>
(Total personnel/1,000) x Admission rate per day x Factor = Blood or blood component per day
<i>Example</i>
(10,000/1,000) x 8 x 4 = 320 units of red blood cells per day

OXYGEN PLANNING FACTORS

A-27. Tables A-9 and A-10 provide estimated planning factors and conversion factors for oxygen use in the facility. It is important to understand that the below oxygen factors are based on medical treatment provided in CSHs over the last several years. However, there is research that suggests that providing severely wounded and ill Soldiers as much oxygen as providers have been is not necessary, and in some cases even harmful. Therefore, these planning factors should be used to determine how much oxygen to have on hand, a MEDLOG estimate, not a required or recommended treatment protocol for oxygen therapy.

Table A-9. Oxygen planning factors

<i>Location</i>	<i>Usage</i>
Operating room table	2.8 liters per minute during operational time
Intensive care unit bed (ventilator)	4.5 liters per minute for 17 percent of the total intensive care unit beds (patients on resuscitator or ventilator)
Intensive care unit bed (nasal cannula)	3.1 liters per minute for 17 percent of the total intensive care unit beds (patients on nasal cannula or mask)
Miscellaneous requirements	An additional factor of 10 percent is applied to the total of operating room and intensive care unit requirements to account for oxygen requirements in other areas of the hospital

Table A-10. Oxygen conversion factors

<i>Oxygen quantity</i>	<i>Conversion factor</i>
1 gallon (gaseous oxygen)	0.1333 cubic feet
95 gallons "D" cylinder	12.7 cubic feet
1650 gallons "H" cylinder	220 cubic feet
1 cubic foot (gaseous oxygen)	28.317 liters
95 gallons "D" cylinder	359.63 liters
1650 gallons "H" cylinder	6229.74 liters

SECTION V — HOSPITAL OPERATIONAL SPACE REQUIREMENTS

A-28. This section provides planning factors for the amount space required for establishing hospitals. Table A-11 is the space requirements for the CSH and Table A-12 on page A-8 is the requirements for the hospital center. While not a significant amount of space, these factors do not include life support and housing space requirements.

Table A-11. Estimated combat support hospital operational space requirements

<i>Hospital Unit</i>	<i>Required acreage</i>
Early Entry Element (44 Bed)	3.6 Acres
Hospital Element (40 Bed)	2.01 Acres
Company A (84 Bed)	5.7 Acres
Company B (164 Bed)	5.7 Acres
Combat Support Hospital (248 Bed)	9.3 Acres

Table A-12. Estimated hospital center operational space requirements

<i>Hospital unit</i>	<i>Required acreage</i>
Headquarters and Headquarters Detachment	1.12 Acres
Field Hospital (32 Bed)	6.78 Acres
Hospital Augmentation Detachment (Surgical 24 Bed)	1.09 Acres
Hospital Augmentation Detachment (Medical 32 Bed)	0.23 Acres
Hospital Augmentation Detachment (Intermediate Care Ward 60 Bed)	0.32 Acres
Hospital Center (240 Bed)	16.64 Acres

Appendix B

Nutrition Care Operations

The nutrition care section provides nutrition care services that includes meal preparation and service to patients, and to staff as resources permit, medical nutrition therapy, dietetic planning, patient education, and theater health promotion. The nutrition care section also advises the hospital commander on nutrition and health matters, and may also advise and guide other commanders in theater on nutrition matters.

Hospital food service operations are paramount to ensure inpatients receive sufficient nutrition to prevent complications associated with malnutrition, while complying with the appropriate diet orders given their medical diagnosis. Hospital food service operations also provide staff feeding given the unique requirements of hospital staff to remain onsite or near treatment areas to maintain at or near continuous operations during conflict. The Army medical field feeding provides hospitalized patients with three hot meals a day (ATP 4-41).

STAFF RESPONSIBILITIES

B-1. The primary hospital staff members responsible for nutrition care operations are the registered dietitian and the nutrition care specialist. The hospital commander is responsible for providing military personnel for support duties in the nutrition care section.

B-2. For detailed information on the qualifications and responsibilities of the dietitian and nutrition care specialist see DA Pamphlet (DA Pam) 611-21.

REGISTERED DIETITIAN

B-3. The registered dietitian formulates policies, develops procedures, and directs and supervises the operation of nutrition care services and the provision of comprehensive nutrition care programs in the deployable hospital. In addition, the dietitian—

- Manages medical food preparation and service systems and staff food preparation services.
- Coordinates and ensures the procurement and receipt of safe, wholesome food items/rations for patients and staff and medical diet supplements for patients who require a modified diet.
- Provides nutrition health promotion programs for the military community and develops and directs nutrition education or dietary intervention programs for the military.
- Assists the physician by providing patient nutrition assessment, nutrition therapy recommendations, and medical nutrition therapy.
- Serves as a consultant at all levels of nutrition-related health, human performance and stability operations issues and medical food service operations.
- Develops, implements, and directs nutrition and medical food service education programs for nutrition care specialists and other medical personnel.
- Communicates nutrition care's workload with hospital leadership to ensure other assigned duties do not interfere with the patient care and feeding missions.

NUTRITION CARE SPECIALIST

B-4. The nutrition care specialist performs clinical dietetic functions in the dietary management and treatment of patients and staff as well as—

- Assists in the nutrition screening and assessment of individual patients.
- Assists in the health promotion program activities.
- Prepares, serves, and delivers modified and regular food items in the management of the nutrition needs of patients (across the life span and a diversity of people, cultures, and religions in support of the mission) under the supervision of a dietitian or senior nutrition care noncommissioned officer.
- Monitors, requisitions, plans and maintains inventory control of subsistence, supply and equipment.
- Prepares and serves meals to staff.
- Serves as the vehicle operator for the nutrition care section.
- Coordinates with the field sanitation team for potable water, waste disposal, and pest control.

OTHER PERSONNEL

B-5. The nutrition care section has specific support needs in theater, and the dietitian and/or nutrition care specialist must be involved in the initial deployment planning to ensure nutrition care support requirements are factored into the plan. For example, medical rations will be required to support patients' unique feeding requirements and support personnel are needed to assist with food service to staff and sanitation duties. The number of personnel will be based on mission requirements. This support may come from Soldiers or contracted dining facility attendants.

B-6. Soldiers assigned for support duties may be unfamiliar with food sanitation principles and will require training and supervision from nutrition support personnel.

B-7. In operations where civilian-contracted dining facility attendants are available, the chief and noncommissioned officer in charge will coordinate with the contracting officer representative for the number of attendants required and shift schedules in accordance with the contract. Additionally, a dietitian and the appropriate number of nutrition care specialists must be deployed to ensure that patients' nutrition needs are met in support of their respective diagnoses. Dietitians should coordinate with the contracting officer or the contracting officer representative to understand the contract and how the dietitian and nutrition care specialist team should coordinate for patient feeding in accordance with the performance work statement. The dietitian is not the contracting officer nor the contracting officer representative, and must ensure that all matters pertaining to the contracted personnel are handled in accordance with the guidance provided to avoid violating the contract or initiating an unauthorized commitment of government funds. Medical diet supplements may not be included in the contract and may require procurement through Class I or Class VIII supply channels.

FEEDING OPERATIONS AND PROCUREMENT

B-8. Dietitians and senior nutrition care specialists must coordinate with hospital S-4 to ensure procurement of the requisite food, beverage, hospital dietary supplements, and cleaning and sanitation supplies to meet patient and staff feeding, food safety, and sanitation requirements across the full range of military operations and training exercises. This will often require coordination with the Army Food Program representative (assistant chief of staff, logistics) and the senior theater or installation food advisor to ensure procurement of military rations, commercial food and beverages, medical dietary supplements, and cleaning and sanitation supplies through approved sources.

FEEDING OPERATIONS CONSIDERATIONS AND CHALLENGES

B-9. The common nutrition-related issues presented in field feeding include dehydration, inadequate energy and carbohydrate intake and gastrointestinal complaints. Even an individual that is mildly dehydrated (body water losses amounting to as little as two percent of body weight) will have impaired performance, reduced appetite, and sluggishness. To prevent diarrhea and constipation, advise Soldiers to hydrate, choose high-

fiber foods, eat wholesome foods maintained in sanitary conditions, and avoid eating or drinking locally produced foods unless approved by veterinary personnel. Stress the value of consuming military rations that are designed to provide for nutrition requirements.

B-10. In a contract food service dining facility, the dietitian and nutrition care specialist retain responsibility for ensuring that patients receive meals specific to their diet order. The dietitian and/or nutrition care specialist coordinates between the nursing staff of each ward, nutrition care section personnel, and appropriate contractor for following patient diet orders and delivering patient meals. In a case where the contract does not require the contracted personnel to deliver meals to patients, the nutrition care section should—

- Set up an area close to the wards to assemble patient meals and nourishments with the following equipment: table, serving supplies, refrigerator, blender, microwave (if power supply can support), rodent-proof containers, shelves, and sanitation supplies (gloves and cleaning supplies).
- Use the contractor's daily menu and make modifications for patient diets.
- Turn in meal tickets to the contract staff to fill the diet orders.
- Establish a system to order and pick up food from the contract dining facility. Carry the covered food from the contract facility to the hospital in boxes or insulated containers. Assemble the patient trays and deliver to the patient.
- Establish a method for disposing of patient trays and other waste.

MILITARY RATIONS

B-11. The rations most often used by deployable hospitals are described below.

B-12. Unit group rations and field packaged meals are designed to simplify and streamline the process of providing the highest quality meals in the field. They integrate modules of heat and serve (formerly known as T-Rations and A-Rations) with quick-prepared, user-friendly brand name commercial products. The unit group ration is used by unit food service facilities to sustain groups of personnel during worldwide operations. Refrigeration is required with some unit group rations. Menus and recipes are included with each module. The heat and serve module feeds up to 50 Soldiers and requires separate supplements and enhancements of milk, bread, fresh fruits and vegetables, and cold cereal to provide a complete meal averaging 1450 calories per serving. The A-ration module includes perishable items that consume refrigeration, transportation, fuel, equipment, and potable water requirements. The A-ration module serves up to 50 Soldiers a high quality meal and provides 1450 calories and are complete when served with bread, salad, fruit and cereal. For more information regarding military rations, refer to ATP 4-41.

B-13. Medical diet supplements are used in combination with the unit group ration to prepare modified patient diets to meet the requirements for high-calorie—high-protein, blenderized liquid, full liquid, and clear liquid diets. The purchase and resupply of these items must be coordinated during the hospital's pre-deployment phase.

B-14. Field ready-to-eat meals are individually packaged meals designed for issue, either in single meals or in multiples of three for a complete ration, and are only authorized for patients in emergency situations when other rations are not available. The components are packaged in flexible envelopes with flameless ration heaters. Each meal provides an average of 1300 calories, 169 grams of carbohydrate, 41 grams of protein, and 50 grams of fat. There are 24 menus of which four are vegetarian menus. Each box of 12 ready-to-eat meals has two vegetarian menu meals. Under emergency conditions the meals and the medical diet supplements can be combined to meet the patient feeding requirements for high-calorie—high-protein, blenderized liquid, full liquid, and clear liquid diets.

CLINICAL NUTRITION OPERATIONS

B-15. Clinical dietetics involves a systematic process of providing nutrition care to patients. The process begins upon admission and ends at discharge. The admitted patient's physician writes a diet order. Nursing staff updates the ward diet roster to reflect the changes and new patients on DA Form 1829, (*Hospital Food Service, Ward Diet Roster*).

B-16. The nutrition care personnel then—

- Complete the patient nutrition screening within 24 hours of admission and document it in the medical record. Results of the nutrition screening determine the medical nutrition therapy protocol.
- Interview patient for food preferences, food tolerances, food allergies, and cultural or religious practices that impact food consumption.
- Create a menu for each patient.
- Identify nourishment and forced fluid requirements to adequately stock.
- Deliver meals and nourishments to patients.
- Monitor changes to patient diet orders.
- Conduct daily follow-ups on high and medium risk patients and on all patients every five to seven days, patient load permitting.

CLINICAL DIETETICS REFERENCES

B-17. Normal nutrition and assessment are addressed in the Academy of Nutrition and Dietetics online Nutrition Care Manual. It is not the intent of this appendix to repeat any of the information from the Nutrition Care Manual (NCM). This appendix provides other sources of information that enhances the application of the NCM procedures for use in a field setting with limited types of food items available to prepare patient meals.

B-18. For military dietary reference intakes see AR 40-25/OPNAVINST 10110.1/MCO 10110.49/AFI 44-141. The military dietary reference intakes are intended for healthy and fit Soldiers performing their mission. The military dietary reference intakes are provided in the currently fielded operational rations. Consuming the daily ration provides Soldiers with essential calories, vitamins, and minerals.

NUTRITION AND DISEASE

B-19. Dietitians use the nutrition care process to provide comprehensive medical nutrition therapy to patients according to their medical diagnoses and medical histories. This process involves four interrelated steps that dietitians use to evaluate each patient requiring a dietitian's care consisting of nutrition assessment, nutrition diagnosis, nutrition intervention, and monitoring and evaluation. The medical nutrition therapy for specific conditions and diagnoses are defined in the NCM. This publication provides evidence-based, disease-specific guidance regarding the diagnosis, related physiology and nutrition implications, examples of food selection, and diet modifications. During foreign humanitarian assistance situations dietitians and nutrition care specialists may be asked to complete nutrition assessments for the local population.

PATIENT FEEDING POLICY

B-20. Army Regulation 30-22, Army Food Program states that commanders of medical units organized under a TO&E will provide appropriate nutrition care to patients, and that dietitians or nutrition care specialists are responsible for providing for medical field feeding. Army Techniques Publication 4-41, Army Field Feeding and Class I Operations, further states that hospitalized patients will receive three hot meals a day and other nourishments as medically indicated. In emergency situations where other rations are not available, individual operational rations may be given to patients; however, milk and enhancements will be added to the menu as soon as they are available.

B-21. Nutrition care staff must account for rations received and rations used. See ATP 4-41, Army Field Feeding and Class I Operations for additional guidance. For example, the unit group ration and medical supplements ration items must be accounted for on the medical field production schedule or on the DA Form 3034, (*Production Schedule*). The inpatient census report prepared by the patient administration section is the "head count sheet" for inpatients.

STAFF FEEDING POLICY

B-22. In accordance with AR 30-22 and DA Pam 30-22, when personnel and supply resources permit, the hospital staff will be fed using the patient standard of three hot meals per day. When personnel and supplies do not permit, the hospital staff members follow operations ration policy which is individual field ready meals for up to 21 days; authorized enhancements or alternate rations should be provided after 21 days.

B-23. The nutrition care staff must ensure appropriate accountability of rations using the production schedule and the DA Form 2970, (*Headcount Report*); all Class I must be appropriately accounted for per ATP 4-41.

DIET ORDERS

B-24. The most common diet orders on a deployment are regular, high-calorie—high-protein, clear liquid, and full/blenderized liquid. Use available rations and medical diet supplements to prepare other therapeutic diets listed in the NCM.

B-25. Foreign humanitarian assistance deployments will be in support of civilians (from infants to the elderly) for whom a wide variety of nutrition and dietetic needs will be required. Nutrition care personnel must be prepared to respond to the nutrition needs of this diverse population with potentially complex needs.

THERAPEUTIC DIET PREPARATION AND RATIONS

B-26. Therapeutic diets are prepared to accommodate patients' diet orders. Patient meals are prepared to meet the particular medical condition(s) and cultural, religious, allergy and intolerance factors to the extent possible. The NCM is the primary reference for therapeutic diets. A copy of the manual should be printed prior to deployment to ensure the reference is available in the event internet access is unreliable or unavailable in theater. Therapeutic diet menu items come from the unit group rations, medical diet supplements, meal enhancements, enteral feeding formulas (if available) and individual field ready-to-eat rations.

B-27. Enteral feeding products can be ordered through the medical supply section of the hospital. Coordination for ordering components of the medical diet supplement and enteral feeding products should be done prior to any exercise or deployment.

NUTRITION DURING STABILITY OPERATIONS

B-28. It is important to understand the diseases and health risks inherent to each country in which deployed and countries that share a border. It is also important to understand the dietary habits and the culture, both of which will benefit the advice and guidance provided to the commander during foreign humanitarian support missions. When contracting agents hire local civilians to work in the food service facility, there may be additional health risks to the supported population. Preventive medicine and veterinary personnel will have detailed information about endemic and epidemic diseases and should be consulted. *Preventive medicine* is the anticipation, prediction, identification, prevention, and control of communicable diseases (including vector-, food-, and waterborne diseases), illnesses, injuries, and diseases due to exposure to occupational and environmental threats, including non-battle injury threats, combat stress responses, and other threats to the health and readiness of military personnel and military units (see ATP 4-02.8).

B-29. Invaluable information on diseases, injuries, and nutrition requirements in areas of deployment can be obtained from the National Center for Medical Intelligence, United States Army Research Institute of Environmental Medicine, United States Army Medical Research Institute of Infectious Diseases, United States Army Public Health Center, World Health Organization, Centers for Disease Control and Prevention, the Center for Army Lessons Learned, and possibly the country's Ministry of Health.

HUMAN PERFORMANCE OPTIMIZATION AND COMMUNITY NUTRITION

B-30. For more detailed information about the military dietary reference intakes see AR 40-25/OPNAVINST 10110.1/MCO 10110.49/AFI 44-141. The military dietary reference intakes are intended for energy needs for personnel working in a temperate climate, and may need to be adjusted based on the operating environment. They are met in the currently fielded operational rations.

B-31. Environmental conditions can impact Soldier food and beverage consumption needs. When energy needs are higher, such as in cold weather or high altitude environments, performance can diminish if energy intake does not meet Soldier needs. Hydration needs are also higher in cold and high altitude environments. Select information is highlighted in this appendix for nutrition demands in cold, hot, and high-altitude operations. For a more complete account of nutritional demands in these environments use the following resources (see Websites listed in references section of this publication):

- The United States Army Research Institute of Environmental Medicine review of their published technical notes on nutrition during military operations.
- The Human Performance Resources by Consortium for Health and Military Performance.
- Sports NCM.
- Warfighter Nutrition Guide by Consortium for Health and Military Performance.

B-32. Rations available for military operations in a cold environment include the meal, cold weather ready-to-eat meal, the most common individual ration that Soldiers receive during cold-weather operations. It is a restricted ration, nutritionally incomplete and intended for use over short periods, up to ten days. Each meal provides an average of 1600 calories. The meal, cold weather will not freeze. There is also a compact, eat-on-the-move assault ration. It substantially reduces the weight, cube, load, and preparation time, enabling Soldiers to carry enough subsistence for several days for periods of high mobility. The assault ration contains an average of 2,900 calories per day and is also a restricted ration, nutritionally incomplete, and intended for short periods.

B-33. The nutritional concerns in hot environments include dehydration and inadequate food intake. Individual appetites may be suppressed during the first eight days of exposure to a hot environment. To maintain adequate sodium or salt intake, individuals should eat at least two meals a day. To prevent dehydration individuals should follow the work/rest and water consumption guide as described in ATP 4-25.12, Chapter 7 (Table 7-4) to the extent possible. Per AR 40-25/OPNAVINST 10110.1/MCO 10110.49/AFI 44-141, carbohydrate-electrolyte beverages are justified for use in hot environments in specific circumstances and carbohydrate-electrolyte beverage criteria is provided. If mission demands support the need, the modular operational ration enhancement, hot weather pack, augments daily operational rations with additional components, providing approximately 1100 calories per pack.

B-34. Nutritional concerns in high-altitude operations include weight loss due to acute mountain sickness and higher energy needs, dehydration, and gastrointestinal complaints. If mission demands support the need, the modular operational ration enhancement, high altitude/cold weather pack augments daily operational rations, providing additional components for high altitude and cold weather environments, providing approximately 1100 kilocalories per pack.

B-35. Dietary supplements are not regulated and may contain ingredients that can cause adverse effects. Products marketed for performance enhancement and weight loss are two of the most consumed supplement types for Soldiers. Performance enhancement and weight loss dietary supplements may contain stimulants that can cause dehydration, dizziness, palpitations, high blood pressure, stroke, and heart attack. Furthermore, exercise, dehydration, caffeine, and some medications (to include over-the-counter medications) compound the effects from these products, potentially increasing the risk and severity of adverse side effects. For guidance on nutrition supplements, refer to the Operation Supplement Safety and the Human Performance Resources, both by Consortium for Health and Military Performance, and the Sports NCM websites.

B-36. Soldiers' nutritional health can be altered in a deployed environment. Dietitians and nutrition care specialists can promote nutritional health through surveillance of mission demands and ration provision to ensure Soldiers' nutrient needs are met per AR 40-25/OPNAVINST 10110.1/MCO 10110.49/AFI 44-141, especially if restricted rations are consumed. Nutrition education can be provided based on surveillance of Soldiers' dietary supplement consumption, adherence to Army body composition standards, dehydration trends, and other topics as relevant to the MTF and Soldiers in the AO. Dietitians may collaborate with other medical providers and chaplains to identify issues or concerns and develop appropriate education campaigns.

Appendix C

Information Systems

The purpose of this appendix is to provide an overview of medical information and communication systems (and personnel responsible for maintaining these systems) and how they are employed to optimize care and enable command and control for the CSH and the hospital center (with subordinate field hospital and medical augmentation detachments). Both the CSH and the hospital center are modular in design. This design allows a bed capacity range from 32 (field hospital [32 bed]) to 248 beds (complete CSH) which will require information and communication platforms that are employed in dynamic contiguous and noncontiguous AOs. Specifically, health information and battle command systems enable effective planning, preparing, decision-making, and execution of mission objectives.

SECTION I — OVERVIEW

C-1. The S-6 and automation support personnel are responsible for all aspects of automation and communications electronics for the Role 3 hospital. These personnel determine signal requirements, capabilities, and operations to meet the hospital commander's intent. The S-6 and automation support sections also provide advice and consultation on medical information systems used throughout the hospital and subordinate elements. These sections ensure internal and external communication connectivity within the hospital and subordinate elements. In the CSH, a signal officer (AOC 25A00) in the grade of O-3 serves as officer in charge and a signal support specialist (military occupational specialties 25U30) serves as noncommissioned officer in charge for the S-6 section, which is task-organized to the HHD. The automation support section is led by the health information systems officer and signal support specialist (25U30). The health information systems officer is typically an experienced health services system management officer (70D) in the grade of O-4 and is assisted by another 70D officer in grade of O-3 to facilitate dual-based operations with fully operational tactical operations centers and information technology (IT) support throughout Role 3 field sites. Signal and automation support personnel are distributed throughout the hospital and subordinate elements.

C-2. With the new hospital design, the hospital center S-6 is a network integrations signal officer (grade O-4, 25G00) and a more experienced signal support specialist (25U40) serves as the senior noncommissioned officer with support from additional signal support specialists (25U10). More than one field hospital (32 bed) may be assigned to a single hospital center, each with a complement of health information systems support personnel. The health information systems officer and information services technicians are employed within the operations section. Additional IT specialists and signal support specialists are task-organized to the subordinate field hospital (32 bed) within the S-6 automation support and operations sections.

Note. For planning considerations, signal support requirements are communicated via Annex H of an operations order (See FM 6-0 for template). It is imperative that the Annex H is completed correctly to ensure that the supporting signal unit can provide adequate signal support. Failure to do this could result in degraded communications and could have severe impact on IT systems.

C-3. Given a dynamic theater environment and vast array of battle command and health information systems, it is key for all IM and IT personnel be fully trained and engaged in their prescribed duties to ensure mission success. Below are some of the assigned communication and information systems the hospital staff should be familiar with. This list is not all-encompassing. As virtual health and other new technologies and advanced medical devices are developed and mature, this list will grow.

C-4. Currently, both the CSH and hospital centers are identical regarding assigned tactical communications equipment. There are plans in place to upgrade the tactical satellite with a newer system called the mobile user objective system which will provide a much wider spectrum of applications.

SECTION II — TACTICAL COMMUNICATIONS SYSTEMS

C-5. Joint Battle Command Platform, commonly referred to as Blue Force Tracker uses L-Band satellite link for situational understanding in near real time, preformatted message templates for 9-line medical evacuation requests, medical resupply, and logistics support. This is a common platform at brigade and below.

C-6. Single Channel Ground Airborne Radio System is a frequency modulated tactical, encrypted voice, vehicle mounted or stand-alone radio system. It is used for command and control, administration, logistics, intelligence, operations and other networks.

C-7. The tactical satellite single channel radio provides beyond line of sight encrypted voice and limited data transmission to assigned users on a global scale.

C-8. The 150 watt high frequency radio system is also a beyond line of sight encrypted voice and available email application for assigned users on a global scale. A time-tested system dating back to World War II, high frequency utilizes the earth's atmosphere to radiate its transmission signal anywhere in the world. High frequency does require a trained operator familiar with its unique capabilities.

SECTION III — INFORMATION TECHNOLOGY SYSTEMS

C-9. The MC4 system is designed to digitally capture patient encounter treatment data using the Armed Forces Health Longitudinal Technology Application-Theater (AHLTA-T) and Theater Composite Healthcare System Cache (TC2) in deployed environments, enhance continuity of care, and enable each Soldier to have a comprehensive electronic health record. It also enables the management of Class VIII using Defense Medical Logistics Standard Support (DMLSS) and Defense Customer Assistance Module (DCAM). For the full listing of the TMIP-J suite of applications see Table C-1 on pages C-3 through C-4.

C-10. Command Post of the Future enables commanders to visualize the battlefield and plan the mission through a dynamic view of critical resources and events.

C-11. Transportation Coordinators' Automated Information for Movement Systems II is designed to enable users to manage all aspects of transportation operations. It provides automated support to functions performed by a wide range of users from unit movement officers to installation transportation officers to mode managers responsible for transportation and distribution in support of the full continuum of operations.

C-12. The Combat Service Support Automated Information Systems Interface allows current and emerging battlefield combat service support automation devices to electronically exchange information via tactical networks. This system also interfaces with other operational and institutional force automated systems and provides unit commanders and logistics managers with an interface device to support combat service support doctrine across the range of military operations. This capability supports noncontiguous concentrations of users and the transfer of real-time information in both fixed and mobile operating environments.

C-13. Very Small Aperture Terminal provides a worldwide satellite communications network, engineering services, integrated logistics support, infrastructure and portable remote terminal units in support of logistics information systems operating from garrison or deployed within the and operational environment.

SECTION IV — MEDICAL COMMUNICATIONS FOR COMBAT CASUALTY CARE SOFTWARE

C-14. The DOD, Defense Health Agency, and medical Capability Development and Integration Directorate are responsible for establishing the requirements for medical acquisition software that best meet operational needs. The Program Executive Office, Defense Healthcare Management Systems is responsible for transforming healthcare delivery through modernization of the electronic health record for Service members, Veterans, and their Families. Its DOD Healthcare Management System Modernization program office is

responsible for the acquisition and fielding of the Military Health System Genesis electronic healthcare system that was planned to replace the legacy medical documentation system for all fixed military treatment facilities. Similarly, the Joint Operational Medical Information Systems (JOMIS) program office is responsible for the acquisition and deployment of military health system Genesis in operational medicine while sustaining legacy TMIP-J applications that reside on the MC4 hardware. All software on MC4 was developed according to the joint technical architecture and is common operating environment compliant as mandated by the Joint Requirements Oversight Council. The MC4 system is comprised of TMIP-J software and Army-specific applications interfacing with the Army infrastructure (hardware and communications). The MC4 Product Office is responsible for integrating the joint medical software applications on Army baseline systems, new equipment fielding, new equipment training, before and during deployment support, and technical and maintenance of the MC4 hardware and systems.

JOINT OPERATIONAL MEDICINE INFORMATION SYSTEMS

C-15. Table C-1 contains descriptions of current TMIP-J software applications that are integrated within the MC4 baseline system. Although functionality does not change, the software that JOMIS delivers to meet the required functionality is being modernized to include the Military Health System Genesis-Theater application and other applications supporting operational medicine.

Table C-1. Joint Operational Medicine Information Systems Applications

System	Description
Mobile Computing Capability (MCC)	The MCC software application, released in 2016, is the first responder's handheld application that replaced the Armed Forces Health Longitudinal Technology Application-Mobile. The MCC application was available on mobile devices provided by the MC4 Program Office. The application allows for the generation of patient encounters by the combat medic in the field and health care providers at the battalion aid station. The application provides store and forward documentation capability and is synchronized with a laptop computer containing the AHLTA-T application to upload patient encounter information. When communications are available, the information is transmitted to the Theater Medical Data Store (TMDS) and the Medical Situational Awareness in the Theater (MSAT) where the data becomes part of the patient's longitudinal electronic health record.
Armed Forces Health Longitudinal Technology Application—Theater (AHLTA-T)	The AHLTA-T application resides on a laptop computer configured as a stand-alone server or on a large server with several laptop clients. This application allows deployed medical staff/clinicians to document encounters. It enables clinicians to document the diagnosis, update provided care, and track illnesses at deployed locations in a standardized format. Medical staff are enabled to document the same information noted above, with the exception of making and recording a diagnosis. It also handles the recording and reporting of individual and mass immunizations in the operational environment. Completed encounters, are stored locally, sent to TMDS, imported into MSAT and forwarded to the Military Health System Data Repository where the patient's longitudinal electronic medical record is stored. Regardless of network or internet connectivity, AHLTA-T supports the documentation of care with its store and forward capability.
Joint Legacy Viewer (JLV)	The JLV application is accessible within TMDS. JLV is a web application that provides an integrated, read-only view of comprehensive electronic health record data within a single application. JLV also provides healthcare providers access to view pre-deployment allergy, documentation, laboratory, medication and radiology records.
Theater Composite Health Care System (CHCS) Cache (TC2)	This application is used to document inpatient health care, outpatient order entry, and results retrieval. Completed encounters are stored locally, sent to the TMDS, and imported to MSAT. Currently, TC2 data does not move from TMDS to the clinical data repository.

Table C-1. Joint Operational Medicine Information Systems Applications (continued)

System	Description
Theater Medical Data Store (TMDS)	The TMDS application is a web-based portal that offers healthcare providers the ability to view individual patient encounters, history, notes, discharge summaries, allergy, drug, and radiological history. Providers can view captured medical data regardless of where it was completed in an operational area or fixed facility. Patient encounters in the operational area are entered through MCC, AHLTA-T or TC2 and viewable in TMDS and MSAT. TMDS stores, filters and compartmentalizes the patient encounter data of other non-Department of Defense (DOD) beneficiaries entered in the operational area. The records are also captured as a part of the Soldier's lifelong medical records. TMDS provides access to the JLV portal, patient tracking and is the theater blood inventory management system.
Medical Situational Awareness in the Theater (MSAT)	The MSAT application is a secure web-based portal that combines information from multiple communities to provide a joint medical common operational picture and clinical decision support. The MSAT system links together medical intelligence and information that encompasses aggregated patient encounter data, patient tracking, chemical and biological warfare agent threats, environmental and occupational health hazards, command and control data, human resources, unit locations, and weather. MSAT provides a dashboard that provides critical medical capability statuses of equipment, supplies, personnel and available beds. MSAT also provides a medical situation report tool that enables medical command and control.
Medical References	Medical references are available with the MCC application on medical communications for combat casualty care (MC4) issued handhelds. The medical reference application is also available on MC4 laptops and serves as the medical reference tool that provides a series of medical guides to assist providers with a clinical diagnosis. The medical reference application provides access to a collection of databases with disease, drug, acute care, and toxicology information.
DOD Trauma Registry	There is an adjunct to the DOD Trauma Registry that is a stand-alone, store-and-forward application on MC4 laptops used by deployed tri-Service nurse coordinators to collect battlefield injury demographics, care, and outcomes for both military and civilian casualties. The DOD Trauma Registry is the largest injury database in existence, enabling senior leaders and researchers to study the information collected to uncover new ways to save lives on the battlefield through improved protective equipment and lifesaving procedures. Data collected has already paid dividends by way of improved body armor, field tourniquets, and bandages with clotting agents.
LEGEND: AHLTA Armed Forces health longitudinal technology application AHLTA-T Armed Forces health longitudinal technology application-theater CHCS composite health care system DOD Department of Defense JLV joint legacy viewer MC4 medical communications for combat casualty care MCC mobile computing capability MSAT medical situational awareness in the theater TC2 theater composite health care system cache TMDS theater medical data store	

OTHER SYSTEM APPLICATIONS

C-16. Table C-2 on page C-5 through C-6 describes software applications that are Army-specific or provided by other programs outside of the JOMIS program management office.

Table C-2. Other applications

System	Description
Defense Medical Logistics Standard Support (DMLSS) / Defense Customer Assistance Module (DCAM)	The DMLSS system is an automated information system for Role 3 Army hospitals, Air Force expeditionary medical facilities, Navy hospital ships and expeditionary force hospitals. The only DMLSS modules currently being used by deployed Army medical forces are the DMLSS Defense Customer Assistance Module (DCAM) application and the Equipment and Technology Management module. The DCAM application was deployed to support Army maneuver units. The Equipment and Technology Management module has a maintenance management submodule which automates the medical maintenance functions in the Role 3 hospital. The hospital uses this DMLSS module to manage the complex maintenance requirements for all assigned medical equipment.
Transportation Command Regulating and Command and Control Evacuation System (TRAC2ES)	The TRAC2ES application is a web-based portal that provides patient transportation information and in-transit visibility to the defense transportation community and medical support information to medical facilities. TRAC2ES combines transportation, logistics, and clinical decision elements that enable prioritized requirements, resource allocation, and supports tactical and strategic operations.
Patient Movement Item Tracking System (PMITS)	The PMITS application tracks the storage of patient movement items during peacetime and their movement during contingency and wartime operations. This application directly supports the sustainment mission by ensuring critical patient movement equipment is available to evacuate critically injured Soldiers. Commanders use PMITS to manage and redistribute patient movement item assets in order to avoid shortages during patient evacuations. The PMITS application has the ability to show location and status of patient movement item assets to assist in eliminating shortages and overages of essential patient evacuation equipment.
Theater Blood Application	The Theater Blood Application is used by medical units to collect, track, disposition, and report blood products in the deployed environment. This application allows deployed medical units managing blood assets to document inventory, collections and testing, and final disposition of blood and blood products. Once captured, this information can be used by the medical detachment (blood support) and other blood supply elements for blood tracking and reporting through the Theater Blood Application.
Travel Vaccination Application	This application is a web-based portal that provides medical professionals access to medical information to prepare Soldiers and travelers for health threats and other concerns related to international travel. It supplements Department of Defense (DOD) medical information with data integrated from international and regional health organizations plus additional information and analysis developed collaboratively through a network of trusted medical advisors. This information is also integrated in medical situational awareness in the theater (MSAT).
Office Automation	The medical communications for combat casualty care (MC4) system includes various office automation applications, such as firewall and antivirus protection; common access card readers; other plug-ins and desktop applications.

Table C-2. Other applications (continued)

System	Description
Medical Protection System (MEDPROS)	The Medical Protection System (MEDPROS) was developed by the Army Medical Department (AMEDD) to track all immunization, medical readiness, and deployability data for all active and reserve components of the Army as well as Civilians, contractors and others. It is a powerful tool allowing the chain of command to determine the medical and dental readiness of individuals, units, and task forces. Commander's and medical leaders at various echelons are responsible for the use and implementation of MEDPROS to measure their unit/individual medical readiness status. The electronic postdeployment health assessment is a suite of software used by deployed medical providers to document a Soldier's current physical and psychological health status on DD Form 2796, (Post-Deployment Health Assessment) prior to the Soldier's return from deployment. The Website link will be on the MC4 laptop and accessible from standard computers.
LEGEND: AMEDD Army Medical Department DMLSS defense medical logistics standard support DCAM defense customer assistance module MC4 medical communications for combat casualty care MSAT medical situational awareness in the theater MEDPROS medical protection system PMITS patient movement item tracking system TRAC2ES transportation command regulating and command and control evacuation system	

SAMPLE HEALTH INFORMATION SYSTEMS TRAINING

C-17. Table C-3 below through page C-7 provides a sample approach to properly training on the employment of health information systems for a MTF. Successful employment of MC4 systems involve a coordinated effort between the Army signal community, health information system officers, and clinical leadership.

Table C-3. Sample health information system training strategy

	Focus	Tasks	Purpose
Individual Tasks	System Administration	Complete MC4 system administration training	S-6 section trained as MC4 system administrators
		Set up the MC4 for operation	Update server and client images. Computer names and passwords standardized
		Prepare the MC4 for operation	AHLTA-T, TC2, DCAM, TMDS, and MSAT accounts prepared
		Employ the MC4	Test network with organic two-way satellites and peripherals; connect to TMDS/MSAT servers
	Clinical Operations Integration	Create shared understanding of MC4 applications	Clinical and operational staff reviews health information system overview and develop user role/accounts
		Functional user training	Complete all health information systems functional training as it pertains to respective clinical role

Table C-3. Sample health information system training strategy (continued)

	<i>Focus</i>	<i>Tasks</i>	<i>Purpose</i>
Collective Tasks	MC4 Workflow Validation	Develop hospital technology layout plan	S-6 staff and Clinical Operations create health information systems topology and layout for respective MTF setup
		Develop training casualty scenarios	Coordinate with internal and external resources to ensure casualty scenarios are prepared and meet respective AHLTA-T/ TC2 application parameters
		Order sets and templates	Coordinate with clinical operations staff for initial order set review and validation
	Rehearsal	Communications exercise	Conduct communication exercise in order to test entire system connectivity and verify user accounts
		Exercise operations under degraded conditions	Establish manual notification procedures
	Certification	Establish and utilize MC4 network	Successfully incorporate and validate entire health information systems scope of operations in support of medical command and control
LEGEND: AHLT-T Armed Forces health longitudinal technology application-theater DCAM DMLSS customer assistance module MC4 medical communications for combat casualty care MSAT medical situational awareness in the theater MTF medical treatment facility S-6 signal staff officer TC2 theater composite health care system cache TMDS theater medical data store			

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Appendix D

Hospital Waste

This appendix provides guidelines to the hospital commanders and assigned administrative, clinical, and professional staff to implement DODI 4715.05, AR 200-1, and other appropriate medical policies for compliance with Federal, DOD, and Army regulations. Commanders should establish an environmental management plan to manage risk and improve performance associated with the selection, handling, storage, use and disposal of HM, hazardous waste (HW), and regulated medical waste (RMW).

PROPONENT AND EXCEPTION AUTHORITY

D-1. The hospital commander may approve exceptions as needed to meet mission requirements within the scope of risk management and assigned risk tolerance. The commander must consult higher command and possibly the Army environmental law division on concerns with applicability of laws, regulations, initiatives, and executive orders. Additional guidance on legal requirements can be found in AR 200-1.

SCOPE

D-2. The provisions of this appendix are applicable to the hospital center and CSH operations where there is potential of environmental or occupational exposure to hazardous chemicals and waste, hazardous drugs, ionizing and nonionizing radiation, and material contaminated with potentially infectious blood or body fluids.

RESPONSIBILITIES

- D-3. The hospital commander has overall responsibility for the environmental management plan and will—
- Comply with the combatant command's occupational and environmental safety requirements when deployed into its AOR.
 - Ensure subordinate commanders, managers, and supervisors are informed regarding occupational and environmental safety requirements.
 - Ensure that HM, HW, and RMW are identified and managed according to the procedures provided in DODI 4715.05, AR 200-1, and this appendix.
 - Comply with applicable environmental laws and regulations from federal executive orders, DOD Service components, and overseas final governing standards; DODI 4715.05 may supplement or provide direction in the absence of formalized final governing standards.
 - Verify disposal requirements via the Military Item Disposal Instructions system updated and maintained by United States Army Public Health Center.
 - Identify environmental requirements, forward through command channels, and maintain auditable records.
 - Ensure that HW and RMW manifests are signed by individuals who have been trained and are authorized in writing by the commander.
 - Manage and dispose of medical, dental, veterinary, pharmaceutical and RMWs in accordance with AR 200-1, and applicable final governing standards or DODI 4715.05.

D-4. The preventive medicine authority will ensure operational compliance, and implementation of the environmental management plan, environment of care. Consult of plan requirements may be obtained from the environmental science engineering officer located with the preventive medicine section within the

medical brigade. The environment management plan and environment of care plan consists of the following elements:

- Management plans for HM, HW, and RMW. Management plans should address procedures for the identification, collection, storage, transporting, treatment, and disposal of HM, HW, or RMW. Management plans should also address required training, tracking, and recordkeeping.
- Risk assessments are completed to identify and evaluate the hazards associated with the use and disposal of HM, HW, and RMW generated by hospital operations. Risk assessments should include characterization and testing/analysis of HM, HW and RMW.
- Disposal during CONUS operations may require identification of waste streams for compliance with the Environmental Protection Agency and the Department of Transportation regulations pertinent to the disposal of HW and RMW. Outside of CONUS operations should ensure disposal of excess, used, or unserviceable HM in a theater of operations complies with the policies established in final governing standards, DODI 4715.05, and AR 200-1.
- The preventive medicine authority maintains documentation of required permits, licenses, and manifests for HM, HW, and RMW.
- Contingency and emergency response plans in the event of disruption to processes associated with the safe handling, storage, disposal and/or treatment of HM, HW, or RMW.

D-5. Supply and Services will support the environmental management plan and environment of care by:

- Arranging for the collection, storage, transportation, and disposal of HW and RMW.
- Informing the preventive medicine authority of training needs for logistics personnel.
- Notifying the preventive medicine authority of HW or RMW accepted from external units. This should be tracked by type of waste, weight, and originating organization.
- Ensuring HW containers, RMW bags, and sharps containers are available.
- Coordinating with the additional duty safety officer (ADSO), preventive medicine authority, and infection control services representative to establish designated routes and times for HW and RMW collection.

HAZARDOUS MATERIALS

D-6. Hazardous material is any material that is capable of posing an unreasonable risk to health, safety, or the environment. Key procedures for managing HM include the proper handling, storage, issuance, transportation, labeling, and disposal. Characteristics of HM are listed in paragraph D-13.

D-7. Hazardous material dispensing areas should be properly maintained. Dispensing areas should be located away from catch basins and floor or storm drains.

D-8. Drums and containers must not leak. Drip pans and absorbent materials should be placed under containers as necessary to collect drips or spills. Container contents should be clearly marked.

D-9. Each HM shipment must have a manifest that clearly identifies the material, quantity, and associated safety data sheets (SDS). Material SDS may be utilized if the manufacturer has not provided a SDS or one is unavailable.

D-10. Drivers transporting HM should be trained on the health risks of exposure and the physical hazards such as fire, explosion, and reactivity. Training should also include precautions for safe handling, spill control, first aid, and emergency notification procedures.

D-11. Containers should be checked for packaging integrity before and after loading.

D-12. Each section that utilizes HM should maintain an SDS and provide required training as part of the hazardous communications program. Material SDS may be utilized if the manufacturer has not provided a SDS or a SDS is unavailable.

D-13. The following are characteristics of hazardous materials:

- The item is a health or physical hazard. Health hazards include carcinogens, corrosive materials, irritants, sensitizers, toxic materials, and materials that damage the skin, eyes, or internal organs. Physical hazards include combustible liquids, compressed gases, explosives, flammable materials, organic peroxides, oxidizers, pyrophoric materials, unstable (reactive) materials and water-reactive materials.
- The item and its disposal is regulated by the host nation because of its hazardous nature.
- The item has a flashpoint below 93°C (200°F) closed cup, or is subject to spontaneous heating or is subject to polymerization with release of large amounts of energy when handled, stored, and shipped without adequate control.
- The item is a flammable solid or is an oxidizer or is a strong oxidizing or reducing agent with a standard reduction potential of greater than 1.0 volt or less than 1.0 volt.
- The item may produce dusts, gases, fumes, vapors, mists, or smokes with one or more of the above characteristics in the course of normal operations, accidents, leaks, or spills.
- The item has special characteristics that, in the opinion of the manufacturer or the DOD components, could cause harm to personnel if used or stored improperly.

HAZARDOUS WASTE

D-14. Hazardous waste is discarded material that may be solid, semisolid, liquid, or contained gas, and exhibits characteristics of a HW such as ignitability, corrosiveness, or toxicity. Parameters for determining HW can be found in DODI 4715.05 and the United States Environmental Protection Agency Website for HW. The United States Environmental Protection Agency assigns unique identifiers to hazardous waste materials. United States Environmental Protection Agency identifiers should be utilized on all notifications, recordkeeping, and reporting requirements. Key procedures for managing HW include identification, storage, transport, treatment, disposal, and recycling in an environmentally sound manner.

D-15. The preventive medicine specialist, ADSO, and supply services should identify and characterize waste streams generated at the hospital, assist with transport requirements, and provide oversight of HW accumulation points.

D-16. A HW profile sheet, Defense Logistics Agency Form 2511 (*Hazardous Waste Profile Sheet*), should be used to identify each HW stream. The profile sheet should be periodically updated to reflect any new waste streams or process modifications that change the character of the HW being handled at the storage area. Hazardous waste should be identified by a unique identification number for all recordkeeping, reports, and manifests.

D-17. Pretransport requirements are as follows:

- Utilize host nation laws and regulations, international agreements (status of forces agreements, for example), and Service regulations to prepare necessary placarding, marking, containerization, and labeling for the transport of HW.
- All outbound HW should have a manifest to capture all transactions from point of origination to ultimate disposal. Utilize host nation forms when applicable or DD Form 1348-1A (*Issue Release/Receipt Document*) or DD Form 1348-2 (*Issue Release/Receipt Document with Address Label*). Further instruction and detail on outbound HW requirements can be found in DODI 4715.05.

D-18. Hazardous waste accumulation point requirements are as follows:

- The section supervisor, preventive medicine authority, safety officer, and supply services representative should ensure the requirements for HW accumulation points from DODI 4715.05 are met.
- The HW accumulation points should not accumulate more than 55 gallons of HW, or 1 quart of acute HW, from each waste stream or shipped for treatment or disposal. The accumulation point must be at or near the point of generation. The accumulation point should be designed and operated to provide segregation for different waste streams and have appropriate warning signs.

- Containers holding HW should be in good condition, free from severe rusting affecting structural integrity, bulging, or other structural defects. Containers should be compatible with the stored HW to prevent damage to the container. Containers should remain closed until needed. Care should be taken to avoid excessive handling to prevent container damage. Containers with flammable liquids will need to be grounded when transferring flammable liquids from one container to the other.
- Containers holding HW should be marked with a HW marking, and a label indicating the hazard class of the waste contained (flammable, corrosive).
- Containers, secondary containment, and the HW accumulation points require weekly inspection for deterioration and potential leaking.
- Secondary containment should be able to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed. Secondary containment should have a minimum capacity of 10 percent of the volume of stored containers or the volume of the largest container, whichever is greater.

D-19. Recordkeeping requires audit trails through manifests, HW logs, and waste analysis and characterization records.

D-20. Personnel assigned to maintain HW accumulation points will need to successfully complete HW operations and emergency response training. At a minimum, training should meet topics covered in Section 120, Part 1910, Title 29, Code of Federal Regulations (CFR) (29 CFR 1910.120), such as clean-up operations, emergency response operations, storage, and disposal/treatment of hazardous substances.

D-21. Disposal or treatment of HW is dependent on the location of hospital operations and available resources. Adhere to final governing standards and host nation environmental laws and regulations. Comply with DODI 4715.05 in the absence of final governing standards.

REGULATED MEDICAL WASTE

D-22. Regulated medical waste is waste generated in the diagnosis, treatment, research, or immunization of human beings or animals which is capable of causing disease or which, if not handled properly, poses a risk to staff or patients. These wastes may also be referred to as infectious waste, biohazardous waste, clinical waste, biomedical waste, or medical waste. Terms will vary based upon locality and host nations.

D-23. Department supervisors with guidance from the preventive medicine authority and safety officer, will establish and use management controls and periodic inspections to ensure compliance with RMW policies and procedures. Supervisors will plan, conduct, and document training of their personnel to ensure RMW management is conducted safely and in compliance with established policies and procedures.

D-24. All RMW must be grouped appropriately at the point of origin and have appropriate packaging and labeling.

D-25. Do not mix RMW and HW. Disposal or treatment methods may differ for each type of waste. Inappropriate procedures may lead to hazardous conditions and potentially violate host nation, final governing standards, or DODI 4715.05 environmental regulations.

D-26. The medical laboratory safety officer, preventive medicine authority, and additional duty safety officer should determine the appropriate classification and handling of waste laboratory reagents as HW or RMW.

COLLECTING AND HANDLING OF REGULATED MEDICAL WASTE

D-27. Sharps must be placed in a puncture-resistant container designated for sharps disposal. Sharps containers should be placed as close as practical to the use areas. The size (volume) of the sharps container is determined by the waste generators. Sharps containers should be sealed and removed when the container is three quarters full or filled to the line indicated by the manufacturer.

D-28. Nonchemotherapy RMW will require leak-proof, puncture-resistant, red-plastic-bag-lined receptacles meeting recommended impact strength and tear strength as established by the American Society for Testing and Materials. In areas where RMW is rarely generated (for example, a small field laboratory), personnel may use red bags as described in Section 1030, Part 1910, Title 29 CFR (29 CFR 1910.1030) as interim

collection bags which do not meet the American Society for Testing and Materials standards. However, these interim collection bags must be placed in red bags that meet American Society for Testing and Materials standards prior to transport within and outside of the hospital area.

D-29. Securely tie and seal RMW bags. Do not shake or squeeze the bags as this may lead to a puncture and accidental injury. Do not compact or crush RMW to reduce volume as this may also lead to puncture and accidental injury.

D-30. Carry sealed bags by their necks to the transportation cart. Do not lift or hold bags by the bottom or sides. Carry bags away from the body. Ensure bags are not ripped, opened, or dropped; never throw the bags into carts.

D-31. Designated routes should be used when moving RMW within the hospital. High traffic routes should be avoided.

D-32. Bags used for the transport of RMW must meet the Department of Transportation requirements shown in Section 197, Part 173, Title 49 CFR (49 CFR 173.197) for tear and impact resistance. Bulk packaging is defined as having a capacity greater than 450 liter (119 gallon) or net mass greater than 400 kilogram (882 pound) per container.

REGULATED MEDICAL WASTE GROUPING

D-33. The RMW is divided into nine groups (RMW groups may differ in host nation standards). Manage specific RMW groups as described below:

- Group 1—Cultures, stocks, and vaccines.
 - Cultures and stocks: Separate microbiologic waste (cultures and stocks of etiologic agents) from general waste for decontamination. Liquid group 1 RMW such as liquid culture media may be kept in its original container and placed in the sharps container for treatment and disposal.
 - Vaccines: Discard all partially full or empty vials of vaccines in sharps containers. Dispose of nasal mist vaccine dispensers in red bags.

Note. Exceptions: Some vaccines containing thimerosal may be HW due to high mercury content. The preventive medicine authority, with consult from the infection control services representative, will need to provide waste characterization to the fullest extent possible, before discarding in the sharps container. Allergy shots do not contain live or attenuated viruses and, therefore, do not meet the definition of a vaccine. Manage empty glass vials as noninfectious glassware.

- Group 2—Pathological waste. Dispose of pathological waste in a RMW container lined with an RMW bag or double bag in RMW bags. Specimen preservatives such as formalin are not RMW and must be decanted and collected separately. The preventive medicine authority will need to provide waste characterization to determine preservative disposal procedures.
- Group 3—Blood and blood products. Dispose of breakable containers of bulk blood or blood products in rigid, puncture-resistant, leak-proof RMW containers. Use plastic RMW bags to dispose of blood products such as blood bags and blood filter tubing and items saturated, dripping, or caked with blood. If safe to do, remove needles from the tubing and place the needle in a sharps container for disposal; otherwise, place the tubing and the needle into the sharps container.
- Groups 4 and 7—Sharps and syringes. Discard all sharps and syringes directly into a rigid puncture-resistant, plastic sharps container immediately after use. Discard disposable needles and syringes intact; do not cut, break, bend by hand, or recap using a two-handed method.
- Group 5—Animal waste. Infectious animal waste must be managed as RMW. The preventive medicine authority, ADSO, and veterinary services representative should specify any requirements for disposal of potentially infectious animal waste.
- Group 6—Isolation waste. Isolation wastes are generated by hospitalized patients that have been isolated to protect others from communicable disease. The infection control services

representative, preventive medicine authority, and ADSO will need to provide requirements for handling and disposal of isolation waste.

- Group 7—See Group 4, above.
- Group 8—Other. The infection control services representative, preventive medicine authority, and ADSO will need to provide requirements for handling RMW fluids. Free flowing fluids may need to be collected in containers. Items that are dripping or saturated with infectious agents should be placed in RMW bags.
- Group 9—Chemotherapy wastes. It is unlikely to encounter chemotherapy wastes in hospital center or CSH operations. If chemotherapy wastes are generated, do not mix with nonchemotherapy RMW or HW. If possible, dispose in a yellow puncture proof container. The preventive medicine authority should consult the environmental science engineering officer at the next higher echelon for specific guidance on chemotherapy waste disposal.

D-34. Personal protective equipment (PPE) includes gloves, and PPE appropriate for the type of RMW and task of handling bagged RMW. Appropriate PPE will be designated based on preventive medicine authority, safety officer input, and infection control services characterization of RMWs.

STORAGE OF REGULATED MEDICAL WASTE

D-35. The RMW must be stored in designated RMW storage areas as recommended by the preventive medicine authority, ADSO, and supply services.

D-36. Label the entrance to RMW storage areas with *Regulated Medical Waste* and the universal biohazard symbol. Other information may be added as required by other applicable regulatory requirements. Keep the main holding area secure; free from pests; and in a clean, putrid-free state.

D-37. Storage of RMW should not exceed the waste removal periods specified by applicable regulatory requirements. Mission requirements may extend storage time requirements. Ensure risk management is applied to minimize potential health hazards. Environmental control, such as refrigeration may be required to maintain RMW storage areas to avoid the accumulation and proliferation of odors.

D-38. Disposal contracts or host nation regulatory requirements may impose temperature controls for storing pathological waste on-site. Refrigerating or freezing of human and animal pathological wastes may be required to comply with host nation and final governing standards requirements. In the absence of these requirements, consult the preventive medicine authority.

TRANSPORTATION OF REGULATED MEDICAL WASTE WITHIN THE HOSPITAL

D-39. Carts used to transport RMW will be constructed of nonporous, readily cleanable material; plastic; or stainless steel. If carts are equipped with lids, keep them closed when transporting the RMW. Do not mix RMW bags with general solid waste in the same cart or container unless it is equipped with separate, leak-proof compartments.

D-40. Carts and other reusable containers used to transport RMW must be cleaned with an Environmental Protection Agency registered hospital grade disinfectant.

D-41. Personnel cleaning carts must wear PPE (for example, splash resistant goggles, face shield or mask, impervious apron, and impervious gloves). An emergency eyewash device must be located in the cart washing area; the device must be functional and maintained according to American National Standards Institute Z358.1-2014, Emergency Eyewash and Shower Equipment.

D-42. Put bags of RMW in leak proof, rigid containers and mark the containers with the universal biohazard symbol. Red bags do not require marking with the universal biohazard symbol unless required by applicable regulatory requirements.

D-43. Transportation of RMW outside of hospital boundaries. Outside of CONUS hospital operations (excluding Alaska, Hawaii, and U.S. territories) will reference host nation regulatory requirements, final governing standards, and DODI 4715.05, for specific transportation requirements of RMW. The preventive

medicine authority and supply services will ensure all containers with RMW will meet labeling, weight limit, and documentation requirements.

MANAGEMENT OF REGULATED MEDICAL WASTE SPILLS

D-44. The ADSO, preventive medicine authority, supply services and infection control services, will develop policies and procedures for management of RMW spills. At a minimum, procedures should address training requirements for clean-up, disinfection, isolation, and PPE.

D-45. Trained personnel will clean RMW spills immediately with a registered hospital grade disinfectant. The preventive medicine authority should consult the environmental sciences engineering officer at the next higher echelon when unsure of the appropriate level of disinfection. The preventive medicine authority, safety officer, and infection control services should make the appropriate determination for categorizing clean-up and disinfection material as RMW.

D-46. Personal protective equipment for clean-up and disinfection includes—

- Wearing disposable waterproof gloves, as a minimum.
- Wearing fluid impervious gowns or other protective clothing when there is risk of contaminating clothing.
- Wearing a mask and protective eyewear when there is danger of splashes or aerosols.
- Using scoops, dustpans, tongs or other equipment to pick up and dispose of sharps and larger volumes of RMW.

D-47. When a RMW waste disposal contractor is not used, and unless otherwise specified by applicable regulatory requirements, the following RMW treatment methods may be applied:

- Render liquid microbiological waste noninfectious via steam sterilization prior to disposal. Follow the manufacturer's instructions for required time and temperature.
- Steam sterilize or incinerate solid microbiological waste prior to disposal in the general waste stream. Follow the manufacturer's instructions for proper time and temperature requirements.
- Treatment of blood and blood products is not required prior to disposal. When sanitary sewer disposal is not allowed by local ordinance, facilities may need to treat their blood and blood products via steam sterilization and/or use RMW bags and sharps containers for disposal.
- Decontaminate wastes containing Centers for Disease Control and Prevention Biosafety Levels 2, 3, and 4 etiologic agents by steam sterilization, incineration, or other approved disposal technology prior to disposal.

D-48. Table D-1 on page D-8 contains additional information for determining appropriate treatments or disposal methods for RMW.

Table D-1. Regulated medical waste treatment or disposal methods

<i>Source/type of medical waste</i>	<i>Regulated?</i>	<i>Treatment/disposal method</i>
Microbiologic cultures/stocks	Yes	Incineration Thermal inactivation Chemical disinfection (for liquids only) Steam sterilization followed by incineration or grinding
Pathological wastes (includes surgery and autopsy waste)	Yes	Incineration Steam sterilization followed by incineration or grinding
Blood/blood products, caked blood including blood bags and tubing.	Yes, only if free flowing, saturated, dripping, or caked	Steam sterilization Incineration Sanitary sewer system for liquids
Sharps both used and unused	Yes	Incineration Steam sterilization followed by incineration or grinding
Vaccines	Yes	Incineration Steam sterilization followed by incineration or grinding
Contaminated animal carcasses, body parts, and bedding	Yes	Incineration Steam sterilization followed by incineration or grinding
Dialysis wastes	Optional	Steam sterilization
Treatment/examination room	No	General waste (unless the wastes fall into one of the categories above)
General patient care areas	No	General waste (unless the wastes fall into one of the categories above)
Dental operatory	Yes, only if free flowing, item saturation, dripping, or caked with blood	Steam sterilization Incineration Sanitary sewer system for liquids
Intravenous bags and intravenous tubing	Check with state regulations	Steam sterilization Incineration
Note: Local requirements may require more stringent treatment/disposal methods. When the treatment/disposal methods shown above are not appropriate or feasible for the local situation, contracting for the transport and disposal of regulated medical waste is recommended.		

D-49. Contingency planning includes—

- Supply services personnel will maintain detailed written, site specific, contingency plans for RMW disposal when primary means of disposal are unavailable. Contingency plans must include procedures for alternative RMW disposal when the existing RMW procedures are not available or when environmental conditions temporarily prevent the disposal of RMW.
- Contingency plans for RMW disposal during permanent or extended interruption of primary RMW disposal mechanisms may consist of separate agreements with other RMW service

providers, reciprocal agreements with other RMW generators, or some other mechanism that will ensure RMW is managed in a legal and environmentally sound manner.

- Contingency plans should account for instances of substantial increase in RMW generation. These plans will be included in the emergency operations plan and include considerations such as identification of additional space for storing RMW awaiting disposal; pre-negotiated contracts to schedule more frequent RMW pick-up; cleaning and decontamination of the temporary storage site following the event; and replenishment of supplies, such as red bags and sharps containers.

D-50. Training requirements include—

- Section supervisors, preventive medicine authority, and the ADSO will ensure personnel have received training to safely and correctly perform duties associated with RMW management.
- Personnel having, or potentially having, occupational exposure to RMW will be evaluated under the hospital's exposure control plan and will receive training according to the 29 CFR 1910.1030, Bloodborne Pathogens Standard.
- Training for personnel who sign shipping papers meet requirements specified in the Defense Transportation Regulation 4500.9-R, Part II, *Cargo Movement*, chapter 204 (Hazardous Material). Driver training will meet requirements specified in Section 816, Part 177, Title 49 CFR (49 CFR 177.816), Driver Training, and AR 600-55.
- Initial training should be supplemented with refresher training after one year from date of initial training.
- The section supervisors must maintain written documentation of all training. Training records must be readily available for review. Documentation should include topics, content summary, dates, length of training, and printed name and signatures of all attendees.

D-51. The Role 3 hospitals are likely to experience waste streams as listed in Table D-2. Total quantities of waste generation are dependent on the size and scope of military operations.

Table D-2. Potential waste streams for Role 3 hospitals

General waste— <i>This category captures all waste not specifically classified as medical waste or hazardous waste.</i> Examples include—	
Soiled/dirty linen, clothing, personal protective equipment	That are not Group 3 or 6 medical waste.
Urine cups	Empty or full.
Intravenous bags, tubing	Empty, partially used.
Controlled substances	Require special handling/disposal.
Empty reagent bottles/containers	Glass and plastic.
Disinfectants	Nonalcohol based.
Packaging materials	Cardboard/plastics/shrink wraps.
Autoclaved medical waste	Only applies to Groups 1 and 3.
Military equipment (non-chemical, biological, radiological, and nuclear)	Disinfected for reuse/demilitarization.
Human waste	Field sanitation issue.

Table D-2. Potential waste streams for Role 3 hospitals (continued)

Hazardous waste—Waste that is ignitable, corrosive, reactive, or toxic.	
Examples include—	
Dental amalgam	Loose and collected amalgam, or in teeth.
Lithium batteries	Ones that are not fully discharged.
Lead acid batteries	From backup power supplies for computers/electronics.
Pharmaceuticals	Typically only applies to unused, expired stocks: Alcohols, silver nitrate sticks, lindane, warfarin, shampoos containing Selenium (formulary review necessary).
Hand sanitizers/disinfectants	Alcohol-based (used/unused).
Compress gas cylinders	That are still pressurized and/or sealed.
Aerosol cans	That are still pressurized and/or sealed.
Mercury containing items	Mercury switches, thermometers, lights.
Incinerator ash (from medical waste)	Requires initial and periodic characterization. Effective waste segregation necessary.
Radiation contaminated materials	Consult health physics personnel.
Chemically contaminated items and decontamination waste	Includes all personal protective equipment, decontaminates, rinsates, and personal effects.
Computers/electronics devices	Circuit boards, internal batteries.
Medical waste—Waste generated in the diagnosis, treatment, research, or immunization of human beings or animals which is capable of causing disease or which, if not handled properly, poses a risk to individuals or a community. Regulated medical wastes are grouped by waste source—	
Group 1	Cultures, Stocks, Vaccines—cultures and stocks of infectious agents and associated biologicals, including cultures from medical and pathological laboratories; all discarded human and vaccines.
Group 2	Pathological Waste—tissue specimens, organs, body parts, extracted human teeth, and body fluids that are removed during surgery, autopsy, or other medical procedures.
Group 3	Blood and Blood Products—any items caked with or containing free flowing liquid human blood, plasma, serum, and other blood derivatives.
Group 4/7	Sharps—all used and unused syringes, broken glassware, contaminated pipettes, scalpels, blood collection tubes, vials, test tubes.
Group 6	Isolation Wastes—bedding and waste materials contaminated with blood, excretion exudates, or secretions from humans and animals that are isolated to protect others from highly communicable diseases.
Biologically contaminated items and decontamination waste (Group 6)	Includes all personal protective equipment, rinsates, and personal effects.

Appendix E

Hospital Safety

Appendix E provides guidelines to hospital commanders, assigned administrative, clinical, and professional staff to implement AR 385-10, The Army Safety Program, for compliance with federal, DOD, and Army regulatory requirements, and establish a safety management system to control or eliminate unsafe conditions and practices that may result in manpower or monetary loss.

SECTION I — SAFETY MANAGEMENT SYSTEM PROGRAM

E-1. The hospital commander is the authority that may approve exceptions as needed to meet mission requirements within the scope of risk management and assigned risk tolerance.

E-2. The safety management system applies to all patients, visitors, military, and civilian personnel. All personnel assigned to the hospital are required to become familiar with guidelines provided in this appendix.

E-3. The hospital commander has overall responsibility for implementation of the safety management system and will—

- Comply with the combatant command's safety requirements when deployed into its AOR.
- Ensure subordinate commanders, managers, and supervisors are informed regarding safety and occupational health requirements and applicable host nation safety requirements.
- Designate an ADSO as the primary point of contact for all aspects of the safety management system. The ADSO should be a commissioned officer at battalion and higher unit levels or staff sergeant or higher at the company level. Additional duty safety personnel must complete the additional duty safety course within 30 days of appointment as an ADSO.
- Designate in writing, a radiation safety officer when necessary to ensure compliance with prescribed Army radiation safety programs and AR 385-10.
- Ensure standard Army safety and occupational health inspections are conducted.
- Integrate Occupational Safety and Health Administration (OSHA) and national consensus standards into military standards, tasks, techniques, and procedures as appropriate.
- At a minimum, implement core safety program elements listed in Table E-1 on page E-2.

Table E-1. Army safety program elements

<i>Description</i>	<i>Applicability</i>
Strategic Planning, Army Safety Program Structure, Safety Program Evaluation, Councils, and Committees (Army Regulation 385-10, Chapter 2)	Required
Accident Investigation and Reporting (Army Regulation 385-10, Chapter 3)	Required
Radiation Safety Management (Army Regulation 385-10, Chapter 7)	Required
Tactical Safety (Army Regulation 385-10, Chapter 13)	Required
Motor Vehicle Accident Prevention (Army Regulation 385-10, Chapter 11)	Required
Occupational Safety and Health Program (Workplace Safety) (Army Regulation 385-10 [Chapter 16] and Part 1910, Title 29 Code of Federal Regulations)	Recommended
Medical Safety (Army Regulation 385-10, Chapter 23)	Recommended
Electrical Safety Program (Army Regulation 385-10, Chapter 25)	Required
Training Requirements (Army Regulation 385-10, Chapter 10)	Required
Safety Awards Program (Army Regulation 385-10, Chapter 8)	Required

E-4. The chief/supervisor of each department, division, section, or designated representative will—

- Integrate a safety program as described in AR 385-10 and DA Pam 385-10.
- Investigate and report all accidents occurring within their assigned area according to the requirements of DA Pam 385-40, Army Accident Investigations and Reporting.
- Provide work area specific safety training as applicable.
- Ensure employees are trained in the care, use, maintenance, storage, and limitations of required PPE.
- Incorporate risk management into procedures, processes, and operations. Elevate decisions exceeding assigned level of risk tolerance.
- Ensure personnel employ good housekeeping practices at all times.
- Appoint ADSOs at the department, division, or section to assist with implementation of the safety program. The ADSOs must be appointed in writing by the hospital commander. Additional duty safety personnel must complete the additional duty safety course within 30 days of appointment as an ADSO.

SECTION II — ACCIDENT REPORTING AND SAFETY PROGRAMS

E-5. This section discusses the reporting and investigation requirements when an accident occurs. It goes on to discuss the safety programs and accident prevention procedures recommended or required for army commanders to institute in their units.

ACCIDENT INVESTIGATION AND REPORTING

E-6. Accidents should be investigated to the degree necessary to identify the immediate causal factors and system inadequacies which may have contributed to the accident. Techniques and procedures for accident investigation and report writing are provided in AR 385-10 and DA Pam 385-40. Ensure the appropriate level in the chain-of-command is notified immediately as well as the United States Army Combat Readiness Center. Figure E-1 on page E-3 depicts accident reporting procedures for combat operations.

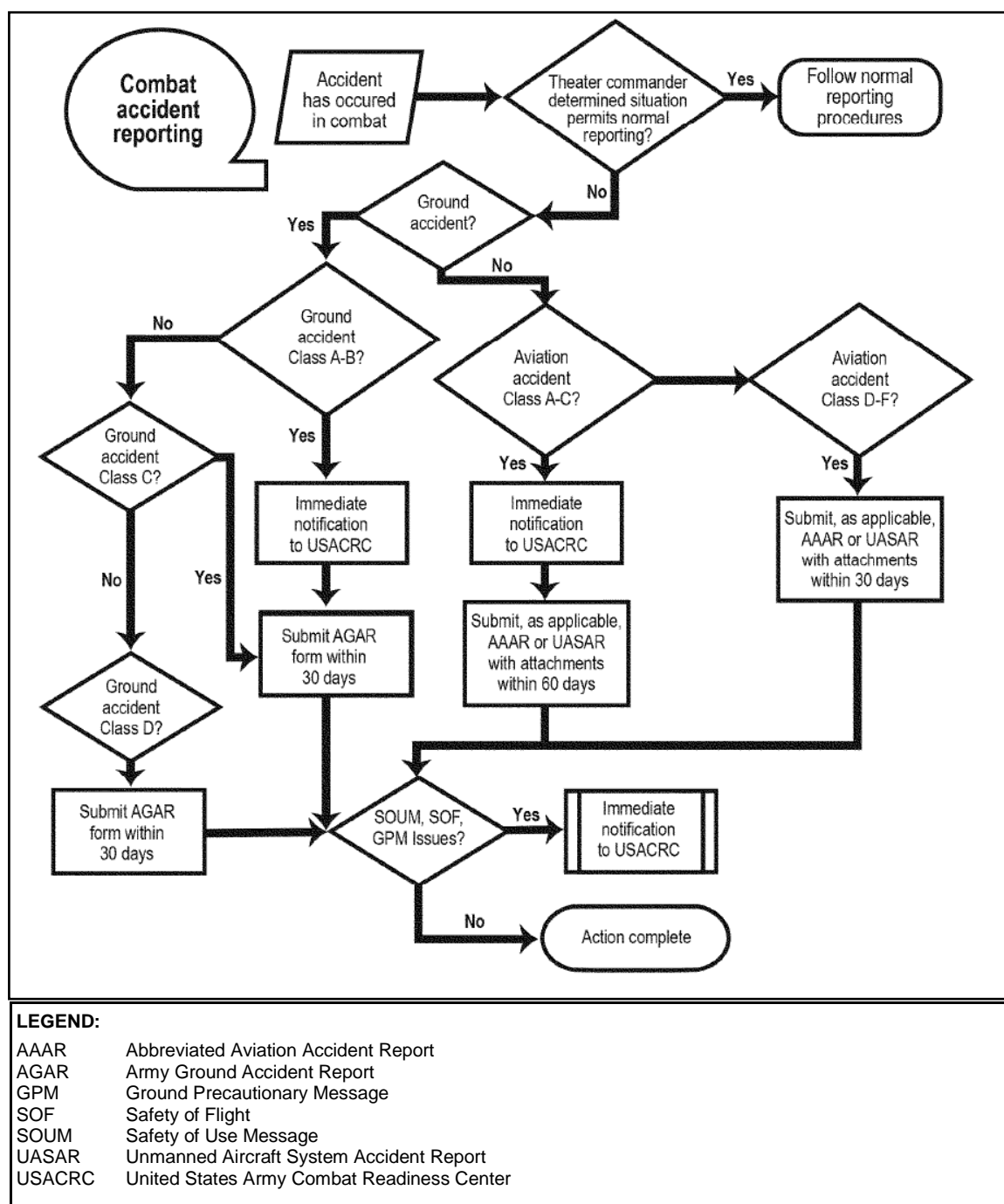


Figure E-1. Combat accident reporting (Department of the Army Pamphlet 385-40)

SAFETY PROGRAMS

E-7. There are several ways to manage safety programs, some of which apply to hospitals or medical units and others apply regardless of the type of unit.

RADIATION SAFETY MANAGEMENT

E-8. The radiation safety officer conducts an inventory of all ionizing and nonionizing radiation sources, performs a risk assessment of the sources, and evaluates compliance with DA Pam 385-24 and OSHA regulations pertinent to the selection, storage, handling, use and disposal of ionizing and nonionizing radiation sources. The safe use of radiation sources will meet compliance with all applicable federal and DOD rules and regulations as stipulated in AR 385-10. Technical requirements for developing management and control processes for operations involving sources of radiation are listed in DA Pam 385-24, and DA Pam 385-25. Critical tasks for the radiation safety officer include appointment orders, ionizing/nonionizing radiation source inventory, x-ray unit compliance testing documentation, radiation safety training documentation, and dosimetry program, if necessary.

E-9. X-ray systems, including deployed x-ray systems, require testing before they are used on patients. This testing is intended to ensure that the systems are operating within the manufacturer's specifications and applicable Army and federal standards. The testing also ensures that radiation exposure to staff and patients is kept as low as is reasonably achievable. The Army uses Technical Bulletin Medical (TB Med) 521, as the primary guidance when conducting x-ray system testing. X-ray systems will be tested in accordance with the frequency specified in TB Med 521.

E-10. All medical and dental x-ray systems will require x-ray system testing. This includes general purpose, mobile, fluoroscopy, intraoral and panoramic dental, veterinary, and CT.

E-11. The unit's designated radiation safety officer should coordinate with the theater radiation safety officer, or United States Army Public Health Center if the theater radiation safety officer is not available, to request qualified experts to conduct the x-ray system testing as required by TB Med 521.

E-12. The qualified expert, nuclear medical science officer (AOC 72A), performing the x-ray system testing must meet the training requirements as specified in TB Med 521.

E-13. Copies of x-ray system test results will be sent to the unit's radiation safety officer and biomedical maintenance personnel for their use and documentation. X-ray system test results will also be available from the organization conducting the x-ray system testing upon request.

E-14. Commanders may waive TB Med 521 requirements during military operations; however, commanders must consider the operational requirements with the risks to personnel from decreased radiographic image quality and possible increased radiation exposure to patients and staff. The commander shall consult with the theater radiation safety officer before making waiver recommendations.

TACTICAL SAFETY

E-15. Safety support during training, contingency, and tactical operations is applicable as described in AR 385-10. The tactical safety element is intended to conserve combat power through reduction in manpower and equipment losses. Risk management will be integrated into all tactical and contingency operations as specified in ATP 5-19. All expected tactical threat-based and accidental hazard-based vulnerabilities will be examined to determine associated risk. Risk mitigation strategies should be implemented to control identified hazards to the fullest extent possible based on mission requirements.

E-16. The ADSO should exercise due diligence to—

- Review the operations order and its safety implications.
- Capture lessons learned based on safety issues encountered during training, contingency and tactical operations.
- Ensure all participants receive safety training to enable safe and efficient execution of the operation. Topics of interest include thorough understanding the hazards, enabling the mitigation strategy, and establishing the use and limitations of required PPE.

OCCUPATIONAL SAFETY AND HEALTH PROGRAM (WORKPLACE SAFETY)

E-17. Implementation of OSHA safety standards are recommended for all hospital operations. The hospital commander and designated ADSOs should make every effort to meet established safety and occupational health standards and guidelines to mitigate risk from known or anticipated hazards.

E-18. Executive Order 12196, and DODI 6055.01, direct the implementation of OSHA programs in all CONUS and, to the fullest extent possible and feasible, for outside of CONUS. Military-unique operations are exempted from implementing OSHA programs based on mission requirements and associated risk assessments. However, the term military unique operations does not exclude operations with work processes comparable to those of industry in the private sector such as medical services. Nonmilitary unique processes that support military unique operations, such as patient care, may be subject to federal, Army, and host-nation laws, regulations, standards, and guidelines during the full range of military operations. When standards do not exist for military application, or the application is not feasible, the hospital commander should apply risk management to the fullest extent possible to mitigate known and anticipated hazards.

E-19. Procedures for occupational and workplace safety are detailed in DA Pam 385-10. Table E-2 lists OSHA Standards (29 CFR) with application to medical services provided by Role 3 hospitals.

Table E-2. Occupational Safety and Health Administration Standards

<i>Part title</i>	<i>Part number</i>	<i>Applicability</i>
Hazard communications	1910.1200	Recommended
Respiratory protection	1910.134	Recommended
Personal protective equipment	1910 Subpart I	Recommended
Bloodborne pathogens	1910.1030	Recommended
Emergency action plans and fire prevention plans	1910 Subpart E	Recommended
Control of hazardous energy (lockout and tagout)	1910.147	Recommended
Hazardous waste operations and emergency response	1910.120	Recommended
Laboratory chemical hygiene	1910.1450	Recommended
Ionizing radiation	1910.1096	Recommended

HAZARD COMMUNICATION

E-20. Hospital processes entail the use of hazardous chemicals for maintenance, sanitization, disinfection, and sterilization processes. Adherence to OSHA's Hazard Communication Standard, Section 1200, Part 1910, Title 29 CFR (29 CFR 1910.1200), will ensure the safety of hospital personnel and patients through effective hazard communication.

E-21. The hospital ADSO, specialty clinic representatives, and infection control services representative should develop a written hazardous communications program with the following elements:

- Designated hazardous communications representatives for hospital sections with hazardous chemical use, such as medical maintenance, and require them to implement the program within their section.
- Standard operating procedures for labeling containers of hazardous chemicals.
- Collection of chemical inventories and associated SDS for hazardous chemicals utilized at the site. Material SDS may be utilized if the SDS is unavailable.

- Training for personnel that includes the nature of the potential exposure to hazardous chemicals, how to utilize the safety information contained in the SDS, how to access these materials, required controls and PPE, and spill response procedures.

RESPIRATORY PROTECTION

E-22. The use of National Institute for Occupational Safety and Health approved respirators is required by AR 11-34, The Army Respiratory Protection Program, to protect against potential inhalation, eye, or mucosal membrane contact by chemical, biological, or physical hazards. Hazards may stem from chemical vapors, combustion fumes, or aerosol transmissible disease pathogens. Engineering and administrative controls for these potential hazards are supplemented with respiratory protection to limit exposure to the hazards. Implementing a respiratory protection program following OSHA's Respiratory Protection Program Standard, Section 134, Part 1910, Title 29 CFR (29 CFR 1910.134) will ensure the safety of hospital personnel. See paragraphs E-24 and E-25 for diseases and pathogens with associated recommended use of respiratory protection.

E-23. The hospital ADSO, specialty clinic services representative, and infection control services representative should develop a written respiratory protection program with the following elements:

- Designate a respirator program administrator to manage and implement the program.
- Procedures for hazard evaluation and respirator selection.
- Medical evaluation of respirator wearers.
- Fit testing procedures for tight-fitting respirators (including filtering facepiece respirators).
- Procedures and training for the proper use, storage, maintenance, repair, disposal, and limitations of respirators.
- Recordkeeping of training, fit testing, and medical clearance.

E-24. The following are diseases/pathogens requiring airborne precautions:

- Aerosolizable spore-containing powders such as Anthrax/Bacillus anthracis.
- Varicella (chickenpox) and herpes zoster (disseminated or in an immunocompromised host)/varicella-zoster virus.
- Monkeypox/Monkeypox virus.
- Smallpox (variola)/Variola virus.
- Aspergillosis (if massive soft tissue infection with copious drainage and repeated irrigations required).
- Measles (rubeola)/Measles virus.
- Severe acute respiratory syndrome/severe acute respiratory syndrome–associated coronavirus.
- Tuberculosis/Mycobacterium tuberculosis.
- Novel or emerging pathogens and any other disease for which public health guidelines recommend airborne infection isolation.

E-25. The following are diseases/pathogens requiring droplet precautions:

- Diphtheria, pharyngeal.
- Mumps (infectious parotitis)/mumps virus.
- Pneumonic plague/Yersinia pestis.
- Epiglottitis, due to *Haemophilus influenzae* type b.
- Mycoplasma pneumonia.
- Rhinovirus.
- *Haemophilus influenzae* serotype b (Hib) (see disease specific recommendations).
- Parvovirus B19 infection (erythema infectiosum).
- Rubella virus infection (German measles)/Rubella virus.
- Influenza viruses, seasonal.
- Pneumonia.
- Adenovirus.

- Haemophilus influenzae, serotype b, infants and children.
- Meningococcal, Mycoplasma, primary atypical Streptococcus, Group A.
- Streptococcal disease (Group A streptococcus).
- Skin, wound or burn, major.
- Pharyngitis in infants and young children.
- Scarlet fever in infants and young children.
- Serious invasive disease.
- Meningitis.
- Haemophilus influenzae, type b known or suspected.
- Neisseria meningitis (meningococcal) known or suspected.
- Viral hemorrhagic fevers due to Lassa, Ebola, Marburg, and Crimean-Congo fever viruses.
- Pertussis (whooping cough).

PERSONAL PROTECTIVE EQUIPMENT

E-26. Hospital processes require the use of PPE when engineering controls and administrative controls are insufficient to limit occupational exposure to hazards. The section supervisor in conjunction with the hospital ADSO, specialty clinic services representative, and infection control services representative should ensure protective equipment, including PPE for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, are provided based on known or expected hazards. Additionally, the section supervisor should ensure PPE is utilized and appropriately maintained.

BLOODBORNE PATHOGENS

E-27. Bloodborne pathogens are infectious microorganisms present in blood that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus, hepatitis C virus, and human immunodeficiency virus (the virus that causes AIDS). Prudent practice suggests health care providers utilize universal precautions to limit the potential for exposure to bloodborne pathogens.

E-28. The hospital ADSO, specialty clinic services representative, and infection control services representative should establish the following measures to implement an effective bloodborne pathogen program:

- Establish an exposure control plan to eliminate or minimize occupational exposures.
- Implement the use of universal precautions.
- Identify and use engineering control devices that isolate or remove the bloodborne pathogen hazards from the workplace. These devices include sharps disposal containers, self-sheathing needles, sharps with engineered injury protection, and needleless systems.
- Identify and ensure the use of work practice controls that address contaminated sharps disposal, specimens handling, laundry handling, and appropriate disinfection and cleaning of surfaces.
- Ensure the use of PPE, such as gloves, gowns, eye protection, and masks.
- Hepatitis B vaccinations for all health care providers with potential occupational exposure to bloodborne pathogens.
- Provide training that includes the nature of the hazard and routes of exposure, engineering and administrative controls, PPE, and reporting procedures for instances of bloodborne pathogen exposure. An exposure incident is a specific eye, mouth, other mucous membrane, nonintact skin, or parenteral contact with blood or other potentially infectious material.
- Ensure the use of labels and signs to communicate hazards. Warning labels should be affixed to containers of regulated waste; containers of contaminated reusable sharps; refrigerators and freezers containing blood or other potentially infectious material; other containers used to store, transport, or ship blood or other potentially infectious material; contaminated equipment that is being shipped or serviced; and bags or containers of contaminated laundry.
- Maintain records such as training and a sharps injury log.

EMERGENCY RESPONSE AND FIRE PREVENTION PLANS

E-29. The robust application of risk management to hospital operations typically account for environmental and situational circumstances, which may impede capability, capacity, and efficiency. The hospital's emergency response and fire prevention plan is in addition to risk management applied to military operations.

E-30. The ADSO should develop and incorporate an action plan for emergency unforeseen situations that threaten personnel or patients, disrupts operations, or that may cause physical or environmental damage. Emergency planning should encompass actions for personnel and patient accountability, timely evacuation, containing hazards, and alternate solutions for continuing hospital operation. Emergency plans should, at a minimum, address actions during floods, hurricanes, tornadoes, fires, toxic gas releases, chemical spills, explosions, or workplace violence.

CONTROL OF HAZARDOUS ENERGY

E-31. Lockout/tagout addresses the practices and procedures necessary to disable machinery or equipment to prevent the uncontrolled release of hazardous energy during servicing and maintenance activities. Hazardous energy sources include electrical, mechanical, hydraulic, pneumatic, chemical, and thermal.

E-32. The ADSO and facilities manager (medical maintenance, supply and services section) representative should develop an energy control program that establishes safe work practices specifying lockout and tagging procedures. Lockout/tagout generally consists of de-energizing the system and system isolation through a physical mechanism that is able to prevent system energizing. Systems that cannot employ a physical mechanism to prevent energization will utilize a tagging process to inform and prevent energization.

HAZARDOUS WASTE OPERATIONS

E-33. The section supervisor, ADSO, and specialty clinic representatives should develop a program to manage the disposition of hazardous waste from their assigned area. See Appendix D for further information on HW management for hospitals.

COMPRESSED GAS AND CYLINDERS

E-34. The section supervisor, ADSO, and supply and services section should develop a plan to safely store and transport compressed gases and cylinders. Regulators, cylinders, and cylinder valves should be inspected regularly to ensure safe operation. Gasses that may react with each other must be stored separately. Potential hazards include oxygen displacement, explosions and fires, or toxic effects due to occupational exposure. Additional information may be found in AR 700-68.

E-35. The following controls should be implemented to minimize the potential hazards:

- Color coding and labeling for clear identification of cylinder contents.
- Individual training on proper handling and use.
- Designated cool, dry, well-ventilated, and fire-resistant area storage area.
- Segregation of empty and full cylinders.
- Segregation of incompatible gasses.
- Keep bottles capped when not in use.
- Check regulators for damage before using.
- Ensure regulator valve is in the closed position before installing on bottle.
- Inspect all hoses before use.

LABORATORY CHEMICAL HYGIENE

E-36. The laboratory section officer, or chemical hygiene safety officer, with the ADSO should develop a laboratory safety chemical hygiene plan to protect laboratory workers from harm due to the use of hazardous chemicals such as xylene, alcohol, or formaldehyde solutions.

E-37. The chemical hygiene plan contains policies, procedures and responsibilities for—

- The safe use, storage, and disposal of hazardous chemicals.
- Containment, neutralization, and cleaning of chemical spills.
- Use of appropriate work practices, engineering controls, administrative controls, PPE and respiratory protection as required/recommended.
- Seeking medical attention in the event personnel develop signs or symptoms associated with exposure to a hazardous chemical.
- Meeting hazardous communications requirements.
- Training on the safe use and handling of chemicals, detecting the presence or release of a chemical, and the associated health hazards of the chemicals.

MEDICAL SAFETY

E-38. An effective medical safety management system must go beyond the minimum requirements found in the regulations, codes, and standards. Therefore, the requirements of *Environment of Care Essentials for Healthcare*, published by the Joint Commission, should be implemented when possible.

E-39. Significant safety and health exposures that are unique to MTFs can affect patients and staff with potentially lethal consequences. A collaborative effort from the ADSO, specialty clinic representative, infection control services representative, and supply services representative is required to coordinate the identification and elimination of hazards. Integrate applicable safety procedures on the use, handling, storage, and maintenance of medical gases as provided in AR 700-68. Guidelines for implementing a medical safety program are provided in AR 385-10.

SHARPS SAFETY

E-40. Personnel must be aware of proper storage and disposal of needles and syringes. Used needles, unused needles, and any syringes with attached needles will be disposed of in sharps containers. Created sharps, such as glass shards, should be disposed of in puncture-proof containers.

REGULATED MEDICAL WASTE

E-41. Employment of the hospital center or CSH in CONUS, Alaska, Hawaii, and U.S. territories should adhere to state and local RMW requirements. Employment of hospitals during outside of CONUS deployments should adhere to host nation final governing standards or to DODI 4715.05. See Appendix D of this publication for more information on hospital waste.

REPORTING UNSAFE AND UNHEALTHFUL WORKING CONDITIONS

E-42. All personnel have a responsibility to report unsafe or unhealthy working conditions that they may uncover in their routine activities. The section supervisor and ADSO should ensure notices of a hazardous condition are posted at the location if it cannot be abated within 15 days (for safety violations) or 30 days (for health violations). The section supervisor and ADSO should ensure a hazard abatement plan and a plan for improvement of hazardous conditions that cannot be abated within 15 days (for safety violation) or 30 days (for health violations) is developed and implemented.

ELECTRICAL SAFETY

E-43. Applicable Army, DOD, federal, national, and worldwide electrical safety consensus standards will be appropriately integrated into all Army systems and operations to mitigate risk of electrical related injuries and deaths. More specific electrical safety guidance, procedures, and techniques to protect Army personnel, facilities, and equipment against electrical hazards are addressed in DA Pam 385-26.

E-44. Electrical hazards will be mitigated to the lowest possible risk level in all operations. The section supervisor or ADSO should ensure the following:

- Electrical equipment should be free from recognized hazards and in good working order.

- Listed or labeled equipment should be used or installed in accordance with any instructions included in the listing or labeling.
- Equipment should have sufficient access to permit safe operation and maintenance.
- Electrical service outlets near sources of water are properly grounded.
- Tagout and remove from service all damaged receptacles and portable electrical equipment.

TRAINING REQUIREMENTS

E-45. Commanders are required to complete the commander's safety course. The course provides commanders the tools to manage their unit safety programs effectively and to incorporate risk management into all unit planning and activities.

E-46. Additional duty or collateral duty safety personnel are required to complete an online course, either the additional duty safety course or the collateral duty safety course. These courses focus on safety responsibilities for additional duty and collateral duty safety personnel at various levels of command. These courses establish the Army standard for trained and qualified additional and collateral duty safety personnel. Course completion will also satisfy the requirements for completing a local unit safety officer course.

E-47. Radiation safety officer training and experience must be commensurate with the radiation program for which they will be responsible. The designated radiation safety officer shall receive the appropriate training for a Level II radiation safety officer as referenced in DA Pam 385-24. Infectious agents and toxins safety training for biological workers should be provided according to the requirements in DA Pam 385-69.

E-48. Specialized safety and health training appropriate to the work performed should be provided. Specialized training includes patient lifting, sharps, RMW, chemical hygiene, hazard communication, respiratory protection, PPE, and infection control. The United States Army Combat Readiness Safety Center and Army Public Health Center provide distance learning courses and classroom safety training for trainers.

SAFETY AWARDS PROGRAM

E-49. Safety awards enhance Army operations and improve safety awareness by recognizing and promoting individual and organizational accident prevention measures and successes. Criteria, policies, and procedures for nominating units and individuals for safety awards in this chapter are contained in DA Pam 385-10.

E-50. Army Accident Prevention Award of Accomplishment is an award presented to detachments, company-sized units, battalions or equivalent, brigades or equivalent, and divisions, installations, or activities that have completed 12 consecutive months, or a major training exercise, or an actual deployment of greater than 120 days without experiencing a Class A, Class B, or Class C accident.

E-51. Leaders at all levels should recognize safe performance of individuals and subordinate organizations. Leaders are encouraged to develop awards that are tailored to recognize the accident prevention accomplishments within their sphere of activity, interest, or operation. Leaders may use DA Form 1119-1 (*Certificate of Achievement in Safety*) or are authorized to design and use locally produced certificates or trophies.

Appendix F

Hospitalization Support to Army Strategic Roles

Appendix F discusses potential hospitalization activities in support of the four Army strategic roles, shape, prevent, large-scale combat, and consolidate gains. While these activities may vary in different regions of the world, the descriptions of the activities are intended to be generic and not specific to a particular region or operating environment. Commanders and planners can use this information as a starting point in determining the activities for their specific requirements.

SECTION I — HOSPITALIZATION DURING OPERATIONS TO SHAPE

F-1. The following section provides discussion about hospital activities during operations to shape. Shaping activities are continuous within an AOR and can be used to improve security within partner nations, enhance international legitimacy, gain multinational cooperation, and influence adversary decision making. This cooperation includes information exchange and intelligence sharing, obtaining access for U.S. forces in peacetime and crisis, and mitigating conditions that could lead to a crisis. These activities should also include actions related to training and Soldier readiness.

F-2. During operations to shape, hospitals have the difficult training tasks associated with remaining ready to deploy to a theater of operations. Potentially, the two most difficult areas to remain proficient at are the clinical skills of the medical providers and maintaining the ability to provide medical command and control, especially considering elements that may deploy as a part of a hospital are not organic to the senior mission commander. Hospitals should conduct field training exercises, staff exercises and Role 3 support to combat training centers and require medical providers to attend these events. A large percentage of the providers work at medical treatment facilities in order to remain proficient in their individual skills. The challenge for the operational hospital is to integrate these providers into hospital operations utilizing the equipment and procedures of the hospital which may be different than the installation MTF they are accustomed to working.

F-3. Other operations include supporting Soldier readiness activities, conducting equipment and supply inventories, assessing prepositioned stocks, and planning for and rehearsing limited Role 3 early entry support.

F-4. Hospitals can support ongoing engagements with partner nations to increase those nations' capacities and capabilities to provide medical care. While conducting medical engagements, the hospital staff is gaining a great deal of situational understanding of the medical capabilities and health threats within the operational area, both will be important if a large-scale deployment occurs in the area.

SECTION II — HOSPITALIZATION DURING OPERATIONS TO PREVENT

F-5. The following section provides discussion about hospital activities during operations to prevent. The intent of operations to prevent is to deter adversary actions and stop further deterioration of a particular situation. Prevent activities enable the joint force to gain positions of relative advantage prior to future combat operations. Operations to prevent are characterized by actions to protect friendly forces and indicate the intent to execute subsequent phases of a planned operation. With the shift from shaping to deterrence, the theater army shifts to refining contingency plans.

F-6. During prevent, CSHs and hospital centers continue training all aspects of their required capabilities. Hospital staffs are engaged in mission analysis and coordination with the medical brigade (support) to ensure all aspects of deployment and employment are adequate. Especially key for the hospital is coordinating Army prepositioned stock draws, if applicable, support during reception, staging, onward movement, and

integration activities (to include early entry Role 3), and ensuring the right capabilities are available if a transition to large-scale combat occurs.

F-7. Role 3 hospitals may still be supporting ongoing engagements with partner nations to increase those nations' capacities and capabilities to provide medical care. While conducting medical engagements, the hospital staff is gaining a great deal of situational understanding of the medical capabilities and health threats within the operational area, both will be important if a large-scale deployment occurs in the area.

SECTION III — HOSPITALIZATION DURING LARGE-SCALE COMBAT OPERATIONS

F-8. The following section provides discussion about hospital activities during LSCO. During LSCO against a peer threat, commanders conduct decisive action to seize, retain, and exploit the initiative. This involves the orchestration of many simultaneous unit actions in the most demanding of operational environments. Large-scale combat operations introduce levels of complexity, lethality, ambiguity, and speed to military activities not common in other operations.

F-9. The hospital center and CSH provides Role 3 medical support to a maneuvering division, per rule of allocation. Role 3 hospitals have to remain as flexible as possible. While the hospital center was designed to be flexible and modular, it is still a significant effort to relocate any part or all of the hospital. Commanders and staffs must plan for and maintain situational understanding of possible requirements to relocate Role 3 capabilities. This may include task organizing limited amounts of Role 3 capabilities (such as DCR, DCS, and ICU) and employing it in direct support of a maneuver unit engaged in heavy combat operations. In addition, support may include providing hospitalization to detainees. This will require a significant amount of coordination with the medical brigade (support) and other enabling capabilities such as military police and sustainment units.

F-10. The ability to evacuate patients during LSCO will likely be limited and may only occur during short periods when the operational situation is permissive enough. Therefore, hospitals need to be prepared to provide care for patients for prolonged periods of time, which might be longer than they are comfortable with or longer than the theater evacuation policy normally allows for. Class VIII stocks, bed management, medical regulating, and maximizing return to duty outcomes are just a few key considerations in a prolonged care situation.

F-11. Hospitals support reconstitution by maximizing the return to duty rate within the limits of the theater medical evacuation policy and patient status, as close to the supported unit as possible.

SECTION IV — HOSPITALIZATION DURING OPERATIONS TO CONSOLIDATE GAINS

F-12. The following section provides discussion about hospital activities during operations to consolidate gains. Consolidate gains is an integral part of winning armed conflict and achieving success across the range of military operations. It is essential to retaining the initiative over determined enemies and adversaries. Army forces reinforce and integrate the efforts of all unified action partners when they consolidate gains. Army forces consolidate gains in support of a host nation and its civilian population, or as part of the pacification of a hostile state. These gains may include the establishment of public security temporarily by using the military as a transitional force, the relocation of displaced civilians, reestablishment of law and order, performance of humanitarian assistance, and restoration of key infrastructure.

F-13. Consolidating gains may include many different kinds of ongoing mission support requirements. While some maneuver units may still be engaged in combat operations, others may have transitioned to stability tasks. Hospitals must maintain situational understanding in order to remain flexible and conform to the operational commander's requirements. This will require the hospital to continue to assess running estimates and be prepared to provide all aspects of Role 3 care while reducing capacities in support of redeployment operations and downsizing the footprint in theater (reducing the number of ICU and ICW beds). Additionally, many of the partner engagement activities that occurred in shape and prevent will require

support in consolidate gains. Key to the successful consolidation of gains will be for the host nation to reestablish its own ability to care for its population, which includes a medical system that is self-sufficient.

F-14. If there is to be a continued presence by another hospital, coordination between the outgoing and incoming commands is vital to ensure a smooth hand off and continuity of operations. Coordination should be made between the outgoing and incoming commands to determine if medical assets (personnel, equipment, and supplies) are required to be left behind including planning for disposal of equipment and supplies that cannot be redeployed.

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Glossary

This glossary lists acronyms and terms with Army or joint definitions. Where Army and joint definitions differ, (Army) precedes the definition. Terms for which ATP 4-02.10 is the proponent are marked with an asterisk (*). The proponent publication for other terms is listed in parentheses after the definition.

SECTION I – ACRONYMS AND ABBREVIATIONS

ABCANZ	American, British, Canadian, Australian, and New Zealand (Armies)
ADSO	additional duty safety officer
AHS	Army Health System
AO	area of operations
AOC	area of concentration
AOR	area of responsibility
AR	Army regulation
ATP	Army techniques publication
BCT	brigade combat team
CBRN	chemical, biological, radiological, and nuclear
CFR	Code of Federal Regulations
CMS	central materiel services
CONUS	continental United States
CSH	combat support hospital
CT	computed tomography
DA	Department of the Army
DCR	damage control resuscitation
DCS	damage control surgery
DEPMEDS	Deployable Medical System
DNBI	disease and nonbattle injury
DOD	Department of Defense
EAB	echelons above brigade
EMT	emergency medical treatment
EPW	enemy prisoner of war
FHP	force health protection
FM	field manual
FRSD	forward resuscitative and surgical detachment
FST	forward surgical team
GPW	Geneva Convention Relative to the Treatment of Prisoners of War
GWS	Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field

HHQ	headquarters and headquarters detachment
HM	hazardous materials
HSS	health service support
HW	hazardous waste
ICU	intensive care unit
ICW	intermediate care ward
IM	information management
IT	information technology
JOMIS	Joint Operational Medicine Information Systems
JP	joint publication
LSCO	large-scale combat operations
MASCAL	mass casualty
MC4	medical communications for combat casualty care
MEDCoE	Medical Center of Excellence
MEDLOG	medical logistics
MES	medical equipment set
MOPP	mission-oriented protective posture
MSAT	medical situational awareness in the theater
MTF	medical treatment facility
NATO	North Atlantic Treaty Organization
NCM	nutrition care manual
OR	operating room
OSHA	Occupational Safety and Health Administration
POW	prisoner of war
PPE	personal protective equipment
Rh	rhesus
RMW	regulated medical waste
S-1	personnel staff officer
S-2	intelligence staff officer
S-3	operations staff officer
S-4	logistics staff officer
S-6	signal staff officer
SDS	safety data sheets
STANAG	standardization agreement (NATO)
TMDS	theater medical data store
TCCC	tactical combat casualty care
TMIP-J	theater medical information program-joint
TO&E	table of organization and equipment
U.S.	United States
USAMMA	United States Army Medical Materiel Agency
WIA	wounded in action

SECTION II – TERMS

Army Health System

A component of the Military Health System that is responsible for operational management of the health service support and force health protection missions for training, predeployment, deployment, and postdeployment operations. Army Health System includes all mission support services performed, provided, or arranged by the Army Medicine support health service support and force health protection mission requirements for the Army and as directed, for joint, intergovernmental agencies, coalition, and multinational forces. Also called AHS. (FM 4-02)

casualty

Any person who is lost to the organization by having been declared dead, duty status-whereabouts unknown, missing, ill, or injured. (JP 4-02)

combat and operational stress control

A coordinated program of actions taken by military leadership to prevent, identify, and manage reactions to traumatic events that may affect exposed organizations and individuals during unified land operations. Also called COSC. (FM 4-02)

disease and nonbattle injury

All illnesses and injuries not resulting from hostile action or terrorist activity or caused by conflict. Also called **DNBI**. (JP 4-02)

emergency medical treatment

The immediate application of medical procedures to the wounded, injured, or sick by specially trained medical personnel. (FM 4-02)

essential care

Medical care and treatment within the joint operations area and which is mission, enemy, terrain and weather, troops and support available, time available, and civil considerations-dependent. It includes first responder care, initial resuscitation and stabilization as well as treatment and hospitalization. Forward care may include stabilizing surgery to ensure the patient can tolerate further evacuation as well as en route care during evacuation. The objective is to either return the patient to duty within the theater evacuation policy, or to begin initial treatment required for optimization of outcome. (FM 4-02)

forward resuscitative surgery

Urgent initial surgery required to render a patient transportable for further evacuation to a medical treatment facility staffed and equipped to provide for the patient's care. (FM 4-02)

***inpatient**

A person admitted to and treated within a Role 3 and 4 hospital and who cannot be returned to duty within the same calendar day.

mass casualty

Any large number of casualties produced in a relatively short period of time, usually as the result of a single incident such as a military aircraft accident, hurricane, flood, earthquake, or armed attack that exceeds local logistics support capabilities. (FM 4-02)

medical evacuation

The timely and effective movement of the wounded, injured, or ill to and between medical treatment facilities on dedicated and properly marked medical platforms with en route medical care provided by medical personnel. (ATP 4-02.2)

medical treatment facility

(Joint) A facility established for the purpose of furnishing medical and/or dental care to eligible individuals. (JP 4-02) (Army) Any facility established for the purpose of providing medical treatment. This includes battalion aid stations, Role 2 facilities, dispensaries, clinics, and hospitals. (FM 4-02)

nontransportable patient

A patient whose medical condition is such that he could not survive further evacuation to the rear without surgical intervention to stabilize his medical condition. (ATP 4-02.2)

***outpatient**

A person receiving medical/dental examination and/or treatment from medical personnel and in a status other than being admitted to a hospital. Included in this category is the person who is treated and retained (held) in a medical treatment facility (such as a Role 2 facility) other than a hospital.

patient

A sick, injured or wounded individual who receives medical care or treatment from medically trained personnel. (FM 4-02)

preventive medicine

The anticipation, prediction, identification, prevention, and control of communicable diseases (including vector-, food-, and waterborne diseases), illnesses, injuries, and diseases due to exposure to occupational and environmental threats, including nonbattle injury threats, combat stress responses, and other threats to the health and readiness of military personnel and military units. (ATP 4-02.8)

return to duty

A patient disposition which, after medical evaluation and treatment when necessary, returns a Soldier for duty in his unit. (FM 4-02)

theater evacuation policy

A command decision indicating the length in days of the maximum period of noneffectiveness that patients may be held within the command for treatment, and the medical determination of patients that cannot return to duty status within the period prescribed requiring evacuation by the first available means, provided the travel involved will not aggravate their disabilities or medical condition. (ATP 4-02.2)

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ATP 4-02.10
14 August 2020

By Order of the Secretary of the Army:

JAMES C. MCCONVILLE
General, United States Army
Chief of Staff

Official:

A handwritten signature in black ink, reading "Kathleen S. Miller". The signature is written in a cursive, flowing style.

KATHLEEN S. MILLER
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