TC 8-260

Pharmacy Specialist

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Pharmacy Specialist

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Preface

This training circular, TC 8-260, *Pharmacy Specialist*, presents information that may be used by the pharmacy specialist as a reference for on-the-job training and as a text for any established pharmacy specialist assistant course of formal instruction.

Training circular 8-260 is designed primarily for the military occupational specialty, 68Q, Pharmacy Specialist. Described herein are the technical procedures practiced in the pharmacy department. This training circular emphasizes the pharmacy specialist's duties as they pertain to the many and varied activities of the pharmacy section. Publications cited in the text are listed as references.

Commanders, staffs, and subordinates ensure that their decisions and actions comply with the applicable United States and 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 [FM] 6-27.)

Training Circular 8-260 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. For definitions shown in the text, the term is italicized, and the number of the proponent publication follows the definition. This publication is not the proponent for any Army terms.

This publication applies to the active Army, the Army National Guard (ARNG)/Army National Guard of the United States (ARNGUS), and the United States Army Reserve (USAR) unless otherwise stated.

The proponent of this training circular is the United States Army Training and Doctrine Command. The preparing agency of TC 8-260 is the United States Army Medical Center of Excellence, Directorate of Training and Doctrine, Doctrine Literature Division. Send comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) directly to usarmy.jbsa.medical-coe.mbx.dotd-tngpubs@army.mil or the Commander, United States Army Medical Center of Excellence, ATTN: ATMC-DTC-M, 2377 Greeley Road, Suite B, Joint Base San Antonio-Fort Sam Houston, TX 78234-7731.

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Chapter 1
Introduction

SECTION I – PHARMACY SPECIALIST ROLES AND RESPONSIBILITIES

1-1. This training circular is designed to serve as a reference for the pharmacy specialist working in an operations environment outside of a Defense Health Agency (DHA) medical treatment facility (MTF). The 68Q, Pharmacy Specialist, is a vital member of the healthcare delivery team whose actions contribute to the overall health, welfare, and readiness of the United States (U.S.) military forces.

ROLES

1-2. Pharmacy specialists perform various roles within the pharmacy. Some roles include, but are not limited to—

- Ordering medications.
- Assisting license pharmacists with preparing medications for dispensing.
- Serving as the custodian of controlled substances.
- Assisting with patient triage.
- Fulfilling medic roles in austere environments.

RESPONSIBILITIES

1-3. Pharmacy specialists must possess a knowledge and understanding of drugs and their actions, interactions, and contraindications to their use. They are often called upon to furnish information to other members of the healthcare team and patients concerning the proper use of drugs.

1-4. Pharmacy specialists are responsible for the following:

- Ordering, receiving, and storing supplies and equipment.
- Processing, filling, preparing, and issuing pharmaceutical products.
- Operating and maintaining common pharmaceutical manufacturing and packaging equipment.
- Maintaining logs, records, and reports of controlled, and non-controlled medications.
- Performing other technical procedures that require pharmacy specific job skills and knowledge.

1-5. Pharmacy specialists work under the direct supervision of a licensed pharmacist or dispensing physician and will provide support services to the unit commander and the officer in charge of the pharmacy.

a. The unit commander is responsible for the operation of the pharmacy. He or she exercises careful supervision over all phases of the pharmacy's operations, including employment of recognized professional procedures, and the establishment and aggressive pursuit of policies that ensure conformity with the highest standards of the pharmaceutical profession. The unit commander is assisted in their pharmacy operation responsibilities by the pharmacy staff.

b. The officer in charge (OIC) of the pharmacy must be a commissioned officer who is a graduate of a recognized school or college of pharmacy in the U.S., Puerto Rico, or the District of Columbia, and licensed in the U.S., Puerto Rico, or the District of Columbia.

(1) The OIC is charged with recognizing, identifying, selecting, preparing, safeguarding, testing, evaluating, and dispensing all substances that are used in preventive or curative medicine.

(2) The OIC is responsible for keeping abreast of new developments in the field of pharmacy, and for passing on information about these developments to the professional personnel they serve.

(3) The OIC will carefully screen all personnel assigned to the pharmacy to ensure that only qualified persons are permitted to prepare, compound, or dispense drugs or pharmaceutical preparations.

Note. When a commissioned pharmacist is not assigned to the facility, a Medical Corps officer (a physician) will act in the capacity of a pharmacist.

SECTION II – PHARMACY LAWS

1-6. Laws and regulations pertaining to the dispensing of pharmaceutical preparations have been established by Federal and military authorities. Strict adherence to these laws and regulations protects both the pharmacy and patients.

THE FOOD, DRUG, AND COSMETIC ACT OF 1938

1-7. The Food, Drug, and Cosmetic Act of 1938 established standards for quality and labeling of drug products. A major section of the act pertains to adulterations of drug products. Adulterating a product refers to changing the quality of a product by adding or taking away ingredients. A product is adulterated if it is packaged under unsanitary conditions or has ingredients inaccurately reflected on its labeling.

1-8. Another section of the act concerns misbranding or errors in labeling. Examples of misbranding include labels—

a. That contain false or misleading information.

b. That lack required information, such as the manufacturer's name and address, the name and strength of the drug, and the amount of the drug in the container.

c. On habit-forming drugs that do not clearly indicate that the drug is habit-forming.

Note. The Food, Drug, and Cosmetic Act of 1938 also requires that all drugs must be tested, proven safe, and approved by the U.S. Food and Drug Administration (FDA) before they are marketed.

THE DURHAM-HUMPHREY AMENDMENT

1-9. The Durham-Humphrey Amendment was added to the Food, Drug, and Cosmetic Act in 1951, and mandates that medications be divided into two basic categories: legend drugs (or prescription) and over the counter (OTC) drugs.

a. Legend drugs can only be obtained legally by prescription. It is against the law to give legend drugs to persons who do not have a valid prescription. These drugs must have the following statement printed on their labels: "Caution: Federal law prohibits dispensing without a prescription."

b. OTC drugs can be legally obtained without a prescription. Generally, OTC drugs are considered safe for use without direct medical supervision.

THE KEFAUVER-HARRIS AMENDMENT

1-10. The Kefauver-Harris Amendment was added to the Food, Drug, and Cosmetic Act in 1962 and includes provisions that govern the reporting of adverse drug reactions and the testing of investigational drugs. The Kefauver-Harris Amendment—

a. Established good manufacturing practices by the drug industry.

b. Granted the FDA greater powers to access company production and control records to verify those practices.(Part III: Drugs and Foods Under the 1938 Act and Its Amendments, FDA 2018)

c. Instituted stricter agency control over drug trials (including a requirement that patients involved must give their informed consent).

d. Mandated efficacy as well as safety before a drug could be marketed.

e. Required the FDA to assess the efficacy of all drugs introduced since 1938.

f. Transferred regulation of prescription drug advertising from the Federal Trade Commission to the FDA.

1-11. An investigational drug is a new drug that has not yet been approved by the FDA as a safe and effective drug for general use by the public. An investigational drug will NOT be used without the prior written approval of The Surgeon General of the Army. (Refer to Army regulation [AR] 40-7 for specific information about investigational drugs.)

Note. The Army requires adverse drug reactions to be reported using the guidelines in AR 40-3.

THE CONTROLLED SUBSTANCES ACT

1-12. The Controlled Substances Act regulates the acquisition, distribution, classification, and record keeping for certain drugs that have been identified to have abuse or dependence potential. Controlled substances are classified into five schedules according to their abuse potential.

a. Schedule I: Drugs in this schedule are illegal and have no accepted medical use in the U.S. Examples of drugs in this schedule include heroin, marijuana, and lysergic acid diethylamide (commonly known as LSD).

b. Schedule II: Drugs in this schedule have a high abuse potential with severe psychic or physical dependence liability. This includes both narcotic and non-narcotic substances. Examples of drugs in this schedule include cocaine, dextroamphetamine, morphine, and oxycodone.

c. Schedule III: Drugs in this schedule have an abuse potential less than those in Schedules I and II. This schedule includes both narcotic and non-narcotic substances. Examples of drugs in this schedule include buprenorphine and ketamine.

d. Schedule IV: Drugs in this schedule have an abuse potential less than those in Schedule III. Examples of drugs in this schedule include alprazolam, tramadol, and zolpidem.

e. Schedule V: Drugs in this schedule have the lowest potential for abuse according to the Drug Enforcement Administration (known as DEA). An example of a drug in this schedule is a cough preparation containing less than or equal to 200 milligrams of codeine per 100 milliliters or per 100 grams.

1-13. The U.S. further classifies controlled substances as Note Q or Note R. These categories are assigned to all controlled substances to identify specific storage and handling requirements as outlined in the Federal Supply Catalog.

- Note Q substances are those items classified as either Schedule III, IV, or V in the Controlled Substances Act.
- Note R substances are alcohol, alcoholic beverages, precious metals, and drugs classified as Schedule II substances in the Controlled Substances Act.

Note. Detailed information regarding the management of controlled substances can be found in AR 40-3.

THE POISON PREVENTION PACKAGING ACT OF 1970

1-14. The Poison Prevention Act mandates certain products that are found to be hazardous or potentially hazardous must be sold or dispensed in safety packages, and requires that prescriptions filled in the pharmacy, except for prescriptions issued to hospitalized patients, be dispensed in child-resistant containers.

1-15. The prescribing physician or patient may request prescription medicines to be dispensed in non-child resistant packaging. Local pharmacy standard operating procedure may dictate whether a written statement or other documentation is required from the physician or patient before providing non-child-resistant packaging.

THE OMNIBUS BUDGET RECONCILIATION ACT OF 1990

1-16. The Omnibus Budget Reconciliation Act of 1990 (known as OBRA 90) originally mandated patient counseling, prospective drug utilization review, and record keeping only for Medicaid patients; however, the requirements have been extended to apply to both Medicaid and non-Medicaid beneficiaries.

1-17. The Omnibus Budget Reconciliation Act of 1990 requires pharmacies to perform the following functions:

- Maintain patient medication profiles.
- Offer medication counseling for all new prescriptions.
- Screen prescriptions for potential interactions, contraindications, duplication, and dosages.

HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT

1-18. The Health Insurance Portability and Accountability Act (HIPAA) establishes national standards to safeguard an individual's medical records and other personal health information. The HIPAA requires healthcare entities, including individuals who work for healthcare organizations, to follow rules that protect the privacy and security of sensitive patient health information.

1-19. Employees of healthcare organizations may be disciplined and fined for violating HIPAA rules. Some examples of HIPAA violations include:

- Accessing protected health information without a need to know.
- Sharing protected health information with unauthorized individuals outside the organization.
- Talking about protected health information (known as PHI) in public spaces.

THE RESOURCE CONSERVATIONS AND RECOVERY ACT

1-20. The Resource Conservations and Recovery Act (known as RCRA) is an amendment to the Solid Waste Disposal Act that addresses the huge volumes of municipal and industrial solid waste. It consists of multiple subtitles that address the following:

- Conserve energy and natural resources.
- Ensure wastes are managed in an environmentally sound manner.
- Protect human health and the environment from the potential hazards of waste disposal.
- Reduce the amount of waste generated.

1-21. Subtitle C of the Resource Conservations and Recovery Act establishes a federal program to manage hazardous waste from beginning to end and ensures it is handled in a manner that protects human health and the environment. To meet federal program goals, the U.S. Environmental Protection Agency (known as EPA) developed regulations for the generation, transportation, treatment, storage, and disposal of hazardous waste.

1-22. The regulatory criteria for hazardous waste are based on toxicity, corrosivity, ignitability, and reactivity. Certain pharmaceuticals meet the same regulatory criteria as hazardous waste and are regulated by the Resource Conservations and Recovery Act when discarded.

FOOD AND DRUG ADMINISTRATION

1-23. In accordance with 21 CFR 310.501 and 21 CFR 310.515, the FDA requires Patient Package Inserts to be dispensed with all prescriptions for oral contraceptives and estrogen-containing products. Patient Package Inserts are voluntary for other prescription drug products.

1-24. The FDA requires a Medication Guide (a type of labeling for patients and caregivers) to be dispensed with certain prescription medications to ensure the patient's safe and effective use of the medications. The Medication Guides provide specific information on medications and are meant to help patients avoid potentially serious adverse effects of the medications.

Note. An updated list of prescription medications that require Medication Guides can be found on the FDA website (click the Drug Approvals and Databases link).

SECTION III – PHARMACEUTICAL CALCULATIONS

1-25. Performing accurate math calculations is an essential skill and tool for pharmacy specialists. The most important and basic study for pharmacy specialists is the arithmetic pertinent to prescriptions. Without a complete understanding of pharmacy mathematics, pharmacy specialists will be unable to manufacture many of the prescriptions and compounds they may be called upon to dispense.

GENERAL

1-26. Pharmacy specialists can work in many different locations, from Army hospitals and health clinics to improvised settings in a deployed environment. Different situations can change the pharmacy specialist's level of responsibility. Deployment and troop movement are two such situations. In these instances, the pharmacist will rely more on the pharmacy specialist's pharmaceutical preparation expertise.

1-27. There will be situations when the pharmacist will rely on the pharmacy specialist to perform tasks like calculating conversions of drug strengths, compounding sterile and non-sterile preparations, and performing weight conversions and alligations (medial and alternate). Knowing how to quickly respond to pharmacy calculation questions is a mission essential skill the pharmacy specialist must possess.

CALCULATION METHODS

1-28. Pharmacy personnel will frequently be required to calculate medication doses. They must use mathematical problem-solving skills to accurately calculate medication doses. The common methods used by pharmacy personnel to calculate medication doses include:

- Alligations: Using a stronger strength and a weaker strength of a medication to create a new strength.
- Percent volume in volume (%V/V): Mixing two liquids.
- Percent weight in volume (%W/V): Mixing a solid and a liquid.
- Percent weight in weight (%W/W): Mixing two solids.
- Stock solution dilution: Using a stock solution to create smaller doses.
- Weight-based dosing: Calculating a dose based on a patient's weight.

ALLIGATIONS

1-29. The alligations method is used to determine the quantities of ingredients of differing strengths needed to make a mixture of a desired strength. This method involves finding the average concentration of a mixture, given the concentration and quantity of its components.

PERCENT VOLUME IN VOLUME

1-30. The percent volume in volume (expressed as % V/V) method expresses the concentration of a substance in a solution. The percent volume in volume is calculated by dividing the volume of solute by the total volume of the solution, then multiplying the result by 100.

PERCENT WEIGHT IN VOLUME

1-31. The percent weight in volume (expressed as % W/V) method expresses the number of grams of an ingredient in 100 milliliters (mL) of liquid. The percent weight in volume is calculated by dividing the mass of the solute by the mass of the solution, then multiplying the result by 100.

PERCENT WEIGHT IN WEIGHT

1-32. The percent weight in weight (expressed as % W/W) method expresses the concentration of a solute in a solution. The percent weight in weight is calculated by dividing the mass of solute by the solution, then multiplying the result by 100.

STOCK SOLUTION DILUTION

1-33. Stock solution dilution is the process of reducing a stock concentrate (a solution of known, accurate concentration) to a lower concentration. Pharmacy personnel can prepare concentrated solutions and properly store them or prepare them at the time of use.

WEIGHT-BASED DOSING

1-34. Weight-based dosing utilizes the patient's body weight (in kilograms [kg]) to determine a specific medication dose for the patient. The weight-based dose is calculated by multiplying the medication dose by the patient's weight (in kg), then dividing the result by the number of times the patient will take the medication in the day.

Note. Sample scenarios and solutions for each mathematical problem-solving method can be found in appendix A.

BASIC CONVERSION

1-35. Pharmacy specialists must, at a minimum, be familiar with, and be able to perform basic pharmaceutical conversions (see table 1-1). No matter which method is required to solve the mathematical problems for accurately calculating medications, the pharmacy specialist must be able to convert the results when necessary.

Table 1-1. Basic conversion chart

Common Pharmacy Conversions	
1 milligram (mg)	1000 micrograms (mcg)
1 gram (gm)	1000 milligrams (mg)
1 kilogram (kg)	1000 grams (gm)
1 kilogram (kg)	2.2 pounds (lbs.)
1 liter (L)	1000 milliliters (mL)
1 drop (gtt)	20 milliliters (mL)
5 milliters (mL)	1 teaspoonful (tsp)
15 milliliters (mL)	1 tablespoon (tbsp)
30 milliliters (mL)	1 fluid ounce (fl oz)
8 fluid ounces (fl oz)	1 cup

Chapter 2
Pharmacy Field Operations

SECTION I – PHARMACY STRUCTURE AND PERSONNEL

2-1. The organizational structure for pharmacy services, and the roles and responsibilities of pharmacy personnel during field operations differ from those in garrison. The brigade commander is responsible for the operation of pharmacy services and will achieve operational oversight through subordinate commanders and directly by use of staff officers (Chief of Pharmacy Services). Pharmacy services personnel include, the Chief of Pharmacy Services, the Noncommissioned Officer in Charge (known as NCOIC) of Pharmacy, and pharmacy specialists and staff.

PHARMACY SERVICES

2-2. Pharmacists and pharmacy specialists assigned to modified table of organization and equipment (MTOE) units are responsible for pharmacy services. Pharmacy services include—

- Bulk drug order filling.
- Clinic inspections.
- Drug information and therapeutic consultations.
- Emergency medication cart (known as crash cart) sustainment.
- Inpatient medication dispensing.
- Outpatient medication dispensing.
- Sterile product service.
- Temperature sensitive medical product (TSMP) management and oversight for medications.

2-3. According to AR 40-3, the following personnel are authorized to write prescriptions:

a. Uniformed and civilian personnel engaged in professional practice at uniformed Services MTFs to include—

- Dentists.
- Physicians.
- Podiatrists.
- Veterinarians.

b. Civilian personnel not assigned to a uniformed Services MTF but licensed in the jurisdiction of their practice and treating personnel eligible for care in the Military Health System to include—

- Dentists.
- Physicians.
- Podiatrists.

2-4. According to AR 40-68, the following personnel are authorized to write prescriptions:

a. Uniformed and civilian personnel engaged in professional practice at uniformed Services MTFs and privileged to prescribe medications to include—

- Certified Nurse Midwives.
- Certified Registered Nurse Anesthetists.
- Clinical Pharmacists.
- Nurse Practitioners.
- Occupational Therapists.
- Optometrists.
- Physician Assistants.

- Physical Therapists.

b. Civilian personnel not assigned to a uniformed Services MTF but licensed in the jurisdiction of their practice and treating personnel eligible for care in the Military Health System will prescribe to the extent authorized by State law and by policies for equivalent staff and non-physician healthcare providers.

Note. All personnel authorized by the commander to write prescriptions must be documented on a locally approved signature card. The locally approved signature card must be maintained by the pharmacy and used to verify signatures of authorized personnel.

CHIEF OF PHARMACY SERVICES

2-5. The Chief of Pharmacy Services will be a graduate of a recognized school or college of pharmacy and be licensed to practice in one of the states of the U.S., Puerto Rico, or District of Columbia. The Chief of Pharmacy Services is responsible for the development and supervision of a comprehensive pharmacy program required to meet the needs of pharmacy services within MTOE units. In addition, the Chief of Pharmacy's responsibilities include but are not limited to the following:

- Conduct technical and professional training for pharmacy and other hospital personnel, as required per unit guidelines.
- Deployment, establishment, and provision of pharmacy services in an austere or tactical environment.
- Maintenance of the pharmacy formulary.
- Management and filing of all forms and records.
- Management of pharmacy manpower resources.
- Oversee and support the pharmacy noncommissioned officer in charge with the pharmacy training program.
- Oversee maintenance of property accountability.
- Oversight of safety, security, and physical security protocols of the pharmacy.
- Provide drug information, and controlled substance accountability and monitoring.
- Provide pharmacy services to assigned units (outpatient, inpatient, pharmaceutical supply distribution).
- Review and analyze work methods, pharmacy systems, and field standing operating procedures.

Note. According to AR 40-3, if a Pharmacy Officer (67E) or civilian pharmacist is unavailable to oversee the pharmacy operation, the hospital commander will appoint a Medical Corps physician as OIC when no pharmacist is on duty at the facility.

PHARMACY NONCOMMISSIONED OFFICER IN CHARGE

2-6. The pharmacy noncommissioned officer in charge supports the Chief of Pharmacy or pharmacy OIC and is responsible for managing pharmacy daily operations. The pharmacy noncommissioned officer in charge duties include but are not limited to:

- Conduct technical and professional training for pharmacy and other hospital personnel, as required per unit guidelines.
- Deployment, establishment, and provision of pharmacy services in an austere or tactical environment.
- Ensure proper equipment maintenance and property accountability.
- Ensure the safety and security of the staff by enforcing physical security protocols of the pharmacy.
- Manage and ensures compliance with the pharmacy training program.

- Manage the proper monitoring, security, and accountability of controlled substances.
- Management and filing of all forms and records.
- Management of pharmacy manpower resources.
- Provide pharmacy services to assigned units (outpatient, inpatient, pharmaceutical supply distribution).
- Review and analyze work methods, pharmacy systems and field standing operating procedures.
- Supervise supply acquisition through approved supply distribution channels and exercise proper supply discipline.

PHARMACY SPECIALISTS AND STAFF

2-7. The pharmacy specialist must be a graduate of the United States Army Medical Center of Excellence (known as MEDCoE) Pharmacy Specialist Program to obtain the 68Q military occupation specialty (known as MOS). Pharmacy specialists and staff will be responsible for the safeguarding and proper management of all medications within MTOE units. The responsibilities of pharmacy specialists and staff shall include but are not limited to the following:

- Assist in development of a comprehensive pharmacy program, as required to meet the needs of pharmacy services within MTOE units.
- Assist in managing and filing of all forms and records required for pharmaceutical services.
- Assist in reviewing and analyze work methods, pharmacy systems and field standing operating procedures.
- Assist with maintenance of the pharmacy formulary.
- Conduct technical and professional training for pharmacy and other hospital personnel, as required per unit guidelines.
- Controlled substance accountability and monitoring.
- Deployment, establishment, and provision of pharmacy services in an austere or tactical environment.
- Ensure all safety, security and physical security protocols are met within pharmacy services.
- Maintain property accountability.
- Provide pharmacy services to MTOE units (outpatient, inpatient, pharmaceutical supply distribution).
- Provide required drug information involved with pharmacy services.
- Support the pharmacy noncommissioned officer in charge with the pharmacy training program.

SECTION II – FIELD OPERATIONS

2-8. This section provides the pharmacy specialist with information for basic pharmacy field operations and procedures within a field hospital, brigade medical supply office (BMSO), multifunctional medical battalion, and medical company area support. This information will help establish policies and procedures for operations of pharmacy services within each of these MTOE units and the use of drugs in a manner consistent with federal laws, Army Regulations, and local policies.

2-9. This guidance is applicable to all pharmacy services within MTOE units. All pharmacy service sections within MTOE units provide complete pharmaceutical services within the operating scope of Role 1-3 medical capabilities. This guidance will ensure that each operating medical activity can provide Level 1-3 care to a variety of deliberate and crisis response operation plans across the spectrum of operation per AR 40-3 and AR 40-7.

2-10. The approved medication drug list for pharmacy services in an operational unit will be established based on the mission. The operational unit adheres to the Joint Deployment Formulary. The Joint Deployment Formulary provides a baseline list of pharmaceutical items needed for the first initial 30 days of an operation. Pharmacy services within the unit can add to the formulary to meet unit needs. Refer to the Medical Material Information Portal website for the unit catalog and items within medical equipment sets designated to MTOE units.

DRUGS

2-11. A drug is defined by the Federal Food, Drug and Cosmetic Act as any item that is recognized by the official compendia (the official U.S. Pharmacopoeia [known as USP], official Homeopathic Pharmacopoeia of the U.S., official National Formulary, or any supplement to any of them), intended for the use in the cure, diagnosis, mitigation, or treatment of man or other animal, or an item that is intended to affect the structure of any function of the human body or other animal. Drugs are categorized as prescription and non-prescription OTC drugs.

Note. The terms drug and medication are used interchangeably in this publication.

a. Prescription drugs, as defined by the Durham-Humphrey Amendment to the Federal Food, Drug and Cosmetic Act, are habit-forming or potentially harmful drugs that must be dispensed under the supervision a health practitioner and must contain the label, “Caution: Federal Law Prohibits Dispensing Without a Prescription.”

b. Non-prescription or OTC drugs, as defined by the Durham-Humphrey Amendment to the Federal Food, Drug and Cosmetic Act, are defined as those drug preparations that are not restricted under the label, “Caution: Federal Law Prohibits Dispensing Without a Prescription.”

CONTROLLED SUBSTANCES

2-12. Controlled substances are defined by the Controlled Substances Act which is the common name of Title II of the Comprehensive Drug Abuse Prevention and Control Act of 1970.The Controlled Substances Act classifies all substances regulated under existing federal law into five schedules, Schedules I, II, III, IV, and V, according to their abuse potential and psychological effects.

- Schedule I drugs have no accepted medical use in the U.S. Examples of drugs under these schedules are heroin, marijuana, lysergic acid diethylamide, phencyclidine (commonly known as PCP).
- Schedule II drugs, also known within the Army as NOTE R items, have a high abuse potential with severe physical and or psychological dependence liability.
- Schedule III, IV, and V drugs, also known within the Army as NOTE Q items, have an abuse potential less than those in Schedule I or II.

Note. According to AR 40-3, the hospital commander has the authority to classify non-controlled substances as controlled substances. All controlled substances must be documented on Department of the Army (DA) Form 3862 (*Controlled Substance Stock Record*) or in an approved and validated automation system.

DISPENSING DRUGS

2-13. Drugs will be issued by a pharmacist or pharmacy specialist under the supervision of a pharmacist to a patient following the presentation of a properly written prescription or medication order; or issues of bulk medications to authorized patient care areas within the MTOE unit. If a pharmacist is not present to review pharmacy technician dispensing, the unit dentist, authorized provider, or brigade nurse will review and supervise drug dispensing.

2-14. Drugs will be administered by nursing or other authorized personnel. Drug administration consists of the removal or withdrawal of a single dose of a drug from its immediate container and administration to a patient on

the order of a physician, dentist, physician's assistant (known as PA), nurse practitioner (known as NP) or any other authorized prescriber.

SECTION III – PATIENT SERVICES AND MEDICATION ORDERS

2-15. Performing patient services and filling medication orders is an intricate function of pharmacy services. This section provides information on how pharmacy services accomplish these roles.

INPATIENT PHARMACY SERVICES

2-16. Inpatient pharmacy services will conduct new patient administration orders, pharmacy patient list, automatic stop orders, unit dose medication orders, and sterile product orders. Not all services will be applicable for all MTOE units.

NEW PATIENT ORDERS

2-17. Upon admission of a new patient to the hospital, nursing personnel assigned to the ward or unit on which the patient is admitted, will ensure the patient is registered. Once the patient is registered, the nursing personnel will notify the pharmacy of a new admission. Medication orders will be looked up on the Theater Medical Information Program Composite Health Care System Cache (TC2).

2-18. If the TC2 is non-operational, Department of Defense (DD when used in front of form number) Form 1289 (*Prescription Form*) will be used and placed in the pharmacy pick up box. In addition to the patient identifiers, the DD Form 1289 must have the patient's full name, Department of Defense Identification (known as DODID) number, and the ward or unit written on the form.

Note. Instructions for obtaining DD Form 1289, a controlled form, can be found on the Department of Defense (DOD), DOD Forms Management Program website.

PHARMACY PATIENT LIST

2-19. All inpatient patients receiving medications from the pharmacy must be tracked on a patient list via a manual card file or a computer database. The patient list will be updated daily to reflect the most current inpatient census. All discharged patient files will be collected and destroyed per local policy.

AUTOMATIC STOP ORDERS

2-20. All inpatient orders will have a 72-hour automatic stop order. The provider will be required to reevaluate the patient for continuation of medications. If continuation is required for medications, the provider will reinitiate a new medication order.

UNIT DOSE MEDICATION ORDERS

2-21. All inpatient unit dose (known as UD) medications will be ordered through TC2 or using DD Form 1289 if TC2 is not available. The pink copy (pharmacy copy) must be delivered to the pharmacy. Medical staff will indicate all urgent orders. All unit dose medication orders must be completed with the—

- Administration times.
- Date.
- Dosage.
- Duration.
- Medication.
- Patient's name.
- Patient's ward or unit.
- Route of administration.
- Schedule type.

- Signature of ordering provider.

2-22. All medication prepacked in unit dose will have a proper label attached before being dispensed to the wards or units. The label for tablets and capsules administered by mouth (orally) should include the—

- Expiration date (maximum of six months).
- Lot Number.
- Manufacturer.
- Nonproprietary name.
- Repackaged unit dose tablet or capsule label.
- Strength.

STERILE PRODUCT ORDERS

2-23. All inpatient sterile product medications will be ordered through TC2 or using DD Form 1289 if TC2 is not available. The pink copy (pharmacy copy) of DD Form 1289 must be delivered to the pharmacy by nursing personnel. The minimum labeling requirements for sterile products include the—

- Date, time, and rate of administration.
- Expiration time and date of the prepared solution.
- Initials of individual who prepared admixture.
- Name and amount of additive drugs.
- Name of basic solution and quantity.
- Name of facility.
- Name of provider.
- Order number.
- Patients name and location.
- Supplement instructions.

Note. The pharmacist or designated OIC is responsible for ensuring all orders are accurate when received, and properly entered to the computer database or manual patient profile.

OUTPATIENT PHARMACY SERVICES

2-24. Outpatient pharmacy services are conducted by pharmacy personnel. Prescribed medication meant to be dispensed to patients will be issued by authorized pharmacy personnel and documented on a DD Form 1289. Pharmacy personnel must review information recorded on the DD Form 1289 and ensure it has all the proper patient identifiers to include the—

- Date.
- Drug—
  - Dosage.
  - Name.
  - Quantity.
  - Refills if necessary.
  - Route.
  - Strength.
- Known allergies.
- Prescriber’s signature.

2-25. Once the correct information on the DD Form 1289 is verified the pharmacy personnel will prepare the medication, which must be checked by the pharmacist and then dispensed to patient. Controlled medications will not be documented on the same DD Form 1289 as non-controlled medications. They will be documented on a separate DD Form 1289 with all the proper patient identifiers (see paragraph 2-23).

SECTION IV – WARD AND CLINIC BULK DRUG ORDERS

2-26. Wards, units, and clinics will order medications from pharmacy services. This will help mitigate fraud, waste, and abuse within the organization. All wards, units, and clinics will follow the guidelines provided in this section. Drug orders such as fluids (for example, lactated ringers and sodium chloride) and other items carried by the Medical Supply Section will be requested through medical supply.

REQUESTS

2-27. Bulk drug order (BDO) requests are submitted through TC2. When TC2 is not available DA Form 3875 (*Bulk Drug Order*) is used to request BDOs (see figure 2-1). Each ward or unit is responsible for submitting BDOs for their unit.

BULK DRUG ORDER

Not to be used for controlled substances, or any other stock record item, or for individual prescriptions. Submit in duplicate to Pharmacy, duplicate copy will be returned with drugs to using agency.

DATE: 20230331 | PAGE NUMBER: 1 | NUMBER OF PAGES: 1

TO: PHARMACY SERVICE

FROM (Ward, Clinic, or Department): Ward 7A

	ITEM	UNIT	NO. OF UNITS	PHARMACY ACTION
1	Lidocaine 1% with 1:100,000 Epinephrine	Vl	3	3
2	Histapan Caps 8mg #30	Bt	1	DNS
3	Garamycin Inj 40 mg/cc	Vl	2	TOS
4	Keflex Caps 250mg #100	Bt	4	2
5	Belladonna Alkaloid with Phenobarbital #20	Bt	1	1
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

SIGNATURE: Rulla Coons, CPT, ANC

FOR PHARMACY USE ONLY (Total Work Units): 6 RRA

SAMPLE

DA FORM 3875, NOV 2014 — Replaces previous editions, but continue to use the printed version of DA Form 3875, June 1972, until exhausted. — APD LC v1.00

For use of this form, see AR 40-3; the proponent agency is Office of The Surgeon General.

Figure 2-1. Sample DA Form 3875

2-28. When submitting BDO requests, through TC2 or utilizing DA Form 3875—

a. The ward, unit, or clinic must indicate the requested amount of each medication. The amount ordered should not result in the ward, unit, or clinic exceeding a 3-day supply on hand at any time. Exceptions may be granted due to mission requirements.

b. The pharmacy personnel will indicate the units provided in the Pharmacy Action column.

- The abbreviation DNS (Do Not Stock) will be used in the Pharmacy Action column for items not carried by the pharmacy.
- The abbreviation TOS (Temporarily Out of Stock) will be used in the Pharmacy Action column for items that are temporarily out of stock.

Note. Emergency BDO's will be filled on a case-by-case basis.

2-29. Controlled substances will be ordered utilizing DD Form 1289 or DA Form 3161 (*Request for Issue or Turn-in*). (See figure 2-2.) All BDO's must be submitted to pharmacy services no later than 1500 hours the day prior to the desired day of use.

REQUEST FOR ISSUE OR TURN-IN
For use of this form, see DA PAM 710-2-1; the proponent agency is G-4.

ISSUE ☒ TURN-IN ☐ | SHEET NO. 1 | NO. SHEETS | 1. REQUEST NO. | 2. VOUCHER NO.

3. SEND TO:	4. DATE MATERIAL REQUIRED (YYYYMMDD)	5. DODAAC	6. PRIORITY	7. ACCOUNTING/FUNDING DATA
1 BCT, BMSO	20230930	W91KVT	12	

8. REQUEST FROM:	9. END ITEM IDENT	9a. NAME/MANUFACTURER	9b. MODEL	9c. SERIAL NO.
1/327	Controlled Substances			

* CODE — ISSUE: I-Initial, R-Replacement; TURN-IN: FWT-Fair Wear And Tear, RS-Report of Survey, EX-Excess, SC-Stmt of Charges, LT-Lateral Transfer

10. PUBLICATION | 11. JOB ORDER NO.

12. ITEM NO. a	STOCK NO. b	ITEM DESCRIPTION. c	UNIT OF ISSUE d	QUANTITY e	CODE* f	SUPPLY ACTION g	UNIT PRICE h	TOTAL COST i	j. POSTED DATE (YYYYMMDD)	j. POSTED BY
1	F00074909335	FENTANYL 0.05MG	PG	1						
2	F00024542131	ZOLPIDEM 10MG	BT	3						
----------	---------- NOTHING	FOLLOWS----------								
							SHEET TOTAL		GRAND TOTAL	

13. ISSUE/TURN-IN "QUANTITY" COLUMN IS REQUESTED	DATE (YYYYMMDD)	BY	14. ISSUE QTY IN "SUPPLY ACTION" COLUMN	DATE (YYYYMMDD)	BY	15. REC QTY IN "SUPPLY ACTION" COLUMN	DATE (YYYYMMDD)	BY

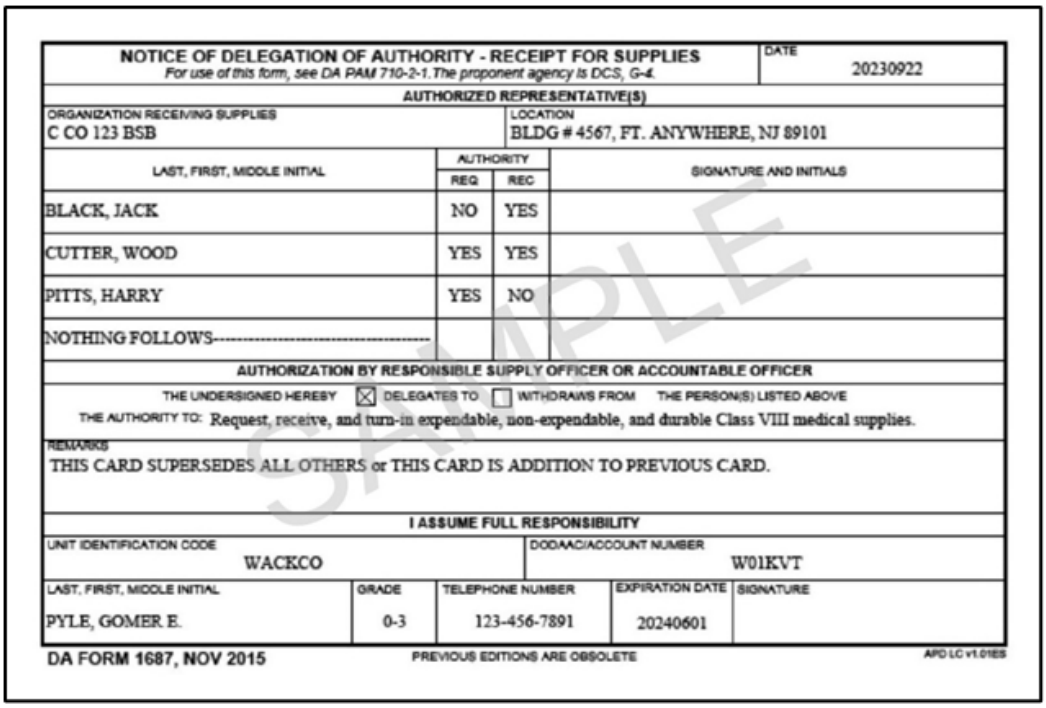
DA FORM 3161, DEC 2017 — PREVIOUS EDITION IS OBSOLETE. — APD AEM v1.02ES

SAMPLE

Figure 2-2. Sample DA Form 3161

PICKUP, DELIVERY, AND QUALITY CONTROL

2-30. The ward, unit, or clinic OIC will determine which assigned personnel are authorized to pick up BDOs. The authorized individuals must be documented on DA Form 1687 (*Notice of Delegation of Authority – Receipt for Supplies*) (see figure 2-3, on page 2-9). No more than four personnel will be authorized to pick up BDOs for each area to which they are assigned.



NOTICE OF DELEGATION OF AUTHORITY - RECEIPT FOR SUPPLIES
For use of this form, see DA PAM 710-2-1.The proponent agency is DCS, G-4.

DATE: 20230922

AUTHORIZED REPRESENTATIVE(S)

ORGANIZATION RECEIVING SUPPLIES: C CO 123 BSB
LOCATION: BLDG # 4567, FT. ANYWHERE, NJ 89101

LAST, FIRST, MIDDLE INITIAL	AUTHORITY REQ	AUTHORITY REC	SIGNATURE AND INITIALS
BLACK, JACK	NO	YES	
CUTTER, WOOD	YES	YES	
PITTS, HARRY	YES	NO	
NOTHING FOLLOWS----------			

AUTHORIZATION BY RESPONSIBLE SUPPLY OFFICER OR ACCOUNTABLE OFFICER

THE UNDERSIGNED HEREBY ☒ DELEGATES TO ☐ WITHDRAWS FROM THE PERSON(S) LISTED ABOVE
THE AUTHORITY TO: Request, receive, and turn-in expendable, non-expendable, and durable Class VIII medical supplies.

REMARKS
THIS CARD SUPERSEDES ALL OTHERS or THIS CARD IS ADDITION TO PREVIOUS CARD.

I ASSUME FULL RESPONSIBILITY

UNIT IDENTIFICATION CODE: WACKCO
DODAAC/ACCOUNT NUMBER: W01KVT

LAST, FIRST, MIDDLE INITIAL	GRADE	TELEPHONE NUMBER	EXPIRATION DATE	SIGNATURE
PYLE, GOMER E.	0-3	123-456-7891	20240601	

DA FORM 1687, NOV 2015 — PREVIOUS EDITIONS ARE OBSOLETE — APD LC v1.01ES

SAMPLE

Figure 2-3. Sample DA Form 1687

2-31. Pharmacy personnel will deliver BDOs daily. Pickup and delivery times are dependent upon the pharmacy service guidelines and battle rhythm.

2-32. Pharmacy services is responsible for quality control and monitoring supply levels of medications. Pharmacy services will—

- Ensure that all completed BDOs are verified by a pharmacy specialist and the ward or clinic representative and sign the face of the BDO.
- Ensure that all drugs dispensed are within their labeled expiration date.
- Establish authorized stock lists and periodic automatic restock (known as PAR) levels for each unit requesting ward stock.

SECTION V – EMERGENCY MEDICATION CARTS AND KITS

2-33. This section describes pharmacy service, ward, unit, and clinic roles and responsibilities for managing emergency medication carts and kits (used for advanced cardiac life support and mass casualty events, and expectant patients). These roles and responsibilities include, stocking medications, and inspecting and sealing the emergency medication carts and kits.

2-34. Emergency medication carts (commonly known as crash carts and advanced cardiac life support [ACLS] carts), and emergency medication kits are carts and kits that contain specific medications used to provide emergency care to a patient who is experiencing a cardiac event that is an immediate threat to their life, a mass casualty (known as MASCAL) event, or a patient who is in the expectant category. These carts and kits are stored or kept in a specific location on the ward, unit, or clinic and should only be used for the event for which they are prepared.

SETUP

2-35. All emergency medications will be placed in drawers or trays in the emergency cart. The drawers or trays containing the medication must me sealed to prevent tampering. A copy of the approved stock list label must be affixed to the top of each drawer or tray. The approved stock list label must include the—

- Date the drawer or tray was checked.
- Initials of the individual who checked the drawer or tray.
- List of next expiring medication(s).

Note. The emergency medication cart or kit must be secured and stored in a designated area to prevent tampering.

2-36. Backup emergency medication cart drawers or trays are available in the pharmacy. The ward, unit, or clinic must immediately exchange the emergency cart or kit at the pharmacy if the seal is broken, or the medications have been used or are expired.

2-37. If an emergency cart medication has been opened or is expired and the pharmacy doesn't have a replacement available, the pharmacy will identify the medication with a label indicating that no other medication is available. The medication will be replaced immediately as it becomes available from Pharmacy Supply.

STOCKING

2-38. Pharmacy services is responsible for ensuring that all medications in the emergency cart, advanced cardiac life support cart or kit, and mass casualty expectant kits are in adequate quantities and have not reached their expiration date (see appendix B). Pharmacy services is also responsible for—

- Replacing expired medications.
- Replenishing medications used during an emergency event.
- Sealing the emergency medication within the carts and kits.

2-39. Ward, unit, or clinic personnel are responsible for notifying pharmacy services whenever cart and kit medications expire and whenever the cart seal is broken. Ward, unit, or clinic personnel must be familiar with the local policy for notifying pharmacy services about emergency cart matters.

INSPECTIONS

2-40. Emergency medication carts or kits located in the designated unit will be inspected by pharmacy personnel, monthly. During the inspection pharmacy personnel must ensure all medications are at adequate stock levels and are not expired. Inspections will be documented on the monthly inspection sheet (see appendix C).

Chapter 3

Administration, Hazardous Drugs and Waste, and Supply

SECTION I – PHYSICAL SECURITY

3-1. Physical security is a broad concept that covers many areas and has applicability for the pharmacy and pharmacy personnel. Limited or restricted access areas, key control and accountability, intrusion detection systems, and facility security requirements are all relevant to pharmacy practice and are included in AR 190-51.

3-2. It is important that the pharmacy be designed to discourage and prevent the diversion and theft of both controlled and non-controlled pharmaceuticals and medical supplies. The pharmacy is designated as a restricted area in which unescorted access is limited to authorized individuals. Pharmacy personnel need to be aware of the additional requirements that are necessary to maintain proper physical security measures in restricted areas.

3-3. AR 190-13 is the primary reference for physical security measures in the Army. Pharmacies will have multiple keys; therefore, every pharmacy is required to have a key control standard operating procedure or policy that meets the requirements outlined in AR 190-13.

SECTION II – RECORDS MANAGEMENT

3-4. According to AR 40-3, pharmacy files and records will be retained and disposed of according to the requirements outlined in AR 25-400-2 and the HIPAA. Pharmacy specialists should—

- Anticipate maintaining records of prescriptions, controlled substance documents, and invoices for several years.
- Expect to maintain controlled substance records separately from non-controlled substance records.

Note. Controlled substances must be separated by Note R (Drug Enforcement Administration Schedule II) and Note Q (Drug Enforcement Administration Schedule III-V).

3-5. In an operational setting, records management may be very different as not all operational environments will have an electronic medical record available. In the absence of an electronic record, maintaining good paper records will be critical to safely providing pharmacy support. A few types of records that must be maintained in an operational environment by pharmacy specialists include:

- Bulk drug orders (DA Form 3875).
- Controlled substance documents (DA Form 3862, DA Form 3949 [*Controlled Substances Record*], DA Form 3949-1 [*Controlled Substances Inventory*], and monthly disinterested officer inventory reports).
- Medication invoices and receipts of issue (DA Form 3161).
- Non-sterile compounding and pre-packing logs.
- Prescriptions (DD Form 1289) and inpatient medication orders (SF 600 [*Chronological Record of Medical Care*]).
- Property accountability (DA Form 2062 [*Hand Receipt/Shortage Listing*] or hand-receipt) to ensure equipment is being properly maintained and functioning properly.
- Temperature logs.

Note. Some pharmacy records may need to be shared with patient administration for uploading to the patient's medical record.

SECTION III – HAZARDOUS DRUGS AND PHARMACEUTICAL WASTE MANAGEMENT

3-6. Hazardous drugs are defined by the National Institute for Occupational Safety and Health (known as NIOSH) as having one or more of the following characteristics:

- Carcinogenicity (causes cancer).
- Reproductive toxicity, organ toxicity at low doses, genotoxicity (causes genetic mutations).
- Structure mimicking existing hazardous drugs (similar in chemical structure).
- Teratogenicity or other developmental toxicity (causes birth defects).

HAZARDOUS DRUG MANAGEMENT

3-7. Many studies have shown that healthcare workers are potentially exposed to medications, to include hazardous drugs, through inhalation (vapors, dusts, and aerosols), skin absorption, ingestion, or injection. No minimum acceptable levels of exposure to hazardous drugs have been established. The exposure to hazardous drugs may result in acute effects or reproductive risks.

a. Acute effects to healthcare workers include headaches, lightheadedness, hair loss, nausea, vomiting, dermatitis, and eczema.

b. Reproductive risks include abnormalities, infertility, miscarriages, premature labor, and low-birth weight. The effects are not always immediate but may also be chronic, long-term.

3-8. The identification of hazardous drugs and the implications to healthcare workers has led to the development of U.S. Pharmacopeia General Chapter <800> (known as USP <800>). U.S. Pharmacopeia General Chapter <800> was originally published in 2016 as a standard to protect personnel and provide guidance to handling hazardous drugs. This section (USP <800>) complements the requirements for U.S. Pharmacopeia General Chapter <795> and U.S. Pharmacopeia General Chapter <797> (known as USP <795> and USP <797>) in which pharmacy standards are based to ensure reduced risks for contamination, infection, or incorrect dosing.

3-9. Whether hazardous drug handling occurs within the continental United States (known as CONUS) or outside the continental United States (OCONUS), healthcare facilities handling hazardous drugs must identify a Hazardous Drug Officer, and develop standard operating procedures, assessments of risks, spill procedures, and training plans.

3-10. Safe transportation of hazardous drugs must take place to prevent spillage or product breakage. Personal protective clothing and equipment must be defined and available for healthcare workers.

Note. The most current hazardous drug list can be found on the Centers for Disease Control and Prevention website.

HAZARDOUS WASTE MANAGEMENT

3-11. Hazardous waste is defined by listed or characteristic properties according to the U.S. Environmental Protection Agency. This information can be found on the United States Environmental Protection Agency website.

a. Listed waste is specific items found on the F, K, P, and U lists found in Title 40 of the Code of Federal Regulations, Part 261. Typically, F and K listed waste is not found in the medical setting. However, P and U listed items are found in some pharmaceuticals. Some preservatives within pharmaceuticals make them hazardous waste.

b. Characteristic properties include ignitability, corrosivity, reactivity, toxicity.

(1) Ignitability characteristics include liquids with flash points below 60 degrees Celsius, non-liquids that cause fire through specific conditions, and ignitable compressed gases and oxidizers.

(2) Corrosivity characteristics include aqueous wastes with a power of hydrogen (known as pH) of less than or equal to 2, a pH greater than or equal to 12.5 or based on the liquids ability to corrode steel.

(3) Reactivity characteristics include wastes that may be unstable under normal conditions, may react with water, may give off toxic gases, and may be capable of detonation or explosion under normal conditions or when heated.

(4) Toxicity characteristics include wastes that are harmful when ingested or absorbed. Toxic wastes may be able to leach from waste and pollute groundwater.

3-12. Hazardous waste management in an operational environment may be different from hazardous waste management in garrison. In an operational environment OCONUS, a host country may have different laws than U.S. federal laws. Regardless, hazardous medication waste management will still fall under the guidance of the environmental officer, public health officer, or preventive medicine officer.

Note. Pharmacy personnel must be aware of the utilization of medications that can become hazardous waste and be mindful of ordering practices to avoid access accumulation.

a. Pharmacy personnel must be aware of where the hazardous waste accumulation point is located and how much hazardous waste there is at the accumulation point. U.S. federal law has limits for how much hazardous waste that can be placed in the accumulation point. Countries OCONUS may have similar or different limits.

Note. Storing hazardous waste in high traffic areas that could expose personnel to the hazardous waste is discouraged. Pharmacy personnel must avoid mixing hazardous waste with the regular pharmacy inventory.

b. Pharmacy personnel must consult with the local environmental, public health, or preventive medicine team to discuss proper procedures for hazardous waste disposal. The DCPH-A Defense Center for Public Health-Aberdeen website (formerly the U.S. Army Public Health Center) is another resource for information about hazardous drugs and waste management.

NON-HAZARDOUS WASTE MANAGEMENT

3-13. The DOD Reverse Distribution Contract allows most discarded pharmaceuticals to be returned to the distributor provided they are in the original manufacturer containers and not more than one year past expiration date.

3-14. Discarded items that are not eligible for reverse distribution, such as loose pills and items not in original containers, must be managed in compliance with all applicable regulations of the state or country of location. Much like hazardous waste management, pharmacy personnel should consult with their environmental, public health, or preventive medicine team for guidance regarding the proper disposal of non-hazardous pharmaceutical waste. The DCPH-A Defense Center for Public Health-Aberdeen website can also provide information regarding pharmaceutical waste management.

3-15. The most used means of managing non-hazardous waste is local incineration. Discarded items that are not eligible for reverse distribution or in operational areas where reverse distribution services are unavailable must be locally incinerated according to all country and state laws and regulations.

Note. Pharmaceutical waste must be separated from regular pharmacy inventory.

SECTION IV – SUPPLY MANAGEMENT

3-16. Proper ordering and management of supplies is a critical function for any unit no matter what environment in which the unit operates. Failure to order and manage the supplies necessary to perform and complete the unit's mission may result in catastrophic failure of an entire operation. This section provides some fundamental guidance for ordering and managing supplies.

FORMULARY

3-17. A formulary is a list of pharmaceuticals that a pharmacy may stock. The DOD Pharmacy and Therapeutics Committee reviews and decides whether a medication is on the DOD Formulary. TRICARE beneficiaries can look up medications that are on the DOD Formulary on the TRICARE Express Scripts website. The DOD formulary is broken down into multiple sub-formularies to include the—

- Basic Core Formulary.
- Extended Core Formulary.
- Non-Formulary.
- Uniform Formulary.

3-18. A theater medical command (known as TMC) deployed to an austere environment may have a separate formulary with additional restrictions to meet mission requirements within a particular geographical region. The formulary should consist of Uniform Formulary medications available in the supply chain needed to accomplish the mission. Depending on mission requirements, pharmacies in an operational environment are not always required to maintain the full spectrum of Basic Core Formulary medications that MTFs are required to maintain.

3-19. Deployed service members may utilize the TRICARE Deployment Prescription Program to obtain their medication refills. The TRICARE Deployment Prescription Program is managed by TRICARE Express Scripts and requires the provider or pharmacy to send a registration form and prescriptions to Express Scripts prior to the service member deploying. The service member—

- Will deploy with an initial 180-day supply of their qualifying prescriptions.
- Must create an account and update their mailing address upon arrival to the deployment location.

Note. Additional information about the TRICARE Deployment Prescription Program is available on the TRICARE Covered Services website.

DELEGATION OF AUTHORITY FOR ORDERING AND RECEIVING SUPPLIES

3-20. DA Form 1687 is used when an accountable or responsible person wants to designate personnel as their authorized representatives to request and sign for supplies requiring formal accountability at the user level.

a. Pharmaceutical management often requires three separate DA Form 1687s: Schedule II Controlled Substances (Note R); Schedule III-V Controlled Substances (Note Q); Non-Controlled Pharmaceuticals and Supplies.

b. AR 710-2 provides additional information on the proper use of DA Form 1687.

THEATER LEAD AGENT FOR MEDICAL MATERIEL

3-21. According to the United States Army Acquisition Support Center website, a Theater Lead Agent for Medical Materiel (TLAMM) is an organization or unit designated to serve as a major theater medical distribution node and provides medical materiel distribution and Class VIII supply chain management in support of combatant commands. In addition to medical supplies and pharmaceuticals, TLAMMs provide critical medical maintenance and optical fabrication support. The following is a list of TLAMMs and the commands they support:

- The United States Army Medical Materiel Center – Europe (known as USAMMC-E) serves as the TLAMM for United States European Command (known as EUCOM) and United States Africa Command (known as AFRICOM).
- The United States Army Medical Materiel Center – Southwest Asia (known as USAMMC-SWA) serves as the TLAMM for Southwest Asia and United States Central Command (known as CENTCOM).
- The United States Army Medical Materiel Center – Korea (known as USAMMC-K) serves as the TLAMM for Korea.

- The United States Air Force 18th Med Group, Okinawa serves as the TLAMM for United States Indo-Pacific Command (known as USINDOPACOM).
- The United States Army Medical Command (known as USAMEDCOM) serves as the TLAMM for Northern Command (known as USNORTHCOM).
- The Air Force Medical Operations Agency (known as AFMOA) serves as the TLAMM for United States Southern Command (known as SOUTHCOM).

3-22. TLAMMs function to efficiently move medical materiel for tactical units and OCONUS customers without just-in-time (next-day) logistical support from the prime vendor. However, there are some key differences that pharmacy personnel must be aware of when ordering through a TLAMM versus directly through the prime vendor.

a. TLAMMs are typically demand-based for stocking, so the more an item is requested, the more likely the TLAMM will stock a specific National Drug Code (known as NDC). Likewise, for items that have low demand, the stock levels on hand are expected to be lower, or possibly even non-stocked.

Note. TLAMMs stock limited numbers of pharmaceuticals; therefore, a TLAMM often has fewer package size selections than that of the prime vendor.

b. Delivery times from the TLAMM may vary but is often quicker than OCONUS prime vendor delivery times. TLAMMs may deliver based on order volume or standard transportation routes, or a combination of both. Some pharmacies or units may get deliveries multiple times per week, while others receive deliveries less frequently.

c. Pharmaceuticals and medical supplies stocked at the TLAMM will arrive much faster than non-stocked items. The TLAMM customer support section will provide an authorized stockage list (known as ASL) upon request. Additionally, the TLAMM customer support section will provide information on delivery lead times and any delays.

d. Unlike MTF pharmacies that are capable of directly ordering from the prime vendor, pharmacies that order through a TLAMM are often sub-customers of the medical logistics (MEDLOG) section, resulting in MEDLOG pushing the order to the TLAMM. This extra step in the ordering process is something that pharmacy technicians in an operational environment need to be aware of to ensure their orders get to the TLAMM.

MEDICATION STORAGE AND TEMPERATURE SENSITIVE MEDICAL PRODUCTS

3-23. AR 190-51 is the primary reference for pharmaceutical storage requirements. Most pharmaceuticals require specific temperatures to maintain their stability and potency. Pharmaceuticals requiring storage in a refrigerator or freezer are the most common forms of TSMPs, but many lab reagents and other Class VIII products require strict temperature control. The pharmacy must always ensure medications are stored securely and at the appropriate temperature recommended by the manufacturer.

3-24. An appropriate storage container is the first step to managing TSMPs. The Army has multiple types of refrigerators and freezers in the equipment inventory. The storage location must always meet the temperature requirements of the medication.

a. Medical grade stand-alone refrigerators and freezers are highly recommended. Refrigerated medications are typically always stored at 2 to 8 degrees Celsius (35 to 46 degrees Fahrenheit), but freezer temperatures can vary by item and may range from -20 to -10 degrees Celsius (-4 to 14 degrees Fahrenheit).

b. Room temperature is defined as 20 to 25 degrees Celsius (68 to 77 degrees Fahrenheit). Ensuring refrigerated items are stored in the refrigerator and freezer items are stored frozen is the first step in avoiding preventable medication loss.

(1) Pharmacies should not only rely on the external temperature displays of TSMP equipment. A National Institute of Standards and Technology (known as NIST) certified and calibrated thermometer should be stored in the center of each TSMP storage unit away from the coils, walls, floor, and fan.

(2) Temperature logs must be maintained as part of a pharmacy's records management.

3-25. Appropriate monitoring is the next step to managing TSMPs. Manual temperature checks are required twice daily (at minimum), regardless of whether there is a 24-hour/7-day temperature alarm system, chart recorder thermometer, or digital data logger.

3-26. It is recommended that manual temperature checks are conducted and documented four times daily (every six hours) when a unit is not connected to any automated temperature system or recorder. Physical checks may be conducted by a staff duty or charge of quarters after business hours if the unit authorizes.

3-27. Electronic temperature systems must be tested monthly, and phone rosters must be updated as personnel transition. Ensure storage units (such as refrigerator and freezer) doors are fully closed and secure during all physical temperature checks.

3-28. TSMP training is conducted by the United States Army Medical Materiel Agency (known as USAMMA) Distribution Operations Center. Additional training information and scheduling procedures are available at the Army Medical Logistics Command website.

Note. Pharmacies should consider back-up and alternative storage options for TSMP in the event of equipment malfunction, power outage, and during transportation.

MEDICAL MATERIEL QUALITY CONTROL MESSAGES

3-29. Medical materiel quality control (MMQC) messages communicate recalls, hazards, and alerts for medical products to DOD units. The United States Army Medical Materiel Agency is responsible for disseminating MMQC messages on behalf of the Defense Logistics Agency in support of combat combatant leaders and deployed service members. These alerts may be medication recalls, equipment-related hazards or recalls, or informational.

3-30. The MMQC messages can populate in Army supply systems, such as Global Combat Support System-Army (known as GCSS-A) and Defense Medical Logistics Standard Support (DMLSS). Pharmacy personnel may have to respond to the messages in the supply system or respond through their local MEDLOG section.

3-31. Pharmacy personnel can request to have MMQC messages sent via email at the Army Medical Logistics Command Information Portal website. Users must have a Common Access Card (known as CAC) to login. The website also allows users to search past MMQC messages.

SERVICE LIFE EXTENSION PROGRAM

3-32. The Service Life Extension Program (SLEP) is a federal program in which expired items, including pharmaceuticals, are evaluated for potential expiration date extensions. Historical use of this program included war reserve products, federal stockpiles, and depot stocked pharmaceuticals reserved for public health emergencies.

3-33. The SLEP acknowledges the shelf life of pharmaceuticals or products, which retain their potency after manufacturer expiration dating, acceptable to use beyond their expiration date. The following is a description of the SLEP process:

a. The FDA conducts testing to determine whether a product is granted an expiration date extension.

b. SLEP managers are notified of the approval for distribution to participants.

c. The notification is distributed to DOD customers by the DOD SLEP program, medical materiel quality control and medical materiel instructions (known as MMQC/MMI) messages, and prime vendors.

d. If an extension is approved, all approved products must be relabeled for use with the updated expiration date.

e. Items denied an expiration extension will be turned-in for destruction upon expiration.

3-34. Registration is required in the Account Management and Provisioning System (known as AMPS) on the Department of Defense Shelf-Life Program website. References for the SLEP include:

- DHA-PM 6430.05 Shelf-Life Extension Program.
- DOD Manual 4140.27, Volume 1 DOD Shelf-Life Management Program: Program Administration.
- DOD Manual 4140.27, Volume 2 DOD Shelf-Life Management Program: Materiel Quality Control Storage Standards.

DEFENSE MEDICAL LOGISTICS STANDARD SUPPORT AND DEFENSE MEDICAL LOGISTICS STANDARD SUPPORT CUSTOMER ASSISTANCE MODULE

3-35. The DMLSS and the DMLSS Customer Assistance Module (DCAM) are the two main electronic ordering systems that are used to order pharmaceuticals. The DMLSS is primarily used in MTFs, whereas DCAM is a simplified application of DMLSS that supports the ordering and limited inventory management requirements of operational units.

a. There are multiple modules in DMLSS, but the Customer Area Inventory Management (known as CAIM) module is mostly used for ordering and receiving pharmaceuticals. Inventory management and some reporting modules may be used by limited pharmacy personnel in centralized pharmacy supply roles.

b. DCAM is a sub-system of DMLSS and is the main ordering system used outside of MTFs. In OCONUS settings, DCAM will largely be coordinated by the MEDLOG section.

(1) Access to DCAM will still require a DA Form 1687, but routing the DA Form1687 to the appropriate logistics support section is unit specific.

(2) Because DCAM is a sub-system of DMLSS, it does not have all the features of DMLSS. Many of the DMLSS features used by MTFs are included in other systems (for example Global Combat Support System-Army) outside the MTF.

(3) DCAM is National Drug Code specific with ordering and users can modify their catalogs. Users should be familiar with basic inventory and catalog management to ensure orders are appropriate and available at the corresponding TLAMM.

(4) DCAM may be set up to order directly from the MEDLOG to the TLAMM. It can also be configured to allow sub-customers to order to MEDLOG, with MEDLOG pushing the orders to the TLAMM.

3-36. DLMSS and DCAM online training is available through the Joint Knowledge Online (known as JKO) training platform. The following courses are available:

- DHA-US312 DMLSS: Narcotics Order Review and Approval (NORA) Basics.
- DHA-US315: DMLSS: Catalog Search and Record Management.
- DHA-US316: DMLSS: Defense Medical Logistics Standard Support (DMLSS) Basics.
- DHA-US321: DMLSS: Offline Non-Submit Orders (CAIM).
- DHA-US322: DMLSS: Customer Assistance Module (DCAM).

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Chapter 4
Pharmacy Supply Functions

SECTION I – FIELD SUPPLY OPERATIONS

4-1. In MTOE units, pharmacy service is responsible for maintaining adequate supply and storage of medications, and chemical, biological, and expendable items. Additional pharmacy service responsibilities include preparing and updating pertinent procedural guides, maintaining appropriate records of procurement action, and quality control procedures for medications.

ORDERING AND RECEIVING

4-2. The primary means of ordering expendable medical supplies is through the Medical Supply Section. When automation is available pharmacy services will use DMLSS and DCAM as the primary sources for ordering expendable medical supplies. When automation is not available, orders will be submitted on a DA Form 3161.

Note. Initial levels for new items recommended by the Chief of Pharmacy will be stocked at a three-month supply amount.

4-3. When medication is delivered to the pharmacy, the quantity received will be verified with the quantity issued on the materiel release order (known as MRO) from the Medical Supply Section. The document register will be maintained by the pharmacy.

4-4. The expiration date, lot number, and quantity received will be annotated on back of the materiel release order. After verification is completed, a printed copy of the front and back of the materiel release order will be maintained by the pharmacy for two years.

Note. The pharmacy will maintain a document register to track the initiation (ordering) and receipt of supplies.

STORAGE AND INVENTORY

4-5. Medications will be stored according to drug handling package material. Medication stock levels will not exceed 30-days, exceptions may be approved based on the mission. Medications will be—

- Arranged in a neat and orderly manner:
  - Alphabetically by generic name.
  - Separated into sections (topical, tablet and capsule, rectal, oral liquid, injectable, OTC, optic, ophthalmic, bulk, refrigerated, and flammable).
  - Can be easily found by pharmacy staff.
- Stored in a manner which provides the proper temperature, moisture control, and protection from light.

Note. Suspended or expired stocks will be physically segregated from other stocks and identified as suspended or expired. Stock levels are readjusted or reviewed quarterly or as needed.

4-6. A physical inventory will be performed on all medications in the pharmacy weekly. Items below the Reorder Point (known as ROP) will be ordered using the Required-on hand (known as RO) as the quantity. All items already on the shelves will be inventoried once a month for expiration date.

4-7. Expired medications will be turned into the Medical Supply Section which will turn in the medications to the United States Army Medical Materiel Center-Europe for reverse distribution. All expired medications turned into the Medical Supply Section will be documented on a DA Form 3161.

SECTION II – BRIGADE MEDICAL SUPPLY OFFICE RESPONSIBILITIES

4-8. The BMSO provides Class VIII medical supplies and biomedical maintenance support to all units assigned to or attached to a brigade combat team (known as BCT). The BMSO also provides technical assistance and information needed in the areas of medical supply, quality control, biomedical maintenance, and pharmaceutical support. The BMSO consists of an OIC, noncommissioned officer in charge, biomedical technician, medical supply specialist, and pharmacy specialist. Pharmacy specialists are assigned to the BMSO to oversee and provide pharmaceutical support.

4-9. The BMSO facilitates Class VIII supply and biomedical maintenance operations in the brigade combat teams by standardizing all transactions between the BMSO and units supported by the BMSO. Class VIII supply encompasses medication. As main pharmaceutical support for the brigade combat team, the pharmacy specialist provides oversight for medication distribution and usage and ensures all rules and regulations pertaining to medication are followed.

4-10. The BMSO processes all Class VIII transactions and maintains the brigade authorized stockage list. The section facilitates warehouse operations to include the receipt and issues of supplies, stock control, and warfighter assistance. The pharmacy specialist provides support for processing Class VIII in a multifaceted way and ensures medication regulation guidelines are adhered to.

REQUESTING AND RECEIVING SUPPLIES

4-11. The pharmacy specialist is involved in the process of requesting and receiving Class VIII supplies. The unit commander is responsible for the supply activities that occur with the organization. The commander may designate one or more representatives to request and receive Class VIII supplies on the commander's behalf. The pharmacy specialist must ensure the units that order Class VIII supplies containing medication abide by regulatory guidelines and do not commit fraud, waste, and abuse.

4-12. A completed DA Form1687, signed by the commander or the commander's designated representative, is required to authorize personnel to—

- Receive non-expendable, expendable, and durable Class VIII supplies.
- Request and receive biomedical maintenance support.

4-13. Separate DA Form 1687s are required to request and receive Note R and Note Q controlled substances. The DA Form 1687s for controlled substances must contain the statement, "All individuals on this signature care have been screened for controlled medical substances or sensitive item positions."

Note. The Physician's Assistant is usually the designee to request and receive Note R and Note Q items.

4-14. All DA Form 1687s must be updated annually at a minimum. New DA Form 1687s must be furnished to the BMSO whenever—

- Designees are changed (for example, permanent change of station or expiration-term of service .
- New designees are identified.
- A change of command occurs.

Note. One copy of the unit commander's Assumption of Commander Orders must be attached to each completed DA Form 1687.

REQUISITIONING AND TURNING IN CLASS VIII

4-15. Ordering units should turn in all requisitions for medications or supplies using DA form 3161, which shall be ordered by the BMSO within 24 hours. Once received, the BMSO will fill the unit's request according to the items that are available. If the BMSO is unable to fill a request, the request will be processed by the installation MTF.

4-16. The DCAM automates the Class VIII supply ordering process at lower levels of care and enables users to exchange catalog, order, and status information with their supply activity, electronically. The DCAM desktop program allows users to view supplier's catalogs and generate orders.

4-17. Reorder lists make reordering quick and accurate when digital systems are down. Information on the reorder list is based on the authorized stockage list and may change as stock levels or the authorized stockage list changes.

4-18. Only physicians, dentists, and physician assistants can receive and dispense controlled substances. A valid DA Form 1687 must be signed by the unit commander and the brigade surgeon and must be filed by the BMSO. Only items approved by the brigade surgeon can be ordered by units from the BMSO. Any controlled substances must be signed back to the BMSO after field exercises or deployments.

4-19. The BMSO supplies all items necessary to conduct immunizations. The BMSO must coordinate with the local MTF to procure the immunizations.

4-20. Medications, medical materiel, and biological materials that are no longer serviceable (for example, expired shelf-life, compromised sterility, or suspension due to quality control directives), or are in excess, may be turned-in to the BMSO for destruction. All shelf-life Class VIII items may be turned-in for destruction within 29 days of their expiration dates.

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Appendix A

Pharmaceutical Calculation Scenarios and Solutions

ALLIGATIONS

A-1. **Scenario:** The pharmacy specialist is working in a troop medical clinic. A request for 100 mL of a 15% strength liquid medication is needed immediately. The pharmacist is helping a physician with medication dosing and assigns the medication request to the pharmacy specialist. The requested strength of the liquid medication is not available. However, a 10% solution and a 30% solution are in stock.

A-2. **Question:** How many milliliters of each medication needs to be added to create 100 milliliters (mL) of a 15% solution?

A-3. **Solution:** Setup a table with the provided information. Find the difference between what is in stock and what is requested. Calculate the number in parts needed to compound. Calculate the fraction of each solution needed for the compound. Calculate the volume of each solution needed to create a total of 100 mL product.

a. Setup a table with information provided in the scenario:

Solution in stock (percent strength)	Solution requested (percent strength)	Parts needed to compound
10		
	15	
30		

b. Find the difference between what is in stock and what is requested (work diagonally):

Solution in stock (percent strength)	Solution requested (percent strength)	Parts needed to compound
10		15
	15	
30		5

c. Calculate the number in parts needed to compound:

$$15\ parts\ of\ 10\%\ solution + 5\ parts\ of\ 30\%\ solution = 20\ total\ parts$$

d. Calculate the fraction of each solution needed for the compound:

(1) 10% Solution: 15 parts /20 total parts; this can be simplified to ¾ or 0.75.

(2) 30% Solution: 5 parts/20 total parts; this can be simplified to ¼ or 0.25.

e. Calculate the volume of each solution needed to create a total of 100 mL product:

(1) 10% Solution:$(100\text{mL})\ (0.75) = 75$ mL.

(2) 30% Solution: $(100\text{mL})\ (0.25) = 25$ mL.

PERCENT VOLUME IN VOLUME METHOD

A-4. **Scenario:** The pharmacy specialist and one pharmacist are attached to a unit on a forward operating base. One of the pharmacy specialist's duties is assisting with treating patients in the burn unit. The nurse requests a specific skin cleanser be prepared for the patient. The pharmacist asks the pharmacy specialist to prepare the drug (skin cleanser); the pharmacist will check the medication before it is given to the nurse. The order calls for 500 mL of a 15% V/V cleanser solution.

A-5. **Question:** How many mL of cleanser, and how many mL of liquid solution should be used to prepare the 500 mL product?

A-6. **Solution:** Determine the strength. Calculate the amount of ingredient needed. Determine the amount of quantity sufficient (known as QS) solution required.

a. Determine the strength. The order calls for a 15% solution. This can be expressed as a V/V ratio: $\frac{15\ mL}{100\ mL}$

b. Calculate the amount of active ingredient needed. To calculate the volume of cleanser needed to prepare the 15% solution:

(1) Setup a ratio, and cross multiply: $\frac{15\ mL}{100\ mL} = \frac{X\ ml}{500\ mL} = \frac{100X\ mL}{7500\ mL}$

(2) Simplify to isolate X: $100X\ mL = 7500\ mL$

(3) The weight of the final product is *75 mL*.

c. Determine the amount of quantity sufficient solution required. Knowing the volume of the final product and the amount of active ingredient, it is easy to calculate the amount of solution needed: 500mL (total) – 75 mL (active ingredient) = *425 mL* (quantity sufficient solution).

PERCENT WEIGHT IN VOLUME

A-7. **Scenario:** A combat medic needs the pharmacy team to prepare some intravenous (IV) bags of solution that are not readily available. One of the IV bags needed is magnesium sulfate 2%. The pharmacy specialist is wearing the proper gear in a sterile prepping environment. The pharmacist is occupied preparing another medication and asks the pharmacy specialist to prepare the magnesium sulfate 2% IV bag solution. The pharmacy has 100 mL bags of normal saline and a stock vial of magnesium sulfate 50% on the shelf.

A-8. **Question:** How many milliliters of the stock magnesium sulfate are needed?

A-9. **Solution:** Determine the strength. Calculate the volume.

a. Determine the strength: The IV bag requested by the medic is magnesium sulfate 2% solution. This can be expressed as a W/V ratio: $\frac{2\ gm}{100\ mL}$

b. Calculate the volume: To calculate the number of milliliters needed from the magnesium sulfate 50% stock vial (50 gm/100 mL W/V ratio):

(1) Setup a ratio, and cross multiply: $\frac{50\ gm}{100\ mL} = \frac{2\ gm}{X\ mL} = \frac{200\ mL}{50X\ mL}$

(2) Simplify to isolate X: $50X\ mL = 200\ mL$

(3) The weight of the final product is *4 mL*.

PERCENT WEIGHT IN WEIGHT METHOD

A-10. **Scenario:** The pharmacy specialist is attached to a field unit while deployed. The pharmacy specialist is working with a pharmacist in an improvised medical tent. The pharmacy specialist is tasked with supply inventory control and ordering. The inventory list will be used to request supplies. The inventory list request requires all strengths be written in percent strength (%). All the ointments in stock are labeled in percent strengths except for one. It is a tube of ointment with a strength of 12 gm/50 gm.

The convoy that was supposed to deliver pharmaceutical supplies will be arriving a few days late, until then the pharmacy team will have to utilize the supplies on hand. The pharmacy team receives a request from the medical doctor for a 20% strength ointment. There is 40 gm of the needed active ingredient available to use and an excess of inactive ingredient.

A-11. **Questions:** What is the strength (in percentage) of the tube of ointment? How many grams of inactive ingredient will have to be added to 40 gm of active ingredient to yield a new 20% ointment?

A-12. **Solution:** Determine percentage strength of the original product. Calculate weight of the final product. Calculate the amount of inactive ingredient (ointment).

a. Determine percentage strength of the original product. The tube of ointment on hand contains 12 gm of medication for every 50 gm of finished ointment. Percentage strength is expressed as # gm active ingredient/100 gm ointment. To calculate percentage, set up a ratio:

(1) Cross multiply: $\frac{12\ gm}{50\ gm} = \frac{X\ gm}{100\ gm} = \frac{50X\ gm}{1200\ gm}$

(2) Simplify to isolate X: $50X\ gm = 1200\ gm$

(3) The percentage strength of X is *24%*.

b. Calculate weight of the final product. The pharmacy specialist was asked to make a 20% ointment containing 40 gm of active medication. A 20% product will have 20 gm in 100 gm finished product. To calculate the new product:

(1) Cross multiply: $\frac{20\ gm}{100\ g} = \frac{40\ gm}{X\ gm} = \frac{4000\ gm}{20X\ gm}$

(2) Simplify to isolate X: $20X\ gm = 4000\ gm$

(3) The weight of the final product is *200 gm*.

c. Calculate the amount of inactive ingredient (ointment). Knowing the weight of the final product and the amount of active ingredient, it is possible to calculate the amount of ointment needed utilizing subtraction: *200 gm* (total) – *40 gm* (active ingredient) = *160 gm* (ointment).

STOCK SOLUTION AND DILUTION

A-13. **Scenario:** The pharmacy specialist receives an order for 100 mL bags of dextrose 5% in water (D5W). However, the pharmacy only has dextrose 70% in water (D70W) stock solution available.

A-14. **Question:** How many 100 mL bags of D5W can the pharmacy specialist make from one 2 L bag of D70W?

A-15. **Solution:** Convert the stock solution to a proportion. Determine the dextrose required for the compounded IV bag. Calculate the amount of D70W needed to compound each new IV bag. Calculate the number of bags that can be created.

a. Convert the stock solution and express it as a proportion:

(1) Setup a ratio, and cross multiply: $\frac{70\ gm}{100\ mL} = \frac{X\ gm}{1\ \text{mL}} = \frac{100X}{70\ gm}$

(2) Simplify to isolate X: $100X\ mL = 70\ \text{gm}$

(3) Each mL of solution must contain 0.7 g/mL of D70W.

b. Determine the dextrose required for the compound IV bag. D5W expressed as a weight/volume (W/V) ratio is: $\frac{5\ gm}{100\ mL}$

c. Calculate the amount of D70W needed to compound each new IV bag (a ratio can be used to calculate the needed volume):

(1) Setup a ratio, and cross multiply: $\frac{0.7\ gm}{1\ mL} = \frac{5\ gm}{X\ mL} = \frac{5\ mL}{0.7X\ mL}$

(2) Simplify to isolate X: $0.7X = 5\text{mL}$

(3) 7.1 mL of D70W is required for each new 100 mL bag of saline.

d. Calculate the number of bags that can be created. 7.1 mL of D70W will provide 5 gm of dextrose, which is enough for one 100 mL bag of D5W. Dividing the total quantity of D70W available by the amount required for one bag will determine the total number of bags that can be made:

$$\frac{2000\ mL}{7.1\ \text{mL}} = 281\ bags$$

WEIGHT-BASED DOSING

A-16. **Scenario:** The pharmacy team is assigned to work in a military hospital that treats U.S. military and civilians from the surrounding area. The pharmacist receives a prescription for total parenteral nutrition (known as TPN) for a 198-pound (lb) patient.

The prescription calls for 30 milliliters per kilogram (mL/kg) of fluids, 25 kilocalories per kilogram (kcal/kg) caloric requirement, and 1,125 kilocalories per day (kcal/day) of carbohydrates. The carbohydrates will come from a dextrose solution, which provides 3.4 kcal per gram (kcal/gm). The pharmacy has 70% dextrose (D70W) in stock.

A-17. **Question:** What is the total quantity of daily fluid, kcal required, and dextrose?

A-18. **Solution:** Perform weight conversion. Calculate the total volume. Calculate the calories required. Calculate the grams of carbohydrates required. Calculate volume.

a. Perform weight conversion. Medications are dosed based on weight in kilograms (metric system). The patient's weight must be converted from pounds to kilograms for accurate dosing:

(1) Set up a ratio, and cross multiply: $\frac{1\ kg}{2.2\ lb} = \frac{X\ kg}{198\ lb} = \frac{2.2X}{198\ lb}$

(2) Simplify to isolate X: $2.2X = 198\ lb$

(3) The patient's weight is *90 kg*.

b. Calculate the total volume. Per the order, the total parenteral nutrition should be made so the patient receives 30 mL/kg of fluid. To calculate the total volume of fluid for a 90 kg patient:

(1) Set up a ratio, and cross multiply: $\frac{30\ mL}{1\ kg} = \frac{X\ mL}{90\ kg} = \frac{X}{2{,}700\ mL}$

(2) Simplify to isolate X: $X = 2{,}700\ mL$

(3) The total volume is *2,700 mL*.

c. Calculate the calories required. Per the order, the total parenteral nutrition must provide 25 kcal/kg. To calculate the total number of calories required for a 90 kg patient:

(1) Setup a ratio, and cross multiply: $\frac{25\ kcal}{1\ kg} = \frac{X\ kcal}{90\ kg} = \frac{2250\ kcal}{X}$

(2) Simplify to isolate X: $X = 2{,}250\ kcal$

(3) Calories required are *2,250 kcal*.

d. Calculate the grams of carbohydrates required. Per the order, the patient requires 1,125 kcal/day of carbohydrates per day. Each gram of dextrose will provide 3.4 kcal of carbohydrates. To calculate the number of grams of dextrose required:

(1) Setup a ratio, and cross multiply: $\frac{3.4\ kcal}{1\ gm} = \frac{1{,}125\ kcal}{X\ gm} = \frac{1{,}125\ gm}{3.4X}$

(2) Simplify to isolate X: $3.4X = 1{,}125\ gm$

(3) Quantity of dextrose required is *331 gm*.

e. Calculate volume. The pharmacy specialist will use D70W (70g/100 mL) to compound the total parenteral nutrition. To calculate the number of milliliters needed to provide the required calories necessary and to determine the volumetric quantity of dextrose required:

(1) Setup a ratio, and cross multiply: $\frac{70\ gm}{100\ mL} = \frac{331\ gm}{X\ mL} = \frac{33{,}100}{70X\ mL}$

(2) Simplify to isolate X: $70X\ mL = 33{,}100\ mL$

(3) The patient will require 473 mL of D70W.

Appendix B

Medications for Emergency Carts and Kits

CRASH CART

MEDICATION DRAWER ONE: PHARMACY MEDICATIONS – EXPIRATION DATE

5 EA	Adenosine 6 mg
2 EA	Amiodarone 150 mg/3 mL amp
3 EA	Atropine Abbojects 1 mg/10 mL
1 EA	Calcium Chloride Abboject 10%
1 EA	Dextrose Abboject 50%
2 EA	Diphenhydramine 50 mg/mL 1 mL vial
6 EA	Epinephrine Abboject 1:10,000
1 EA	Epinephrine 1 mg/mL 30 mL
2 EA	Furosemide 10 mL vial 10 mg/mL
3 EA	Lidocaine Abboject 100 mg
1 EA	Methylprednisolone 1 gm vial
5 EA	Naloxone 0.4 mg
4 EA	Phenytoin 250 mg/10 mL
2 EA	Sodium Bicarbonate Abbojects (Adult)
2 EA	Sodium Bicarbonate Abbojects (Pediatric)
4 Ea	Verapamil 5mg/2mL
2 EA	Vasopressin 20 unit/mL vial

MEDICATION DRAWER TWO: PHARMACY INFUSION MEDICATIONS – EXPIRATION DATE

Dopamine 400mg/vial (OR 2 x 200 mg vial)
- D5W 250 mL
- LABEL

Lidocaine 2 gm/Abboject
- D5W 500 mL
- LABEL

Magnesium Sulfate 2 gm
- D5W 100 mL
- LABEL

Norepinephrine (Levophed) 4 mg/AMP
- D5W 250 mL
- LABEL

Procainamide (Pronestyl) 1 gm x 2 vials
- D5W 500 mL
- LABEL

MEDICATION DRAWER TWO (cont'd)**:** PHARMACY INFUSION MEDICATIONS – EXPIRATION DATE

1 EA Lidocaine Jelly 2%
1 EA Cetacaine Spray

ACLS KIT

2 EA Calcium Chloride Abboject 10%
2 EA Dextrose Abboject 50%
2 EA Sodium Bicarbonate Abbojects (Adult)
2 EA Epinephrine Abboject 1:10,000
1 EA Epinephrine 1 mg/mL 30 mL
2 EA Furosemide 10 mL vial 10 mg
5 EA Naloxone 0.4 mg

MASCAL EXPECTANT KIT

2 EA Hydromorphone
2 EA Lorazepam
8 EA Ondansetron

Appendix C

Pharmacy – Ward Inspection Checklist

C-1. This document is a sample pharmacy ward inspection checklist (see figure C-1). Inspections must be recorded on the local document specific to each pharmacy service unit.

Pharmacy Ward Inspection Checklist
This form is effective as of 20 February 2023

Ward/Section Inspected: ICU Month: January

Inspector: SPC Michael Smith Date of Inspection: 05 January 23

1.	Were any expired medications found in the department?	Yes	[No]	N/A
2.	Did the refrigerator have a temperature log on it?	[Yes]	No	N/A
3.	Was the temperature checked twice every day?	[Yes]	No	N/A
4.	Was the temperature within an acceptable range?	[Yes]	No	N/A
5.	Was the temperature adjusted if not acceptable?	Yes	No	[N/A]
6.	Are internal and external medications separated?	[Yes]	No	N/A
7.	Is the quantity of ward-stocked medication excessive?	Yes	[No]	N/A
8.	Are the department's narcotics inventoried monthly by the disinterested officer?	Yes	No	[N/A]
9.	Are narcotics kept in a locked container at all times?	[Yes]	No	N/A
10.	Is the crash cart in date and is the lock intact?	[Yes]	No	N/A

Comments on Deficiencies: _____

The OIC, NCOIC, or authorized representative for the ward or section has been briefed on the deficiencies found on the unit. The OIC, NCOIC, or authorized representative for the ward or section has been briefed on their responsibility to take action to correct the deficiencies. A copy of this checklist has been given to the OIC, NCOIC, or authorized representative of the ward or section.

Ward/section personnel: 1LT Jonathan Edwards Signature: Jonathan Edwards
(Print Rank/Title, Name)

Pharmacy personnel: SPC Michael Smith Signature: Michael Smith
(Print Rank/Title, Name)

SAMPLE

Figure C-1. Sample Pharmacy-Ward Inspection Checklist

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Glossary

ACRONYMS AND ABBREVIATIONS

AR	Army regulation
BDO	bulk drug order
BMSO	brigade medical supply office
DA	Department of the Army
DCAM	DMLSS Customer Assistance Module
DD	Department of Defense (when used in front of form number)
DHA	Defense Health Agency
DMLSS	Defense Medical Logistics Standard Support
DOD	Department of Defense
FDA	Food and Drug Administration
gm	grams
HIPAA	Health Insurance Portability and Accountability Act
IV	intravenous
kcal/kg	kilocalories per kilogram
kg	kilograms
MEDLOG	medical logistics
mg	milligrams
mL	milliliters
MMQC	medical materiel quality control
MTF	medical treatment facility
MTOE	modified table of organization and equipment
OIC	officer in charge
OCONUS	outside the continental United States
OTC	over the counter
SLEP	Service Life Extension Program
TC2	Theater Composite Health Care System Cache
TLAMM	Theater Lead Agent for Medical Materiel
TSMP	temperature sensitive medical product
U.S.	United States

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These documents must be available to the intended users of this publication.

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Department of Defense Shelf-Life Program. https://www.shelflife.dla.mil/.

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United States Army Acquisition Support Center. https://asc.army.mil/web/news-integrated-medical-logistics/.
U.S. Food and Drug Administration. https://www.fda.gov/drugs.

PRESCRIBED FORMS

This section contains no entries.

REFERENCED FORMS

Unless otherwise indicated, DA form is available on the Army Publishing Directorate (APD) website at https://armypubs.army.mil. DD forms are available on the DOD Forms Management Program website at https://www.esd.whs.mil/Directives/forms/. SF forms are available on the U.S. General Services Administration website at https://www.gsa.gov/forms.

DA Form 1687. *Notice of Delegation of Authority – Receipt for Supplies*.
DA Form 2028. *Recommended Changes to Publications and Blank Forms*.
DA Form 2062. *Hand Receipt/Shortage Listing*.
DA Form 3161. *Request for Issue or Turn-In*.
DA Form 3862. *Controlled Substance Stock Record*.
DA Form 3875. *Bulk Drug Order*.
DA Form 3949. *Controlled Substances Record*.
DA Form 3949-1. *Controlled Substances Inventory*.
DD Form *1289. Prescription Form*.
SF 600. *Chronological Record of Medical Care*.

RECOMMENDED READINGS

These documents contain relevant supplemental information.

H.R.3103 - Health Insurance Portability and Accountability Act. https://www.congress.gov/bill/104th-congress/house-bill/3103.
H.R.5835 - Omnibus Budget Reconciliation Act of 1990. https://www.congress.gov/bill/101st-congress/house-bill/5835.
Poison Prevention Packaging Act. https://www.ncbi.nlm.nih.gov/books/NBK572141/.
Resource Conservation and Recovery Act (RCRA) Laws and Regulations. https://www.epa.gov/rcra.
The Controlled Substances Act. https://www.dea.gov/drug-information/csa.
The Food, Drug, and Cosmetic Act of 1938. https://www.fda.gov/about-fda/histories-product-regulation/1938-food-drug-and-cosmetic-act.

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07 April 2025

By Order of the Secretary of the Army:

RANDY A. GEORGE
General, United States Army
Chief of Staff

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