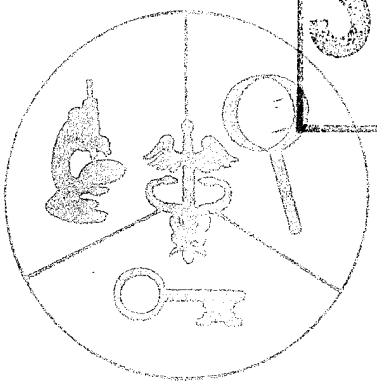

CENTER FOR
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THE READINESS TRAINING PROGRAM FOR NURSING PERSONNEL IN THE AMEDD

Volume III b

TRAINING MANUAL
to Accompany the Videotape
"Readiness Training in Operating Room Nursing Skills"
Program Identification Number 710660

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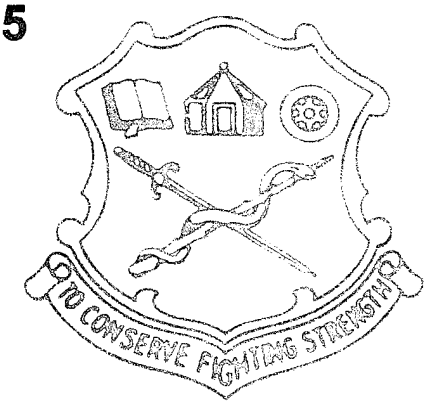
September 1995



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The US Army Medical Department Study Board tasked the Center for Healthcare Education & Studies (CHES), US Army Medical Department Center & School (AMEDDC&S) to conduct two readiness studies. The purposes of the studies were to describe the readiness competency of nursing personnel in the US Army Medical Department (AMEDD) and to develop a program that would meet identified training needs. This training manual and its videotape were developed as part of the Readiness Training Program (RTP), which is a product of these two studies.

The purposes of this manual and its videotape are to provide trainers with information that will help them conduct an initial assessment of their unit's readiness competency in selected clinical nursing skills and execute their readiness training. A separate Training Support Package (TSP) provides more details regarding implementation of the entire RTP.

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PREFACE

Background

Nursing personnel responsible for conserving the fighting strength need to maintain their competencies in skills critical to their roles in a deployed or field status. In the past, these personnel have relied on their everyday experiences in fixed healthcare facilities to maintain their competencies in field nursing practice. However, there is now a widening gap between nursing practice in high-technology, automated fixed healthcare facilities and nursing practice in field medical treatment facilities. Therefore, the Joint Services Nursing Advisory Group (JSNAG), a tri-service advisory group to the Defense Medical Standardization Board (DMSB), recommended that a study be conducted to examine the extent to which job-related and training experiences currently prepare nursing personnel for patient care in a deployed or field status.

In response to JSNAG's recommendation, the US Army Medical Department Study Board tasked the Center for Healthcare Education & Studies (CHES), US Army Medical Department Center & School (AMEDDC&S) to conduct two readiness studies. The purposes of the studies were to describe the readiness competency of nursing personnel in the US Army Medical Department (AMEDD) and to develop a program that would meet identified training needs. This training manual and its videotape are designed for use as part of the Readiness Training Program, which is a product of these two studies.

The purpose of this training manual and its videotape is to provide trainers with information that will help them first to conduct an initial assessment of their unit's proficiency level in selected clinical nursing skills and then to plan and execute their readiness training. A separate Training Support Package (TSP) provides more details regarding the implementation of the entire Readiness Training Program. This TSP will be available from the Defense Technical Information Center (DTIC).

Acknowledgements

Several subject matter experts provided guidance for the two readiness studies. Most importantly, a core group of nurses with expertise in field nursing met prior to the first study to discuss the conceptualization of the readiness project, and they served on an expert panel throughout the course of both studies. The names of this group of nurses and their positions at the time they came together as a group are as follows:

COL McCall CN, FORSCOM	COL Morgan CN, 62nd Med Gp
COL Tiernan CN, 1st Med Gp	COL Chudy CN, 55th Med Gp

Other subject matter experts also provided consultation for the readiness studies. COL Schaeberle, CN, 44th Medical Brigade, served on the expert panel with this core group of nurses for both readiness studies, and COL Scherb, Medical Force 2000, served on the expert panel during the first readiness study. The following nurses met with the other subject matter experts during the second readiness study to discuss the development of a readiness training program: (a) COL Anderson, CN, 818th Medical Brigade, USAR (b) COL Bartz, Chief, Department of Nursing Science, AMEDDC&S, (c) LTC Koehler, CN, 55th Medical Group, and (d) LTC Hofman, Chief, Team S2/S3, Ireland Community Hospital.

Many other nursing personnel with field experience in the active and reserve components of the AMEDD provided invaluable input to the two readiness studies and to the development of the TSP. Also, a special acknowledgement is extended to nursing personnel who gave their time and efforts to participate as subjects for the testing and training procedures in the two readiness studies. Data could not have been gathered without these personnel or without the evaluators who administered the competency-based exercise. The evaluators fulfilled their duties as data collectors in addition to their responsibilities as nursing personnel in the active and reserve components of the AMEDD.

Several evaluators contributed to the development of the three videotapes designed to be used as part of the Readiness Training Program. CPT Anzelon played the part of the evaluator on all three videotapes. The following individuals played the part of nursing personnel being tested in their readiness clinical nursing skills: LTC Hagan, MAJ Voyles, MAJ Robinette, CPT Smith, SFC Kessler, and SSG Greeder.

Unless stated otherwise, masculine nouns and pronouns used in this TSP do not refer exclusively to men.

-- Julie K. Zadinsky
LTC, AN
Nurse Researcher

TABLE OF CONTENTS

CHAPTER 1

THE READINESS TRAINING PROGRAM

This manual is written to accompany the videotape, "Readiness Training in Operating Room Nursing Skills." Because the videotape is designed for use as part of the Readiness Training Program (RTP), aspects of the RTP related to training clinical nursing skills will be described. As explained in the preface, a more detailed description of the entire RTP can be found in a separate Training Support Package (TSP).

Background

The mission of the US Army Medical Department (AMEDD) is *to conserve the fighting strength* of the US Army. The AMEDD is responsible for maintaining the medical, clinical and technical readiness of medical units and personnel to support the Army in the theater of operations. In peacetime, the majority of nursing personnel in the active and reserve components of the AMEDD work and train in specialized clinical roles in high-technology fixed facilities. They use state-of-the-art, automated equipment and rely on specialized clinical support services, such as pharmacy and respiratory therapy, to provide patient care.

At the same time, these nursing personnel must be ready to provide patient care in a deployed or field status. In this status, nursing personnel must work in more generalist and expanded nursing roles in a variety of field environments, and they must use medical equipment designed to be functional under field conditions. They must provide patient care in the field without some of the automated equipment and specialized support services which they have become accustomed to using in fixed healthcare facilities.

Nursing and other personnel in the AMEDD currently receive military training through the US Army Medical Department Center and School (AMEDDC&S), Regional Training Sites - Medical, and their units. This training provides personnel with a general knowledge base, collective training, and combat casualty care instruction needed to function in their field nursing roles.

For example, the AMEDDC&S provides courses such as the Officer Basic Course (OBC), Officer Advanced Course (OAC), Basic Noncommissioned Officer Course (BNCOC), and Advanced Noncommissioned Officer Course (ANCOC) for all personnel. Some personnel also complete other military courses such as the Combat Casualty Care Course (C4). At Regional Training Sites-Medical, personnel participate in collective training focused on setting up and operating in a field environment. Units provide personnel with common task training and NBC training.

Because of the widening gap between nursing practice in high-technology, automated fixed healthcare facilities and field medical treatment facilities (MTFs), nursing personnel also need training in the clinical roles they will perform in a field environment. This training should be focused on clinical skills and functions that are critical to patient care in a field environment, but that are not routinely performed in fixed facilities. The Readiness

Training Program has been designed to meet these training needs of nursing personnel in the active and reserve components of the AMEDD.

As used in this training manual, readiness refers to the initial capabilities of individuals when placed in a field environment. It includes the ability of nursing personnel to deploy and employ without unacceptable delays (JCS Pub 1-02, 1989). Readiness competency refers to the initial capabilities of nursing personnel to provide patient care in a deployed or field status. Readiness competency can be measured on a continuum ranging from the novice to the expert level. Readiness training enables nursing personnel to become more expert and confident in their ability to provide patient care in a field environment.

Basic Premises

Following are the three basic premises of the Readiness Training Program.

Differences Between TDA and TOE Clinical Nursing Practice

In peacetime, nursing personnel develop and sustain their competencies in entry-level and advanced clinical skills used in their specialized areas of practice in fixed healthcare facilities. In the active component (AC) of the AMEDD, nursing personnel work in fixed facilities that are part of a tables of distribution and allowances (TDA) unit. Many nursing personnel in the reserve component (RC) of the AMEDD work and train in fixed facilities that belong to civilian healthcare organizations. In most of these facilities, nursing personnel function in specialized clinical roles in a high-technology, automated environment.

When in a deployed or field status, both AC and RC nursing personnel work in field MTFs that are part of tables of organization and equipment (TOE) units. In this field environment, nursing personnel function in expanded clinical roles. They use more generalist nursing skills and function without much of the automated equipment and specialized support services commonly available in fixed facilities.

Uniqueness of Functions Supporting Field Clinical Practice

Functions performed by nursing personnel in support of patient care or unit management differ from fixed to field MTFs. To provide patient care in the field, nursing personnel must perform functions that require them to interface with systems unique to the field environment--such as command and control, medical evacuation, and medical supply systems. Other functions involve the application of healthcare principles--such as principles of infection control and sustainment of the MTF--to patient care in a field environment. There is a unique knowledge base underlying performance of these functions in a field environment.

Limited Resources for Training

Training resources are limited and therefore available resources must be maximized to meet identified training needs. Resources can be maximized by focusing training on selected skills and functions. Trainers should focus on clinical skills that (a) are performed frequently or performed as life-saving measures in a field environment but (b) are not routinely performed in fixed MTFs. Skills should be selected for training separately for each area of concentration/military occupational specialty (AOC/MOS). Likewise, trainers should

concentrate on functions that (a) are critical to the support of patient care or unit management in a field environment but (b) are not routinely performed in fixed MTFs. These functions are referred to as battle-focused functions (BFFs).

Goals

The two goals of the Readiness Training Program are as follows:

- To develop competencies in clinical nursing skills that are performed frequently or performed as lifesaving measures in a field environment, but are not routinely performed in fixed MTFs.

- To develop proficiencies in battle-focused functions, which refer to activities performed by nursing personnel in support of patient care or unit management in a field environment.

These skills and functions are referred to as tasks. While competency refers to a soldier's ability to perform a particular skill, proficiency refers to his ability to perform a skill and/or function.

The videotape, "Readiness Training in Operating Room Nursing Skills," is concerned with accomplishing the first goal of developing competencies in clinical nursing skills for nursing personnel who function in a deployed or field status in one of the following roles in the active or reserve component of the AMEDD:

- Operating Room Nurses (66E).
- Operating Room Specialists (91D).

Clinical nursing skills that are performed frequently or performed as lifesaving measures in a field environment, but are not routinely performed in fixed MTFs can be categorized as (a) equipment skills, (b) basic skills, and (c) expanded role skills. These categories of clinical skills provide guidance for training, but they are flexible enough to accommodate the various training needs of units in different settings. Trainers should individualize the skills selected for training based on their unit's mission-essential task list (METL) and the AOC/MOS of nursing personnel being trained. Following is a description of the three categories of clinical nursing skills. Training objectives for clinical skills presented on the videotape are included in Chapter 2.

Equipment Skills.

The first category of skills are those performed using field medical equipment. These pieces of equipment usually are operated differently from equipment used to perform the same or similar skills in fixed facilities. For example, the Hewlett-Packard cardiac monitor-recorder is different from most fixed facility cardiac monitor-recorders in that it uses a 5-lead electrode system.

Basic Skills.

The second category of skills are those performed in the field without automated equipment or specialized support services commonly available in fixed MTFs. For example, nursing personnel rely on pharmacy to provide unit dose services in fixed MTFs, but they cannot always rely on pharmacy to provide these services in the theater of operation (DMSB, 1990). Also, various types of intravenous flow meters and infusion pumps are readily available in fixed MTFs, but they are not always available in the field environment. Therefore, nursing

personnel need to sustain their competencies in skills such as preparing an IV additive and calculating the flow rate for an IV infusion.

Expanded Role Skills.

The third category of skills are those performed by nursing personnel in aspects of their role that are expanded from the fixed facility to the field environment. The nature of field nursing practice requires that all nursing personnel be prepared to perform skills in their field nursing roles that they do not routinely perform in their fixed facility roles. These expanded role skills differ for each AOC/MOS. For example, in some instances in a field environment, operating room specialists (91Ds) must perform skills typically performed by circulating nurses in fixed MTFs, and they also may be responsible for setting up a blood recovery and delivery system in a field MTF. However, these expanded role skills are not routinely performed by 91Ds in fixed MTFs.

Expanded role skills are needed to function in a field environment for two reasons. First, both battle injuries and also disease and non-battle injuries (DNBI) cut across the entire field of healthcare. To be prepared to function in any level of care to which they are assigned, nursing personnel must have both a broad knowledge base of healthcare principles and also hands-on experience in a wide range of clinical skills critical to the care of battle injuries and DNBI commonly seen during military operations. Second, in many instances in the field, such as mass casualty situations, nursing personnel cannot expect that specialty personnel, such as a respiratory specialist, will always be available to meet patient care needs. Thus, nursing personnel must sustain their competencies in a broad base of generalist nursing skills critical to their roles in a field environment.

Training Principles

The following principles are critical to the success of a training program designed to prepare nursing personnel for their patient care roles in a field environment. These principles are emphasized in current Army training guidance (FM 25-100, 1988; FM 25-101, 1990). Moreover, their importance in effective readiness training for nursing personnel has been demonstrated in recent studies. These principles provide a standard direction for training, but they are flexible enough to accommodate various training environments.

Make Leaders Responsible for Training

The success of a unit's training depends on competent, dedicated leaders who are personally involved in ensuring that time is protected for training and that training is well-planned, vigorously executed to standard, and continuously evaluated. Commanders and leaders can help develop junior leaders by providing them with opportunities to serve as trainers. Even so, leaders must be personally involved in training to ensure that it is meeting the needs of nursing personnel in the unit. For example, as nursing personnel undergo training with the Readiness Training Program, leaders should be able to detect an improvement in their confidence to provide patient care in a deployed or field status

Train the Trainer

Before executing the training, trainers must be able to master the clinical skills being trained. They should know the skills well enough to be able to answer soldiers' questions. Also, they should have received instruction in the type of training being

conducted--such as performance-oriented training for clinical nursing skills. Finally, trainers should rehearse the training as they plan to present it and obtain feedback on their presentation from their chain of command.

Use Appropriate Doctrine

Training must be consistent with Army doctrine. Trainers should consult doctrinal manuals that provide principles, procedures, and other critical information needed to train nursing skills. These manuals include the following:

- Army Regulations (ARs).
- Field Manuals (FMs).
- Mission Training Plans (MTPs).
- Soldier's Manuals (SMs).
- Technical Manuals (TMs).
- Technical Bulletins (TBs).

When doctrinal manuals do not contain information about clinical skills that need to be trained, trainers should use other materials--such as operating manuals for field medical equipment and healthcare literature--together with their own experiences to develop new standards and training materials.

Throughout the training cycle, trainers must use evaluations of their training to continuously improve their training materials. These evaluations may highlight issues that need to be incorporated into the doctrinal manuals.

Use Performance-Oriented Training

Performance-oriented training should be used when training nursing personnel in skills required to provide patient care in a field environment. Performance-oriented training stresses the importance of training soldiers to standard, not to time. Some personnel will require more time than others to train to standard on any given skill. The training schedule must be flexible enough to accommodate individual training needs.

Nursing personnel must understand the skills in which they are being trained to standard and the conditions of the skills. The same standards must be enforced for a skill regardless of the AOC/MOS of personnel being trained. As performance levels improve, conditions under which skills are performed can be made more demanding, but the standards should remain constant.

Train Using Realistic Field Conditions

Routine training conducted with nursing personnel must replicate conditions they will encounter when providing patient care in a deployed or field status. This can be done by incorporating realistic conditions into training. In the absence of actual patient care situations, nursing personnel must train with realistic training aids, such as mannequins, and with the actual equipment and supplies they would use in a deployed or field status. Moreover, they must use these training aids, equipment, and supplies for training skills they would be expected to perform in a field environment.

Maintain Mission-Essential Equipment and Supplies

To conduct effective training, nursing personnel must have access to mission-capable field medical equipment, equipment parts, and expendable supplies they would use in a deployed or field status. Moreover, all equipment must be maintained in an operational state of readiness for use in patient-care situations consistent with the current mission of the unit. Thus, responsible equipment operators and

maintenance personnel must perform regular preventive maintenance checks and services (PMCS).

Ideally, all equipment and supplies required for training should be easily accessible to nursing personnel at the unit level. This may not always be the case, especially for some units in the reserve component of the AMEDD. In these instances, unit leaders should consider conducting training for nursing personnel at their Regional Training Site-Medical (RTS-MED) facility.

Train to Challenge

Leaders must ensure that training in clinical skills is mentally challenging and as close to field conditions as possible. Nursing personnel are excited and motivated to learn when they are presented with challenging and realistic training in patient care skills they would be expected to perform in a field environment. As nursing personnel undergo this type of training, confidence in their own ability to provide patient care in a field environment improves along with their demonstrated proficiencies in the skills being trained.

Train to Sustain Proficiency

Once nursing personnel have mastered a group of skills identified as critical to the unit's mission, a method of sustaining their task proficiencies needs to be incorporated into the unit training plans. Sustainment training --

- Focuses on training that will build on tasks already mastered.
- Uses opportunity training to enable personnel to become more expert in their performance of critical tasks.

Opportunity training, sometimes referred to as hip pocket training, is training that is preselected, preplanned, and rehearsed, but is not conducted until unexpected training time becomes available. For example, opportunity training can be conducted when there are slow times in field exercises or when scheduled training is completed early.

Nursing personnel in a unit will fluctuate in their ability to perform critical skills because of several factors, including training frequency, personnel turnover, new equipment fielding, and training resource constraints. Leaders should plan their yearly sustainment training so that the unit's level of proficiency in the selected skills can be maintained in a band of excellence. That is, training in critical skills should be repeated at the minimum frequency necessary for sustainment, but frequently enough to prevent deep valleys in proficiencies.

Training Management

The management of readiness training for nursing personnel can be pictured as a cycle consisting of the following four processes:

- Select Tasks for Training.
- Plan Training Based on an Assessment of Selected Tasks.
- Execute Training Using Methods Designed to Train to Standard.
- Assess Training Based on a Continuous Evaluation of Tasks.

It should be emphasized that the readiness training for nursing personnel outlined in the Readiness Training Program should NOT be conducted in isolation from the rest of the unit's training. Instead, training nursing

skills must be integrated with the unit's training management cycle. Following is a more detailed description of the four processes in the training cycle.

Select Tasks for Training

Leaders must selectively identify and train tasks that accomplish the unit's critical wartime mission. These tasks, which are based on the mission essential task list (METL), focus the training plan for the entire unit and thus allow the unit's training requirements to be narrowed to an achievable number.

When the unit training plan is being developed, leaders must also select for training those clinical nursing skills that support performance of the unit's METL. The training objectives for clinical skills presented in Chapter 2 can be used and adapted as appropriate in support of a unit's METL. These objectives have been developed for training clinical skills critical to patient care in a field environment. They have not been selected separately for different field environments, and they do NOT need to be used in any particular order.

The training objectives for clinical nursing skills have been selected separately for each AOC/MOS. Again, they should be adapted as needed to support a unit's METL. For example, a unit should train with equipment they will use in a deployed or field status. If a unit has something other than a Hewlett-Packard cardiac monitor, they should adapt the cardiac monitor training objective for use with the monitor they will have for patient care in a deployed or field status.

Plan Training Based on an Assessment of Selected Tasks

Trainers must make an initial assessment of the skill levels of nursing personnel in tasks that have been selected for training based on mission requirements. This assessment involves an evaluation of each individual's capability to perform the clinical skills. This assessment should be as objective as possible. For example, a hands-on pre-test of critical elements of the clinical skills selected for training can be given to personnel prior to the execution of training. The videotape, "Readiness Training in Operating Room Nursing Skills," illustrates this type of pre-test for the clinical nursing skills described in Chapter 2. Equipment and supplies needed for the testing together with the testing set-up are included in Appendix A.

Trainers should use the results of this initial assessment to help them focus their training plans. Personnel will not need intensive training in skills that they pass on the pre-test. Furthermore, personnel with demonstrated expertise in skills on the pre-test can be assigned to assist with training.

Execute Training Using Methods Designed to Train to Standard

Training in clinical nursing skills should include presentation of principles underlying skill performance with skill demonstration and a hands-on practicum. Additionally, nursing personnel would benefit from the opportunity to practice their newly-acquired skills during a patient play exercise. Chapter 2 includes training objectives for clinical nursing skills that should be used to develop a principle-focused training plan emphasizing (a) a review of principles underlying skill performance and (b) actual

hands-on practice in carrying out skills as they would be performed during patient care. Hands-on practice should focus on aspects of the skills that differ from the fixed facility to the field environment because of differences in equipment, supplies, availability of support services, and/or roles of nursing personnel.

Assess Training Based on a Continuous Evaluation of Tasks

The skill levels of nursing personnel should be evaluated on a continuous basis throughout the training process. Furthermore, a formal post-test should be conducted to assess individuals' skill levels after training has been completed. It is preferable that a hands-on test be used to evaluate the clinical skills for the post-test. This type of assessment will allow trainers to determine whether nursing personnel have been trained to standard on the selected skills.

Periodic after-action reviews of training throughout the training process will allow leaders, trainers, and participants to reflect on what is happening during training and thus to refine the focus for future training as needed. Formal reports of the status of training in nursing skills should be made to those responsible for overseeing the training of nursing personnel. For example, the Unit Status Report should include a summary of the number of personnel in the unit who have been trained to standard in the skills selected for training.

Timeline for Training Clinical Skills

Trainers should develop a timeline for planning, executing, and assessing their training. Again, the timeline should NOT be made in isolation from the timeline for training battle-focused functions or the rest of the unit's training. Instead, the timeline for training clinical nursing skills must be integrated with the unit's master training timeline. Following is one example of a unit's timeline for training clinical skills. The times can be adjusted and more detail can be added as needed.

Oct-Nov

- Select Tasks for Training.
  - Review unit METL.
  - Select clinical skills for training.

Dec-Feb

- Plan Training.
  - Obtain required equipment and supplies.
  - Identify and train the trainers.
  - Assess unit's proficiency level in selected skills.
  - Develop training materials.
  - Select training sites and dates.
  - Schedule personnel for training.

Mar-Jun

- Execute Training in Clinical Skills.
  - Set up training sites.
  - Rehearse training.
  - Present training.
    - Discuss underlying principles.
    - Demonstrate skills.
    - Conduct hands-on practicum.

Jul-Sep

- Assess Training.
  - Conduct post-test of skills trained.
  - Conduct after-action reviews.
  - Prepare formal report of training.
  - Plan for next year's training cycle.

CHAPTER 2

TRAINING OBJECTIVES FOR CLINICAL NURSING SKILLS

Recall that the first goal of the Readiness Training Program is to help nursing personnel develop competencies in clinical nursing skills that are performed frequently or performed as life-saving measures in a field environment, but are not routinely performed in fixed MTFs. These clinical nursing skills can be placed in one or more of the following categories of skills:

- Skills performed using field medical equipment.
- Skills performed without automated equipment or special support services.
- Skills performed in an expanded role in a field environment.

The clinical nursing skills presented in the videotape, "Readiness Training in Operating Room Nursing Skills," have been identified as training priorities for perioperative personnel in a field environment. Clinical skills were selected separately for operating room nurses (66E) and operating room specialists (91D). Listed after the title of each skill are the AOCs/MOSs of nursing personnel for whom each skill was selected as a priority for training.

The videotape demonstrates an initial assessment of the proficiency level of nursing personnel in the skills selected for training. Training plans should be made based on the results of this assessment. Trainers can use the training objectives included in this chapter to help them train the clinical nursing skills presented in the videotape. While the initial assessment demonstrated in the videotape focuses on critical elements of the selected clinical skills, the training objectives provide more information needed for training.

Brief explanations of components of the training objectives are as follows:

- Task Title. Performance under consideration.
- Conditions. Circumstances under which a task is performed, including equipment and supplies provided.
- Standards. How well or at what level a task must be performed.
- Performance Measures. What must be done to perform the task successfully.
- References. Sources that provide more detailed explanations and information.
- Warnings. Possible personnel injury or equipment damage.
- Notes. Supportive explanation of the performance standard.

Note that the training objectives should not be used as complete study guides for training nursing personnel in any of the skills. They should not be used to replace hands-on practice of the clinical nursing skills being taught.

Rather, the training objectives are designed to serve as guides for training the clinical skills. Trainers must consult the

listed references for further information regarding both the underlying principles and the hands-on performance for all of the skills. Some skills, such as setting up the Blood Recovery and Delivery System, require even more in-depth training than other skills. In these cases, use of additional training materials is essential for sound training.

Operate a Mobile Ultrasonic Cleaner (66E, 91D)

Conditions

You are working in the Central Matériel Supply (CMS) in your field MTF and have just received a grossly contaminated minor tray from the operating room (OR). You have the following equipment and supplies: A mobile ultrasonic cleaner (NSN 6530-01-254-4135) that has not been set up for use; sonic cleaner; 1 grossly contaminated minor tray; 1 pair of disposable gloves.

Standards

Set up the mobile ultrasonic cleaner, process the instruments to be cleaned, and shut down the mobile ultrasonic cleaner IAW the references.

Performance Measures

1. Start up the ultrasonic cleaner.

a. Move the ultrasonic cleaner to its operating position, ensuring at least 6 inches clearance from other equipment or walls to allow for adequate air circulation.

b. Lock at least 2 caster assemblies to secure the ultrasonic cleaner in place.

c. After turning the timer knob to the "off" or "0" position, insure proper grounding and connect the ultrasonic cleaner to electrical power.

Warning. Do not operate the ultrasonic cleaner unless proper grounding is verified. Serious injury or death by electrocution can result. Also do not operate the ultrasonic cleaner unless the power module shipping brackets have been removed by a medical equipment repairer. Damage to the unit can result.

d. Close drain valve and fill tank with 14 gallons of water.

Warning. Never operate the ultrasonic cleaner without a minimum liquid depth of 6 inches to prevent damage to the unit.

e. Add sonic cleaner as recommended by manufacturer of the cleaning solution.

Note. The chemical concentration of the cleaning solution is a critical factor in the cleaning process. Use the concentration recommended by the cleaning solution manufacturer. High concentrations of cleaning solution may inhibit ultrasonic activity.

f. Set timer for approximately 15 minutes to start. Note that the ultrasonic cleaner will operate and the indicator lamp will light.

Note. The solution will undergo a process called degassing, which is the release of trapped air from the cleaning solution. This process should take 10-15 minutes before

full ultrasonic efficiency is achieved. Degassing should be performed after each tank filling or when the cleaning solution has been stagnant over a long period of time.

2. Process instruments that are to be cleaned.

a. Put on a pair of disposable gloves.

b. Rinse instruments thoroughly using warm water to remove loose or surface soils.

c. Open all jointed items for maximum exposure of joints, jaws, blades, and locks.

d. Position and stack items in basket using a crisscross layer pattern, with each layer placed in the opposite direction of the previous layer. Place heavy and bulky items on the bottom.

e. Lower basket into tank without scratching tank walls, ensuring that all instruments are covered with water.

f. Set timer for a approximately 10-15 minutes.

Note. Cleaning time will depend on the amount, location, and type of soil to be removed. While most surface soils can be instantaneously removed, heavy soils imbedded in cracks, crevices, pores, and parts of layered items will increase cleaning time. Fewer items are cleaned better and faster.

g. Upon completion of ultrasonic cleaning cycle, slowly and carefully remove basket of material.

h. Rinse cleaned parts with water (warm to hot water if available).

3. State at least one indication for draining water in the ultrasonic cleaner. For example:

a. Gross contamination in water.

b. Cloudy, murky water.

c. Ultrasonic cleaner is expected to sit without use for a prolonged period of time.

4. Shut down the ultrasonic cleaner.

a. Disconnect electrical power.

b. Place cover on tank when the cleaning solution will be reused.

c. If the cleaning solution will not be reused, establish a drainage waste line by connecting a hose assembly to the drain valve or placing a bucket under the drain valve.

d. If a hose assembly is used, place a container suitable to hold the cleaning solution under the hose assembly.

e. Open and close drain valve as required.

f. Rinse remaining residue from the tank.

g. Wipe the entire ultrasonic cleaner with a soft, damp cloth.

h. Place cover on the tank.

References

Atkinson, L. J., & Kohn, M. L. (1986). Berry and Kohn's Introduction to Operating Room Technique (FM 8-73). New York: McGraw-Hill.

HQDA. (1991). Technical manual--Unit, direct support and general support maintenance manual: Cleaner, ultrasonic, mobile (TM 8-6530-005-24&P). Washington, DC: Author.

Sonicor Instrument Corporation. (1987). Operating Instruction Manual--Mobile Ultrasonic Cleaner (Model MSC-900T-11/21). Copiague, NY: Author.

Set Up & Operate a Field Sterilizer (66E, 91D)

Conditions

You have a minor tray that is wrapped in double-thickness muslin and needs to be sterilized. Power generators are available in your field MTF. You have the following equipment and supplies: One field sterilizer (NSN 6530-00-926-2151); 1 minor tray ready for sterilization.

Standards

Set up the field sterilizer for use with electrical power and demonstrate how to sterilize a minor tray wrapped in double-thickness muslin IAW the references.

Performance Measures

1. Set-up the field sterilizer for use.
   a. Tilt up front of sterilizer.
   b. Unlatch door in front and swing it down 180° into place as the front stand.
   c. Tighten the two thumb screws firmly into sterilizer case to anchor door.
   d. Raise rear of sterilizer, unlatch the door, and swing it down into place as the rear stand. Tighten the two thumb screws into the sterilizer case.
   e. Insure that all packing material is removed from the sterilizer and that sterilizer is steady and level.
   f. Arrange shelves inside sterilizer as desired.

2. Insure that biomedical personnel have connected the sterilizer to the electrical power supply and that sterilizer is grounded.

3. Fill jacket with water.
   a. Establish drainage waste line (hose or bucket).
   b. Close drain valve.
   c. Turn operating valve to DRY position.

Warning. When water is required for continuous operation, do not remove filler plug while there is pressure in the jacket. Relieve pressure by lifting the handle on the safety relief valve or by turning the operating valve to DRY.

   d. Unscrew and remove plug from filling funnel.
   e. Turn operating valve to STERILIZE position.
   f. Fill jacket with water through funnel until sight glass shows water in 3/4 to FULL position.
   g. Replace plug in filling funnel.
   h. Turn operating valve to OFF position.

4. Prepare sterilizer for the sterilization cycle.
   a. Turn power switch to the ON position. Red pilot light will glow.
   b. Wait 10-15 minutes for the pressure to stabilize prior to using the sterilizer. Verify a pressure of 18 psi (15-20 psi) for 250°F or 29 psi (27-32 psi) for 270°F.

5. Perform a biological control or spore test before sterilizer is used for purposes of sterilization to insure that sterilizer will meet conditions of sterility.

6. Demonstrate proper procedure for loading and sterilizing a minor tray wrapped in double-thickness muslin.
   a. Open door and load sterilizer.

b. Close the door, rotate the quick-throw handle clockwise, and tighten the handle securely.

Note. The handle will not operate until the door locking arms are properly located in the end rings.

c. Turn operating valve to STERILIZE position.

d. Start timer (a) once the jacket and chamber pressures are 29 psi and temperature is 270° F or (b) once jacket and chamber pressures are 18 psi and temperature is 250° F.

e. For the minor tray wrapped in double-thickness muslin, set the timer for exposure time of (a) 15 minutes for a jacket and chamber pressure of 29 psi/temp 270° F or (b) 30 minutes for a jacket and chamber pressure of 18 psi/temp 250° F (IAW FM 8-38 & FM 8-73).

Note. The most commonly recommended temperature and time parameters for gravity-displacement cycles are 10-25 minutes at 270-275° F & 15-30 minutes at 250° F (See AORN Standards.)

f. At end of exposure period (when timer goes off), turn operating valve to FAST EXHAUST position.

g. When chamber pressure reaches 0, turn operating valve to DRY position and leave it there for 15 minutes (use the timer).

h. Turn operating valve to OFF position.

i. Loosen the chamber door locking arms and allow the load to cool for 5 minutes.

j. Unload the sterilizer.

k. If additional loads are ready for sterilization, insure that the jacket water level is at least 1/4 full by observing the water level indicator gauge. Refill jacket with water as required.

References

Association of Operating Room Nurses, Inc. (1994). 1994 AORN standards & recommended practices. Denver, CO: Author.

Atkinson, L. J., & Kohn, M. L. (1986). Berry and Kohn's Introduction to Operating Room Technique (FM 8-73). New York: McGraw-Hill.

Atlantic Industries, Inc. (n.d.). Technical manual for lightweight field sterilizer: Model FS1986 (NSN 6530-00-926-2151). Hardeeville, SC: Author.

HQDA. (1979). Centralized matériel service/section (FM 8-38). Washington, DC: Author.

HQDA. (1990). Unit, direct support, and general support maintenance manual: Sterilizer (TM 8-6530-004-24&P). Washington, DC: Author.

HQDA. (1993). Soldier's manual and trainer's guide: MOS 91D operating room specialist, skill levels 1/2/3/4 (STP 8-91D14-SM-TG). Washington, DC: Author.

Meeker, M. H., & Rothrock, J. C. (1991). Alexander's care of the patient in surgery (9th ed.). St. Louis: Mosby.

Perkins, J. J. (1969). Principles and methods of sterilization in health sciences (2nd ed.). Springfield, IL: Charles C. Thomas.

Prepare Sterile Items for Storage (66E, 91D)

Conditions

You have a hermetically-sealed tray that has just been returned from sterilization for sterile storage. You must understand what information you should find written on it, what a load control number means, what conditions would affect the shelf life of your sterile items, and how you would prepare your sterile items if you had no heat sealers. You have the following equipment and supplies: 1 wrapped minor tray with "minor tray" written on tape on the wrapping.

Standards

Describe and explain the following principles, policies, and procedures related to the preparation of sterile items for storage IAW the references.

Performance Measures

1. Describe the information that should be found on packages ready for sterile storage: name of tray, load control number, and expiration date.

2. Interpret a 7-digit load control number.

a. The first two numbers indicate the number of the sterilizer used.

b. The 3rd, 4th, and 5th numbers indicate the calendar day of the year (Julian Date)--e.g., 001-365.

c. The 6th and 7th numbers indicate the sterilization cycle number (during a 24-hour period).

3. State that the shelf life of a packaged sterile item is event related. Explain that the length of time an item is considered sterile depends on factors such as the following:

a. Type and configuration of packaging materials used.

b. Number of times a package is handled before use.

c. Storage on open or closed shelves.

d. Condition of the storage area (e.g., cleanliness, temperature, humidity).

e. Use of dust covers and method of seal.

4. State the following expiration date policies IAW FM 8-38 and explain how these dates should be adjusted for a given situation in the field (i. e., a situation affecting the quality of packaging material, storage conditions, amount of handling, etc.):

a. With dust cover and tape (not sealed in any way)-- 30 days.

b. Hermetically-sealed plastic cover -- 6 months.

References

Academy of Health Sciences, U.S. Army. (1991). 301-91D10 operating room specialist course: Clinical training annex. Fort Sam Houston, TX: Author.

Association of Operating Room Nurses, Inc. (1994). 1994 AORN standards & recommended practices. Denver, CO: Author.

HQDA. (1979). Centralized matériel service/section (FM 8-38). Washington, DC: Author.

HQDA. (1987). Sterilizing medical, surgical, dental, and veterinary matériel (TB MED 2). Washington, DC: Author.

Perform High Level Disinfection (66E, 91D)

Conditions

You are in a field MTF and must perform high level disinfection on a heat-sensitive item. You have the following equipment and supplies: 1 soak pan with cover; heat-sensitive item; bottle of Cidex; instrument table; sterile towels; sterile gloves; sterile distilled water.

Standards

Use appropriate technique to perform high level disinfection on a heat-sensitive item IAW the references. (Note that this method of high level disinfection would be performed in a field MTF, not in a fixed MTF.)

Performance Measures

1. State examples of heat-sensitive items for which high level disinfection is appropriate in a field MTF (e.g., cystoscope or other scopes, lenses, some fiberoptic cables).

2. Disassemble and inspect the instruments and equipment to be disinfected and remove organic debris.

a. Disassemble items as necessary.

b. Check for cracked or cloudy lenses, defects or scratches on metal, and improperly fitting connectors as applicable.

c. Clean with mild detergent to remove organic debris.

3. Place items in the chemical solution.

a. Open a soak pan on the instrument table.

b. Place items into the soak pan, starting with the largest items.

c. Cover items with chemical solution. (Currently, glutaraldehyde (Cidex) often is the chemical solution used in field MTFs.)

d. Place lid on the soak pan.

e. Label soak pan with date and time when disinfectant solution is mixed.

f. Record the start soak time, soak time, date, and initials on a piece of tape and place it on the soak pan lid.

g. Soak items for the time recommended by the manufacturer of the disinfectant used.

Warning. When using Cidex, the personnel protective devices that must be used include: Mask, eye protection, gloves and long sleeves. Also, Cidex should be located where the highest level of ventilation can be achieved and the least amount of traffic is found.

4. Rinse items.

a. Put on sterile gloves.

b. Remove items from the chemical solution and pour sterile distilled water over them, using a syringe as needed to ensure that all surfaces are rinsed well.

c. Repeat the rinse several times to ensure that all crevices and channels have no disinfectant solution remaining.

5. Dry the items.

a. Drain excess water from the items.

b. Hand items to the operating room specialist at the OR table.

References

HQDA. (1993). Soldier's manual and trainer's guide: MOS 91D operating room specialist, skill levels 1/2/3/4 (STP 8-91D14-SM-TG). Washington, DC: Author.

Meeker, M. H., & Rothrock, J. C. (1991). Alexander's care of the patient in surgery (9th ed.). St. Louis: Mosby.

Set Up & Adjust a Field Operating Table (66E, 91D)

Conditions

You are preparing the equipment in your field operating room for use. You have been asked to set up the field operating (OR) table and check it for proper functioning. You have the following equipment and supplies: 1 field operating table (NSN 6530-00-142-9239) removed from its packing with accessories in their container.

Standards

Operate a field operating table IAW the references and without injury to self or patient.

Performance Measures

1. Unlatch and remove the shipping case top.

2. Remove the accessory storage case and place it to one side.

3. Unfasten the hold-down straps which secure the base of the operating table to the bottom section of the shipping case, and lift out the operating table.

4. Raise all 4 foot pad pedals so that the unit is resting on the coaster wheels, and roll the unit to its intended location. Then press all pedals to the down and locked position so that the unit is resting on the foot pads.

5. Raise the back section until the release pins can be inserted through the V-shaped cast hangers on the underside of the seat section and the pivot holes of the back link assemblies.

6. Raise the leg sections to the horizontal position. They will lock automatically in this position.

7. Check to see that the drain plug (located beneath the base, directly below the filler plug) is present and securely tightened. Remove the filler plug, fill the base with fresh water, and reinstall the filler plug.

8. Remove the head section from the accessory storage case. Loosen the clamp knobs beneath the front end of back section and guide the head extender rods into the bearing holes in the front edge of the back

section. Press the head section all the way in, and tighten the clamp knobs securely.

9. Attach arm rests.

10. Position mattress pads by removing x-ray formica tops temporarily so that the elastic corner loops of the pads can be looped around the mounting pins of the formica tops.

11. Adjust the OR table into the following positions.

a. Trendelenburg position.
b. Reverse Trendelenburg position.
c. Side tilt position.
d. Kraske (Jackknife) position.
e. Lithotomy position.

12. Demonstrate understanding of safety measures for moving patients from gurney onto OR table and for working with patients on OR table, to include locking brakes on gurney before transferring patient from gurney to OR table.

References

Atkinson, L. J., & Kohn, M. L. (1986). Berry and Kohn's introduction to operating room technique (6th ed.). New York: McGraw-Hill.

Atlantic Industries, Inc. (1986). Operating and maintenance instructions for table, operating, field. Hardeeville, SC: Author.

HQDA. (1993). Soldier's manual and trainer's guide: MOS 91D operating room specialist, skill levels 1/2/3/4 (STP 8-91D14-SM-TG, Task 081-837-0034). Washington, DC: Author.

Set Up an Electrosurgical Unit (66E, 91D)

Conditions

A patient is on the OR table in your field MTF and is being prepared for surgery. You have been asked to set up the electrosurgical unit (ESU) for use. You have the following equipment and supplies: 1 Valleylab electrosurgical apparatus (NSN 6515-01-309-6647) or Birtcher electrosurgical apparatus (NSN 6515-01-269-6056) with non-disposable patient grounding pad, monopolar handpiece, and monopolar foot pedal; electrode gel; 1 full-body mannequin.

Note. Field units that have used this training objective have had either the Valleylab or Birtcher ESU, and thus this objective has been used with both ESUs.

Standards

Prepare an ESU to be used in the monopolar mode, adjust the coagulation and cutting settings, and place the non-disposable grounding pad under an appropriate patient site IAW the references and safe technique.

Performance Measures

1. Check ESU and equipment parts for sanitation and defects.

a. Check that explosion-proof power cord is not frayed or cracked and that plug is not cracked or damaged.

b. Check all machine and wall receptacle outlets.

c. On a non-disposable grounding pad, check that grounding cord is not frayed or cracked, connector is not bent, and grounding pad is not bent or warped.

d. On a disposable grounding pad, check the pad to insure that the gel has not dried out and check the grounding wire for frays and cracks.

Warning. A defective grounding device may cause electrical shock resulting in cardiac disturbances leading to death and/or sparks igniting flammable supplies.

2. Prepare ESU.

a. Plug unit into the power source.

b. Set rheostats (power setting) on the lowest setting.

c. Check functioning by turning main power switch on and then off.

Note. Full power settings are rarely required since the lowest power setting will generally accomplish the degree of coagulation or cutting needed to stop bleeders.

3. Select an appropriate patient site for placement of the grounding pad.

a. Site should be well vascularized (e.g., have no scar tissue).

b. Site should have no excessive hair.

c. Site should have no bony prominence that might result in pressure points.

d. Site should be as close to the surgical site as practicable (to minimize the flow of electrical current through the patient).

4. Place disposable grounding pad on patient.

a. Check with anesthetist before moving the patient to place grounding pad.

b. Explain procedure to the patient if possible.

c. Peel off protective covering from the adhesive pad.

d. Check for dry spots on pre-lubricated pad. If pad has dry spots, obtain a new one.

e. Apply pad firmly to the patient's thigh in accordance with the manufacturer's guidelines.

Note. Training in use of the non-disposable ground pad is included here because in a field MTF, nursing personnel cannot always rely on an adequate supply of disposable items.

5. If disposable grounding pad is not available, place non-disposable grounding pad under patient.

a. Check with anesthetist before moving the patient to place grounding pad.

b. Explain procedure to the patient if possible.

c. Loosen safety strap from patient's legs.

d. Spread small amount of conductive gel evenly over the entire pad.

e. Lift or roll patient to apply pad, taking care not to push pad under patient.

f. Insure that metal connection between pad and connector cord does not touch the patient and that cord does not become dislodged.

g. Place pad as close to the surgical site as practicable to minimize the flow of electrical current through the patient.

h. Secure safety straps.

Warning. Improper placement of the inactive grounding pad can cause electrical burns to the patient.

Note. Wait for the completion of the draping procedures before connecting the electrodes to the unit.

6. Connect the inactive electrode to the ESU by moving the unit close to the OR table on the same side as the inactive electrode grounding device. A safe distance from the sterile field is maintained.

7. Connect the active electrode to the unit.

a. Receive the connecting end of the active electrode from the scrub.

b. Connect the active electrode to the proper outlet on the unit.

Note. An active electrode with a built-in hand control is often used. This eliminates the need for a foot pedal. If the unit has a foot pedal, place it on the floor close to the surgeon's foot for easy use.

8. Turn the ESU on and adjust the settings for cutting and/or coagulation.

a. Set the lowest setting or as directed by the surgeon.

b. Confirm the power settings with the surgeon.

c. Activate the generator.

9. Disconnect and remove ESU on instructions from the surgeon or at completion of the surgical procedure in the following sequence.

a. Turn rheostats to lowest setting.

b. Turn unit off.

c. Disconnect the active and inactive connections from the machine.

d. Loosen safety strap.

e. Remove inactive grounding device from patient.

f. Remove conductive gel from patient.

g. Secure safety strap.

h. Return foot pedal to storage area.

i. Move machine to the side out of the way.

j. Disinfect machine and non-disposable grounding pad IAW unit SOP.

10. Check patient for burns of area where grounding pad was placed.

References

Birtcher Corporation. (1990). Operating and service manual: Birtcher Model 774 Electrosurgery Unit. El Monte, CA: Author.

HQDA. (1993). Soldier's manual and trainer's guide: MOS 91D operating room specialist, skill levels 1/2/3/4 (STP 8-91D14-SM-TG, pp. 3-41 to 3-45). Washington, DC: Author.

HQDA. (1993). Unit, direct support, and general support maintenance manual: Electrosurgical apparatus model force 2 (TM 8-6515-003-24&P). Washington, DC: Author.

Valleylab, Inc. (1990). Force 2 electrosurgical generator service manual (NSN 6515-01-309-6647). Boulder, CO: Author.

Set Up & Operate an Intermittent Suction-Aspirator System (66E, 91D)

Conditions

A patient is on the OR table in your field MTF and is being prepared for surgery. You have been asked to set up the intermittent suction-aspirator system for use during the next surgical procedure and check the system for proper functioning. You have the following equipment and supplies: 1 intermittent suction-aspirator system (NSN 6515-01-267-2726 & 6515-01-267-2727); connecting tubing, filter, and collection jars necessary for setting up the system; 1 large basin of water.

Standards

Set up an intermittent suction-aspirator system and operate the system on continuous suction/high vacuum mode at 100 mm Hg IAW the references.

Performance Measures

1. Before placing this device into operation, the operator can perform various operational checks to insure proper performance.

a. Verify operating power selections at 115 or 230 VAC, internal rechargeable batteries and external 12 VDC.

b. Verify continuous operation at both high and low ranges, in each of the operating power modes.

c. Verify that intermittent suction operates only in the low vacuum range in each of the operating power modes.

d. Test the Electronic Vacuum Regulator by adjusting vacuum in the high and low ranges, in each of the operating power modes.

Note. The internal battery pack of the Impact Model 306/306M programmable intermittent suction-aspirator system provides 1 hour of operating time at maximum vacuum and is not intended for routine, day-to-day use. Model 306M requires 16 hours to fully recharge its fully discharged batteries.

2. Set up a suction-aspirator system for use during a surgical procedure.

a. Attach tubing to the bottom inlet of the overflow shutoff valve and insert valve into holder.

Note. Always use the overflow shutoff valve provided with the unit to protect the suction mechanism from overflows which may permanently damage the vacuum pump.

b. Attach filter so that it is between overflow shutoff valve and final collection jar with the patient collection side placed toward the patient collection jars.

c. Replace filter when discoloration of its membrane occurs, when its membrane comes in contact with aspirate, or following 150 hours of use.

Note. Do NOT bypass the filter. It is designed to retain bacteria which would otherwise be exhausted into the immediate vicinity.

d. Attach tubing to collection jars.

e. Receive sterile suction tubing from scrub and attach to collection jar.

3. Operate the suction-aspirator system on continuous suction/high vacuum mode at 100 mm Hg.

a. Turn master power switch on.

b. Select vacuum/recharge power mode.

c. Select continuous suction and high vacuum settings.

d. Adjust vacuum regulator setting at 100 mm Hg.

e. Suction water out of a basin.

Reference

Impact Instrumentation, Inc. (1987). Instruction manual operation & service: 306 series programmable intermittent suction--aspirator system (NSN 6515-01-267-2726 & NSN 6515-01-267-2727). (Rev. E). West Caldwell, NJ: Author.

Set Up & Operate a Pulse Lavage Irrigator (66E, 91D)

Conditions

A patient is on the OR table in your field MTF and is being prepared for surgery. You have been asked to set up the pulsed irrigation and suction system and check it for proper functioning. You have the following equipment and supplies: 1 Stryker OrthoLav Pulsed Irrigation and Suction System (NSN 6530-01-237-6088); IV tubing attached to 1 liter IV bag of any type fluid; Stryker disposable tubing set; irrigator handpiece; 1 large basin; 1 assembled intermittent suction-aspirator system (NSN 6515-01-267-2726 & NSN 6515-01-267-2727).

Standards

Set up a pulse lavage irrigator for use during a surgical procedure and operate the machine IAW the references.

Performance Measures

1. Set up pulse lavage irrigator for use during a surgical procedure.

a. Place pump unit on a table near, but outside, sterile field of surgical site.

b. Using sterile procedure, drop contents of tubing set pack into sterile field. Repeat procedure for irrigator tip.

c. Keep handpiece portion of tubing set within sterile field and pass remaining portion of tubing set for installation into pump unit.

d. Open pump cover and roll large portion of irrigation tubing, with white connector, around pump roller head.

e. Insert white connector into slot.

f. Close pump cover. Push in and twist latch to secure.

g. Turn power switch on front of unit to ON position. Place pinch clamp switch in UP position and insert small portion of irrigation tubing. Release pinch clamp switch to DOWN position to secure tubing.

Note. Holding pinch clamp switch in up position for 6 seconds or longer may result in tripping circuit breaker. If so, reset circuit breaker.

h. Turn power switch OFF to prevent inadvertent operation of unit while completing the tubing connection. Place

small irrigation tubing behind the two retainer clips.

i. Attach suction line tube of tubing set to the intermittent suction-aspirator system.

Note. Always use a suction canister between the Stryker tubing set and suction source.

j. Place irrigation control filter onto irrigation control hole.

k. Spike irrigation source.

l. Turn pump unit on.

2. Operate a pulse lavage irrigator, using basin of water as simulated sterile field.

a. Attach irrigator tip to handpiece using sterile technique.

b. To activate irrigation, place finger over irrigation control hole on handpiece. Remove finger from hole to stop irrigation.

c. To activate suction, place finger over suction control hole on handpiece. Remove finger from hole to stop suction. For continuous suction, slide suction control bar over suction control hole. Slide suction control bar forward to discontinue continuous suction.

d. Cover both suction and irrigation holes to suction and irrigate at the same time.

Note. When the pulse lavage irrigator is being used during a surgical case, the circulator should monitor the suction and irrigation fluid levels.

References

Stryker® Surgical. (n.d.). Stryker® OrthoLav 202 pulsed irrigation and suction instruction manual. Kalamazoo, MI: Author.

Stryker® Surgical. (1989). Stryker® OrthoLav 202-100 operator/maintenance manual. Kalamazoo, MI: Author.

Operate a Cardiac Monitor-Recorder (66E)

Conditions

A patient in your field MTF needs an EKG tracing. You have identified the patient, explained the procedure to him, and washed your hands. You have the following equipment and supplies: Hewlett-Packard cardiac monitor-recorder, 5-lead electrode set, 4 metal plate limb electrodes with holding straps; 1 suction cup electrode; 1 tube of electrode gel; 1 roll of recorder paper; 1 box of alcohol pads; 1 mannequin with arms and legs on a bed.

Standards

Set up a cardiac monitor-recorder, connect a patient (mannequin) to the machine, and use appropriate procedure to obtain an EKG tracing IAW the references.

Performance Measures

1. Ask or assist the patient to lie supine on the bed.

2. Insure that patient's body is not in contact with metal objects and that limbs are firmly supported.

Note. Some metal objects, watches, or jewelry may interfere with the accurate recording of the electrical impulse.

3. Instruct patient to relax and breathe normally throughout the entire procedure.

4. Turn machine on and connect 5-lead electrode lead set.

a. Push POWER ON key to turn monitor-recorder module on.

b. Connect electrode lead set to six pin female connector on monitor-recorder module.

Note. The monitor-recorder can be used with an electrical source or with the internal battery. Battery charge time is 2 hours for 90% capacity. Battery capacity is 4 hours monitoring or 1 hour recording.

5. Select Lead II for monitoring the patient.

a. Press LEAD SELECT key to sequentially change EKG source between leads I, II, III, aVR, aVL, aVF, and V.

b. Check CRT screen for display of lead selected.

6. Activate high and low alarms.

a. Press ALARMS ON/OFF key to activate heart rate alarms.

b. Note that the red ALARMS OFF LED is on when heart rate alarms are deactivated and off when alarms are activated.

7. Place high and low alarms at desired settings.

a. Use SELECT key to select HI ALARM limit indicator. Press up/down arrow keys to adjust high alarm limit. Defaults to 140 bpm when module is turned on.

b. Use SELECT key to select LO ALARM limit indicator. Press up/down arrow keys to adjust low alarm limit. Defaults to 40 bpm when module is turned on.

8. Apply limb electrodes.

a. Clean sites for electrode placement by wiping areas with alcohol to remove dead skin and oils.

Note. An area of broken down or irritated skin should not be used for the electrode connection.

b. Apply small amount of electrode gel to sites.

c. Position limb electrodes and secure with holding straps.

(1) Secure leg electrodes on medial or lateral aspect of calf.

(2) Secure arm electrodes on inner aspect of arm or forearm, ensuring that connections are not on or immediately adjacent to an IV site.

(3) Insure that connections are made over a fleshy area, not over bone.

Note. Make the usual electrode connection to a fleshy part of the stump if the patient is missing a limb. Secure the electrode with tape if necessary.

9. Push the Run/Stop button while in Lead II to obtain an EKG tracing.

10. Prepare the report.

a. Remove EKG tracing from recorder.

b. Mark EKG tracing printout with patient's identification, date, time and your initials.

11. Remove electrodes from patient and clean gel from skin or continue to monitor the patient in Lead II.

References

Hewlett-Packard. (1989). Hewlett Packard 43110MC defibrillator/monitor-recorder operating guide. McMinnville, OR: Author.

HQDA. (1990). Soldier's manual and trainer's guide: MOS 91C practical nurse, skill levels 2/3/4/5 (STP 8-91C25-SM-TG, Task 081-835-3007). Washington, DC: Author.

Set Up & Operate a Surgical Suction Apparatus (66E)

Conditions

A chest tube has just been inserted in a patient in your field MTF. You must set up a surgical suction apparatus now and will need to change the patient collection bottle soon. You have the following equipment and supplies: 1 Gomco surgical suction apparatus (two-bottle water-seal system) with 3 drainage bottles (NSN 6515-01-259-4307); connecting tubing for the apparatus; 2 rubber-padded large clamps; 1 bottle of sterile water.

Standards

Set up the surgical suction apparatus (two-bottle water-seal system), adjust the vacuum, and change the patient collection bottle IAW the references and aseptic technique.

Performance Measures

1. Insure that water-seal tube is installed into lid of patient collection bottle.

a. One water-seal tube is needed for each chest tube being used.

b. Since only one patient tube is being used, the unused fitting in the patient bottle top should be caped-off with part no. 3099.

2. Insure that splash tube is installed into fitting on underside of lid on trap collection bottle.

3. Fill patient collection bottle with sterile water to 2 cm mark on graduated water-seal tube or fill until tube is submerged.

4. Connect suction apparatus tubing, insuring that tubing connections and bottle caps are tight.

5. Connect suction apparatus to an electrical source.

a. For 115 volt use - plug the power cord extending down from the left corner of the stand body directly into the 115 volt receptacle.

b. For 230 use - plug the power cord extending down from the left corner of the stand body into the transformer receptacle at the rear of the stand base. Plug the power cord extending out of the opposite end of the transformer into the 230 volt receptacle.

6. Turn power switch to the ON position. The light in the switch indicates the power is on.

7. Turn regulator knob clockwise to increase the vacuum level, counter-clockwise to decrease the vacuum level. Bubbling should be noticed in the bottle with the water seal.

8. With the pump running, pinch off patient's tube and adjust vacuum level to 20 cm H_2O (This setting will be the maximum vacuum).

9. Using aseptic technique, attach suction tubing to chest tube.

10. Observe chest drainage.

a. Note color and consistency.

b. Note amount of drainage and measure at prescribed time intervals.

(1) Mark level of drainage on tape affixed to patient collection bottle.

(2) Note date, time and your initials at drainage level mark.

11. Perform emergency intervention for any unintentional break in the water-seal system.

a. Chest tube is pulled out of the chest.

(1) Cover insertion site with a sterile petroleum gauze square.

Note. The chest tube insertion site must be covered immediately. Use your hand if no other material is available.

(2) Notify charge nurse and physician immediately.

(3) Monitor patient for signs of respiratory distress.

b. Chest tube is disconnected from the system.

(1) Immediately clamp chest tube with rubber-padded clamp.

(2) Depending on the situation, (a) cut off contaminated tips of chest tube and tubing, insert a sterile connector in chest tube and tubing, reattach to drainage system, and release clamp or (b) apply a flutter valve to end of chest tube and release clamp.

(3) Notify charge nurse and physician and observe patient for signs of respiratory distress.

12. Using aseptic technique, change patient collection bottle.

a. Turn suction apparatus off and place 2 rubber-padded clamps securely on tubing close to patient, between patient and patient bottle.

b. Unscrew cap of patient collection bottle and remove bottle.

c. Place 2 cm water in new sterile bottle or fill until tubes are submerged.

d. Re-connect tubing, maintaining aseptic technique.

e. Remove clamps and turn suction apparatus on.

Warning. When patient collection bottle fills to the last graduation of the bottle, it must be emptied or changed.

References

Allied Healthcare Products, Inc. (1989). Gomco model 6053 suction apparatus, surgical, high volume, low pressure, pleural cavity operation, maintenance and service manual. St. Louis, MO: Author.

HQDA. (1990). Soldier's manual and trainer's guide: MOS 91C practical nurse, skill levels 2/3/4/5 (STP 8-91C25-SM-TG, Task 081-835-3031). Washington, DC: Author.

Suddarth, D. S. (Ed.). (1991). Lippincott manual of nursing practice (5th ed.). Philadelphia: J. B. Lippincott.

Prepare an IV Additive
(66E)

Conditions

You are given the following physician's order for an IV medication (in mg). You must calculate the required volume of medication (in ml) and prepare the medication to be given IV piggy-back.

> A patient needs 90 mg of gentamicin to be given IV piggy-back. You have gentamicin on hand in the strength of 40 mg per ml. What volume of gentamicin would you add to the solution that is to be piggy-backed into the intravenous infusion?

You have the following equipment and supplies: Written IV calculation exercise; piggy-back IV bag; 5-10 cc syringe and needle in sterile wrapping; 1 medication vial; medication labels; sterile alcohol pads; 1 pencil; table and chair.

Standards

Calculate the required volume of medication (in ml) and prepare the medication to be given IV piggy-back IAW the references. Any appropriate formula may be used to obtain the medication dosage, but all calculations must be shown.

Performance Measures

1. Calculate the correct volume of the IV medication to be given.

a. Write out the formula:

$$\frac{90 \text{ mg}}{x \text{ ml}} = \frac{40 \text{ mg}}{1 \text{ ml}}$$

Note. The formula used for solving the problem in this example is as follows: The ratio of the required amount of drug to the unknown amount of solution (x) = The ratio of the strength of solution on hand.

b. Multiply the inner values:
(x ml) (40 mg) = 40x

c. Multiply the outer values:
(90 mg) (1 ml) = 90

d. The multiplied inner value equals the multiplied outer value:
40 x = 90

e. Divide 90 by 40 to find x:
x = 90/40 or 2.25 ml

2. Prepare the indicated volume of medication to be given IV piggy-back.

a. Draw 2.25 ml of medication from vial into syringe, using aseptic technique.

b. Clean injection port of IV bag with alcohol swab and inject medication into solution.

c. Attach medication label, to include name of medication, date, time, and initials of person preparing the IV additive.

d. Gently mix medication with solution.

References

HQDA. (1990). Soldier's manual and trainer's guide: MOS 91C practical nurse, skill levels 2/3/4/5 (STP 8-91C25-SM-TG, Task 081-835-3002). Washington, DC: Author.

HQDA. (1992). Soldier's manual and trainer's guide: MOS 91B medical specialist, skill levels 1/2/3/4/5 (STP 8-91B15-SM-TG). Washington, DC: Author.

Calculate the Flow Rate for an IV Infusion (66E)

Conditions

You are given a scenario in which you have a physician's order for the total volume of IV fluid to be infused, delivery rate of the IV tubing set, and total infusion time. You must calculate the proper flow rate for the IV infusion. You have the following equipment and supplies: Written calculation exercise and pencil.

Standards

Perform calculations to obtain the flow rate for the given physician's order IAW the references. Any appropriate formula may be used to obtain the flow rate, but all calculations must be shown.

Performance Measures

The physician has ordered a patient to have 1.5 liters of IV fluid infused in 12 hours. The infusion set you are using administers 10 drops/ml (gtts/ml). Calculate the drops per minute that the patient should receive."

1. One formula that can be used to obtain the drops per minute that the patient should receive in this example is as follows:

$$\frac{\text{(Infusion vol.)(gtts/ml of infusion set)}}{\text{Total infusion time in minutes}}$$

a. Write out the formula, where 1500 ml is the total volume to be infused and you are using a 10 gtts/ml infusion set:

$$\frac{1500 \text{ ml} \times 10 \text{ gtts/ml}}{12 \text{ hrs} \times 60 \text{ min/hr}}$$

b. Perform calculations.

$$\frac{15000}{720} = 20.8 \text{ gtts/min.}$$

2. Another formula is as follows:

a. Calculate the prescribed ml/hr.

$$\frac{\text{Total solution}}{\text{No. of hrs to run}} = \text{ml per hour}$$

In this example, $\frac{1500 \text{ ml desired}}{12 \text{ hrs}} = 125$ ml/hr

b. Divide ml/hr according to the infusion set used.

$$\frac{\text{ml/hr} \times \text{drop factor}}{60 \text{ minutes}} = \text{gtts/minute}$$

In this example, $\frac{125 \times 10}{60} = 20.8$ gtts/min

OR, a short-cut for this second step is as follows:

If drop factor:	Divide ml/hr by:
10 gtts/ml	6
15 gtts/ml	4
20 gtts/ml	3
60 gtts/ml	1

In this example, $\frac{125 \text{ ml/hr}}{6} = 20.8$ gtts/min

Reference

HQDA. (1992). Soldier's manual and trainer's guide: MOS 91B medical specialist, skill levels 1/2/3/4/5 (STP 8-91B15-SM-TG). Washington, DC: Author.

Smith, S. F., & Duell, D. J. (1992). Clinical nursing skills (3rd ed.). Norwalk, CT: Appleton & Lange.

Set Up a Blood Recovery and Delivery System (91D)

Conditions

A surgeon in your field MTF has asked you to set up a Haemonetics Cell Saver 4 Autologous Blood Recovery System for use during the next surgical procedure. You have the following equipment and supplies: 1 Haemonetics Cell Saver 4 Autologous Blood Recovery System (NSN 6516-01-240-6883); 1 Haemonetics Basic Collection Pack (NSN 6515-01-185-2406); 1 Haemonetics Basic High Speed Cell Saver Pack (NSN 6515-01-169-7785); 2 bags of Sterile Normal Saline solution (1 or 3 liter bags); 1 assembled intermittent suction-aspirator system (NSN 6515-01-267-2726 & NSN 6515-01-267-2727).

Note. This training objective is a training aid taken from the references. (See Supervisor Evaluation Guide.) It should serve as a guide for trainers to use together with the listed references and other training materials when providing in-depth training in this skill.

Standards

Set up a Haemonetics Cell Saver 4 Autologous Blood Recovery System for use during a surgical procedure using sterile technique and IAW the Haemonetics Cell Saver 4 Autologous Blood Recovery System Owner's Operating and Maintenance Manual.

Performance Measures

1. Prepare 1 liter of saline with 30,000 units of Heparin.
2. Use HELP program to set up the system.
3. Raise IV pole to full extension.
4. Secure sterile collection liner at all 4 corners of the autotransfusion reservoir.
5. Secure reservoir door closed with handle locked forward, and top clamp rotated down.
6. Close reservoir drain clamp.
7. Aseptically pass double lumen suction tubing into sterile field.
8. Secure blue-tipped tubing tightly to blue inlet port on reservoir liner.
9. Clamp anticoagulant line on the suction tubing.
10. Spike anticoagulant solution.
11. Hang anticoagulant bag on IV pole.
12. Firmly attach suction apparatus tubing to vacuum inlet at rear of reservoir.
13. Connect sterile transfer tubing from reservoir liner to transfer port (top port) at rear of reservoir.
14. Adjust suction flow to required level (under 400 mm Hg).

15. Open anticoagulant line and prime reservoir with 100 cc of anticoagulant.

16. Adjust anticoagulant drip rate to 1 drop per second.

17. Hang waste bag on 3 waste bag support pins.

18. Hang reinfusion bag on IV pole opposite of anticoagulant solution.

19. Close 2 red slide clamps on reinfusion bag and insure that large fill line is open.

20. Inspect centrifuge well for debris.

21. Insure that "O" ring in centrifuge is lightly lubricated.

22. Install centrifuge bowl in well so that a click is heard, indicating that bowl is seated in the well.

23. Hold check in place with check tool and rotate bowl left and right to check free movement.

24. Tighten three chuck screws until chuck tool gives a distinct click.

25. Lock left and right feed tube support arms in place with hook.

26. Rotate cam lock to the 6 o'clock position.

27. Close centrifuge cover.

28. Remove caps from the waste bag and centrifuge effluent tubing.

29. Aseptically connect centrifuge bowl tubing to waste bag.

30. Open pump head and install tubing in pump, with tubing situated between guides located on left and right of the pump and pump door closed.

31. Firmly seat tubing in air detector and under tubing guide.

32. Install feed tube in appropriate color-coded clamps.

33. Close feed tube clamps.

34. Firmly seat red feed tube on reservoir drain and open drain clamp.

35. Close both slide clamps on yellow wash lines.

36. Spike 1 or 2 saline containers.

37. Hang saline bag(s) in a cascade manner on push handle and lower IV pole solution bag holder.

38. Open slide clamps on saline wash lines.

39. Firmly seat blue line in reinfusion bag connection.

40. Open blue reinfusion line.

41. Fully seat all connections, ensuring that there are no loose connections.

42. Open and close all slide clamps appropriately.

43. Route tubing in appropriate feed tube clamps.

44. Route tubing through roller pump and air detector without twists.

References

Haemonetics® Corporation. (1987). Haemonetics® Cell Saver® 4 autologous blood recovery system: Owner's operating and maintenance manual (Rev. C). Braintree, MA: Author.

Haemonetics® Corporation. (1988). Haemonetics® Cell Saver® 4 service manual (NSN 6515-01-240-6883; Rev. B). Braintree, MA: Author.

U.S. Army Medical Matériel Agency. (n.d.). Blood recovery and delivery system: Maintainer training guide (NSN 6516-01-240-6883). Fort Detrick, MD: Author.

U.S. Army Medical Matériel Agency. (n.d.). Blood recovery and delivery system: Operator training guide (NSN 6516-01-240-6883). Fort Detrick, MD: Author.

U.S. Army Medical Matériel Agency. (n.d.). Blood recovery and delivery system: Supervisor evaluation guide (NSN 6516-01-240-6883). Fort Detrick, MD: Author.

Pre-Test for Setting Up a Blood Recovery and Delivery System (91D)

Conditions

The trainer tests the soldier's knowledge of the Blood Recovery and Delivery System by stating, "Here is a Blood Recovery and Delivery System that has been set up with several deficiencies. Each of the deficiencies would prevent the safe and effective use of the equipment. Identify and correct the deficiencies." You have the following equipment and supplies: 1 Blood Recovery and Delivery System set up with the following deficiencies: Bottom 2 corners of sterile collection liner not secured; autotransfusion reservoir door closed but handle not locked, top clamp rotated up, & bottom clamp rotated down; centrifuge bowl seated loosely in well & screws not tightened; feed tube support arms not locked in place; tubing lying loosely by open pump head; tubing not threaded through air detector; red & blue tubes reversed in position; red & blue tubes not connected to any bag; normal saline bag connected to anticoagulant tubing, but bag not labeled as having an anticoagulant added.

Standards

Identify and correct each of the deficiencies that would prevent the safe and effective use of the equipment.

Performance Measures

1. Identify that the sterile collection liner is not properly secured in the autotransfusion reservoir. Secure collection liner at all 4 corners of the reservoir.

2. Identify that the autotransfusion reservoir door is not completely closed. Secure reservoir door closed with the handle locked forward, the top clamp rotated down, & the bottom clamp rotated up.

3. Identify that the centrifuge bowl is not securely seated. Install centrifuge bowl. (A click will indicate that the bowl is seated in the well.) Hold chuck in place with chuck tool and rotate bowl left & right to check free movement. Tighten 3 chuck screws. (Screws are tight when the chuck tool gives a distinct click.)

4. Identify that the feed tube support arms are not locked in place. Lock left & right feed tube support arms in place with hook. Rotate cam lock to the 6 o'clock position. Close centrifuge cover.

5. Identify that tubing is not properly threaded through the pump head. Open pump head & install tubing between the guides located on the left and right of the pump. Close the pump head.

6. Identify that tubing is not properly threaded through the air detector. Firmly seat the tubing in the air detector & under the tubing guide.

7. Identify that the red & blue tubes are reversed in position. Install red & blue feed tubes in appropriate color-coded clamps. Close feed tube clamps.

8. Identify that the red & blue tubes are not connected to any bag. Connect red tube to the reservoir drain. Connect blue tube to the reinfusion bag connection.

9. Identify that the normal saline bag is not marked as having an anticoagulant added. Verbalize that the anticoagulant should be added & the bag should be labeled.

10. Verbalize that 30,000 units of Heparin normally is added for each 1 liter of normal saline in the bag.

REFERENCES

Following are general references used in the preparation of this manual. References specific to training objectives are included with the objectives themselves in Chapter 2.

DMSB. (1990). DEPMEDS policies/guidelines treatment briefs (2nd ed.). Frederick, MD: Fort Detrick

HQDA. (1988). Training the force (FM 25-100). Washington, DC: Author.

HQDA. (1990). Battle focused training (FM 25-101). Washington, DC: Author.

US Joint Military Terminology Group. (1989). Department of defense dictionary of military and associated terms (JCS Pub 1-02). Washington, DC: Author.

APPENDIX A

DESCRIPTION OF PERIOPERATIVE TESTING LANES

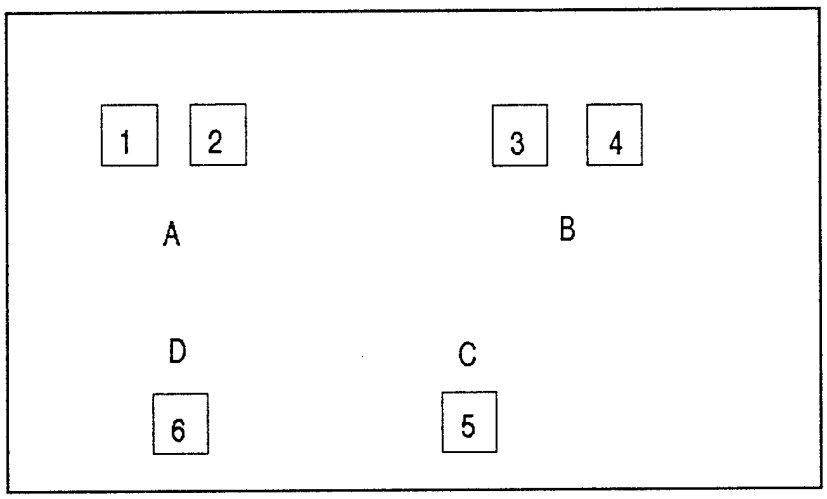

Figure A1. Perioperative Testing Area - CMS/Autoclave

The 3 figures in this appendix (A1, A2, and A3) represent the set up for testing the perioperative nursing skills described in Chapter 2. The letters (A-P) correspond to the clinical nursing skills listed below the figures. The numbers (1-21) correspond to the bed, table, equipment, and/or supplies needed to test each skill.

A. Operate a Mobile Ultrasonic Cleaner

1. Mobile ultrasonic cleaner that is not filled with water, NSN 6530-01-254-4135 (1).

2. Table with the following supplies:
   Sonic cleaner (1 bottle).
   Minor tray with instruments (1).
   Disposable gloves (1 pair).

B. Set Up & Operate a Field Sterilizer

3. Field sterilizer that is not in standing position, NSN 6530-00-926-2151 (1).

4. Field sterilizer that has been set up (1).
   Minor tray ready for sterilization (1).

C. Prepare Sterile Items for Storage

5. Table (1).
   Tray labeled as "minor tray" and hermetically sealed (1).

D. Perform High Level Disinfection

6. Table (1).
   Soak pan with cover (1).
   Disinfection solution (1 bottle).
   Heat sensitive item (1).
   Sterile towels (1 package).
   Sterile gloves (1 pair).
   Sterile distilled water (1 bottle).

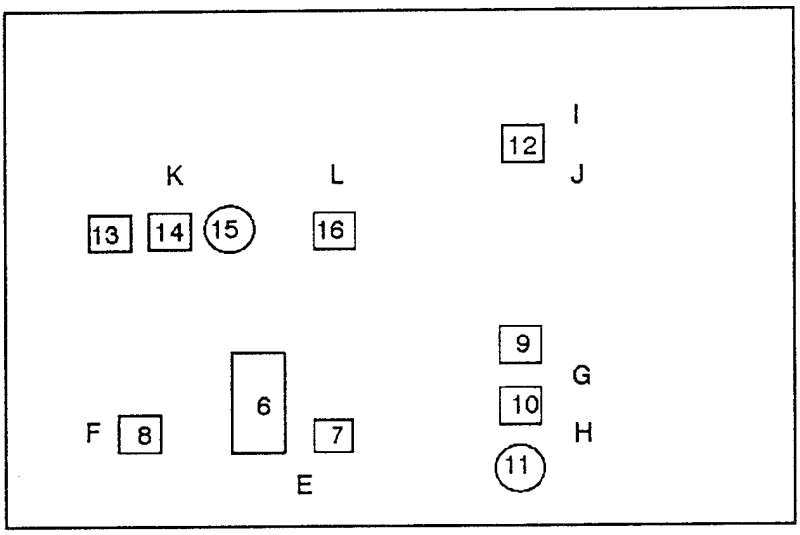

Figure A2. Perioperative Testing Area - Operating Room

E. Set Up & Adjust a Field Operating Table

6. Operating room (OR) table removed from its packing, NSN 6530-00-142-9239 (1).

7. Accessory box containing the OR table's accessories (1).

F. Set Up an Electrosurgical Unit

8. Valleylab electrosurgical unit, NSN 6515-01-309-6647, OR Birtcher electrosurgical unit, NSN 6515-01-269-6056 (1).
   Non-disposable patient grounding plate (1).
   Monopolar handpiece (1).
   Monopolar foot pedal (1).
   Conductive gel (1).
   Full-body mannequin (1).

G. Set Up & Operate an Intermittent Suction-Aspirator System
H. Set Up & Operate a Pulse Lavage Irrigator

9. Table with the following equipment and supplies:
   Intermittent suction-aspirator system, NSN 6515-01-267-2726 &
   NSN 6515-01-267-2727 (1).
   Connecting tubing (1 set).
   Filter (1).
   Overflow valve (1).
   Collection jars (1 set).

10. Table with the following equipment and supplies:
    Stryker OrthoLav Pulsed Irrigation and Suction System, NSN 6530-01-237-6088 (1).
    1-liter IV bag of any solution (1).
    IV connecting tubing (1 set).
    Stryker handpiece and tubing set (1).
    Tip, e.g., Yankauer multi-orifice tip (1).

11. Large basin with stand (1).

I. Set Up a Blood Recovery and Delivery System
J. Operate a Blood Recovery and Delivery System (Set up for testing nurse anesthestists.)

12. Haemonetics Cell Saver 4 Autologous Blood Recovery System,
    NSN 6516-01-240-6883 (1).
    Haemonetics Basic Collection Pack, NSN 6515-01-185-2406 (1).
    Haemonetics Basic High Speed Cell Saver Pack, NSN 6515-01-169-7785 (1).
    Sterile Normal Saline solution, 1 or 3 liter bags (1-2 bags for saline wash lines).
    Sterile Normal Saline solution, 1 liter bag (1 bag for heparinized saline solution).
    Assembled intermittent suction-aspirator system, NSN 6515-01-267-2726 &
    NSN 6515-01-267-2727 (1).

K. Operate an 885A Anesthesia Apparatus
(Set up for testing nurse anesthestists.)

13. 885A Anesthesia Apparatus in its carrying case, NSN 6515-01-003-4133 &
    NSN 6515-01-185-8446 (2).
    "E" oxygen regulator with green oxygen connector (1).
    "D" oxygen cylinders (2).
    Carbon dioxide absorption canisters (4).

14. Ohmeda 7000 anesthesia ventilator (1).
    Ohmeda positive end expiratory pressure valve (PEEP valve) (1).
    Ohmeda 5120 oxygen monitor (1).

15. "H" oxygen cylinder (1).

L. Operate a Universal PAC Draw-Over Anesthesia System
(Set up for testing nurse anesthestists.)

16. Table with PAC on it.

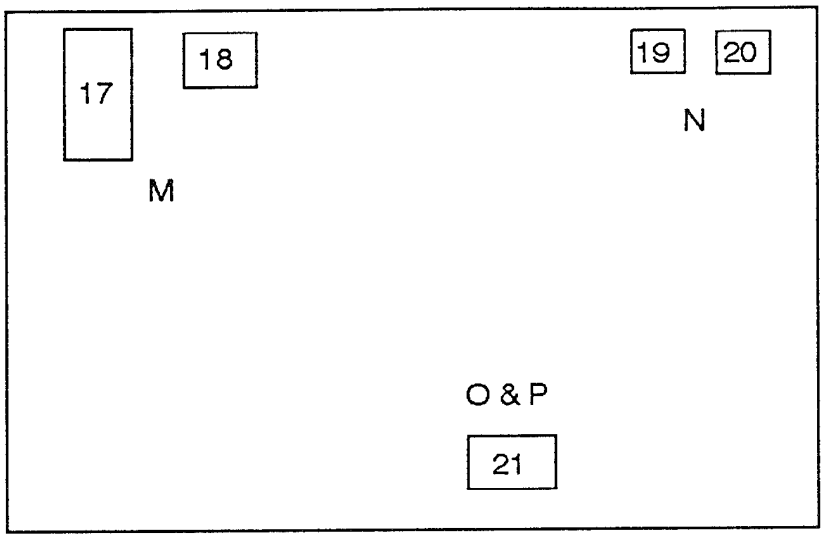

Figure A3. Perioperative Testing Area - Pre-Operative Holding Area

M. Operate a Cardiac Monitor-Recorder

17. Hospital bed with mannequin that has all extremities.

18. Field table with the following supplies:
Hewlett-Packard Cardiac Monitor-Recorder, NSN 6515-01-291-1198, OR
Hewlett-Packard Defibrillator/Monitor-Recorder System, NSN 6515-01-291-1199 (1).
Recorder paper (1 roll).
5-lead electrode lead set (1 set).
Metal plate limb electrodes (4) with rubber straps (4).
Suction cup electrode (1).
Tube of electrode gel (1).
Box of alcohol wipes (1).

N. Set Up & Operate a Surgical Suction Apparatus

19. Gomco Model 6053 Surgical Suction Apparatus, NSN 6515-01-259-4307,
(2-bottle waterseal system with 1 spare drainage bottle) (1).

20. Field table with the following supplies:
Connecting tubing for suction apparatus.
Kelly clamps with rubber padding (2).
Bottle of sterile water (1).

O. Prepare an IV Additive

P. Calculate the Flow Rate for an IV Infusion

21. Field table and 2 chairs with the following supplies:
    Piggy-back IV bag (1).
    5 cc syringe in sterile wrapper (1).
    Needle in sterile wrapping (1).
    Multiple-dose medication vial(1).
    Blank label (1).
    Box of sterile alcohol wipes (1).
    Written calculation exercises (2).
    Pencil (1).

APPENDIX B

DOCUMENT DISTRIBUTION LIST

Defense Technical Information Center, ATTN: DTIC-OCP, 8725 John J. Kingman Road, Suite 0944, Fort Belvoir, VA 22060-6218 (2)

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