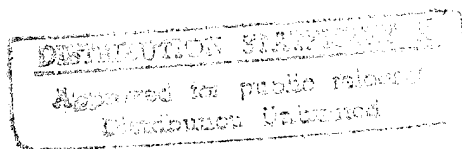


CENTER FOR
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**THE READINESS TRAINING PROGRAM
FOR NURSING PERSONNEL IN THE AMEDD**

Volume III a

**TRAINING MANUAL
to Accompany the Videotape
"Readiness Training in Medical-Surgical Nursing Skills"
Program Identification Number 710659**

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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

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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

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CHAPTER 1

THE READINESS TRAINING PROGRAM

This manual is written to accompany the videotape, "Readiness Training in Medical-Surgical 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 Medical-Surgical 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:

- Medical-Surgical Nurses (66H).
- Practical Nurses (91C).
- Medical Specialists (91B).

The category of medical-surgical nurses refers to anyone who would function in a medical-surgical nursing role in a deployed or field status, even though they may not work in this role in a fixed facility. This includes personnel who work in a community health, obstetric-gynecologic, pediatric, or psychiatric nursing role.

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. The Gomco surgical suction apparatus is different from most fixed facility suction machines in that it uses a two-bottle water-seal 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, calculating an oral medication dosage, 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. Expanded role skills differ for each AOC/MOS. For example, administering a blood transfusion is an expanded role skill for medical specialists and practical nurses because most of these personnel currently do not routinely perform this skill in fixed facilities. However, administering a blood transfusion is not an expanded role skill for medical-surgical nurses because it is within their scope of practice in their fixed facility roles.

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. For example, in some instances, field medics (91Bs) are the first healthcare providers to care for casualties on the battle field. They must be prepared to triage casualties and to provide life-saving interventions such as needle chest decompression although they do not perform these skills in fixed facilities.

Second, in many instances in the field, such as mass casualty situations, nursing personnel cannot expect that specialty personnel, such as a respiratory or an orthopedic 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. For example, medical-surgical nurses must be prepared to operate a ventilator in field MTFs although they may not routinely perform this skill in their fixed facility roles.

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

Medical-Surgical 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 Medical-Surgical Nursing Skills," have been identified as training priorities for nursing personnel in a field environment. Clinical skills were selected separately for medical-surgical nurses (66H), practical nurses (91C), and medical specialists (91B). 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 and operating a ventilator, require even more in-

depth training than other skills. In these cases, use of additional training materials is essential for sound training.

Triage Casualties (66H, 91B)

Conditions

You are the triage officer in the following field scenario. A 5-ton truck just arrived carrying 12 casualties with conventional injuries. The only medical personnel available are 1 general medical officer, 1 general surgeon, and a few nursing personnel. You are the first medical providers to see these casualties. You must assign 1 or more possible triage categories to each of the 4 casualties, explain why you chose each category, and describe the steps in treating each of the casualties. You have the following equipment and supplies: Field table with 2 chairs, the following descriptions of the first 4 casualties whom you must triage, and the following picture of the treatment facility. Note that your possible treatment areas include an X-ray room, laboratory, pre-operative area, operating room, cast room, and post-anesthesia room/ICU.

Casualty 1 - Full and partial thickness burns to face, chest, back, arms (50% total body surface) with moderate dyspnea. Closed, displaced femur fracture.

Casualty 2 - Thrown several feet and landed on right buttocks; unable to move right leg. Lower abdomen tender and rigid; mild rebound. Urge to urinate but unable; blood at meatus. Mild shock.

Casualty 3 - Casualty is surgeon from your facility who suffered a closed non-displaced fracture of lower left leg and sprain to right wrist.

Casualty 4 - Deep penetrating shrapnel wounds to both legs, groin, and lower torso; minimal external bleeding from wounds; vital signs stable. Tourniquet placed on right thigh by buddy. Shrapnel in left eye; also possible caustic agent in eyes; blurred vision both eyes.

Minimal
Delayed

Xray
Lab

Pre-op
OR
PAR/ICU

Cast Room

Triage Area

Expectant

Standards

You must (a) assign 1 or more possible triage categories to each of the four casualties, (b) explain why you chose each category, and (c) describe appropriate steps in treating each of the casualties. Treatment includes all care provided by available personnel; it does NOT refer to treatment by the triage officer.

Note. There is no definitive right answer to the scenarios. The focus of the scenarios is to evaluate the soldier's knowledge of the principles of triage and their ability to apply these principles. The explanation of the category selection and the description of the treatment plan will enable the evaluator to assess the soldier's understanding of triage.

Following are the triage categories and their definitions:

- (1) Immediate casualties are those whose conditions demand immediate treatment to save life or limb. This is the highest category.
- (2) Delayed casualties are those who have less risk of loss of life or limb if treatment is delayed.
- (3) Minimal casualties are those who can be treated by self-aid or buddy-aid.
- (4) Expectant casualties are those who are so critically injured that only complicated and prolonged treatment can improve their life expectancy.

For each casualty, treatment steps should be appropriate for the selected triage category. Also, the selected triage categories and treatment steps for all four casualties should be appropriate for the group of casualties considered together and for the available medical personnel and treatment facility resources.

Performance Measures

1. For each of the 4 casualties, assign one or more triage categories and give an appropriate rationale for the selection of each category.

2. For each of the 4 casualties, describe initial treatment steps that are consistent with each selected triage category.

3. Explain how the selected triage categories and treatment steps for all four casualties are appropriate for the group of casualties considered together and for the available medical personnel and treatment facility resources.

Note. Following are possible answers for the four casualties. These answers are not prioritized in any way.

Casualty One

Immediate

Rationale. Salvageable injuries with adequate treatment; need to establish airway and support ventilation before edema (airway and pulmonary) sets in; need to reduce leg because of potential for 2-3 liters blood loss into thigh.

Treatment Steps. Establish airway and IV access; remove all clothing; reduce fracture with traction splint; maintain body temperature. Patient now stabilized for Delayed Category.

Expectant

Rationale. Burns too extensive given the conditions in a theater treatment facility; treatment would consume too many of the limited resources (personnel, equipment and supplies); combination of hypovolemic shock from burns and femur fracture and respiratory compromise would make survival unlikely; inadequate equipment to monitor and treat ventilatory compromise associated

with respiratory burns; inadequate facilities to prevent massive infection and sepsis.

Treatment Steps. Move casualty to quiet area away from other patients; treat symptomatically for pain and respiratory distress; assign someone to stay with patient.

Delayed

Rationale. Injuries survivable, but would consume large amount of resources which might or might not be affordable; need to treat more viable or urgent patients first and reevaluate category based on available resources.

Treatment Steps. Move patient to Delayed area where patient can be periodically monitored. Reevaluate and treat after urgent patients have been treated. DANGER is that delay in treating burn patients makes treatment more difficult (removal of clothing, insertion of IV lines, intubation, etc).

Casualty Two

Immediate

Rationale. Probable hypovolemic shock secondary to pelvic fracture and internal bleeding; shock too severe for patient to tolerate several hour delay: surgeon available to operate; little preparation required prior to surgery, therefore patient could be opened and stabilized rapidly without delaying other patients in need of surgery.

Treatment Steps. Move to OR; establish IV access; stabilize bleeding; delay fixation of pelvic fracture.

Delayed

Rationale. Mild hypovolemia secondary to pelvic fracture; no immediate capability to stabilize pelvic fracture, so little value in taking to surgery and tying up limited surgical resources; patient probably able to tolerate a delay of several hours.

Treatment Steps. Move to delayed area for periodic monitoring.

Casualty Three

Immediate

Rationale. Surgeon is desperately needed to treat other casualties; best utilization would be in OR, but fracture needs to be set and cast first.

Treatment Steps. X-RAY; set and cast leg; wrap wrist. Surgeon assists in OR and elsewhere as needed.

Delayed

Rationale. Non-life-threatening injury that will not worsen with delay; best if fracture is reduced and casted at same time with adequate time to do multiple X-RAYS to ensure proper alignment; double injury would severely limit contribution of surgeon so little value in treating first.

Treatment Steps. Splint fracture; move to Delayed area; assign surgeon to assist in monitoring other casualties in Delayed area.

Minimal

Rationale. Relatively minor injury; temporary splinting of the fracture and sprain will enable surgeon to provide some assistance; surgeon unlikely to be able to tolerate operating even if fracture were set and cast; unable to operate because of wrist sprain.

Treatment Steps. Splint fracture; assign surgeon to assist in treatment of other minimal patients or elsewhere as needed with limited mobility/capability.

Casualty Four

Immediate

Rationale. Presence of tourniquet requires immediate treatment even in the absence of arterial bleeding, delay in removing tourniquet will result in loss of

limb; eyes need flushing immediately to preserve eyesight and prevent further injury; most urgent of the casualties.

Treatment Steps. (1) Remove tourniquet; flush eyes; move to Delayed area. (2) Remove tourniquet; flush eyes; take to surgery.

Delayed

Rationale. Life-threatening injuries take priority over limb- and eyesight-threatening injuries; time-consuming injuries to treat and limited personnel resources needed to treat other immediate casualties; damage to eyes

already done and further delay will not worsen condition.

Treatment Steps. Move to Delayed area and monitor periodically; assign someone (possibly a Minimal casualty) to stay with blind casualty.

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; Task 081-833-0015; Task 081-833-0080; Task 081-833-0082). Washington, DC: Author.

Intubate a Patient (91B)

Conditions

You have a 27-year-old male patient who is not breathing, but his airway is patent. A qualified assistant is oxygenating the patient with a bag-valve-mask. You must prepare your equipment and intubate the simulated patient. You have the following equipment and supplies: 1 laryngoscope with 1 straight and 1 curved blade; 1 stylet; 1 each of 6, 7, & 8 mm ET tubes in sterile wrappers; 10-20 cc syringe in sterile wrapper; 1 roll of adhesive tape; 1 spray can or tube of lubricant that can be used to intubate the mannequin; bite block or J tube; intubation mannequin on bed; bag-valve-mask (optional).

Standards

All steps necessary to prepare intubation equipment and establish an endotracheal tube airway are performed correctly IAW the references. The patient is not deprived of

oxygen for longer than 20 seconds at any time during the procedure.

Performance Measures

A. Prepare Intubation Equipment

1. Attach blade to the laryngoscope.
 - a. Hook blade to the connector on top of the laryngoscope.
 - b. Lift blade at a 90° angle to the laryngoscope, locking the blade in place.
2. Select the 8 mm ET tube for the adult male (7.5 - 8 mm tube for the average adult male and 7 - 7.5 mm tube for the average adult female).
3. Fill the 10-cc syringe with air.
4. Attach syringe to cuff valve on ET tube.

5. Inflate ET tube cuff with 10 cc of air by depressing the syringe plunger.

Note. Inflatable cuffs are used to attain an airtight seal, preventing aspiration. If the cuff leaks, another ET tube must be obtained, and the procedure must be repeated.

6. Deflate cuff on ET tube by pulling the syringe plunger back until the plunger reaches the 10 cc mark on the syringe.

7. Insert the stylet into the ET tube.

a. Insert stylet into the ET tube so the tip of the stylet is recessed 1/2 inch from the tip of the ET tube.

b. Bend the other end of the stylet at a 90° angle so the tip cannot advance past the end of the tube and puncture or lacerate the airway tissue.

Note. The stylet gives added rigidity to the tube and facilitates maintenance of the tube curvature.

8. Lubricate tube prior to intubation.

B. Perform Intubation

1. Put on gloves.

2. Open patient's mouth and hold it open.

3. Insert laryngoscope blade.

a. Stand at the top of the patient's head.

b. Hold laryngoscope with the left hand.

c. Open and lock blade at a 90° angle to turn the light on.

d. Place blade into the right side of the patient's mouth.

e. Move laryngoscope to the center of the patient's mouth by moving the tongue to the left side with the laryngoscope blade.

f. Advance the blade a short distance to visualize the epiglottis.

4. Open the epiglottis and visualize the vocal cords.

a. Curved blade laryngoscope: Apply anterior pressure to the vallecula with the tip of the laryngoscope blade to fold back the epiglottis and expose the vocal cords.

b. Straight blade laryngoscope: Hook the blade tip under the epiglottis and pull up to fold back the epiglottis and expose the vocal cords.

5. Insert ET tube into the trachea by carefully guiding the tip of the tube between the vocal cords until the cuff is just below the level of the vocal cords.

6. Remove the laryngoscope.

7. Remove the stylet from the ET tube.

a. Hold the ET tube securely with the right hand.

b. Pull the stylet straight out with the left hand.

8. Check the placement of the ET tube.

a. Place resuscitative equipment over end of ET tube and blow air into the tube to inflate the lungs.

b. Instruct the assistant to auscultate the lung fields and epigastric area while you bag the patient through the ET tube.

(1) If patient's chest rises symmetrically, sound is heard in both lungs, and no abnormal sounds are heard over the epigastric area, inflate the cuff.

(2) If sound is heard over only one lung field, withdraw the tube a little and listen again.

(3) If a rushing sound is heard over the epigastric area, withdraw the tube completely, re-oxygenate the patient, and wait at least 3 minutes before repeating the procedure.

9. Once correct placement of the ET tube has been confirmed, inflate the cuff.

a. Depress plunger of the syringe, injecting the required amount of air to inflate the cuff (5 to 10 cc).

b. Hold cuff valve in one hand and remove the syringe with the other hand.

10. Re-oxygenate the patient by giving 2 slow breaths through the ET tube.

11. Wedge a bite block between the back teeth or insert an oral airway.

12. Secure the ET tube.

a. Wrap the middle of a long piece of tape around the ET tube.

b. Attach each end of the tape to the patient's face.

13. Ventilate the patient once every 3 to 5 seconds.

14. Ensure that correct tube placement is maintained by auscultating the lungs and epigastric area.

15. Record the procedure.

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: Task 081-830-3015, Task 081-830-3016). Washington, DC: Author.

Perform a Needle Chest Decompression (91B)

Conditions

You are a field medic in a forward area and have an unconscious patient with left chest trauma, severe respiratory distress, and cyanosis. You must check the patient for signs of a tension pneumothorax. Once you find indications of a tension pneumothorax, you must perform a needle chest decompression. You have the following equipment and supplies: 1 each of a 14 & 18 gauge needle in a sterile wrapper; a 20 cc syringe in a sterile wrapper; 1 box of sterile alcohol pads; 1 roll of adhesive tape; 1 mannequin with chest landmarks visible; 1

condom or sterile glove. No underwater seal drainage system is available.

Standards

All steps necessary to check a patient for signs of a tension pneumothorax and to perform a needle chest decompression are performed IAW the references.

Performance Measures

1. Verify the presence of tension pneumothorax by checking for indications of the condition.

a. Look and listen for signs of dyspnea and progressive respiratory distress despite an open airway.

b. Look for mediastinal shift manifested as jugular distension and/or tracheal deviation away from side of injury.

c. Look at and feel the patient's chest for signs of subcutaneous emphysema.

d. Check for lack of chest excursion by observing the rising and falling of the chest on respiration and comparing chest excursion bilaterally.

e. Look for unilateral distension

(1) Place one hand on the affected side and the other hand on the unaffected side of the chest.

(2) Determine if the height of the hand on the affected side is greater during expiration than the height of the hand on the unaffected side.

f. Listen to breath sounds with a stethoscope.

(1) Compare sides for equality.

(2) Auscultate both sides of the chest, listening for absent/decreased breath sounds on the side of injury.

(3) If breath sounds are unequal, percuss both sides to check for hyperresonance (tympany) to percussion on affected side.

g. Look for signs and symptoms of shock.

Note. Correct assessment is essential. Insertion of a needle into the pleural space of a non-affected person will result in pneumothorax.

2. Locate the insertion site, which is the 2nd intercostal space (ICS) in midclavicular line (approximately in line with nipple) on same side as pneumothorax.

a. Locate the sternomanubrial junction (Angle of Louis).

b. From the sternomanubrial junction, follow the adjacent ICS to the midclavicular line.

3. Thoroughly clean a 3 to 4 inch area around the insertion site with a sterile alcohol wipe, beginning in the center and working outward using a circular motion.

4. Insert a large bore (10 to 14 gauge) needle with a 20 cc syringe attached (alternatively, can use a needle/catheter without syringe).

a. Place the needle tip, bevel up, on the insertion site, centered over the 3rd rib.

b. Lower the proximal end of the needle to permit the tip to enter the skin just above the 3rd rib margin.

c. Firmly insert the needle into the skin over the 3rd rib until the pleura has been penetrated, as evidenced by feeling a "pop" when the needle enters the pleural space.

Note. Proper positioning of the needle is essential to avoid puncturing blood vessels and/or nerves.

5. Decompress the affected side by aspirating air with syringe to relieve the patient's acute symptoms (alternatively, use a needle/catheter without syringe).

Note. If using a catheter-over-needle, hold the needle still and push the catheter into the pleural space until resistance is felt. Withdraw the needle along the angle of insertion while holding the catheter still. If a three-way stopcock is used, additional air can be aspirated from the pleural cavity by turning the stopcock lever to allow expulsion of air from the syringe.

6. Improvise a one-way flutter valve.
 - a. Cut a hole in the tip of a condom or in the finger casing of a sterile glove.
 - b. Tie or tape the condom or finger tip to the needle hub.
 - c. Check the operation of the improvised flutter valve.

(1) Ensure that air passes through the needle-valve assembly and improvised flutter valve on expiration.

(2) Ensure that the flutter valve collapses against itself on inspiration (to prevent air from entering the pleural cavity).

Note. Use of a condom is preferred over a sterile glove because of powder in the glove that possibly could enter the needle or catheter.

7. Secure needle or catheter to the chest with tape.

8. Record treatment on the Field Medical Card.

References

Campbell, J. E. (Ed.). (1988). Basic trauma life support: Advanced prehospital care (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

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: Task 081-833-3007). Washington, DC: Author.

Treat a Hemorrhaging Patient (91B)

Conditions

You are working as a field medic during a field training exercise. A soldier has a wound on the left lower arm that is bleeding profusely. You must take the necessary steps to treat the soldier. The wound continues to hemorrhage as you take each step. You have the following equipment and supplies: 2 field dressings; 2 field bandages; 3 tongue blades; 1 mannequin with wound marked on forearm, just below elbow joint.

Standards

You must take appropriate steps IAW the references to control the external hemorrhaging as the wound continues to bleed.

Performance Measures

1. Tear, cut, or lift clothing or other material from the wound without causing additional injury to the patient.

Note. Clothing or anything else stuck to the wound should be left alone to avoid injury. Do not attempt to clean the wound.

2. Apply steady, direct pressure on wound using field dressing as follows:

a. Grasp olive drab tails of dressing with 2 hands and pull dressing open over the wound with the white side down.

b. Use one hand to hold the dressing in place and the other hand to wrap one of the tails around the injury.

c. Wrap the other tail in the opposite direction until remainder of dressing is covered and secured to the body.

d. Tie the tails into a nonslip knot over the outer edge of the dressing, not over the wound.

e. Apply direct manual pressure over the dressing for 5-10 minutes to control the bleeding.

Note. The dressing should be tied firmly enough to be secure, but loosely enough to be able to insert 2 fingers between the knot and dressing.

3. Elevate arm above heart level. A blanket, poncho, log, or any other available material can be used to elevate the injury.

4. Apply and secure pressure dressing as follows:

a. Form the second field dressing into bulky material and place on top of the original dressing.

b. Wrap the field bandage around the bulky material, leaving enough ends to tie a knot.

c. Tie the knot directly on the wound, using a nonslip knot to secure the extra padding.

d. The pressure dressing should be tight enough so that only the tip of 1 finger can be inserted between the dressing and the skin.

5. If hemorrhaging continues, apply digital pressure to the arterial pressure point at the elbow.

Note. Use a tourniquet only when all other measures (pressure dressing, elevation of limb, and pressure points) have failed to control the hemorrhaging.

6. If still unable to control the bleeding, apply a tourniquet between injury site and the heart, using the second field bandage as the tourniquet.

a. Wrap tourniquet around arm about 2 inches above wound and above joint, not allowing tourniquet to touch wound edges.

b. Tie tourniquet with a half knot.

c. Place tongue blades over the half knot.

d. Tie a square knot over the tongue blades.

e. Tighten tourniquet by twisting tongue blades until the bright red bleeding has stopped.

f. Secure tongue blades in this position, using the ends of the field bandage.

g. Do not cover the tourniquet; leave it in full view.

7. Mark a 'T' on patient's forehead to indicate a tourniquet is in place, and mark time of initiation on forehead or on Field Medical Card.

Reference

HQDA. (1984). Field manual: Medical specialist (FM 8-230). Washington, DC: Author.

HQDA. (1990). Military qualification standards I: Manual of common tasks (STP 21-I-MQS; Tasks 04-8310.00-3010 & 04-8310.00-3011). Washington, DC: Author.

Administer Blood to a Patient (91B, 91C)

Conditions

You are working in the EMT of a field MTF. You have just received a unit of blood that you must administer to a patient. You have verified a physician's orders requiring the administration of blood and have explained the procedure to the patient. You have the following equipment and supplies: 1 labeled blood pack with red fluid in bag to simulate blood; 1 SF 518 completed with patient information; 1 blood 'Y' recipient set; 1 liter of IV normal saline; 1 liter of any IV solution except normal saline; 1 large basin in which to set the blood pack and IV bag between use; and an IV pole.

Standards

Perform all steps necessary to safely administer blood to a patient IAW the references.

Performance Measures

1. Verify and inspect the blood pack received from the laboratory.

a. Record time the blood pack was received on the requisition form (SF 518).

Note. Infusion of a blood pack should be initiated within 30 minutes of being issued.

b. Together with an RN, verify and match information on the blood pack label with data on SF 518.

c. Inspect blood for abnormalities such as gas bubbles or black or gray colored sediment (indicative of bacterial growth).

d. Match blood pack with patient's identification.

(1) The same two persons compare the information on the blood unit

with the data on the patient's ID tag. They ensure that the patient's name, blood type, and ID positively match the data on the blood pack.

(2) The same two persons sign the SF 518 when all data have been confirmed as a positive match.

2. Establish baseline data.

a. Reconfirm data from the patient's history regarding allergies or previous reactions to blood products.

b. Measure and evaluate vital signs.

c. Record vital signs on SF 518 or on medical treatment record.

3. Prepare blood and blood recipient set.

a. Close all three clamps on the "Y" tubing.

b. Aseptically insert one of the tubing spikes into the container of normal saline. Invert and hang this container about 3 feet above the level of the patient.

c. Open clamp on the normal saline line and prime the upper line and the blood filter.

d. Open clamp on the empty line on which the blood will be hung. (Normal saline will flow up the empty line to prime that portion of the tubing.)

e. Once the blood line is primed with saline, close the clamp on the blood line.

f. Leave the clamp on the normal saline line open and open the main roller clamp to prime the lower infusion tubing.

g. Close the main roller clamp.

h. Aseptically expose blood port on blood pack.

i. Aseptically insert the remaining spike into the blood port and hang the blood

at the same level as the normal saline container.

4. Check that a venipuncture has been performed using a large gauge (14, 16, or 18) IV catheter to enhance the flow of blood and prevent hemolysis of the cells.

5. Begin the infusion of blood.

a. Attach the primed infusion set to the catheter, tape it securely, and open the main roller clamp.

b. Close the roller clamp to the normal saline and open the roller clamp to the blood.

c. Adjust the flow rate with the main roller clamp.

(1) Set the flow rate to deliver approximately 10 to 25 cc of blood over the first 15 minutes.

(2) Monitor the vital signs closely for the first 15 minutes and observe for indications of an adverse reaction to the blood--such as fever, chills, hypotension, tachycardia, flushed appearance, headache, nausea, anxiety, dyspnea, etc.

(3) Set the main roller clamp to deliver the prescribed flow rate if, after the first 15 minutes, no adverse reaction is suspected and the vital signs are stable.

6. Monitor and evaluate the patient throughout the procedure.

a. Monitor vital signs at least every hour.

b. Compare vital signs with previous and baseline vital signs.

c. Observe for changes that indicate an adverse reaction to the blood.

d. If an adverse reaction is suspected, stop the blood, infuse normal saline, and notify the charge nurse and physician.

7. Discontinue the infusion of blood.

a. When the blood pack has emptied, close the clamp to the blood and open the clamp to the normal saline.

b. Flush tubing and filter with approximately 50 cc of normal saline to deliver the residual blood.

c. Run normal saline at a TKO rate or hang another prescribed solution.

d. Take and record vital signs at completion of the transfusion and one hour after completion.

8. Return used blood pack to the laboratory blood bank with a copy of SF 518 or dispose of it in another manner IAW the field SOP.

9. Document the procedure and significant nursing observations on the appropriate forms IAW the field SOP.

a. Complete the SF 518.

(1) Return one copy to the laboratory blood bank.

(2) Place one copy in the patient's record.

b. Record the procedure and the patient's response.

Reference

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 081-835-3000). Washington, DC: Author.

Set Up Buck's Unilateral Leg Traction (66H, 91B, 91C)

Conditions

You are in a field MTF and have been asked to set up Buck's traction on a patient's right leg. You explained the procedure to the patient and washed your hands. You realize that you will have to develop a field expedient method of setting up the traction because you only have the following equipment and supplies with which to work: Soft padding; 36" x 2" strip of moleskin; ace wrap; 36" piece of traction cord; approximately 3"x3"x3/4" board (in which you will drill a hole in the middle); adhesive tape; 18" strip of stockinette; IV pole; mannequin with right leg and foot.

Standards

Use a field expedient method to set up Buck's traction on the patient's leg in a safe and effective manner.

Performance Measures

1. Assess limb and prepare it for traction.
 - a. Assess skin (e.g., check for bruises or abrasions), neurovascular status, and pain of affected extremity.
 - b. Check for history of circulatory problems or skin allergies.
 - c. Wash and dry extremity.
 - d. Pad bony prominence of lower leg.
2. Apply traction straps.
 - a. Attach moleskin to extremity medially and laterally (using a minimum of 30" moleskin).
 - b. Extend moleskin 2-3" past end of foot.
 - c. Secure elastic bandage over moleskin, starting just above the ankle and using spiral-reverse or modified figure-eight turns.

- d. Secure elastic bandage with adhesive tape.

3. Attach wooden block.

- a. Secure wooden block inside moleskin.

- b. Secure traction cord to wooden block (e.g., drills hole through wooden block for cord or ties cord around block).

4. Attach weight.

- a. Develop method of stabilizing traction (e.g., string it over IV pole attached to foot of bed).

- b. Create desired amount of weight using a sand-filled stockinette or sand-filled MRE bag.

- c. Develop method of securing traction cord to weight that has been created.

5. Ensure appropriate traction.

- a. Elevate foot of bed to ensure appropriate countertraction.

- b. Assess alignment of extremity, ensuring that affected leg is immobilized in a straight plane with line of traction.

- c. Ensure that the patient's heel is supported off the bed.

6. Assess the neurovascular status and skin of the affected leg every 2 to 4 hours.

7. Assess the patient's psychosocial response to being in traction and respond as needed.

8. Document relevant information--including the procedure, amount of weight applied, and nursing assessments.

References

HQDA. (1992). Soldier's manual and trainer's guide: MOS 91H orthopedic specialist, skill levels 1/2/3/4 (STP 8-91H14-SM-TG: Task 081-834-0003). Washington, DC: Author.

Kozier, B., Erb, G., Blais, K., Johnson, J. Y., & Temple, J. S. (1993). Techniques in

clinical nursing (4th ed.). Redwood City, CA: Addison-Wesley.

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

Zimmer. (1991). Zimmer traction handbook: A complete reference guide to the basics of traction (6th ed.).

Manage Peritoneal Dialysis (66H)

Conditions

A physician has ordered peritoneal dialysis for a patient and is preparing to insert a catheter for the dialysis. You must manage the dialysis. You have explained the procedure to the patient and have washed your hands. You have the following equipment and supplies: 1 or 2 liter bag of fluid with the label "peritoneal dialysate" on the bag, 1 IV tubing set, simulation of a peritoneal catheter (e.g., you can position the opening of an empty IV bag on a full-body mannequin to simulate the catheter), 1 IV pole, 1 pair of sterile gloves, 1 mask, 1 sterile gown.

Standards

Manage peritoneal dialysis IAW the references.

Performance Measures

1. Prepare the patient for the procedure.
 - a. Ask the patient to urinate.
 - b. Obtain baseline vital signs and weight (if scale available).

- c. Assist patient to supine position, with area around umbilicus exposed.
 - d. Provide a mask for the patient.

2. Prepare the solution and tubing.
 - a. Put on sterile gloves and mask.
 - b. Check label on solution and the solution itself.
 - c. Add any prescribed medications.
 - d. Warm dialysate to body temperature.
 - e. Spike the solution container.
 - f. Prime the tubing.

3. Assist with peritoneal catheter insertion.

- a. Use aseptic technique during catheter insertion-to include glove, gown, and mask.

- b. Connect end of tubing from the solution to the catheter using aseptic technique.

4. Infuse the peritoneal dialysate.
 - a. Open clamp so that dialysate can flow into the peritoneal cavity.

b. After the fluid has infused, clamp the tubing.

c. Leave fluid in the cavity for the designated time period.

5. Ensure the patient's comfort and safety.

a. Monitor patient's vital signs every 15 minutes for the first exchange and hourly thereafter.

b. Make the patient as comfortable as possible. If the patient experiences pain during the infusion, slow the infusion rate.

c. Check the dressing at the catheter site. It should remain dry during dialysis.

Note. Leaking around the catheter site predisposes the patient to infection at the exit site and to peritonitis.

6. Remove the fluid.

a. Lower the empty dialysate bag below the level of the peritoneum.

b. Unclamp the tubing to permit the fluid to drain into the bag by gravity.

c. If the fluid does not drain freely, assist the patient to change position or raise the head of the bed.

d. Drain the amount of fluid specified by the order.

7. Assess the outflow fluid.

a. Assess the appearance of the outflow fluid.

b. Measure the amount of outflow fluid.

Note. Cloudy appearance, blood, and/or fibrin in the outflow fluid may be early signs of peritonitis.

8. Calculate the fluid balance.

a. Compare the amount of outflow fluid with the amount of solution infused for each exchange.

b. Calculate the cumulative fluid balance.

c. Report large discrepancies between inflow and outflow fluid.

9. Document relevant information, such as the following:

a. Date and time of procedure and exchange number.

b. Dialysate and additives used and amount of time fluid remains in abdomen for each exchange.

c. Color of outflow dialysate return from patient.

d. Cumulative fluid balance.

e. Appearance of exit site and dressing.

f. Patient's weight before and after the set of exchanges (if scale available).

10. Continue to monitor patient post-treatment for and report signs and symptoms of peritonitis, including cloudy peritoneal fluid, abdominal pain or tenderness, malaise, fever, and nausea or vomiting.

Note. An infection is more likely to become evident after dialysis has been discontinued.

References

Kozier, B., Erb, G., Blais, K., Johnson, J. Y., & Temple, J. S. (1993). Techniques in clinical nursing (4th ed.). Redwood City, CA: Addison-Wesley.

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

Assemble a Water Manometer System & Measure CVP (66H)

Conditions

You are providing patient care in a field environment and need to obtain an intermittent central venous pressure (CVP) reading on a patient who has a central venous line. You have the following equipment and supplies: CVP manometer that is not assembled; 1 liter bag of IV fluid with IV tubing; 1 small basin; IV pole; 1 mannequin on a bed.

Standards

Correctly assemble and position a water manometer system and obtain a CVP reading IAW the references.

Performance Measures

1. Maintain aseptic technique throughout the procedure.

2. Prepare IV administration set-up, priming tubing with IV solution and making certain that no air bubbles are present in tubing. Close clamp on tubing.

3. Secure manometer on IV pole.

4. Connect IV administration set to manometer.

5. Turning stopcock so that manometer and IV solution are open to each other, open clamp on IV tubing and fill manometer with IV solution to between 18 and 20 cm.

Note. Overfilling the manometer may expose the patient to contamination resulting from overflow.

6. Close clamp and rotate stopcock so that IV solution is open to patient.

7. Prime IV fluid path to the patient and connect tubing to IV catheter.

8. Place patient flat in bed, without a pillow, if possible. If not, raise head of bed 15°-30°. Use same position each time a CVP reading is made.

9. Locate patient's right atrium (midaxillary line at fourth intercostal space).

10. Adjust level of manometer so that zero on manometer scale is the same level as patient's right atrium.

11. Turn stopcock to open position for manometer-IV solution, filling manometer with additional solution as needed to a level slightly above expected reading.

12. Turn stopcock to the manometer-patient position and watch the level of the solution in the manometer fall to the pressure level existing in the right atrium.

Note. Changes in the CVP readings over time are more important than one pressure level reading.

13. Observe meniscus at eye level and watch rise and fall of fluid column in response to patient's breathing.

Note. Respiratory fluctuations reflect changes in intrathoracic pressures during respiratory cycle and indicate that manometer is functioning properly.

14. When equilibrium is reached, take CVP reading at highest level of meniscus during end of expiration.

15. Reset stopcock so that IV flow is from solution bag to patient. Adjust rate of infusion as needed.

16. Return patient to desired position and record CVP reading.

References

American Pharmaseal Company. (1986). Pharmaseal[®] procedure set-up: Central

venous pressure monitor. Valencia, CA: Author.

Ayim, E., Bewes, P. C., Bion, J. F., Cory, C., Farman, J. V., Kisia, A., & Prior, F. N. (n.d.). Primary anaesthesia. Oxford University Press.

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

Operate a Cardiac Monitor-Recorder (66H, 91B, 91C)

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.

Obtain a 12-Lead EKG (66H, 91B, 91C)

Conditions

The 4 limb electrodes of a Hewlett-Packard cardiac monitor-recorder are attached to a patient (mannequin), and you have just obtained an EKG tracing. You have been asked to obtain a 12-lead EKG on the patient. You have the following equipment and supplies: Hewlett-Packard cardiac monitor-recorder connected to an electrical source; 5-lead electrode set connected to monitor; 4 metal plate limb electrodes attached to patient with holding straps, 1 suction cup electrode, 1 tube of electrode gel, 1 roll of recorder paper, 1 box of alcohol pads; 1 mannequin that has arms and legs and is positioned on a bed.

Standards

Use appropriate procedure IAW the references to obtain a 12-lead EKG.

Performance Measures

1. Insure correct positioning of 4 limb electrodes (See 1.01: Operate a Cardiac Monitor-recorder).

2. Use Lead Select switch to change EKG source between leads I, II, III, aVR, aVL, & aVF and run a 6 second strip in each position.

3. Place Lead Select switch in Lead V.

4. Connect suction cup electrode to chest lead.

5. Select the following sites for placement of chest electrode--ensuring that sites are over intercostal spaces, not directly over ribs.

a. V1: 4th ICS at Right sternal border.

b. V2: 4th ICS at Left sternal border.

c. V3: Halfway between V2 & V4.

d. V4: 5th ICS at Left midclavicular line.

e. V5: 5th ICS at Left anterior axillary line.

f. V6: 5th ICS at Left midaxillary line.

6. Prepare sites for chest electrode placement.

a. If necessary, shave hair from application site to insure good electrode to skin contact.

b. Clean sites with soap and water or alcohol and wipe dry. This will remove dead skin and oils.

c. Apply a small amount of electrode gel to sites.

7. While limb electrodes are in place and the Lead Select switch is in Lead V, run a 6 second EKG strip with chest electrode in each of the sites that have been prepared for V1-V6.

8. Remove chest electrode and 4 limb electrodes.

9. Wipe patient's skin with damp towel to remove electrode gel.

10. Prepare report as follows:

a. Remove EKG tracing from recorder.

b. Mark EKG tracing printout with patient's identification.

c. Label each section of EKG tracing with correct V lead label.

Note. LEAD I, II, III, aVR, aVL, aVF, or V (as selected by the Lead Select key) is automatically printed every 10 seconds when using the electrode lead set as the EKG source. The operator must label V1-V6 on appropriate sections of the EKG tracing.

11. Wash electrodes with soap and water and rinse. After drying electrodes, store them with EKG monitor-recorder.

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 081-835-300). Washington, DC: Author.

Set Up & Operate a Field Portable Oropharyngeal Suction Apparatus (66H, 91B, 91C)

Conditions

You are providing patient care in a field environment and need to suction oropharyngeal secretions from a patient. You have the following equipment and supplies: 1 field portable oropharyngeal suction apparatus (NSN 6515-01-304-6497); sterile patient suction tubing and suction catheter; 1 small container of water; 1 pair of clean gloves.

Standards

Operate a field portable oropharyngeal suction apparatus to perform a clean procedure IAW the references.

Performance Measures

1. Determine location for use of suction apparatus and mode of electrical operation as follows:

- a. Field medical treatment facility area or ward - AC power source.
- b. Ambulance or other evacuation vehicle - DC (12V) power source.

c. Litter - internal battery pack.

Note. Suction apparatus will operate on internal battery pack for 20 minutes when using maximum vacuum. The Charge indicator illuminates when connected to 115VAC. The internal battery pack takes approximately 16 hours to recharge from a completely discharged condition.

2. Mount suction apparatus securely if using it with a patient on a litter.

a. Locate 2 black webbed nylon straps with hook-and-loop fasteners on each end.

b. Position suction apparatus and patient onto litter.

c. Thread straps through D-ring fasteners located near lower front and back of case and secure suction apparatus to the litter.

3. While operating mode selector switch is in Off/Charge position, connect power

cable or vehicle power cord to appropriate source of electrical power.

4. Attach short connecting tubing from vacuum pump to collection canister.

Note. An optional filter which is both hydrophobic and bacterial can be connected between the vacuum pump and the collection canister furthest from the patient. This filter should be replaced when discoloration of its membrane occurs, the membrane comes in contact with aspirate, or following 150 hours of use. This filter is designed to retain bacteria which would otherwise be exhausted into the immediate vicinity.

5. Verify that all tubing connections are tight and that black collection canister end caps are firmly in place. No kinks should be in connecting tubing.

Note. Multiple collection canisters may be connected, in series, if a large quantity of aspirate is anticipated.

6. Turn operating mode selector switch to either AC, 12V DC, or Battery position as required.

7. Pinch and hold clear, plastic tubing connected to the collection canister and then rotate the Vacuum Adjust control knob to desired maximum deliverable vacuum level. Release tubing.

Note. Deliverable vacuum will not exceed preset level. If suction is too low, secretions cannot be removed. If suction is too high, mucous membranes may be forcefully pulled into catheter opening.

Warning. Rotating Vacuum Adjust control knob without pinching tubing connected to

the collection canister will change the maximum deliverable vacuum level to an unknown setting.

8. Attach patient suction tubing to collection canister.

9. Open suction catheter package to expose suction port of catheter.

10. Put on clean gloves.

11. Remove catheter from package and attach suction catheter to tubing.

12. Test patency of catheter.

a. Insert catheter tip into container of clean water.

b. Place thumb over suction port to create suction until water can be seen entering the collection canister.

c. During operation of the suction apparatus, periodically observe the vacuum gauge setting and the collection canister for potential overflow.

Warning. Do not operate the suction apparatus with the lid of the case closed unless an optional overflow safety device is used. Do not use the suction apparatus for more than 27 minutes per hour.

13. Change collection canister without spilling patient aspirate.

a. Disconnect tubing from both collection canister connectors.

b. Connect 9-inch section of tubing to both collection canister connectors.

c. Dispose of aspirate IAW standard unit procedures.

d. Clean and disinfect collection canister and end caps IAW standard unit procedures.

Warning. Do not clean cylinder with abrasive cleaning agents, alcohol, or chlorinated hydrocarbon agents. Do not steam sterilize (autoclave) the collection canister.

References

HQDA. (1993). Unit, direct support, and general support maintenance manual: Suction apparatus, oropharyngeal model 308M (TM

8-6515-004-24&P). Washington, DC: Author.

Impact Instrumentation, Inc. (1992). Instruction manual operation & service: 308M series, oropharyngeal suction apparatus, portable, battery operated (Rev. E). West Caldwell, NJ: Author.

Set Up & Operate a Surgical Suction Apparatus (66H, 91B, 91C)

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 H₂O (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.

Set up & Operate a Field Oxygen Delivery System (66H, 91B, 91C)

Conditions

A patient in your field MTF needs to be placed on oxygen at 4 L per minute. You have washed your hands. You have the following equipment and supplies: "H" oxygen cylinder in a secured position; cylinder regulator with flowmeter; Christmas tree adapter; non-sparking wrench; nasal cannula with oxygen connecting tubing.

Standards

Assemble a field oxygen delivery system and demonstrate a method of delivering oxygen to a patient IAW the references.

Performance Measures

1. Verify the cylinder's contents by reading its label and checking the color code (green for oxygen).
2. Secure cylinder in upright position (or IAW local SOP) with straps or in a stand.
3. Remove cylinder valve cap.
4. With the oxygen cylinder's outlet away from patients and yourself, use a non-sparking wrench to "crack" (slowly open and quickly close) oxygen cylinder for the purpose of flushing out any debris.

5. Attach cylinder regulator after cracking the cylinder.

a. Insert regulator inlet into the oxygen cylinder's threaded outlet while holding gauge in an upright position.

b. Hand-tighten inlet nut located on the cylinder regulator and then completely tighten with non-sparking wrench.

c. Open valve to test for leaks and then close it.

Note. If there is a leak, check the regulator connection and obtain a new regulator and/or cylinder, if necessary.

6. Attach oxygen administration device.

a. Attach Christmas tree adapter to cylinder regulator.

b. Attach end of nasal cannula oxygen connecting tube to adapter.

7. Set oxygen flow rate at 4 liters per minute.

8. Calculate oxygen cylinder duration of flow.

a. Determine remaining pressure in cylinder by reading regulator gauge.

b. Determine safe residual level of oxygen cylinder (200-500 psi).

c. Determine available cylinder pressure by subtracting safe residual level from remaining pressure. (Example: 2000 psi remaining pressure minus 200 psi safe residual level = 1800 psi available pressure.)

9. Follow safety procedures, to include:

a. Keep combustible materials such as oil or grease away from the cylinders, regulators, fittings, valves, and hoses.

b. Close all valves when oxygen cylinders are not in use, even if they are empty.

c. Secure oxygen cylinders to prevent them from tipping over. In transit, keep them in an appropriate rack or carrier, or space permitting, strap them onto the litter with the patient.

d. When working with an oxygen cylinder, always remain to one side. Never place any part of your body over the cylinder valves. A defective cylinder can launch a loosely fitting regulator with enough force to severely injure anyone in its path.

e. DO NOT smoke in any area where oxygen cylinders are in use or are being stored.

f. DO NOT subject the oxygen cylinders to temperatures above 120°F.

g. DO NOT use oxygen cylinders without properly fitted regulator valves. Never attempt to modify a regulator valve designed for another type of gas cylinder for use with an oxygen cylinder.

h. Use only non-sparking wrenches on oxygen cylinders.

i. Insure that all electrical equipment is properly grounded.

10. Discontinue oxygen.

a. Shut off regulator (flowmeter) control valve.

b. Remove nasal cannula from patient.

c. Shut off main cylinder valve.

d. Bleed the regulator control valve and main cylinder valve by opening the regulator control valve until the needle or ball indicator shows zero flow.

e. Close regulator control valve.

f. Remove regulator with non-sparking wrench.

g. Replace cylinder valve cap.

References

HQDA. (1984). Field manual: Medical specialist (FM 8-230, pp. 14-50 to 14-54). Washington, DC: 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 081-833-0018; Task 081-833-0019). 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, Task 081-830-3000). Washington, DC: Author.

Set Up & Operate a Ventilator (66H, 91C)

Conditions

A respiratory specialist has checked a Uni-Vent Model 750 ventilator for proper functioning and has placed it on standby. A patient in your field MTF needs to be placed on a ventilator immediately, and no respiratory specialist is available to set up the ventilator and adjust it to the prescribed settings. You have been given the prescribed settings for the ventilator. You have the following equipment and supplies: A Uni-Vent Model 750 ventilator (NSN 6530-01-327-0686); a nearby electrical source, required ventilator circuits, oxygen connecting tubing, 50 psi oxygen regulator, test lung, "H" oxygen cylinder in a secured position. All ventilator settings are initially at 0--except high alarm is at maximum setting.

Standards

Set up and calibrate a Uni-Vent Model 750 ventilator, perform a pressure check and adjust the ventilator to the prescribed settings IAW the references.

Performance Measures

Note. The Uni-Vent 750 ventilator is portable, electronically controlled, time-cycled, and pressure limited.

1. Take the following steps to connect the ventilator to an electrical source.
 - a. Connect AC power assembly of the multivoltage power supply to an electrical source.
 - b. Connect multivoltage power supply to the electrical jack on the ventilator marked EXT POWER.

Note. The multivoltage power supply provides for operation of the ventilator on AC and DC power sources, and it has a voltage selector switch which adjusts for 110 VAC or 230 VAC. It also serves as a source of electrical power for recharging the ventilator's internal batteries. Recharge time ranges from 14 to 16 hours, depending on the initial state of discharge. When the batteries are completely recharged, the ventilator can operate on internal battery power for 9 hours of continuous use.

2. Take the following steps to connect the ventilator to a gas source. (See Task 1.05 for cracking the oxygen cylinder and connecting the regulator.)
 - a. "Crack" oxygen cylinder to flush out any debris.
 - b. Attach 50 psi pressure regulator to oxygen cylinder.
 - c. Connect green high pressure hose from regulator to the GAS IN fitting on connector panel of ventilator.

Note. Refer to TM 8-6530-009-24&P for detailed procedure of interconnecting a blender between oxygen source and ventilator.

Warning. The FLOW ADJUST control on the control module is calibrated to a 50-psi input pressure.

3. Connect the 10-mm spiral hose between the GAS OUT tapered barb on the connector panel of the control module and the gas inlet port of the patient valve.

4. Connect the 1/8-in id hose between the TRANSDUCER hose barb on the connector panel of the control module and the transducer port of the patient valve.

5. Connect the 3/16-in id hose between the DEMAND VALVE barb on the connector panel of the control module and the demand valve port of the patient valve.

6. Perform transducer calibration prior to using the ventilator on each patient.

Warning. Do not connect the patient valve to the patient during this procedure.

a. Set MODE selector switch to CAL.
b. Observe control module displays for the following:

(1) Alphanumeric display is blank.

(2) Digital bar graph illuminates one or more indicator lamps.

c. Depress and hold down the MEAN AIRWAY PRESSURE/CAL membrane switch for approximately 3 seconds.

d. Listen for a tone to start during the 3-second period.

e. Observe that the alphanumeric display remains blank during the 3-second tone.

f. When the tone stops, observe the following:

(1) the alphanumeric display shows "00" and

(2) the digital bar graph lamp illuminates between 0 and 2 cm H₂O.

g. Turn MODE selector switch to another mode or to the OFF position.

7. Allow ventilator to undergo a self-test process.

a. Set the MODE selector switch to CTRL, ASSIST, or SIMV to start the self-test process.

b. Observe as the self-test displays current values of the following:

(1) TRANSDUCER CALIBRATION.

(a) Alphanumeric display will show "00" if transducer is calibrated.

(b) If transducer calibration baseline exceeds ± 1 cm H₂O, an audible tone will activate and display will alternately flash "---" and the current transducer calibration value. Do not attempt patient use.

(2) RATE.

(3) INSPIRATION TIME.

(4) LOW PRESSURE ALARM.

(5) ASSIST/SIMV SENSITIVITY.

Note. The self-test values show in the alphanumeric display for 1-second intervals. Their respective indicator lamps are also illuminated for 1-second intervals.

c. If the ventilator fails the microprocessor memory portion of the self-test as indicated by the alphanumeric display continuously displaying FAL and a beeping alarm, turn the MODE selector switch to the OFF position and repeat the self-test.

d. If the self-test fails twice, notify the unit Medical Equipment Repairer.

Warning. The self-test will only be performed with the patient valve disconnected from the patient. Do not attempt to use the ventilator on the patient if the self-test fails.

8. Adjust machine to initial settings, such as:

a. Flow Adjust - 1,000 ml/sec

b. Inspiration - 1.0 seconds

c. Rate - 12 breaths/minute

Note. When you push the button next to a knob or adjust the knob itself, the current

value will display for 3 seconds in the digital window.

9. Perform a pressure check by occluding the circuit at the patient connector during the inspiratory phase. Monitor the digital bar graph display and alarms for leaks.

Note. There should be a steady rise in the digital bar graph display until it reaches the pressure limit, at which time the ventilator should cycle into the expiratory phase. If a leak is found in the patient circuit, the soldier should obtain a new circuit and repeat the pressure check.

10. Set MODE as prescribed. For example, set the mode to IMV.

11. Set FIO₂ as prescribed.
a. FIO₂ at 100% without a blender.
b. Connect oxygen blender to set FIO₂ lower than 100%.

12. Set RATE as prescribed. For example, set the rate to 12 bpm.

13. Set the tidal volume as prescribed.
a. Tidal volume can be calculated by multiplying the FLOW ADJUST control setting (using ml/sec scale) by the INSPIRATION TIME control setting in seconds or fractions of seconds.

b. For example, set the FLOW ADJUST to 1000 & INSPIRATION to 0.8 sec. to get a tidal volume of 800 ml.

c. Refer to the decal affixed to the back of the control module for a tidal volume computation chart.

14. Set the high and low pressure alarms.

a. Depress the PEAK membrane switch to obtain the peak airway pressure. Hold membrane switch for 3 respirations to check the average peak pressure.

b. Set the high and low pressure alarms 10 cm H₂O from the average peak airway pressure.

15. Adjust the ASSIST/SIMV SENSITIVITY control setting as prescribed to select the activation point of each assisted breath relative to the patient's inspiratory effort. Sensitivity of -2 is most commonly used. (Higher values may not trigger the ventilator because of the anti-asphyxiation valve.)

References

HQDA. (1991). Soldier's manual and trainer's guide: MOS 91V respiratory specialist, skill levels 1/2/3/4 (STP 8-91V14-SM-TG, Task 081-830-3009). Washington, DC: Author.

HQDA. (1992). Unit, direct support and general support maintenance manual: Ventilator, volume, portable, models 750 and 750M. (Technical Manual 8-6530-009-24&P). Washington, DC: Author.

Impact Instrumentation, Inc. (1991). Instruction manual operation & service: Portable ventilator Uni-Vent™, 700 series, model 750/750M (Rev. B). West Caldwell, NJ: Author.

Whatmore, D. N. et al. (1991). Critical care guidelines: The Impact 750. In R. Zajchuk, D. P. Jenkins, R. F. Bellamy, C. M. Quick, & C. C. Moore (Eds.), Combat casualty care guidelines (pp. 140-141). Washington, DC: Office of The Surgeon General.

Measure a Patient's Oral Temperature (66H, 91B, 91C)

Conditions

You are in a field environment and need to measure a patient's oral temperature. You have the following equipment and supplies: 1 oral and 1 rectal thermometer in a container labeled for clean thermometers (but not labeled for oral or rectal thermometers); another thermometer that can be used to test reading a thermometer; 1 small container designated for dirty thermometers; 1 box of sterile alcohol pads; table and 2 chairs.

Standards

Demonstrate the procedure for measuring a patient's oral temperature with a mercury-in-glass thermometer and cleaning the thermometer between patient use IAW the references.

Performance Measures

1. Choose a clean oral thermometer.

Note. The clinical thermometer is a glass bulb containing mercury and a stem in which the mercury can rise. On the stem, there is a graduated scale representing degrees of temperature, with the lowest indicating 94°F or 96°F. The thermometer tip is commonly color-coded for proper identification: Blue tip for oral usage and red tip for rectal usage. The standard rectal thermometer comes in two shapes that are designed to prevent perforation of the anus or rectum.

2. Grasp the stem end of the thermometer firmly and with a sharp downward wrist motion, shake the thermometer to lower mercury below 94°F (or below the lowest degree of temperature marked on the scale).

3. Place bulb end of thermometer in heat pocket under the tongue and check that patient closes his lips firmly around the stem without biting down.

4. Verbalize leaving the thermometer in place for at least 3 minutes.

5. Read temperature in agreement with evaluator.

- a. Hold thermometer by stem at eye level.

- b. Notice ridge side with numbers below and lines indicating number of degrees above (long lines = one degree; short lines = 0.2 degrees).

- c. Rotate thermometer back and forth slowly until you can see silver mercury strip.

- d. Compare mercury strip level to printed markings.

6. Use appropriate method of disinfecting patient thermometer between patient use IAW unit SOP.

7. Combat medics may have to modify the method of disinfecting thermometers while on field maneuvers. A field expedient method of caring for thermometers is as follows:

a. Remove thermometer from its plastic holder.

b. Cleanse thermometer with 70% isopropyl alcohol pad. Use a twisting motion to clean from stem to bulb end.

c. Rinse the thermometer with cool water or with a gauze pad saturated with water. Use a twisting motion from stem to bulb end.

d. Shake down thermometer to at least 94°F as described above.

e. Use this procedure both prior to taking patient's temperature and after temperature is taken.

References

HQDA. (1984). Field manual: Medical specialist (FM 8-230). Washington, DC: Author.

HQDA. (1988). Soldier's manual: CMF 91 general medical tasks (STP 8-91-SM, Task 081-831-0013). Washington, DC: Author.

Measure a Patient's Blood Pressure (66H, 91B, 91C)

Conditions

You are in a field environment and need to measure a patient's blood pressure. You have the following equipment and supplies: A sphygmomanometer (which includes an aneroid or mercury pressure manometer, an adult-size occlusive cloth cuff that encloses an inflatable rubber bladder, a pressure bulb with release valve to inflate the cuff); 1 professional dual training stethoscope; 1 box of sterile alcohol pads; table and 2 chairs. (Note that a training stethoscope can be made by using a small connector to attach appropriate pieces of 2 stethoscopes.)

Standards

Obtain a systolic and diastolic blood pressure within a tolerance of ± 4 mm Hg and using procedure IAW the references.

Note. A double stethoscope should be used, allowing a tolerance of ± 4 mm Hg. If other methods are used, such as independent

measurements on different sites or at different times, the evaluator must apply discretion in applying the ± 4 mm Hg standard. Allow the soldier to retake the blood pressure at least once. Use discretion in allowing additional repetitions based on the difficulty of obtaining a reading on the patient.

Performance Measures

1. Prepare the equipment.
 - a. Deflate cuff completely and fully re-tighten thumbscrew.
 - b. Ensure that sphygmomanometer gauge reads zero.
 - c. Decontaminate stethoscope. Clean earpieces and diaphragm with 70% alcohol swabs and cotton-tipped applicators.
2. Prepare the patient.
 - a. Explain the procedure to the patient.
 - b. Place patient in a comfortable sitting, standing, or lying position.

- c. Position patient's arm with forearm supported at heart level and palm turned up.
- d. Expose upper arm fully.

3. Position cuff and manometer.

- a. Place cuff so lower edge is 1-2 inches above the elbow and center of bladder is directly over medial aspect of arm.
- b. Wrap cuff just tightly enough to prevent slippage.
- c. If using aneroid-type manometer, clip gauge to cuff in line with palm. If using mercury manometer, place column on firm, level surface.

4. Position stethoscope.

- a. Locate pulse of brachial artery by palpating in the bend of the elbow.
- b. Place bell or diaphragm of stethoscope over the pulse point. Do NOT apply bell or diaphragm too firmly; excessive pressure distorts pulse sounds.

5. Inflate the cuff.

- a. Tighten thumbscrew of air bulb (clockwise) with one hand while holding stethoscope in place with other hand.

b. Inflate the cuff by pumping the air bulb. You will hear pulse sounds as pressure in the cuff increases, then the sounds will disappear. Continue inflating the cuff until the pressure gauge indicates about 20-30 mm above where pulse sounds were last heard.

Note. Do not let the cuff remain inflated for more than 2 minutes.

6. Determine the systolic and diastolic blood pressure.

a. Loosen thumbscrew of air bulb (counterclockwise) and allow air to escape slowly (about 2-4 mm Hg per second). Watch the gauge and listen.

b. Note the systolic pressure - the pressure within the cuff indicated by the level of the mercury column at the moment when the first clear, rhythmic pulsatile sound is heard.

c. Note the first diastolic pressure - the pressure within the cuff indicated by the level of the mercury column at the moment when the sound becomes muffled.

d. Note the second diastolic pressure - the pressure within the cuff at the moment the sound disappears, that is, the onset of silence.

7. Record the blood pressure reading and compare it with the following:

- a. The patient's previous reading.
- b. The normal adult range:

Systolic -- 100-140

Diastolic -- 60-90

References

HQDA. (1984). Field manual: Medical specialist (FM 8-230). Washington, DC: Author.

HQDA. (1988). Soldier's manual: CMF 91 general medical tasks (STP 8-91-SM, Task 081-831-0012). Washington, DC: Author.

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

Prepare an IV Additive (66H, 91C)

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:

$$(x \text{ ml}) (40 \text{ mg}) = 40x$$

c. Multiply the outer values:

$$(90 \text{ mg}) (1 \text{ ml}) = 90$$

d. The multiplied inner value equals the multiplied outer value:

$$40x = 90$$

e. Divide 90 by 40 to find x:

$$x = 90/40 \text{ or } 2.25 \text{ ml}$$

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 an Oral Medication Dosage
(66H, 91B, 91C)

Conditions

You are given the following physician's order for an oral medication (in mg). You must calculate the amount of medication (in ml) to be given by mouth.

The physician has ordered Benadryl Elixir, 25 mg by mouth, for a patient. The Benadryl Elixir on hand contains 12.5 mg per 5 ml. How many ml of the elixir must be administered to obtain the required dose?

You have the following equipment and supplies: Written calculation exercise; 1 piece of paper and pencil; table and chair.

Standards

Calculate the required volume of medication (in ml) for the given physician's order IAW the references. Any appropriate formula may be used to obtain the medication dosage, but all calculations must be shown.

Performance Measures

1. Write out the formula:

$$\frac{25 \text{ mg}}{x \text{ ml}} = \frac{12.5 \text{ mg}}{5 \text{ ml}}$$

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.

2. Multiply the inner values:

$$(x \text{ ml}) (12.5 \text{ mg}) = 12.5x$$

c. Multiply the outer values:

$$(25 \text{ mg}) (5 \text{ ml}) = 125$$

d. The multiplied inner value equals the multiplied outer value:

$$12.5 x = 125$$

e. Divide 125 by 12.5 to find x:

$$x = 125/12.5$$

$$x = 10 \text{ ml or } 2 \text{ tsp.}$$

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.

Calculate the Flow Rate for an IV Infusion (66H, 91B, 91C)

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:

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

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.

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

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

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

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

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

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

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

References

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.

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 MEDICAL-SURGICAL TESTING LANES

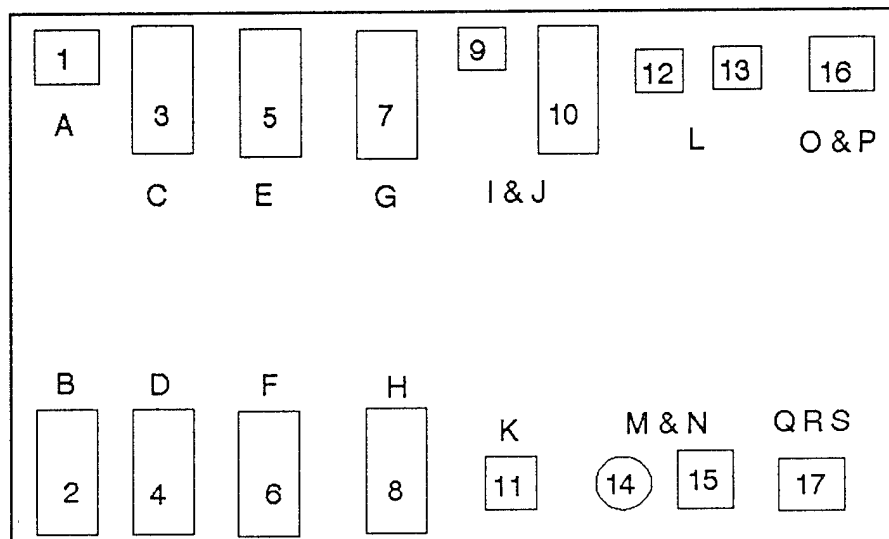


Figure A1. Medical-Surgical Testing Area

Figure A1 represents the set up for testing the medical-surgical nursing skills described in Chapter 2. The letters (A-S) correspond to the clinical nursing skills listed below. The numbers (1-17) correspond to the bed, table, equipment, and/or supplies needed to test each skill.

A. Triage Casualties

1. Field table with 2 chairs.

Written triage scenarios with descriptions of the first 4 casualties to be triaged.
Picture of the hospital layout.

B. Intubate a Patient

2. Hospital bed with the following supplies:

Intubation mannequin.

Laryngoscope (1) with 1 straight and 1 curved blade and 1 stylet.

6, 7 and 8 mm ET tube (1 of each).

10 cc syringe in sterile wrapper (1).

Intubation lubricant (1).

J tube (1).

Roll of adhesive tape, 1/2" (1).

C. Perform a Needle Chest Decompression

3. Mannequin with chest landmarks.
14 and 18 gauge angiocath (1 of each).
20 cc syringe in sterile wrapper (1).
Alcohol swabs (1 box).
Roll of adhesive tape, 1/2" (1).
Condom or sterile glove (1).

D. Treat a Hemorrhaging Patient

4. Hospital bed with the following supplies:
Mannequin with wound marked on lower forearm, just below elbow joint (1).
Dressing, first aid, field, individual troop, camouflaged, NSN 6510-00-159-4883 (2).
Bandage, muslin, compressed, camouflaged, NSN 6510-00-201-1755 (2).
Tongue blades (3).

E. Administer Blood to a Patient

5. Hospital bed with the following supplies:
IV pole connected to bed (1).
Blood pack filled with red liquid and labeled with patient information (1).
1 liter of IV normal saline (1).
1 liter of any IV solution except normal saline (1).
1 large basin in which to set the blood pack and IV bag between use (1).
Blood transfusion recipient set (Y set) (1).
SF 518 completed with patient information (1).

F. Set Up Buck's Unilateral Leg Traction

6. Hospital bed with the following supplies:
Mannequin with lower extremities.
IV pole for hospital bed.
Roll of soft padding (1).
36" x 2" strip of moleskin with adhesive on one side.
Ace wrap (1).
36" piece of traction cord (1).
3" x 3" x 3/4" board (1).
18" strip of stockinette (1).
Adhesive tape (1 roll).

G. Manage Peritoneal Dialysis

7. Hospital bed with the following supplies:

Mannequin.

IV pole.

1-liter IV bag of any solution labeled "Peritoneal Dialysate."

IV connecting tubing.

Empty IV bag is tucked under trousers of mannequin with opening of IV bag coming out of trousers to simulate a peritoneal catheter.

Sterile gloves (1 pair).

Mask (1).

Sterile gown (1).

H. Assemble a Water Manometer System and Measure CVP

8. Hospital bed with the following supplies:

Mannequin with upper extremities (1).

IV pole (1).

1-liter IV bag of any solution (1).

IV connecting tubing (1).

Central Venous Pressure Monitor, Pharmaseal Cat. No. 4338A, unassembled (1).

Small emesis basin (1).

I. Operate a Cardiac Monitor-Recorder

J. Obtain a 12-Lead EKG

9. 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).

10. Hospital bed with mannequin that has 4 extremities.

K. Set Up & Operate a Field Portable Oropharyngeal Suction Apparatus

11. Field table with the following equipment and supplies:

Field Oropharyngeal Suction Apparatus, Model 308M, by Impact,
NSN 6515-01-304-6497 (1).

Suction tubing (1).

Suction catheter (1).

Small container of tap water (1).

Gloves (1 pair).

L. Set Up & Operate a Surgical Suction Apparatus

12. Gomco Model 6053 Surgical Suction Apparatus, NSN 6515-01-259-4307
(2-bottle waterseal system with 1 spare drainage bottle) (1).
13. Field table with the following supplies:
Connecting tubing for suction apparatus.
Kelly clamps with rubber padding (2).
Bottle of sterile water (1).

M. Set Up & Operate a Field Oxygen Delivery System

N. Set Up & Operate a Ventilator

14. "H" oxygen cylinder in secured position.
15. Field table with the following equipment and supplies:
Uni-Vent Model 750 Ventilator by Impact, NSN 6530-01-327-0686.
Required circuits (1 set).
Oxygen connecting tubing (1).
50 psi pressure regulator (1).
Test lung (1).
Pressure regulator with flowmeter (1).
Christmas tree adapter (1).
Non-sparking wrench (1).
Face mask with oxygen tubing (1).

O. Measure a Patient's Oral Temperature

P. Measure a Patient's Blood Pressure

16. Field table with 2 chairs used for testing both skills.
Supplies on table:
Container labeled "Clean Thermometers" (1) with 1 oral and 1 rectal thermometer inside.
Container labeled "Dirty Thermometers" (1).
Extra thermometer on table (1).
Box of alcohol swabs (1).
Blood Pressure cuff with professional aneroid sphygmomanometer (1).
Professional dual training stethoscope (1).

Q. Prepare an IV Additive

R. Calculate an Oral Medication Dosage

S. Calculate the Flow Rate for an IV Infusion

17. 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 (3) and pencil (1).

APPENDIX B

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