

# **CDC Z4N171**

## **Surgical Service Craftsman**

### **Volume 1. Surgical Service Management, Administration, and Advanced Practices**



**Air Force Career Development Academy  
The Air University  
Air Education and Training Command**

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CONGRATULATIONS on your selection to staff sergeant. By this time in your Air Force career, you have become quite proficient at the routine scrub, circulate, and transport duties. You will soon be training airmen, helping inventory supplies and equipment, and assisting with administrative functions of surgery.

This volume is designed to give you some of the tools to understand and perform some of the management and administrative duties associated with the operating room and ancillary areas. While some of the material in this volume may seem repetitious, this career development course (CDC) is not designed to repeat anything you have been previously taught in your five level CDCs. Also, this volume will not cover specific supervisory information taught in Professional Military Education (PME).

Unit one begins with an overview of supervision, paying particular attention to the newly assigned surgical service apprentice. The unit continues with a look at publications and other written correspondence, and finishes with one of the key processes in the medical facility—performance improvement and risk management. Unit two centers on resources; it begins with a look at the medical resource management office, and ends with material responsibility. Unit three, the final unit of the volume, and of the course, focuses on administrative procedures of ancillary areas of surgery such as sterile processing department (SPD) and the various clinics. The volume also deals with medical readiness and specific contingency roles of the surgical service technician. Finally, the volume ends with an overview of some advanced surgical practices that you as a senior technician may be required to perform when scrubbing cases.

A glossary is included for your use.

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This volume is valued at 15 hours and 5 points.

**NOTE:**

In this volume, the subject matter is divided into self-contained units. A unit menu begins each unit, identifying the lesson headings and numbers. After reading the unit menu page and unit introduction, study the section, answer the self-test questions, and compare your answers with those given at the end of the unit. Then complete the unit review exercises.

	<i>Page</i>
<b>Unit 1. Supervision and Management.....</b>	<b>1-1</b>
1-1. Supervision.....	1-1
1-2. Safety in the Air Force Medical Service Environment.....	1-11
1-3. Performance Improvement and Risk Management.....	1-29
<b>Unit 2. Resource Management and Medical Logistics .....</b>	<b>2-1</b>
2-1. Resource Management .....	2-1
2-2. Managing Equipment and Supplies.....	2-18
2-3. Materiel Responsibility .....	2-36
<b>Unit 3. Ancillary Areas of Surgical Service and Advanced Surgical Practices.....</b>	<b>3-1</b>
3-1. Sterile Processing Department and Infection Control.....	3-1
3-2. Clinic Administration.....	3-21
3-3. Medical Readiness .....	3-26
3-4. Advanced Surgical Practices.....	3-29
 <i>Glossary.....</i>	 <i>G-1</i>



# Unit 1. Supervision and Management

<b>1–1. Supervision.....</b>	<b>1–1</b>
001. Supervising the newly assigned surgical technician .....	1–1
002. Assigning personnel to work areas .....	1–4
003. Counseling the surgical technician .....	1–8
<b>1–2. Safety in the Air Force Medical Service Environment .....</b>	<b>1–11</b>
004. Safety .....	1–12
005. Patient advocacy .....	1–16
006. Patient’s needs and fears.....	1–19
<b>1–3. Performance Improvement and Risk Management .....</b>	<b>1–29</b>
007. Air Force performance improvement and risk management program .....	1–29
008. Performance improvement in the operating room .....	1–31

**C**ONGRATULATIONS ON YOUR SELECTION to the noncommissioned officer (NCO) ranks! Do you remember the day you met your first supervisor? Well, soon you will be that first supervisor of a new Airman. There are so many things supervisors must take care of for their newly assigned Airmen (e.g., safety briefings, identifying performance standards, on-the-job training (OJT), and orientations); the list seems endless! This unit introduces you to the world of being a supervisor of surgical service personnel. The information in this volume applies equally to the shreds in the clinics as well the operating room (OR). A good supervisor prepares the younger Airmen to someday fill his or her shoes. It also requires integrity, time, patience, and sometimes; just having the courage to let subordinates make and learn from their mistakes.

## 1–1. Supervision

Leadership, management, and supervision are key elements in nearly every aspect of life. When we were children, our parents, guardians, or other adults provided these traits. Teachers, coaches, bosses, and even friends assume these roles at different times or for different activities. This unit’s focus will be on supervision. You will soon be placed in a position to supervise less experienced Airmen. Leadership and management of personnel and resources are also important for you to learn. If you have not yet attended Airman Leadership School, you will soon have a class date. Also, at specified intervals during the rest of your career, you will be given the chance to attend other professional military education (PME) schools. PME is designed to teach you the skills needed to be an effective leader and a manager.

### 001. Supervising the newly assigned surgical technician

Supervision can be defined as the process of reviewing, observing, and accepting responsibility for the actions and services provided by subordinates. As a technician team leader or a supervisor of surgical personnel, you must learn to direct people to the work that needs to be done, and inspect the work once it’s finished. Of course, before a worker can be put to the job, a few preliminary steps need to be accomplished.

#### Orientation of the newly assigned surgical technician

Once a technical school graduate receives an assignment notification to your duty station, the flight noncommissioned officer in charge (NCOIC) or element NCOIC determines and assigns an immediate supervisor. To prepare for the inbound Airman, the supervisor begins gathering and assembling the various records and documents required to create a training folder. The specific records required, as well as procedures for creating the training folder, are listed in the 4N1X1X Career Field Education and Training Plan (CFETP). Some of these records include the following:

1. AF Form 623b, Individual Training Record Folder.
2. 4N1X1X Career Field Education and Training Plan.
3. AF Form 623a, On-the-Job Training Record-Continuation Sheet.
4. Any locally developed overprints of the AF Form 797, Job Qualification Standard Continuation/Command.
5. Any locally developed orientation checklists.
6. AF Form 55, Employee Safety and Health Record.
7. AF Form 931, Performance Feedback Worksheet.

**NOTE:** The AF 931 is never maintained in the training record; the ratee gets a copy, and the rater may keep a personal copy, but *it does not go in the record*. In addition to creating the training folder, the supervisor also coordinates with the NCOIC and the training manager to work out a training schedule.

Upon notification of the assignment, the NCOIC also coordinates with the commander's support staff (CSS) to assign the individual a sponsor. The sponsor's job is to welcome the new arrival to the base, and help make the relocation process easier for all involved. Sponsor's duties include the following:

1. Writing a welcome letter.
2. Serving as a point of contact for questions.
3. Helping obtain a mailing address.
4. Performing any other duties that can smooth the arrival.

Ideally, the sponsor is someone with similar interests and situations. For example, a single Airman living in the dorm may be an ideal sponsor for an incoming single Airman, but may not be able to help a staff sergeant with three kids. The reverse is also true. A surgical technician can introduce the arriving member to surgical duties, but may not be able to help a medical service apprentice. Upon arrival to the base, the newly assigned Airman should contact his or her sponsor; the sponsor should then help the Airman get settled, then escort him or her to the duty section to begin orientation and in-processing.

The orientation period begins with the supervisor (or other designated individual) taking the new arrival to the orderly room to begin in-processing to the facility. The supervisor also arranges for an appointment with the Military Personnel Section (MPS) to begin base in-processing.

Part of the in-processing procedure includes an orientation phase. This includes familiarization with the base, the facility, and work center (duty section). Most facilities will have newcomers' briefings. These include briefings ranging from the facility commander down to the various offices that the Airman will be dealing with on a day-to-day basis. When you're assigned to orientate an individual, be sure to introduce the Airman to other work center personnel and those in the Airman's chain of command. Walk through the work center and show the new Airman the physical layout of the OR, recovery room, and sterile processing. In addition to these areas, take the Airman on a tour of the facility and show the individual where the nursing units, clinics, lab, radiology, pharmacy, and other important areas of your facility are located. Pay particular attention to fire and disaster evacuation plans and clinic/work center operating hours. Include a brief overview of what the Airman may be doing on the job, and so forth. The orientation period may vary from one individual to another, but it should always cover the essential information. Most work centers, facilities, and bases, provide the Airman with an orientation checklist. Once this checklist is complete, give it to the supervisor to maintain in the individual's file. The checklists from the facility are forwarded to the appropriate office of primary responsibility (OPR).

As the newly graduated Airman's supervisor, there are a number of other areas you must address (these are included in the following lessons). As we proceed, we'll discuss the supervisor's role in explaining the Airman's duty schedule, work standards expected, and required safety related briefings



and documentation. Before we go on to these areas, let's discuss the supervisor's role in evaluation of a newly assigned Airman arriving from technical training.

### **Evaluation of surgical formal course graduates**

As the supervisor of a newly assigned surgical service apprentice you will be asked to provide feedback to the Surgical Service Apprentice Course located at Fort Sam Houston-San Antonio, Texas. Providing feedback to the school is the only way you can help the school improve the quality of training. If graduates aren't learning what's needed to perform on-the-job, then you, as the supervisor, need to communicate this fact to the course. There are various methods used to gather these data. These include the following:

- Field evaluation questionnaires (FEQ).
- Field interviews via telephone.
- Temporary duties (TDY) from training evaluators at the training group.
- Customer service information line (see your CFETP for details).
- Graduate assessment surveys (GAS).

If you are asked to participate in any of the above methods of evaluation, take your time, be accurate, and be specific. Address the former student's knowledge and performance upon his or her first arrival at your facility. For example, if an Airman arrived in your duty section "gung-ho" and full of "yes ma'am, yes sir," the schoolhouse probably did a good job training military bearing and courtesies. If the Airman has lost those traits since being assigned, don't list "military skills" as needing improvement on the GAS—the Airman may have picked up these habits after arrival. On the other hand, if the Airman couldn't gown and glove without contaminating someone, say so on the survey. Every survey, assessment, telephone call, letter, or other feedback received is evaluated by the training course for required action.

Evaluating training is your responsibility. After all, the technicians in the field are in the best position to determine who, what, and when something needs training. By the way—the same holds true for this career development course (CDC)—if you have any comments, suggestions, questions, recommendations, or any other input, call, e-mail, or write the author. The numbers and addresses are listed on the inside cover of this volume.

### **Career field surveys**

Have you ever heard of an Occupational Analysis Report (OAR)? An OAR is a survey used to collect data for evaluation of career field training and to update training documents; specifically, the career field specialty training standard (STS) portion of your CFETP. The OAR specifically provides the training community with a comprehensive database to support anticipated training decisions for the career ladder. An OAR is accomplished by surveying at least 50 percent of personnel throughout the career field (the last Surgical Services OAR surveyed 55 percent of those eligible) and is represented in terms of major commands, paygrade, and total active federal military service time. To compile data for the OAR report, the Occupational Measurement Squadron, located at Randolph AFB, TX, puts together a survey tool called a *job inventory*. The job inventory is a composition of all tasks specifically accomplished by the 4N1X1X career field, and also lists any equipment commonly used by 4N1X1X personnel. The job inventory also asks background questions related to type of duty section, job satisfaction, etc. Upon compilation of the data, a thorough report is sent out to training personnel and to those who request a formal report.

If you or one of your coworkers is asked to participate in this survey, be accurate and honest. You may want to stress to your peers the importance of completing this survey. The results of this survey help determine some of your specialty knowledge test (SKT) questions and can affect your promotion. These surveys are only accomplished about every three years, so keep this in mind—the information provided to the training command will impact your career field for years to come.

### **Creating a workcenter master training plan**

The hardcopy master training plan (MTP) is where the paper copy of the CFETP is kept. As a supervisor, you or a designated representative is responsible to ensure your section (the area you work in) has a MTP. This plan is developed by your supervisor and specifically outlines training goals and milestones for enlisted within the assigned area. Core tasks, upgrade training tasks, and unit specific tasks will be circled so you will know which items in the STS are needed in order to accurately do your job as well as obtain the next skill level. The MTP should also contain a copy of your job description and an upgrade training plan.

### **Task certifier qualifications and responsibilities**

Certifiers provide third-party certification and evaluation on tasks identified by the Air Force career field manager (AFCFM, if applicable). The responsibility of the certifier is to conduct additional evaluations and certify qualification on those designated tasks. Certifiers must:

1. Be at least a SSgt (E-5) with a 5-skill level or civilian equivalent.
2. Attend the Air Force Training Course (AFTC).
3. Be capable of evaluating the task being certified.
4. Evaluate training and certify qualifications.
5. Use established training evaluation tools and methods to determine the trainee's ability and training program effectiveness.
6. Develop evaluation tools.
7. Brief the trainee, supervisor, and trainer on the training evaluation results. Identify the trainee's strengths and areas needing improvement.
8. When necessary, request assistance from the supervisor and unit training manager (UTM).

## **002. Assigning personnel to work areas**

As a surgical technician, shift work and "call" is a fact of life! This will even be true for our shreds as they transition back to scrubbing cases for their surgeons in the OR and pulling call for their specialty as well. As a member of the Air Force, you are subject to duty 24 hours a day, including weekends and holidays. If directed by your leadership, you must report for duty at any hour, at any location, and remain as long as necessary to get the job done unless excused by your leadership-the mission comes first. Duty schedules must provide adequate surgical coverage and distribute working hours so the best use is made of available personnel. The flight or element NCOIC is usually responsible for scheduling all enlisted personnel, but the task may be delegated to a mid-level supervisor. Once prepared, the schedule is also reviewed and approved by the officer in charge (OIC).

### **Policies**

There are many rules and policies that the NCOIC must take into consideration when preparing duty schedules. One such policy is Air Force Instruction (AFI) 36-3003, *Military Leave Program*, which contains information pertaining to leave and administrative absence policy. The medical treatment facility (MTF) and your duty section may also have written guidance operating instructions (OI) regarding scheduling. As NCOIC, or designated scheduler, it's your responsibility to consult these resources and to know and follow appropriate guidelines for scheduling personnel.

### **Considerations**

When preparing schedules, plan so that the most staff is available during peak workload periods; in most facilities this is during the "day shift." Also, distribute the staff according to experience and ability; ensure there are enough experienced staff members to cover not only the required tasks, but also to train and supervise inexperienced personnel.

“Call” is the scheduler’s nightmare! No matter how hard you try, you won’t make everybody happy—about the only people happy with a call schedule are those whose names aren’t on it! This is an area where judgment and equity are crucial. Supervisors and trainers must judge carefully when deciding when a surgical service apprentice is ready to *pull call*. The length of time in training is often used as a guideline, but this should not be the only guideline. Some technicians are call-ready in three months, others not for six months. Ability and expertise, as well as experience, maturity, and personal initiative, are all factors to consider; but it all boils down to the supervisor’s judgment. If manpower allows, it’s a good practice to schedule an inexperienced technician to pull call with an experienced one for the first few times.

If your operating room requires shifts, avoid “doubling back” or scheduling people to return to duty after only an eight-hour interval away from duty. It’s best to provide a 16-hour gap between duty shifts whenever possible. Avoid having anyone work three different shifts in a two-week period. Avoid split days off—give days off consecutively. Avoid having anyone work a double shift (16 hours in a row). Research has documented that after 12 hours, performance is significantly reduced. Use a forward rotation of your personnel. This means that they rotate from days to evening to nights, rather than a backward rotation, which means days to nights to evenings. The forward rotation is better because it works with the body’s natural cycles.

One of the most equitable methods of distributing hours of work and time off is cyclic scheduling. In this type of scheduling, a basic pattern is established and then repeated over and over. Cyclic scheduling allows staff members to project their off-duty time into the future. This contributes to staff satisfaction and reduces the number of requests for special time off. Because of the military lifestyle, it doesn't always work, but you can adapt the framework.

Many facilities have computer-generated templates that make scheduling much simpler than hand writing or typing a schedule. To give you an idea of the scheduling process, refer to the duty schedule example in the following table as we discuss the process.

[illegible]

# ON DAYS	7			6	6	6	7	6				6	7	7	6		
<b>D = Days</b> <b>E = Evenings</b> <b>C = Call</b> <b>H = Holiday</b> <b>HC = Holiday Call</b> <b>AD = Administrative Day</b>																	
<b>OF = Off</b> <b>HO = Holiday Comp Day</b> <b>LV = Leave</b> <b>TY = TDY</b> <b>DT = Detail</b>																	
<b>Schedule prepared by MSgt J. Black NCOIC, Operating Room</b>																	
<b>Schedule approved by Maj A. Hill OIC, Operating Room</b>																	

Place staff names in the wide left-hand column by date of rank. Record the days of the week on the top line, starting with whatever day the first of the month falls on; in the example it's Friday. Write the actual calendar dates in the row below the days. Mark all holidays for the month you are scheduling; then other personnel absences such as TDYs, leaves, PME classes, details, small arms training, and so on. Develop and print a legend of codes used to designate scheduled events. Examples of legend codes are shown in the bottom left block of the example table.

The following is a suggested procedure for completing a monthly duty schedule:

1. Enter the days you know each individual won't be available for duty because of *mandatory* prior commitments such as PME, small arms training, TDY, and details.
2. Enter projected and approved *leave* dates.
3. Enter any special requests you intend to honor if at all possible.
4. Enter holidays or military compensatory holidays. (Civilians are off on the actual holiday, or they work it. They don't have compensatory time.)
5. Complete the evening shift, one technician at a time, in turn, all the way across the schedule with appropriate time off before and after the evening tour.
6. Enter the night shift personnel in the same fashion.
7. Enter the "Call" shifts, ensuring adequate coverage for each period required. Enter projected compensatory time for the call shift.
8. Enter the day shifts, one technician at a time, with days off, etc., all the way across the schedule.
9. Add up, and enter in the bottom of each daily column the total number of technicians on each shift. Ensure each day is covered by at least the locally established minimum staff for each shift.
10. Adjust deficiencies by moving "comp days" and requested time off first. If possible; honor leave requests. Mandatory military duties may not routinely be canceled or moved.
11. Sign the completed schedule. Forward it to the OIC for review and signature.
12. Post the schedule in the designated conspicuous area.

### The daily surgery schedule

Another type of schedule you will be routinely involved with is the surgery schedule (schedule of operations). Normally, the OR supervisor develops the surgery schedule from individual patient information transmitted to the surgical suite by the various surgical clinics.

The information for the surgery schedule can be electronically transmitted or can be taken from individual scheduling request slips. The surgeon requests the specific date of the proposed operation, then coordinates with the OR supervisor and the chief of anesthesia to establish the order in which the

procedures will be done. To determine this order, they consider factors such as available resources (manpower, supplies, equipment, etc.), patient's age, urgency of the surgery, and difficulty of the proposed procedure. This coordination and prioritizing process is done with each surgeon requesting operating time as the OR supervisor develops the surgical schedule for each day.

### *Schedule contents*

Local policy determines the specific information listed on the surgery schedule. Most list as a *minimum* the following:

1. Date and day of the operation.
2. Time of the operation. Usually, a specific time is allocated to only the first cases of the day in each operating room; all others are scheduled "to follow" or simply, TF.
3. Designated operating room number or letter (OR 4, OR D) for the procedure.
4. Patient identification information:
5. Name.
6. Hospital register number or SSN.
7. Age.
8. Sex.
9. Military status or rank (D/W, E-3, O-5, Capt, Amn).
10. Patient location or nursing unit designation (3B, 2W, ASU, ICU).
11. Operation to be performed (entries may be abbreviated to save space).
12. Primary surgeon (assistants and residents or interns are sometimes listed).
13. Type of anesthesia (general, local, spinal, or the anesthesia provider's "choice").
14. Name of anesthesiologist or anesthetist who will administer the anesthesia.
15. Units of blood required if applicable.

Copies of the surgical schedule are distributed or transmitted to several key personnel and functional areas within the MTF. Most facilities within the Air Force manpower standard (AFMS) utilize S3—Surgical Scheduling Software. Specific access is determined locally, but usually includes the following:

1. Commander and executive staff.
2. Administrative staff.
3. MTF commander.
4. Chief of hospital services.
5. Chief of surgical services.
6. Chiefs of all appropriate surgical specialties.
7. Chief of anesthesia services.
8. Concerned nursing units.
9. Chief nurse.
10. OR supervisor.
11. Patient administration.

If necessary, they may send hard copies to other persons or areas determined by local policies, such as the laboratory (especially the pathology lab), blood bank (if units of blood will be typed and cross-matched in advance), and the radiology department (if intraoperative X-rays will be taken).

### *Scheduling personnel on a daily basis*

After the surgery schedule is approved and typed, the NCOIC (or designee) schedules individual technicians to provide coverage for each procedure. Most times, technicians are assigned to work in a specific operating room, and they are responsible for helping with all procedures in the room throughout the day. Sometimes a technician is assigned to a particular surgical case. This may be at the surgeon's request, the nurse's request, or because the procedure is a unique one and the NCOIC feels the technician is right for the job.

Exactly how individuals are scheduled to provide case coverage is a local decision. Some operating rooms have "teams" devoted primarily to a surgical specialty. Other departments schedule personnel to a specific operating room for a period of time; personnel handle all cases in their assigned room regardless of the specialty. Some even schedule personnel on a case-by-case basis.

Regardless of the method used to provide coverage, one principle must be kept in mind—as a military surgical technician; you are required to maintain a "war-readiness" posture. This means you must be able to assist with a variety of procedures in a variety of specialties. Strict specialization is highly discouraged. In a contingency, a technician who "only does hearts" isn't going to be very effective when called upon for emergency orthopedic surgery.

Even in non-contingency situations, strict specialization can cause problems. For example, let's say a technician specializes in only one surgical specialty. That person is then assigned to a facility that doesn't offer that specialty. In this case, the leadership at the originating assignment has failed to fulfill its duty to the gaining facility. Strict specialization is also detrimental to the individual. The Air Force promotion system is designed to promote people with a broad base of experience as its future leaders.

### **003. Counseling the surgical technician**

One of the most important aspects of supervision, and one that is often overlooked, is counseling. Counseling is a very important part of being a good supervisor. Now let's take a look at some of the areas where you can be of value as a counselor to your Airmen.

#### **Career ladder progression**

By now, you should have an idea of where you want to go in your Air Force career. Hopefully your supervisors and mentors have taken the time to counsel you on your career ladder progression in the surgical field. In turn, you should also counsel your Airmen on how to progress in rank and skill level in the surgical career field. Stress the importance of how what they do now can impact their lives and career for years to come. The CFETP contains a very detailed chart and references on career paths and progression for our entire career field; including the shred specialties. Go over the guidance in the CFETP on career ladder progression with your Airmen in great detail. Make sure they are aware of all the opportunities available to them within the career field including those available to them as they reach higher pay grades. You will find this will not only help them, it will also help you remain focused on what you want to do as an NCO and surgical technician in the Air Force.

#### **Training progression**

Periodically evaluate and appraise the trainee of the progress in training—this includes dating and initialing the appropriate STS elements in the CFETP. Too many trainers and supervisors let a trainee go for months with no feedback, then hand the trainee a CFETP with all items dated and "closed out." They often tell the trainee to initial next to the date without explaining what the trainee is indicating by the initials. It is critical that trainees understand that by placing their initials after an item on an STS, they are certifying that they know how to do (and are completely trained on) the specific item.

#### **Call procedures and expectations**

As the trainer or supervisor, stress the nature and the seriousness of the trainees' responsibilities when on-call. Ensure they know their time reporting limits and geographical area. Stress the need for



adequate rest and physical conditioning to handle the sometimes demanding rigors of call. Ensure they know what behaviors and activities are allowed—and which are not allowed, (e.g., no consuming of any alcohol within 30 minutes prior to arriving for work at hospital). One basic point is often neglected—on-call technicians should maintain regular contact with whoever is responsible for contacting the on-call team. They should also ensure that the “pager” is not the sole method of contact for extensive periods.

### **Career job reservation**

One area often neglected by supervisors is explaining the re-enlistment process, especially the career job reservation (CJR). According to AFI 36-2606, *Reenlistment in the United States Air Force*, paragraph 1.14, the purpose of the CJR is to “prevent surpluses and shortages in the career force.” However, there is a specific time frame during which first-term Airmen may apply for the CJR. Four-year, first-term enlistees may apply on the first duty day of the month during which they complete 35 months on their current enlistments, but no later than the last duty day during which they complete 38 months. Six-year, first-term enlistees may apply on the first day of their 59th month of enlistment, but no later than the last day of their 62nd month. Airmen continue to receive eligibility notifications until they apply or are no longer eligible. Since there are few exceptions to these time-frames, it is vital for Airmen to apply for the CJR in order to remain eligible, or they could forfeit their eligibility. Refer to the AFI for further information regarding specific exceptions to the time-frames just described.

Encourage any subordinates to apply for a CJR even if they fully intend to separate from the Air Force after the first enlistment. Without an approved CJR, a first-term Airman can’t re-enlist. Approval of a CJR does not mandate reenlistment; it simply keeps the option open. Also, make sure that your Airmen have been notified that they need to get a CJR using the guidance above. Why burn a bridge if you don’t have to?

### **Mentoring**

Mentoring is considered leading or guiding your subordinates to reach their full potential; it is a form of positive counseling. It helps fulfill your responsibility to “train-up” the next generation of Air Force leaders—your replacements. Mentoring counseling is often conducted in conjunction with feedback sessions. Topics you should discuss include those covered in this section, as well as items like promotion requirements, PME eligibility, unit/base/community involvement, medical and physical fitness, equal opportunity, assignment policies and procedures, personal and financial planning, and numerous other subjects to help the subordinate become a well-rounded Air Force member.

### **Supervising civilians**

Along with supervising Airmen you may be required to evaluate the performance of civilians that work in your department. Let’s take a few minutes to review some of the details associated with supervising civilians.

As you will recall from previous lessons, all active duty personnel have *job descriptions*. Federal civilian employees are no different except that their descriptions are known as *position descriptions*; as such, they are more complex and very detailed. Position descriptions are broken into specific performance elements that describe each duty. If you are ever assigned to supervise a civilian employee, consult with your civilian personnel office for specific job descriptions and duties. You are required to receive training from your local civilian personnel office upon being assigned to supervise a civilian employee. It would also be wise to seek out an experienced civilian supervisor. To get an idea just how complicated civilian supervision can be, read the section on civilian personnel in Air Force Pamphlet (AFPAM) 36-2241, Volume 1 (your *Professional Development Guide* [PDG]).

Like civilian job descriptions, civilian performance standards are more complicated to manage. Each performance element in the position description is described as to exactly how the duty is to be accomplished. Objective standards must be set that allow for fully successful performance. Don’t be

afraid to take on the responsibility of supervising a civilian employee—the experience, while complicated at times, can be very educational and rewarding.

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### **Self-Test Questions**

**After you complete these questions, you may check your answers at the end of the unit.**

#### **001. Supervising the newly assigned surgical technician**

1. Define the term supervision.
2. Who determines and assigns an immediate supervisor to a newly assigned Airman?
3. What is the sponsor's job?
4. List some of the actions you can take to help orient a new assignee?
5. What is the purpose of supervisors providing feedback to the Surgical Service Apprentice Course?
6. List the methods used to collect data regarding the training that trainees receive.
7. What is an OAR?
8. What tool is used to collect the data needed to compile an OAR?
9. The master copy of the CFETP is located where?
10. Who is responsible to ensure your section; the area that you work in has a MTP?
11. The MTP is developed by your supervisor and specifically outlines?



12. What items are circled so you will know which items in the STS are needed in order to accurately do your job as well as obtain the next skill level?

### **002. Assigning personnel to work areas**

1. Who is responsible for scheduling enlisted personnel for duty?
2. Who reviews and approves the duty schedule?
3. Where can you find information pertaining to leave and administrative absence policy that must be taken into consideration when preparing duty schedules?
4. List what you need to consider when planning a schedule.
5. Why should you *not* schedule someone to work a double shift (16 hours)?
6. Who normally develops the daily schedule of operations?
7. List seven things that are found on a typical daily surgery schedule.

### **003. Counseling the surgical technician**

1. What is the best source of information on career ladder progression?
2. Why should all surgical technicians apply for a CJR?
3. What are civilian job descriptions called?

## **1-2. Safety in the Air Force Medical Service Environment**

One of the most important programs in the Air Force is the safety program. It is also one of the most inspected programs in the Air Force. This program is broken down into different parts, which are headed up by a safety NCO in every section.

## 004. Safety

As a supervisor and NCO, you are responsible for ensuring you practice operational risk management (ORM), you are familiar with accident/incident reporting, you know how to report a hazard, and you are familiar with the Hazard Communication Program (HAZCOM). All first-level supervisors must attend the Air Force Supervisor Safety Course. If you haven't attended already, you will be scheduled soon. This course gives you a broad knowledge of safety guidelines; but in our medical facilities, AFI 91-203, *Safety*, outlines the key responsibilities of safety personnel, discusses general safety practices, and specifies safety requirements for hazardous areas in a medical facility.

### Operational risk management

As you learned in your five level CDCs, ORM is intended to provide you a tool to determine if the risk factors associated with the way you perform a task or procedure are acceptable based on the outcome of your actions. The big difference is now that you are a supervisor or NCO, you are the one people look to for guidance on ORM.

You should have had regular training on the ORM process in your career so far but here is a brief reminder on the process. There are six steps to the ORM process:

1. Identify the hazards.
2. Assess the risks.
3. Analyze risk control measures.
4. Make control decisions.
5. Implement risk controls.
6. Supervise and review.

As mentioned earlier, it is now up to you to implement this process as an NCO and supervisor. The ORM process is actually quite simple. It is used to assess hazards associated with specific tasks or equipment, and on high-risk and even normal off-duty activities. For example, should you use the roller to move a patient from the OR table to a gurney or is the risk acceptable to just pick up the patient on the draw sheet and move the patient that way? You must think of the risk to the patient and the risk to the personnel moving the patient. If the benefits of simply picking up the patient outweigh the risk, then pick up the patient. However, if the risks of picking up the patient outweigh the benefits, then use the roller. The whole thought process in this scenario usually takes a few seconds and I am quite sure you have actually seen this scenario occur in your career.

If you think about it, we use ORM every day of our lives to make choices. Whether to use the ladder or use a chair to reach that object too high up for us, whether to drive fast or slow, whether to use protective equipment or not when mowing the lawn, and so forth. There are literally hundreds of times a day when you use ORM. The keys are keeping "one step ahead" of, or anticipating, a potential problem and to apply properly ORM to every situation.

While the emphasis of ORM is prevention, accidents do happen. To try to prevent accidents from recurring, report all accidents in detail. Supervisors and safety personnel review these reports to determine what incidents led to the accident, and what steps can be taken to prevent future occurrence.

### Accident and incident reporting

What should you do if you witness or are involved in a job-related accident or incident? The best advice is always to follow the local policies and procedures. These are written guidelines, and are usually maintained in your department's OIs or MTF directives book. Report all incidents, no matter how minor, to a supervisor who now might be you. If you need help with the reporting process, see your supervisor. If your supervisor is not available, continue up the chain of command (your

supervisor's supervisor, NCOIC, superintendent, OIC, etc.) until you contact someone in a supervisory or management position. These people need to be informed so they can maintain a record of all such incidents to determine if trends are developing. These records can also be used to identify hazards and protect the Air Force from false claims made by patients, visitors, and staff members. Accident and incident reports can also indicate a need for specific safety training programs to prevent future accidents from occurring.

What sort of accidents and incidents do you report? In surgery needle sticks, scalpel cuts, sterilizer burns, and accidental overexposure to toxic chemicals are a few of the more common mishaps that need to be reported. Also report falls caused by wet floors, back injuries caused by heavy lifting, and electric shocks. Fill out incident for incorrect sponge counts, patient burns, and transfusion reactions, just to name a few. The list of reportable mishaps can go on forever, but the main thing to remember is that you report any and all mishaps. When in doubt—report it! By reporting an incident, you have done your part, and your supervisor can determine whether to take further action.

How do you go about reporting an accident or incident? The first step is for your Airmen to verbally tell you. You then determine if the incident warrants documentation—most do. In the hospital, AF Form 765, *Medical Treatment Facility Incident Statement*, is the form used for initially documenting all accidents, injuries, fatalities, and mishaps involving property damage. This form is also used to report situations that could cause an accident. Either your Airmen fill out the form, or provide you with the information to fill it out. In either case, always provide detailed, specific, factual information on this report. Avoid making assumptions and drawing conclusions—that is not your job. For example, a statement on an incident report should read “While putting sterile supplies away, I stepped in a wet spot on the floor, slipped and fell.” A statement should not read, “I would not have fallen if the floor were not wet.” This is not a factual statement; it is a conclusion.

The completed AF Form 765 is forwarded to and reviewed by the MTF risk manager or performance improvement coordinator. When the incident involves an accident or unusual occurrence on the grounds of, or in, the medical facility, an accident report may be required. The MTF safety officer prepares an AF Form 711b, USAF Mishap Report, to report accidents. Any incident that may involve legal action or a potential claim is immediately coordinated with the hospital or base legal adviser. *Under no circumstances should the AF Form 765 be filed or referred to in a patient's medical record.* In addition, each major command (MAJCOM) may have its own version of a Mishap Report that you may be required to use as necessary. Your local safety office may be able to provide assistance in this matter.

### **Hazard reporting**

The hazard reporting program is part of the prevention process; it provides a system of reporting hazardous conditions for the purpose of investigating and correcting those hazards. The primary responsibility for identifying workplace hazards, including equipment problems and environmental situations that may pose a risk, rests with the individual; however, you, as the supervisor, must train your personnel to identify and report hazards, accidents, and incidents. All workers should, as a minimum, verbally report to their supervisor any situation they think may be hazardous. This is the quickest and most effective way to abate hazards. If the situation cannot be immediately and permanently corrected, report it to your supervisor and record it on AF Form 457, USAF Hazard Report. If you need help filling out this form, ask your safety NCO for assistance.

Just like the AF Form 765; accurate, detailed information is the key when reporting hazardous conditions. This information is needed by the hospital risk manager and safety officer to ensure hazardous conditions are eliminated in a timely manner. This information is also used to investigate future hazards with similar characteristics and to develop accident prevention measures.

### **Hazard Communication Program**

AFI 90-821, *Hazard Communication*, establishes the *minimum* requirements for an effective hazard communication program for those activities that handle or use hazardous materials. It contains the requirements for practices and procedures, assigns responsibilities, and provides guidance for managing the Air Force Hazard Communication Program (AFHCP). The purpose of AFHCP is to reduce the incidence of chemically induced occupational illnesses and injuries by informing employees of the hazards associated with, and proper preventive measures to be taken when using or handling, hazardous materials in the workplace. It applies to all United States civilian and military employees. This standard does not cover all possible areas of hazardous materials. Some of the areas that it *does not pertain to* are listed here:

1. Hazardous wastes (such as medical waste).
2. Tobacco or tobacco products.
3. Wood or wood products.
4. Finished articles.
5. Food, drugs, cosmetics, or alcoholic beverages in a retail establishment which are packaged for sale to consumers.
6. Food, drugs, or cosmetics intended for personal consumption by employees while in the workplace.
7. Consumer products which are used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater than exposures experienced by consumers.

The elements that should be included in an effective hazard communication program are a written program, hazard determination, material safety data sheets (MSDS), labeling, employee information and training, and hazardous chemical inventories. The Workplace Written Hazard Communication Program (WWHCP) addresses the following specific program elements:

1. Location and access to the MSDS master file.
2. Requirement for and availability of employee information and training.
3. The work area hazardous chemical inventory.
4. OIs or technical orders (TO) governing non-routine tasks involving hazardous materials.
5. Contractor operations and interface.

### **Material safety data sheet**

An MSDS is maintained for each product used in the workplace that contains hazardous chemicals. The MSDS is provided by the product manufacturer, and contains information such as this the following:

1. Product information, including the product name, generic name, and (sometimes) its chemical formula. The name, address, and phone number of the manufacturer is also listed.
2. The specific chemicals that are considered hazardous ingredients are listed separately. The concentration and exposure limit is usually listed, as is (are) the substance(s) volatility, flammability, or reactivity.
3. The physical hazard data describes precisely why each chemical or substance is considered hazardous.
4. If the item is flammable, the specific “flash point” is usually listed; if it is not flammable, it should specifically state so on the MSDS.
5. Health hazard information includes symptoms of various exposures via individual routes of exposure, first aid procedures, and specific notes regarding medical treatment for over-exposure to the substance.

6. The MSDS lists reactivity data that helps determine specifically how and where the products should be stored and handled.
7. Detailed explanations, including a list of recommended personal protective attire, are provided for handling spills or leaks.
8. Special precautions and special protection recommended is listed on the MSDS.

Bioenvironmental Engineering (BE) maintains the MSDS master file for the installation. For installations without a BE function, the commander selects a qualified representative to maintain the MSDS master file. The master file must include MSDS information for all hazardous materials used on the installation. The information is maintained in the Department of Defense (DOD) Hazardous Material Information System (HMIS) on compact disk, or hard copy.

### ***Labeling***

All materials that are contained on the MSDS need to have appropriate labeling. Include the following information on the label:

- Identity of the hazardous material.
- Appropriate hazard warnings.
- Name, address, and phone number of the manufacturer, importer, or other responsible party.

Maintain the labels on the containers so they can be read easily. Should the labels become unreadable, replace them. When in doubt or you have questions about what is required for hazardous materials, contact your installation BE or representative.

### ***Employee information and training***

All personnel, including civilian employees, are required to receive AFHCP training. This initial training occurs before employees are exposed to hazardous materials. If new materials, processes, operations, or conditions have hazards on which employees have already been trained, retraining is not required. Employee and supervisor information and training will include the following, as a *minimum*:

- How employees can obtain and use the appropriate MSDS.
- Any operations in their work area where hazardous materials are present.
- Location and availability of the hazardous chemical inventory and MSDS master file.
- Methods and observations that may be used to detect the presence or release of a hazardous material in the work area such as monitoring conducted by BE, visual appearance, and odor of hazardous materials, etc.
- Physical and health hazards associated with potential exposure to work area hazardous materials.
- The measures employees can take to protect themselves from hazards.
- Explanation of the labeling system.

The Federal Hazard and Communication Training Program (FHCTP) or equivalent approved program is used for this training. The supervisor needs to document all FHCTP training on an AF Form 55, Employee Safety and Health Record, or on an approved computer-generated substitute. The supervisor in the work area maintains this document. Make sure all of your personnel have already been trained on the use of the MSDS for chemicals used in your operating room or Sterile Processing Department (SPD). If they have not had this training, get them trained.

### ***Hazardous chemical inventory***

The supervisor and BE will jointly develop an inventory of all hazardous materials used within the work area. Work areas where employees only handle materials in sealed containers which are not opened under normal conditions or use, are not required to develop or maintain this inventory.

Chemical inventory lists include, as a minimum, the name of the hazardous material as it appears on the MSDS. It is not necessary to have detailed descriptions of each item. This list is then attached to the WWHCP in each work area using hazardous materials. The inventory list needs to be maintained and updated as necessary. BE reviews work area inventories annually or as needed.

### *Non-routine tasks involving hazardous materials*

In each of our jobs we occasionally perform non-routine duties that are not part of our normal daily duties. Your WWHCP should address these issues and it is the supervisor's responsibility to see that they do. The following is descriptions of what is considered a non-routine task:

- Those tasks included within a work area's normal activities but performed infrequently. An example of this would be cleaning up spills.
- Temporary duties outside an individual's normal Air Force specialty codes or job series.

As stated, it is the supervisor's job to ensure the work area OI thoroughly describes non-routine tasks, associated hazards, and controls for the infrequent tasks performed in the work area. OIs do not need to be prepared if TOs or other official documents adequately describe these tasks. Supervisors must ensure workers review these procedures before performing the non-routine tasks.

When personnel temporarily perform duties outside their normal jobs, the supervisor of the activity ensures these workers receive the following training before beginning the activity.

### *General requirements of a comprehensive surgery/SPD safety and health program*

The elements of a complete surgery/SPD safety and health program includes a written chemical hygiene plan, standard operating procedures, the appointment of a chemical hygiene officer, properly maintained ventilation systems and ventilation hoods, protective equipment, employee information and training, hazard identification through use of labels and MSDSs, employee exposure determinations, and medical consultation.

As you can see, being a supervisor entails a lot of things you probably didn't have to get involved with as an Airman. You have to be involved with everything from helping a new Airman in-process the unit to monitoring safety and HAZCOM. We've covered just the tip of the iceberg in this lesson. In order to be a really effective supervisor and NCO you will need to be able to lead and supervise Airmen when dealing with patient issues.

## **005. Patient advocacy**

Webster defines an advocate as "a person who pleads the cause of another; a defender or intercessor," so a basic definition of a patient advocate is *a person who defends, intercedes on behalf of, or pleads the cause of a patient*. There is a duty section in most medical facilities known as "Patient Advocacy." This lesson is designated to handle all unresolved patient issues or complaints.

In a sense, all medical personnel are patient advocates; the patient should be the center, or focus, of all medical personnel activities. A simple guiding principle is "How would I want my healthcare providers to behave?" Professional conduct is a vital part of patient advocacy, but is not enough. To be a true patient advocate, you must consider and treat each patient as an individual; an individual with rights and feelings.

### **Patients' bill of rights and responsibilities**

Ethics and good surgical conscience provide the moral guidelines for carrying out your duties as a surgical technician. You should see by now that it is not enough just to "do your job." To be considered a professional member of the surgical team, you must always respect the patient's human dignity along with the other ethical standards discussed. These standards are so important that not only have they been translated into various professional codes of conduct, but led the American Hospital Association (AHA) to develop the original "bill of rights" for patients. This bill of rights has



been revised, amended, added to, and otherwise modified over the years. The most widely used “rights” include:

1. Reasonable access to care.
2. Considerate care that respects the patient’s personal values and beliefs.
3. The patient’s informed participation in decisions regarding his or her care.
4. The patient’s participation in the consideration of ethical issues that arise in the provision of his or her care, including resolution of conflict, withholding of resuscitative services, forgoing or withdrawal of life-sustaining treatment, and participation in investigational studies and/or clinical trials.
5. Personal privacy and confidentiality of information.
6. Designation of a representative decision maker in the event that the patient is incapable of understanding a proposed treatment or procedure or is unable to communicate his or her wishes regarding care.
7. A method of informing the patient of these issues.

Not all the rights listed here are legal rights—that is, they are not enforceable under the law. However, all of these rights evolved from and fall under the ethical *codes of conduct* that all medical personnel should follow. Without these ethics and patients’ rights, patient care is depersonalized and mechanical. Your patients become the victims of care rather than the object of care.

### *Patients’ rights*

These considerations are so important that they are described as the *rights* of each patient. All DOD MTFs and dental treatment facilities (DTF) must post the DOD Instruction 6000.14, *Patient Bill of Rights and Responsibilities in the Military Health System (MHS)*, in highly visible areas within the facility. Let’s take a look at what the patient bill of rights and responsibilities includes.

### *Quality medical and dental care*

Each patient has the right to quality care and treatment consistent with available resources and generally accepted standards. The patient has the right also to refuse treatment to the extent permitted by law and government regulations, and to be informed of the consequences of his or her refusal.

### *Respectful treatment*

All patients have the right to considerate and respectful care, with recognition of their personal dignity.

### *Privacy and confidentiality*

As we discussed in an earlier unit, each patient has the right, within law under the Health Insurance Portability and Accountability Act (HIPAA) and military regulations, to privacy and confidentiality concerning their medical care. It is important to note here that the military has made an exception to this right. Physicians and other healthcare providers have a duty to disclose a patient’s Uniformed Code of Military Justice (UCMJ) violation. In the ruling *U.S. v. Medley* (1991), NCOs and officers who do not report drug use are derelict in duties. In another ruling, *U.S. v. Heyward* (1986), military members have a duty to report the drug use of another service member.

### *Identity*

Patients have the right to know, at all times, the identity, professional status, and professional credentials of healthcare personnel, as well as the name of the healthcare provider primarily responsible for their care.

### *Explanation of care*

All patients have the right to an explanation concerning their diagnosis, treatment, procedures, and prognosis of illness in terms the patients can be expected to understand. When it is not medically

advisable to give such information to a patient, the information should be provided to appropriate family members or, in their absence, another appropriate person.

### *Informed consent*

Each patient has the right to be advised in layman's terms on information needed to make knowledgeable decisions on consent or refusal for treatments. Such information should include significant complications, risks, benefits, and alternative treatments available.

### *Research projects*

Patients have the right to be advised if the facility proposes to engage in or perform research associated with their care or treatment. Patients have the right to refuse to participate in any research projects.

### *Safe environment*

Patients have the right to care and treatment in a safe environment. They can expect that adequate safety precautions will be taken. For example, you must take steps to protect patients from injury to eyes or any part of the body, from swallowing or aspirating any objects in the mouth, or from damage to clothing.

### *Medical treatment facility or dental treatment facility rules and regulations*

Patients have the right to be informed of the facilities' rules and regulations that relate to patient or visitor conduct. Inform patients about smoking rules and the expectation of compliance with those rules from other individuals. Patients are entitled to information about the MTF and DTF mechanism for the initiation, review, and resolution of patient complaints.

### **Patients' responsibilities**

Providing quality healthcare is a complex task that requires close cooperation between patients and health facility personnel. Patients can take responsibility for their care by helping the medical team give the best possible care. Let's look at the patients' responsibilities.

### *Providing information*

Patients have the responsibility to provide, to the best of their knowledge, accurate and complete information about complaints, past illnesses, hospitalization, medications, and other matters relating to their health. Patients have the responsibility to let their primary healthcare provider know whether they understand the treatment and what is expected of them.

### *Respect and consideration*

Patients are responsible for being considerate of the rights of other patients and MTF and DTF healthcare personnel and for assisting in the control of noise, smoking, and the number of visitors. Patients are responsible for being respectful of the property of other persons and of the facility.

### *Compliance with medical care*

Patients are responsible for complying with the medical and dental treatment plan, including follow-up care, recommended by healthcare providers. This includes notifying the MTF and DTF when appointments cannot be kept.

### **Patient sensitivity**

A basic definition of patient sensitivity is being aware of how your actions, words, and appearance may be perceived by a patient, and modifying these actions to ensure you do nothing to detract from the image of a competent and caring professional. Honoring and respecting the patient's rights is a good start at patient sensitivity; practicing the Golden Rule—do unto others as you want done to you—is another. Although your job is highly technical and does not always involve a great deal of contact with conscious, fully coherent patients, you still can positively or negatively affect a patient's



hospital stay. If you notice the first few items in the patient's bill of rights, the terms quality, respectful, considerate, privacy, and confidentiality are key elements. These terms apply not only to your specific patients, but also to all patients and potential patients.

The key to patient sensitivity is acting and living professionally at all times. You never know when a potential patient is watching you. Regardless of where you are, if you can be identified or associated in any way with the medical facility you work in, you are presenting a public image of that facility, and can influence the way a patient thinks about that facility. The way a patient perceives the staff of a facility also affects how the patient perceives the care rendered at the facility. If a patient sees only professional, sharp, and competent appearing people, they generally have a positive image of the care they receive at the facility. If, however, even one individual violates the patient's standard of right and wrong, the patient's perception is negatively affected.

As most areas only have one Air Force medical facility in the immediate area, anytime you are in your uniform wearing your medical badge, you are presenting an image of the Air Force Medical Service to the public. Even if not in uniform, if people overhear you talking about the Air Force, or using typical Air Force acronyms (NCOIC, PCS, and TDY) or other terminology, they can conclude that you are in the Air Force. If those same people hear you talking about medical care or medical issues, they will probably also conclude you work in the Air Force hospital. If those people are beneficiaries, they are potential patients; if they hear you speaking negatively, or see you acting rudely or being inconsiderate, what image of your hospital are you projecting?

To try to give you an idea of how all-encompassing patient sensitivity is, consider the following three scenarios.

1. You are picking up a patient for surgery, and the medical service technician assigned to help you is someone you would really like to date. As you are verifying the identity of the patient and checking the chart, you are talking with the other technician about favorite places to "hang out." *The patient has asked you two questions, but neither of you heard them.*
2. You and another scrub technician are leaving work after a 16-hour day. You are in the elevator, and your co-worker says, "This is the third long, nonstop day in a row, if they don't give us a break soon, I'm going to be sleeping during surgery!" *In the elevator behind you is a man who's just learned that the results of some tests indicate he needs major surgery.*
3. A group of scrub technicians and nurses are attending a going-away dinner for a co-worker in a restaurant near the base. The conversation turns to "funny" incidents that happened in some of the procedures, and someone says loudly "Remember that beached whale gallbladder patient? I thought we were going to need two OR beds!" *An overweight diner sitting nearby had gallbladder surgery a few months previously.*

The first scenario is blatant. Neither you nor the medical service technician is doing your job. The other two scenarios are not so blatant. Sometimes we get caught-up in our own little worlds, and forget that what we say and how we act can frighten or hurt potential patients.

Being "patient sensitive" at all times is not easy. If you strive to act professionally, develop and live by a personal code of morals and ethics, treat other people as you want to be treated, and behave as you want your healthcare team to behave, you will greatly reduce the likelihood of leaving a negative impression on a patient, and will become a true "patient advocate."

### **006. Patient's needs and fears**

Surgery may have a profound psychological effect on a person, both preoperatively and postoperatively. Sometimes the mental problems caused by ill health, hospitalization, and surgical treatment are obvious and relatively easy to resolve. Other times, these problems are not so obvious and may drastically alter a patient's behavior and physiological response to an operation. To effectively treat the patient's physical problems through surgical intervention, each patient must be treated as a whole being; not as a body part that needs fixing. This means that surgical personnel

should always consider both the physiological and the psychological implications of all care and treatment they render to a patient.

It is very important that you understand the special needs, fears, and anxieties of your patients. When you can fully comprehend the mental stress and physical trauma these people go through, you will be able to provide the kind of competent, compassionate care that every patient deserves and has a right to expect.

In this lesson, we discuss basic needs of the surgical patient, how nursing personnel determine these needs, and what actions the surgical staff can take to ensure these needs are satisfied. We also look at common patient fears, what we can do to lessen them and two types of patients with special needs and fears.

### **Physical needs**

Physical needs are those that are necessary to sustain life and are sometimes referred to as physiological or survival needs. They include the need for food, water, oxygen, sleep, waste elimination, and control over bodily functions. These basic physical needs arise naturally within the body but must be satisfied outside the body. Although psychological needs such as the need for love, recognition, and safety (discussed next) often seem to be prime motivators of human behavior, they always play a secondary role when a person's primary physical needs are not satisfied. A person who is starving or dying of thirst will disregard personal safety to satisfy the survival needs for food and water.

Patients who cannot satisfy their basic survival needs due to a disease process or injury usually seek medical care. They focus on whatever it takes to correct their problems so they are able to satisfy their basic physical needs and feel "whole" again. These patients may not be very concerned with how they interrelate to other people until their survival needs are taken care of. They are totally consumed by their instincts to survive. When this instinct to survive is coupled with the mental stress caused by a health problem, you can readily understand why some patients may behave in an irrational, even bizarre manner, during their hospitalization—particularly before surgery.

After a patient is hospitalized, a great deal of care and treatment is directed at satisfying a patient's immediate physical needs. Various physical examinations and physiological tests are done to ascertain the status of the patient's vital body systems, then, medical treatment and nursing care plans are developed to correct the problems. If you think about it, most of the treatment and care provided by medical personnel throughout the hospital is directed at satisfying the patient's basic physical needs. However, even though satisfying a patient's physical needs is your first priority and involves most of your duties as a surgical technician, you must never forget the importance of trying to understand and satisfy a patient's psychological needs.

### **Psychological/emotional needs**

A patient's emotional well-being is extremely important to his or her recovery from a debilitating disease or injury. If psychological needs are not satisfied in conjunction with physical needs, no amount of basic medical/surgical care can restore the person to an optimum level of health. Patients who are mentally depressed do not respond well to any type of treatment, and, consequently, present a higher surgical risk.

Psychological needs are those needs, which arise from your life experiences. They are responsible for controlling the greater part of our behavior and are evident in your desire for nice clothes, fine automobiles, friendship, companionship, praise, prestige, and the desire to excel. Psychologists categorize these needs in different ways. For our purposes, we classify them as safety needs, belonging needs, self-esteem needs, and self-actualization needs.

### *Safety (security)*

People need to feel safe and secure. We want to feel safe from danger and pain, from competitors and criminals, from an unsure future or a changing present; and we want to be able to trust those people around us. A sick or injured person needs to feel protected, comforted, reassured, and cared about. This is important because accidents and illnesses tend to make people feel very vulnerable and insecure. Sick or injured people suddenly realize their own mortality and may feel very much alone as they realize that loved ones cannot protect them from illness, accidents, and even death.

Patients often look to medical professionals and nursing personnel for strength, advice, protection from harm, and companionship. If hospital personnel fail to recognize and attempt to satisfy a patient's need for security, several consequences may develop. Some hospitalized people develop a fear of being alone because of the strangers they are forced to live with, the treatments they have to endure by themselves, and having to submit to the orders of strangers who control virtually every aspect of their lives. Patients may also feel helpless and worried about their safety. They have heard or read stories about medical malpractice, and may believe that hospitalization, or medical treatment in general, does more harm than good. They may wonder if the people caring for them actually know what they are doing and fear being the victims of a careless act.

Hospitalized patients also may feel abandoned by their friends and families, especially if no one calls or comes to visit them. In this instance, nursing personnel play a vital role in filling the security void created by the absence of the patient's close relatives and friends. On the other hand, some patients have few friends and only feel secure while they are in the hospital among the caring medical and nursing staffs. They fear being discharged before they are ready, or may look upon the nurses, doctors, and technicians as the only friends and family they have.

### *Belonging*

We all need to feel needed, to be a part of a social unit, or family. To do this we get married, join clubs, throw parties, and even pray together. Belonging needs include the need to love and feel loved; the desire to share intimate life experiences with others in a reciprocal relationship. Belonging needs also include the need to establish stable, accepted relationships with other people as a functioning member of a group. This includes all the formal and informal groups of people with whom we work, live, and play.

The central theme in both types of belonging needs is that we all want to be liked, accepted, and wanted by others. For the patients, this need translates into the need to receive empathetic understanding and to have someone respond to expressions of their innermost feelings, whether positive or negative. Hospitalized people have many doubts and fears relating to their need to belong and to be accepted. For example, the patient who is about to undergo disfiguring surgery, such as an amputation, may have serious doubts about being able to fit back into normal society as a disabled person. The patient may feel that peer group, friends, and even family will no longer accept him or her because he or she will no longer be "normal."

Sickness or injury requiring hospitalization means separation from loved ones and close friends. Prolonged separation can lead to a patient's becoming extremely depressed, a condition which can adversely affect the outcome of the patient's care and treatment. That is why you often see efforts being made to include family members in basic nursing care plans.

Patients want to be treated as individuals and feel very uncomfortable when medical personnel approach them in an impersonal, seemingly uncaring manner. The way a person is handled, made physically comfortable, and communicated with during hospitalization has a definite impact on satisfying the person's needs of belonging and providing for a positive psychological approach to wellness.

### **Self-esteem**

We all need to feel worthy and respected. This is the need implied when we talk about our dignity, self-respect, honor, or feeling of self-worth. When a person's need for love and belonging are satisfied, his or her needs for self-esteem also have been met. Persons who receive love, concern, and respect generally feel good about themselves; they will have a positive outlook on life. Conversely, persons who feel that they are disliked, that they are being constantly judged, and that others are not considering their needs and feelings, often have low self-esteem.

Persons who are ill or injured may have a lowered sense of self-worth. They may feel they are of little value not only to themselves but also to others around them. These people may come to view themselves as a burden on society or as social outcasts who remind "normal" people about the more unpleasant aspects of life. As a result, their will to live or to get well may significantly decrease. They may just give up, feeling that it would be better to die than to live with a disability or chronic disease. Cancer patients, amputees, and patients with crippling spinal cord injuries are among the types of patients who commonly experience low self-esteem because of their disability or disease.

Self-esteem suffers a critical blow in the hospital setting when a patient is unnecessarily exposed or examined. In our society, we are not used to being unclothed or intimately touched by strangers. A person facing hospitalization and medical treatment knows that his or her personal privacy will be invaded and, as a result, his or her self-esteem may be adversely affected. Careless exposure of a patient or a failure to address the patient with respect can result in severe humiliation and embarrassment and, consequently, a lessening of the patient's feeling of self-worth.

### **Self-actualization**

Self-actualization refers to a person's desire for self-fulfillment. In other words, it means the tendency for people to strive to reach their full potential, to develop their abilities fully, and to express their personalities.

When people are ill, it is sometimes hard for them to be themselves instead of what they think other people want them to be. Hospitalized patients are dependent on the hospital staff for care and are unwilling, in most cases, to complain about their care for fear of displeasing them. They may feel obligated to act the way they think the staff wants them to act, rather than the way they would normally act. Long-term patients with chronic health problems are probably less likely to complain about their care than other types of patients because of their ongoing dependency on the nursing staff.

An illness or injury may interfere with a person's ability to develop and use his or her talents. The loss of one of the senses, an amputation, or paralysis can temporarily or permanently affect a person's drive for self-fulfillment. Elderly patients confined to long-term care facilities may also experience difficulty in meeting self-actualization needs due to a permanent loss of personal ability or lack of opportunity to develop their talents.

People who are hospitalized for long periods and suffer through severe injuries or disease often become more introspective and come to understand themselves better. In this sense, a patient's need for self-actualization may actually benefit from misfortune.

### **Spiritual needs**

AFI 36-2618, *The Enlisted Force Structure*, defines spiritual readiness as "Those personal qualities needed to help a person through times of stress, hardship, and tragedy." Spiritual readiness may or may not include religious activities. Many people believe in a Supreme Being or God whose guidance influences life. This belief can be powerful in helping a patient withstand the ravages of a disease or injury, as well as the rigors of long-term hospitalization. On the other hand, those who are uncertain about the existence of a supreme being, or are uncomfortable with their relationship with God, may feel increased anxiety as the time of their surgery or major medical treatment draws near.

Religious faith can be a patient's foundation for hope and provide the framework for maintaining a positive, optimistic outlook. The hospital chaplain or the patient's own spiritual adviser can help comfort the patient and provide him or her with the warmth, strength, courage, and support that will help him or her through difficult times. The religious adviser helps fulfill a basic need for the patient by using familiar symbols from the patient's spiritual experience.

There are also patients who do not believe in God or any supreme being. These patients are to be treated with the same dignity and respect as everyone else regardless of how you believe. They too have "spiritual needs," these needs just may not be what those who believe in God or a supreme being recognize as such. Every effort should be made by all hospital personnel to accommodate a patient's request for spiritual guidance.

As a surgical technician, you need to understand that religious values can many times conflict with medicine. This can often lead to both ethical and legal problems for the patient and health care provider. A patient that is not allowed to receive a blood transfusion because of religious beliefs would be a perfect example of conflict between religion and medicine. With the dramatic increase in the multicultural and multi-religious population in the United States, you may encounter issues like this at your MTF.

### **Patient's fears**

Fear is real, but not everyone fears the same things. Surgical patients, however, have fears that are not encountered in day-to-day living. To help alleviate their fears, you must first understand what those fears are.

#### ***Fear of the unknown***

Most of us either fear, or have feared, the unknown. This is probably the most common fear of all surgical patients and stems from the patient's ignorance or misunderstanding of surgical procedures and anesthesia. Anyone who is unfamiliar with standard hospital and surgical routines will feel somewhat apprehensive about the procedures that are necessary during the course of hospitalization. The patient may wonder how long the surgery will take, thinking that longer procedures indicate more serious problems, although this may not necessarily be true. A patient scheduled for an exploratory operation, or a biopsy, will definitely experience anxiety that could easily develop into extreme fear, particularly if he or she doesn't fully understand the implications of the findings, or if his or her questions about the surgery are not properly answered. Patients undergoing surgery and anesthesia for the first time may fear how they will react. They may fear that they will lose control and act in an irrational manner while they are being anesthetized; thereby, embarrassing themselves.

Hospitalized people are subjected to a completely different daily routine than they are used to, and may develop a great deal of anxiety about even the simplest of procedures. For example, the taking of vital signs every four hours on the patient care unit is a common practice; for nursing personnel, it is part of their daily routine. But, for the patient who is awakened, whose privacy is intruded upon, and who must endure the recurrent probing and touching, this common routine can become at least irritating, and may even evoke a great deal of anxiety or fear.

#### ***Fear of death, disability, or disfigurement***

In some instances, this fear is a very valid one. For example, a patient who is about to undergo major heart surgery has probably been told that there is a high degree of risk involved, and the patient may have a great fear of dying while in the operating room. Even though many cancers are treatable, the term "cancer" immediately brings the fear of death, disability, or disfigurement to many patients. For example, women who have a breast lump not only may fear dying from cancer, but may also have a fear of being rejected because they think they will no longer be attractive or a "whole woman" after a mastectomy. A patient who has a herniated spinal disc that requires surgery may fear that he or she will be paralyzed permanently if something goes awry during the surgery.



There is an element of risk involved with any surgical procedure or administration of anesthesia, so the patient's fears and anxieties are real and are valid; they must be considered when dealing with the patient. It is important that if you hear a patient express thoughts of dying, or fears death is inevitable during hospitalization or a surgical procedure, report it immediately to a licensed practitioner. Even if the remark is directed towards a family member, another patient, or another hospital staff member, ensure one of the patient's care providers is aware of the stated fear of dying. People who believe they are going to die during hospitalization may do just that because they may literally will themselves to die. We'll discuss the death and dying process more in-depth later.

Besides dying, a fear closely related to the fear of dying is the fear of disfigurement or disability. The patient may worry about the impact that his or her hospitalization and surgery will have on his or her family. Will "normal" life resume after the surgery? Can I return to work? Will the scars make me a "freak" to other people? These questions can plague a surgical patient and evoke great anxiety and fear.

A long-term hospitalization is not only hard on the patient, but on the patient's family as well. The lengthy separation from loved ones that the patient and his or her family are accustomed to having present can cause the patient a great deal of worry. The patient also may be extremely worried about how the hospital bills are going to be paid. As you well know, medical and surgical care is not cheap, and a long stay in the hospital can quickly deplete a family's financial resources. Along with these fears and anxieties, the patient may worry about how the family will continue in his or her absence. This is particularly true for anyone who is the sole "bread winner" or the head of a household.

A patient may also have a completely false idea about the severity of her or his condition and may fear that death or disability is imminent when, in reality, the problem is minor.

### *Fear of poor prognosis*

Closely related to the fear of death, disability, and disfigurement is the fear of poor prognosis. A prognosis is the doctor's prediction of the outcome of a disease or treatment. For a patient who has been told by a doctor that he or she has a suspicious tumor, all sorts of emotions are evoked. Although the chances are often very good that medical/surgical treatment will eradicate the problem, the patient may be extremely afraid of having the surgery for fear of what the doctor may find. All too often people will put off going to see a doctor, even when they know they have a problem that requires immediate attention, just because they fear what the doctor will discover more than they fear what will happen to them if they do not seek treatment.

The fear of poor prognosis can be exaggerated if the patient misunderstands what medical personnel say or if he or she overhears a conversation and takes things out of context. For instance, take the case of a patient who thinks he or she may have cancer and goes to a doctor for an examination and diagnostic tests. The doctor examines the patient, and then steps out of the office to consult with another doctor about the results of the examination. The examining physician tells the consultant that the tumor is probably benign, but the patient overhears their conversation and only hears the word "tumor," which, to the patient, means a malignancy.

### *Fear of pain*

This is probably one of the biggest concerns of all surgical patients, particularly those who will be operated on under local or spinal anesthesia and knows that they will be conscious during the procedure. In fact, many patients fear pain more than they fear the operation itself. Pain can be created and exaggerated by fear alone. Pain created by fear can be just as real to the patient as actual physical pain. Regardless of the origin, pain tires a person out and reduces the body's defense mechanisms.

Everyone has a different pain threshold. Some people can endure severe pain for long periods of time without so much as a grimace, while others will wince and cry at the slightest needle prick. No matter what a person's pain threshold is, the person should never be lied to about experiencing pain. The

patient who is well-informed and has an optimistic attitude will most likely react better to pain than the uninformed, pessimistic person. Patients who express a fear of pain should be assured that medications are readily available to relieve their discomfort.

### ***Fear of anesthesia***

A fear closely related to the fear of pain is the fear of anesthesia. A patient may fear awakening during the surgery and suddenly experiencing severe and uncontrollable pain. The patient imagines the terror of awakening and seeing himself or herself cut open, bleeding, and people handling body parts. A patient who is about to undergo general anesthesia is particularly susceptible to this fear because that person realizes that he or she is totally dependent upon the surgical team for survival. If the patient does not trust the members of the surgical staff, this fear will be significantly greater.

Some patients may fear the loss of consciousness associated with general anesthesia for fear that they may never “wake up.” Their fear may be so great that it can affect the amount of anesthesia required to put them under and, once they are under, can dramatically affect their physiological responses to anesthesia and the surgery.

### ***Fear of loss of privacy***

This fear can manifest itself for two reasons. First, patients fear what people will think when they see their most private body areas. Surgical patients know their bodies will be exposed, they may have to be assisted with bodily functions, and complete strangers will intimately touch them. Young children, adolescents, and elderly patients are particularly self-conscious about body exposure. This fear goes hand-in-hand with the patient’s need to retain self-esteem. Unnecessary exposure or examination of patients can lead to a loss of self-esteem and to the build-up of great anxiety and fear.

A second reason why the patient may fear loss of privacy has to do with fears about having to divulge private information about self and family to strangers. This occurs each time a doctor, nurse, or other practitioner takes a history. Closely related is the fear of divulging “deep, dark” secrets while under the influence of drugs and anesthesia.

### ***Effects of patient fears***

If a patient’s fears are not alleviated in some manner, they can cause many psychological, emotional, and physical problems that can affect the patient’s response to treatment. One of the most common results of fear is increased anxiety (tension) and stress.

### ***Increased anxiety and stress***

Anxiety is a persistent feeling of uneasiness or uncertainty that comes from anticipation of real or imagined threats. When a person becomes anxious, her or his body responds by initiating the stress response, the so-called “flight or fight” reaction. The physiological changes that can occur include rapid pulse and palpitations of the heart, faster breathing, increased perspiration, dilated pupils, dry mouth, clammy skin, and even paralysis. The symptoms of an acute anxiety attack somewhat resemble the body’s response to shock. Additional indications that a person is extremely anxious or under stress include stuttering, confusion, memory lapses, distorted perceptions of events, an alteration of time perception, and involuntary twitching of muscles.

Highly anxious patients may be extremely hyperactive and dwell on the risks relating to surgery and anesthesia. They may be so preoccupied that they do not hear what you say and will not calm down despite your best efforts to reassure them. They may be moody, overly talkative, and terse, and may even act angry. The highly anxious patient is a poor surgical risk. These individuals have more difficult anesthetic inductions, are more likely to have fluctuations of their vital signs during surgery, and will have an increase in postoperative pain and discomfort. They may become combative upon arousal in the recovery room, and they are more prone to laryngospasm, shock, and cardiac arrest. Unresolved anxieties can be very dangerous to the surgical patient, so it is important for you to be able to recognize

the signs and symptoms of the overly anxious patient. Always contact a nurse or doctor immediately if a patient you are caring for exhibits the symptoms we just discussed.

### ***Extreme fear***

Fear is one step beyond anxiety. It is caused by anticipation of danger. A person who is afraid exhibits the same basic signs and symptoms as the highly anxious person. The individual also may experience elevations in blood pressure, more frequent urination, recurring headaches, gastrointestinal upset, and uncontrolled trembling. Patients who are truly terrified may instantaneously become hysterical or exhibit other extremes of behavior. As indicated previously, a patient who has a great fear of dying should be taken very seriously. Always remember, the brain has a powerful influence over the vital body functions.

Remember that you, as a surgical team member, can do much to help lessen the fears and anxieties of your patients.

### **Reducing patient fears**

There are many ways you can reduce your patients' fears. Projecting a positive and professional image is one way—remember patient sensitivity? Many of these actions are the same ones we discussed for satisfying patient needs. They include the following: keep patients informed, treat patients with respect, and look and act professionally.

### ***Keep patients informed***

Always tell the patient who you are, what you are going to do, and why you are doing it. Always use layman's terms when talking about procedures and never ignore the patient's questions. One word of caution—*Refer any technical questions the patient has about the specific disease, illness, or other condition to the surgeon.* Never "play doctor." You are not one, and even though you may be very knowledgeable about a particular procedure, you must never explain the details of surgery. It is too easy for the patient to consider you the authority, and take your word that the scar will be small, the surgery not extensive, or other such comment. The surgeon is the one who knows more about what to expect and what the results will be; if something you say actually contradicts what the surgeon has told the patient, you will probably increase the patient's anxiety or fear.

### ***Treat patients with respect***

Always treat your patients exactly like you would want to be treated. Make sure you respect the patient's right to physical privacy by avoiding unnecessary exposure of his or her body, and respect personal privacy by not being "nosy." Never ignore the patient, and respect the patient's right to refuse treatment. For example, if a male patient refuses to allow a female technician to pick him up for surgery (or vice versa), do not argue with him (her); honor the patient's wish and report it to the unit nurse, the NCOIC, or your supervisor. Also, respect the patient's right to expect that his or her safety will be guarded; pay attention to what you are doing and follow all safety guidelines outlined by local policies. Always be courteous, and address patients by their names and titles unless they specifically tell you to address them otherwise. Just like active duty patients, retired members of the armed forces should be addressed by their rank and last name.

### ***Look and act professionally***

As discussed under patient sensitivity, the image you present reflects on your hospital and duty section. One of the best ways to dispel patient fears and establish trust is to look and act "sharp." Exhibit a self-confident attitude (without being arrogant) when performing direct patient care duties. Be precise and efficient when performing a task. Don't be sloppy, and don't waste time. Maintain the highest standards of personal hygiene, and wear your uniform proudly. To what type of individual would you entrust your care to a disrespectful, smelly, sloppy person, or someone who is courteous, clean, and well groomed?



## Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

### 004. Safety

1. Which accidents should be reported to your supervisor?
2. What form is used to report accidents and injuries in the MTF?
3. Briefly describe the steps you take to report an incident or accident.
4. What is the purpose of the hazard reporting system?
5. What form is used to report a hazardous condition?
6. List four areas that AFI 90-821 does *not* pertain to.
7. List four areas you are required to be trained on under the HAZCOM program.
8. Where should individual HAZCOM training be documented?

### 005. Patient advocacy

1. What is a military *exception* to the patient's right to privacy and confidentiality?
2. Identify the specific patient right that has been violated in the following situations:
  - a. A1C Cindy Wright goes to pick up a patient from the orthopedic care unit. She fails to lock the wheels of the gurney before moving the patient from the bed to the gurney.
  - b. A patient is scheduled for an appendectomy. When you check the patient's chart and question the patient, you discover the consent form was not signed and the patient has no idea what the surgery involves.

- c. A1C Wilson and SRA Jones are chatting with each other during lunch. During their conversation, they openly talk about a patient who just had a circumcision, mentioning the patient's name and discussing details of the operation.
  - d. During a preoperative interview with an OR nurse, a patient asks to know the names of the surgical team members who will be in the operating room during his surgery. The nurse refuses to divulge this information.
- 3. What responsibility has a patient failed when he or she (1) does not divulge a history of drug abuse; (2) is smoking in the lavatory; and (3) does not keep appointments on time.
  - 4. Briefly define patient sensitivity.
  - 5. What is the key to patient sensitivity?

**006. Patient's needs and fears**

- 1. What are physical needs?
- 2. Identify six physical needs.
- 3. Which category of needs is most patient care and treatment directed at satisfying?
- 4. Where do psychological needs come from, and what are they responsible for?
- 5. List four classifications of psychological needs.
- 6. Describe the need for self-esteem.
- 7. Identify two actions that might occur in a hospital setting which could adversely affect a patient's self-esteem.

8. How can a chaplain or spiritual adviser help a patient satisfy his or her spiritual needs?
9. What type of fear is common in patients who have cancer?
10. What type of surgical patients may be particularly affected by a fear of pain?
11. Identify five specific fears a patient may have which relate to a fear of losing privacy.
12. Name three ways patients' fears can be reduced.

### **1-3. Performance Improvement and Risk Management**

In order to lead in an era of dramatic world change and revised national priorities, the Air Force must use modern innovative management practices like streamlining organizations, empowering people, and removing barriers to continuous performance improvement.

This section is devoted to a brief overview of performance improvement (PI) and risk management (RM). We'll define PI and RM and look at the Air Force PI and RM program. Finally, we cover PI as it relates to the operating room.

#### **007. Air Force performance improvement and risk management program**

We mention performance improvement in various sections throughout this course, mainly because quality patient care is all encompassing. For our purposes, PI may be defined as *any and all efforts to improve the quality of patient care*. In contrast, RM is *the identification and action taken to resolve problems or potential problems in the health care setting*. PI/RM is an important part of the Air Force's health care delivery system and probably has the most widespread impact on your job. Performance improvement not only pertains to how you do your job but it also covers the identification and resolution of patient care problems. The medical facility safety program, the infection control program, and other facility-wide programs are directly linked into the PI and RM program.

#### **Joint Commission and performance improvement**

Performance improvement and risk management have been around for over 20 years; however, the new and improved quality process has helped us to take yet a closer look at how we do business. The Joint Commission (JC) is the lead agency for establishing quality and accreditation standards for the medical profession. In recent years, JC has changed its focus from just looking for problems (traditional quality improvement) to improving the process (performance improvement). AFI 44-119, *Medical Quality Operations*, specifically directs Air Force medical treatment facilities to meet JC standards. To ensure compliance, JC surveyors look at the planned approach to improvement, the design of new or revised process, data collection, assessment of data, and performance improvement. The JC's transition to performance-focused standards is organized around important functions which were completed with the *1995 Accreditation Manual for Hospitals (AMH)*. For more information about JC standards related to performance improvement, see the current edition.

### **Unit self-assessment program**

Unit self-assessment is conducted within the unit using the Air Force self-inspection program criteria as the framework for improving overall organizational performance. Sometimes referred to as a unit self-inspection, the self-assessment's primary purposes are to identify problems at the management level, implement solutions, and provide a feedback system to track problems until they are resolved.

Each wing, group, squadron, and section develops unit self-assessment checklists or guides by using current directives, policy letters, performance improvement reports, and so forth. To ensure coverage of all areas of responsibility, the checklist should be tailored to each organization's structure and mission. Each checklist lists the prescribing directive or policy authority for each item to be inspected or assessed. Checklists are reviewed at least annually to ensure accuracy and for inclusion of any additional items. If you are selected to be the section or unit self-assessment monitor, you will conduct the assessment on a regular basis, usually annually.

### **Performance improvement**

Basically, PI is a program to ensure the resolution of real and potential problem areas related to patient care through the use of formal mechanisms. The main purpose of any PI program is to improve the quality of health care.

### **Risk management**

Risk management is the means to identify and act on problems in the health care setting. These are problems that have caused (or may cause) harm to patients, visitors, employees, or property and may result in hospital liability or loss of hospital resources. The main purpose behind RM is controlling medico-legal liability and reducing the incidence of medical malpractice suits. The RM function is an integral part of the MTF PI and RM programs.

### **Air Force performance improvement and risk management programs**

In the Air Force MTF, AFI 44-119, *Medical Quality Operations* is the primary directive governing PI and RM. The program is designed to meet or exceed current JC and other civilian health care standards.

Within the MTF, PI and RM activities are combined under one committee. This committee reviews and directs the overall PI and RM program in the MTF. The committee is chaired by the chief of hospital/clinic services and may be a subcommittee of the executive committee. This PI and RM committee formulates the PI and RM plan that establishes responsibilities for each department and service in the group.

Some of the major objectives of the PI and RM program include, but are not limited to, the following:

- Improving the quality of health care delivery and enhancing practitioner clinical performance.
- Reducing risk-creating incidents and adverse effects to patients.
- Improving provider-patient communication and patient satisfaction with the health care provided.
- Enhancing coordination and communication between providers and services.
- Educating and sensitizing all MTF personnel on program objectives.
- Requiring adequate supervision of non-physician providers (physician's assistants-PA), nurse practitioners, nurse midwives, etc.).
- Assuring performance-based credentialing for each practitioner.
- Assuring that identified problems are resolved.

To accomplish these objectives, Air Force PI and RM programs utilize a variety of monitoring and evaluation tools to determine if the care provided meets, exceeds, or fails to conform to established standards of surgical and nursing practice. Among the tools used are the following:

- Medical records reviews.
- Reviews of patient complaints.
- Patient questionnaires.
- Patient interviews.
- Peer reviews.
- Supervisor evaluations of worker performance.

The basic purpose of all these evaluation tools is to provide early identification of negative trends and determine the best corrective action before major problems occur.

To serve best the purpose of the PI and risk management (RM) program (improving the quality of patient care) emphasis is placed on corrective actions that expand the knowledge, skills, and performance of health care personnel. Some examples of effective corrective actions include continuing education, in-service training, peer pressure, management changes, and changes in the work environment.

### **008. Performance improvement in the operating room**

We've discussed the basic structure, major objectives, and monitoring and evaluation methods used in the Air Force PI and RM programs, but how is PI implemented in the operating room? What sort of activities enable surgical team members to monitor, evaluate, and improve the quality of care provided to surgical patients? The following are some examples of PI-related activities that pertain to operating room functions.

- Evaluates the consistency or inconsistency of preoperative, operative, and postoperative diagnoses.
- Evaluates whether or not the surgery was actually necessary. One way the reviewers can assess this is by analyzing the results of tests and examinations done on any tissue specimens removed from the patient.
- Evaluates surgical errors or misjudgments. This includes such incidents as operating on the wrong patient, operating on the wrong area of the patient's body, or performing experimental surgery without proper authorization.
- Evaluates cases where patients are unexpectedly returned to the operating room. For example, the reviewers take a close look at a case where a hernia patient had to be rushed back to the OR as a result of postoperative bleeding.
- Ensures that operative reports are completed in a timely manner. This refers to the report the surgeon dictates describing the operation, not the basic information filled out by the circulating nurse.

In addition to patient medical records, the surgical procedure logbook or computer log maintained by the OR supervisor is a vital source of information that facilitates tissue committee review since it contains data on all surgical procedures done in the MTF. The purpose of the surgical case is to evaluate the justification and appropriateness of all surgical procedures performed by the staff surgeons. The PI and RM committee send a written report of the surgical case review to the PI and RM coordinator for review. Corrective actions must be initiated for any problems identified by the review, and documentation of these actions must be included in the report.

### **Infection control**

Another PI mechanism that directly relates to a broad range of activities performed in surgery and sterile processing is infection control. Infection control programs are developed to identify and

evaluate nosocomial (hospital acquired) infections and monitor aseptic techniques and sanitation practices. This is the area of performance improvement that most directly relates to your daily duties. We say this because infection control affects just about every aspect of your job as a surgical service technician. In this regard infection control programs monitor such things as:

- Sterilization and disinfection practices.
- Housekeeping activities.
- Laundry handling.
- Disposal of waste materials.
- Isolation procedures.
- Aseptic technique.

Infection control personnel monitor patient infection rates and attempt to determine and eliminate sources of infection. They are also responsible for providing infection control training to new employees. Since infection control is so important to your job, it deserves to be covered separately.

### **Performance improvement in perioperative nursing**

Up to this point, we've looked at two areas where performance improvement directly affects surgical patient care, but we haven't mentioned the methods used by OR nursing personnel to evaluate and improve patient care. Instead of listing every conceivable PI-related activity performed by surgical nursing personnel, we will provide some common examples of activities to which you can readily relate.

#### ***Personnel performance appraisals***

One very effective way to improve the quality of care provided to surgical patients is to have experienced supervisors directly observe their subordinates' duty performance. This allows for immediate detection and correction of deficiencies before they result in harm to the patient. By observing the duty performance of the OR nurses and technicians, the OR supervisor and NCOIC can also determine whether further training is required or if existing training programs need modification. The close supervision you are experiencing during your OJT is not only helping you learn your job, it's also acting as a performance improvement tool by preventing you from making serious mistakes that may hurt your patients.

#### ***Preoperative interview***

Another performance improvement tool used in the OR is the preoperative patient interview. This interview is conducted by OR nurses, usually the day before surgery, and it serves several purposes. First, it provides the nurses with valuable information that enables them to finish their preoperative assessment of each patient's individual needs. Once the assessment is complete, the nurses can develop a perioperative nursing care plan specifically tailored for each patient they'll care for in the operating room.

The interview also enables the nurse to determine if there are any inconsistencies in the patient's record regarding the information the patient originally gave to admissions personnel, anesthesia personnel, and the surgeon. For instance, the nurse asks the patient if he or she is allergic to any medications or chemical solutions. If there's no written record of any allergies in the patient's record, but the patient tells the nurse that he or she is allergic to iodine, the nurse records this in the patient's chart and now knows that iodine-based soaps and antiseptic solutions can't be used on this patient. Because the information is now recorded for all health care personnel to see, the risk of harm to the patient is reduced. The interviewing nurse also verbally passes this information on to other members of the surgical team to ensure that iodine-based solutions are kept away from the patient.

Another benefit of this interview is that it gives the nurse an opportunity to do some preoperative teaching to ensure that the patient fully understands what is going to happen before, during, and after

surgery. The fully informed patients are generally much more cooperative, less apprehensive, and less likely to criticize the care they receive. Also, because the patients are more relaxed and less fearful, postoperative recovery will normally be improved.

Finally, the preoperative interview allows the patients a chance to meet someone on the surgical team, other than the surgeon, who will be with them in the operating room. This one-on-one personal contact between patients and nurses establishes a bond that helps nurses personalize their care and contributes to the overall rapport patients will have with other surgical nursing personnel.

The information the nurse gains from the preoperative interview is recorded on a special form known as the perioperative nursing record. This form is available in the operating room for you to read until the time the patient is operated on. The written information on this form, along with the nurse's verbal explanations of each patient's special needs, will help you assist the nurse in providing quality care. It also reduces the chances of someone on the surgical team making a mistake because of lack of knowledge about the patient.

### *Patient observation and records review*

Direct observation of the patient and review of the patient's chart immediately before surgery also contribute to performance improvement. You'll become involved in this process when you perform patient transport duties. When you pick up patients from the nursing care units, you are required to check the patients' identity and review their charts to ensure that certain mandatory preoperative checklist items have been accomplished. At this time, you are able to talk to the patients while observing their overall physical and mental condition. If you notice anything unusual, report it to a nurse or doctor immediately; thereby reducing the risk of harm to your patients.

In most operating rooms a designated OR nurse immediately talks to the surgical patients and reviews their records after you've transported them to the surgical suite. The nurse also verifies the patients' identities, checks their charts very thoroughly, and observes and notes their physical and mental status. Additional checks of this nature are performed by anesthesia personnel, the circulating nurse (usually the same nurse that conducted the preoperative interview), and the surgeon. All these record checks and patient observations are designed to minimize the possibility of oversights and errors. In other words, they help prevent problems from occurring—one of the main thrusts of the performance improvement program.

### *Surgical conscience, aseptic technique, and teamwork*

During the operation, all surgical team members have the same ethical responsibilities to—

- Perform to the best of their trained abilities.
- Adhere to the strictest standards of aseptic technique.
- Maintain good surgical conscience.
- Work together as a team.

If someone on the team breaks technique or makes a mistake recognized by other team members, immediately identify and correct the break or mistake. For example, if you see a hole in the surgeon's glove and he or she has not asked for a new one, you need to tell the surgeon immediately and obtain another sterile glove.

**NOTE:** Surgical conscience dictates that you *never remain silent when you know something is wrong*—this is not only unethical, but also illegal. Remember, any unusual occurrence, incident, or accident that happens during the operation needs to be reported and an incident form filled out.

During the procedure, the nurse is responsible for filling out many forms, including the perioperative nursing record. These forms, which become part of the patient's permanent medical record, provide valuable data that can be reviewed and analyzed after surgery to determine if any negative trends or problems exist.



You can contribute to performance improvement during an operation by remaining alert, anticipating other team member's needs, communicating effectively, and performing your duties safely and efficiently.

### ***Postoperative nursing care monitoring and evaluation***

Most patients are taken to the recovery room immediately after surgery. The circulating nurse accompanies the patient to the recovery room and briefs the recovery room nurses on the patient's status. The recovery room nurse also receives a briefing from the anesthesiologist or anesthetist. During this critical post anesthesia phase, recovery room nursing personnel closely monitor and record the patient's postoperative recovery from anesthesia until the patient is stable enough to be safely transported back to the nursing care unit. Normally, patients aren't discharged until anesthesia personnel review the recovery room record and certify the patient has recovered sufficiently to be removed from the recovery room. The nursing care provided in the recovery room is documented on a separate form that also becomes a part of the patient's permanent record, along with the perioperative nursing record and the operation report. This record can be reviewed any time postoperatively to assess the quality of care the patient received during the recovery period. The communication between the circulating nurse, anesthesia personnel, and recovery room nurses, coupled with the close patient monitoring and final check of patient status by anesthesia personnel, are routine performance improvement procedures used in the recovery room.

Another PI tool used in surgical nursing practice is the postoperative patient interview. Before patients are discharged from the hospital, an OR nurse visits them on the nursing care unit and asks them several questions in order to determine the patients' perception of the care they received immediately before, during, and after the operation. The nurse also evaluates the medical and surgical products used on the patient in surgery and assesses the patients' mental state. The information gathered during this postoperative interview is recorded on the perioperative nursing record and is disseminated to other nursing personnel during staff meetings.

The perioperative nursing record is evaluated by the OR supervisor. The data recorded on this form provides the OR supervisor with an outline of what was done to and for the patient. This outline is compared to accepted standards of surgical nursing practice and to existing policies and procedures. If discrepancies are noted in the documentation or in the quality of care provided, the OR supervisor and NCOIC of the operating room work together to determine the best course of corrective action.

### **Performance improvement and change**

An active performance improvement program is a necessary component in any operating room. When policies and procedures are revised, it's usually because patient care data from a variety of sources has indicated that a problem exists and corrective measures are required. By accepting these changes and understanding why they are necessary, you contribute to effective performance improvement. You can also contribute by being an innovator and providing your supervisors with ideas on how to improve patient care and work methods.

Performance improvement in surgery takes a total team effort and dedication to providing the best patient care possible. It's often summed up as "PI is everyone's responsibility". The methods we use to implement PI and RM may differ dramatically from those used in other areas of the hospital but the goal is the same. Remember, while performing your duties in the operating room, you and the nurses you work with become the patient's advocate. In this role, you become personally responsible for the patient's safety and well-being as long as that individual is under your care. Everything you do from the moment you enter the operating room at the start of the duty day until you go home will in some way affect the quality of surgical patient care. Performance improvement is a broad concept, but you should have no trouble promoting it if you always strive to provide the type and quality of care you'd expect if you or a loved one suddenly became a surgical patient.



## Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

### **007. Air Force performance improvement and risk management program**

1. Define performance improvement and risk management.
2. What PI tool serves as the framework for improving overall organizational performance?
3. What are the primary purposes of self-assessment?
4. What directive governs performance improvement and risk management in the Air Force?
5. List six of the monitoring and evaluation tools used to accomplish the objectives of the PI and RM program.
6. What type of corrective actions is emphasized in the PI and RM program?

### **008. Performance improvement in the operating room**

1. What is the purpose of surgical case review?
2. List three reasons for developing a hospital infection control program.
3. How do personnel performance appraisals contribute to improving the quality of perioperative nursing care?
4. Besides helping nurses personalize care and improving the rapport between the patients and surgical nursing personnel, list three ways the preoperative patient interview contributes to performance improvement.
5. List four surgical team members who directly observe patients and check their charts before surgery.

6. What should be done if a surgical team member breaks technique or makes a mistake during a surgical procedure and another team member notices the error?
7. What is the PI tool used by OR nurses to determine the surgical patient's perception of the care he or she received immediately before, during, and after surgery?
8. How can you contribute to performance improvement when patient care data indicates a need for changes?

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## Answers to Self-Test Questions

### 001

1. The process of reviewing, observing, and accepting responsibility for the actions and services provided by subordinates.
2. The flight NCOIC or element NCOIC.
3. To welcome the new arrival to the base, and to help make the relocation process easier for all involved.
4. Introduce the young Airman to other work center personnel and those in his/her chain of command. Walk the individual through the work center, discuss with and show him/her the physical layout of the ORs, recovery room, and central supply. Take him/her on a tour of the facility and show him/her where the nursing units, clinics, lab, x-ray, pharmacy, and other important areas of your facility are located. Pay particular attention to fire and disaster evacuation plans, clinic operating hours, a brief overview of what he/she may be doing on the job, etc.
5. Providing feedback to the school is the only way you can help the school improve the quality of training.
6. (1) Questionnaires.  
(2) Field interviews via telephone.  
(3) TDYs from training evaluators at the training group.  
(4) Customer Service Information Line (see your CFETP for details).  
(5) GAS.
7. An OAR is a survey used to collect data for evaluation of career field training and to update training documents; specifically, the career field STS portion of your CFETP. It specifically provides the training community with a comprehensive database to support anticipated training decisions for the career ladder.
8. A job inventory.
9. In your online AFTR.
10. A supervisor or designated representative
11. Training goals and milestones for enlisted within the assigned area.
12. Core tasks, upgrade training tasks and unit specific tasks.

### 002

1. The flight or element NCOIC is usually responsible for scheduling all enlisted personnel, but the task may be delegated to a mid-level supervisor.
2. The OIC.
3. AFI 36-3003.
4. Plan so that the most staff is available during peak workload periods. Distribute staff according to experience and ability; ensure there are enough experienced staff members to not only cover the required

tasks, but also to train and supervise inexperienced personnel. Another consideration is equity. Post your schedule as early as possible. Maintain a record book of past schedules.

5. Research has documented that after 12 hours, performance is significantly reduced.
6. The OR supervisor.
7. And seven of the following:
  - (1) Date and day of the operation.
  - (2) Time of the operation. Usually, a specific time is allocated to only the first cases of the day in each operating room; all others are scheduled "to follow" or simply, "TF".
  - (3) Designated operating room number or letter (OR 4, OR D) for the procedure.
  - (4) Patient identification information.
  - (5) Name.
  - (6) Hospital register number or SSN.
  - (7) Age.
  - (8) Sex.
  - (9) Military status or rank (D/W, E-3, O-5, Capt, Amn).
  - (10) Patient location or nursing unit designation (3B, 2W, ASU, ICU).
  - (11) Operation to be performed (entries may be abbreviated to save space).
  - (12) Primary surgeon (assistants and residents or interns are sometimes listed).
  - (13) Type of anesthesia (general, local, spinal, or the anesthesia provider's "choice").
  - (14) Name of anesthesiologist or anesthesiologist who will administer the anesthesia.
  - (15) Units of blood required if applicable.

### 003

1. The CFETP.
2. Without an approved CJR, the member can't re-enlist. Approval of a CJR doesn't mandate re-enlistment; it simply keeps the option open.
3. Position descriptions.

### 004

1. All accidents.
2. AF Form 765.
3. (1) Tell your supervisor. Your supervisor will then determine if the incident warrants documentation most do.
  - (2) If it does, then either you or your supervisor completes AF Form 765, providing detailed, specific, factual information, not assumptions or conclusions.
  - (3) Forward the form to the MTF risk manager or performance improvement coordinator.
4. It provides a system of reporting hazardous conditions for the purpose of investigating and correcting those hazards.
5. AF Form 457.
6. Four of the following:
  - (1) Hazardous wastes (such as medical waste).
  - (2) Tobacco or tobacco products.
  - (3) Wood or wood products.
  - (4) Finished articles.
  - (5) Food, drugs, cosmetics, or alcoholic beverages in a retail establishment which are packaged for sale to consumers.
  - (6) Food, drugs, or cosmetics intended for personal consumption by employees while in the workplace.

- (7) Consumer products which are used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater than exposures experienced by consumers.
7. Four of the following:
- (1) How employees can obtain and use the appropriate MSDS.
  - (2) Any operations in their work area where hazardous materials are present.
  - (3) Location and availability of the hazardous chemical inventory and MSDS master file.
  - (4) Methods and observations that may be used to detect the presence or release of a hazardous material in the work area such as monitoring conducted by BE, visual appearance and odor of hazardous materials, etc.
  - (5) Physical and health hazards associated with potential exposure to work area hazardous materials.
  - (6) The measures employees can take to protect themselves from hazards.
  - (7) Explanation of the labeling system.
8. On an AF Form 55 or on an approved computer-generated substitute.

**005**

- 1. Physicians and other healthcare providers have a duty *to* disclose a patient's UCMJ violation.
- 2. (a) Safe environment; (b) Explanation of care and informed consent; (c) Privacy and confidentiality; (d) Identity.
- 3. (1) Providing information, (2) respect and consideration, and (3) compliance with medical care.
- 4. Being aware of how your actions, words, and appearance may be perceived by a patient, and modifying these actions to ensure you do nothing to detract from the image of a competent and caring professional.
- 5. Acting and living professionally at all times.

**006**

- 1. Those that are necessary to sustain life and are sometimes referred to as physiological or survival needs.
- 2. Food, water, oxygen, sleep, waste elimination, and control over bodily functions.
- 3. Basic physical needs.
- 4. They arise from life experiences, and are responsible for controlling the greater part of human behavior.
- 5. Safety, belonging, self-esteem, self-actualization.
- 6. We all need to feel worthy and respected. It is the need implied when we talk about dignity, self-respect, honor, and self-worth.
- 7. Careless or unnecessary exposure of a patient or a failure to address the patient with respect.
- 8. By comforting the patient and providing the patient with the warmth, strength, courage, and support to get through difficult times.
- 9. The fear of death, disability, or disfigurement.
- 10. Patients who will be operated on under local or spinal anesthesia and know they will be conscious during the procedure.
- 11. (a) Fear of body exposure; (b) Fear of having to be assisted with body functions; (c) Fear of being intimately touched by strangers; (d) Fear of divulging private information about themselves or their family to strangers; (e) Fear of divulging personal "secrets" while under anesthesia.
- 12. Keep patients informed, treat patients with respect, look and act professionally.

**007**

- 1. Performance improvement is any and all efforts to improve the quality of patient care. Risk management is the identification and action taken to resolve problems or potential problems in the health care setting.
- 2. The unit self-assessment.
- 3. To identify problems at the lowest management level, implement solutions, and provide a feedback system to track problems until they're resolved.
- 4. AFI 44-119.

5. Medical records reviews, reviews of patient complaints, patient questionnaires, patient interviews, peer reviews, supervisor evaluations or worker performance.
6. Corrective actions that expand the knowledge, skill, and performance of health care personnel.

**008**

1. To evaluate the justification and appropriateness of all surgical procedures performed by the staff surgeons.
2. (1) Identify and evaluate nosocomial infections; (2) Monitor aseptic techniques; (3) Monitor sanitation practices.
3. They allow for immediate detection and correction of deficiencies before they result in harm to patients. They help supervisors determine whether further training is required or if existing training needs modification.
4. (1) It provides nurses with information that enables them to finish their assessment of the patient's needs and develop a care plan tailored to each patient.  
(2) It enables nurses to determine if there are any inconsistencies in the patient's record regarding information the patient gave to admissions personnel, anesthesia personnel, and the surgeon.  
(3) It allows nurses to conduct preoperative teaching to ensure the patient understands what's going to happen before, during, and after surgery.  
(4) It allows the patients a chance to meet someone on the surgical team, other than the surgeon, who will be with them in the operating room. This one-on-one personal contact between patients and nurses establishes a bond that helps nurses personalize their care and also contributes to the overall rapport patients will have with other surgical nursing personnel.
5. Any four of the following:  
(1) The transport specialist or technician.  
(2) An OR nurse.  
(3) The circulating nurse.  
(4) Anesthesia personnel.  
(5) The surgeon.
6. Immediately identify and correct the break or mistake.
7. The postoperative interview.
8. Accept the changes and understand why they're necessary.

**Do the unit review exercises before going to the next unit.**

## Unit Review Exercises

**Note to Student:** Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter. When you have completed all unit review exercises, transfer your answers to the Field Scoring Answer Sheet.

**Do not return your answer sheet to Air Force Career Development Academy (AFCDA).**

1. (001) When assessing the quality of formal training course graduates, which feedback method is *not* evaluated by the course for required action?
  - a. Surveys.
  - b. Written letters.
  - c. Electronic mail.
  - d. Telephone conversations.
2. (001) The occupational measurement squadron conducts a job inventory survey to compile data for an occupational survey report *once* every
  - a. 6 months.
  - b. year.
  - c. 2 years.
  - d. 3 years.
3. (002) When are surgical service apprentices (3-levels) allowed to pull call?
  - a. After completing their career development courses (CDC).
  - b. Never, because 3-level technicians do not pull call.
  - c. When their supervisor judges they are ready.
  - d. One year after graduation from technical school.
4. (002) To maintain a surgical technician's "war-readiness," strict specialization in daily scheduling should be
  - a. encouraged to increase expertise in one surgical specialty.
  - b. discouraged to increase expertise in one surgical specialty.
  - c. encouraged to promote a broad base of experience.
  - d. discouraged to promote a broad base of experience.
5. (003) When surgical service trainees initial an item in the specialty training standard (STS) portion of the career field education and training plan (CFETP), the trainees are
  - a. certifying they are trained on the item.
  - b. acknowledging they need training on the item.
  - c. indicating they are beginning training on the item.
  - d. not performing the item as part of their normal duties.
6. (003) When is training conducted for supervisors of civilian employees?
  - a. Upon being assigned to supervise.
  - b. Before five-level upgrade training is completed.
  - c. Upon being assigned to supervise two or more employees.
  - d. Before completion of the Noncommissioned Officer's Academy.

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7. (004) Air Force Instruction (AFI) 91-203, *Safety*, outlines key responsibilities of safety personnel, discusses general safety practices, and
    - a. specifies safety requirements for hazardous areas in a medical facility.
    - b. contains a complete review of all National Fire Protection Agency Codes.
    - c. provides instructions for performing all tasks involving hazardous materials.
    - d. requires supervisors to post Air Force Visual Aid 91-307, *Air Force Occupational Safety Health Program Visual Aid*, in a conspicuous location so all personnel have access to it.
  8. (004) When should an Air Force Form 765, Hospital Incident Statement, be placed in a patient's medical records?
    - a. After the safety officer reviews it.
    - b. After review by the hospital commander and safety committee.
    - c. As soon as the form is filled out and signed by the hospital legal adviser.
    - d. Under no circumstances should it be filed in a patient's record.
  9. (004) What is the quickest and most effective way to abate hazards?
    - a. Complete AF Form 765, Hospital Incident Statement, and forward it to the safety officer.
    - b. Complete AF Form 457, USAF Hazard Report, and forward it to the safety officer.
    - c. Report to your supervisor any situation you think may be hazardous.
    - d. Report all injuries and mishaps to the hospital risk manager.
  10. (004) Which form do you use to document any situation or condition that may pose a risk?
    - a. Material Safety Data Sheet (MSDS).
    - b. AF Form 457, USAF Hazard Report.
    - c. AF Form 765, Hospital Incident Statement.
    - d. AF Form 55, Employee Safety and Health Record.
  11. (004) Which form (or approved equivalent) should be used to document Air Force hazardous communication training?
    - a. Material Safety Data Sheet (MSDS).
    - b. AF Form 457, USAF Hazard Report.
    - c. AF Form 765, Hospital Incident Statement.
    - d. AF Form 55, Employee Safety and Health Record.
  12. (005) Under the right of informed consent, information the patient needs to make a knowledgeable decision needs to be
    - a. witnessed.
    - b. in writing.
    - c. in layman's terms.
    - d. provided to family members.
  13. (005) Patient sensitivity applies to
    - a. outpatients only.
    - b. general anesthesia patients only.
    - c. all patients and potential patients.
    - d. local or regional anesthesia patients only.
  14. (005) What is the key to patient sensitivity?
    - a. Informed consent.
    - b. Privacy and confidentiality.
    - c. Acting professionally at all times.
    - d. Thoroughly training all personnel.



15. (006) When a person who is about to have a potentially disfiguring operation starts to have doubts about being accepted back into society, which need is *not* being satisfied?
  - a. Safety.
  - b. Spiritual.
  - c. Belonging.
  - d. Self-actualization.
16. (006) Which need suffers a critical blow when a patient is *unnecessarily* exposed or examined?
  - a. Safety.
  - b. Belonging.
  - c. Self-esteem.
  - d. Self-actualization.
17. (006) The *most* common patient fear that originates from the patient's ignorance or misunderstanding of surgical procedures and anesthesia is the fear of
  - a. pain.
  - b. anesthesia.
  - c. the unknown.
  - d. a poor prognosis.
18. (006) Which action should a surgical specialist take if a patient says before surgery that he or she is afraid of dying during surgery?
  - a. Reassure the patient that this will not happen.
  - b. Report the comment immediately to a licensed practitioner.
  - c. Respond to the patient that most patients feel that way before an operation.
  - d. Record the incident on the preoperative nursing record and fill out an incident statement.
19. (007) As part of performance improvement, each wing, group, or squadron develops checklists to conduct
  - a. training.
  - b. accreditation.
  - c. unit self-assessment.
  - d. total quality management.
20. (007) The means to identify and act on problems in the health care setting that have caused or may cause harm to patients, visitors, employees, or property, that has a main purpose of controlling medico-legal liability, is known as
  - a. risk management.
  - b. total quality management.
  - c. continuous improvement.
  - d. hazardous communication.
21. (008) The area of performance improvement that *most directly* relates to every aspect of your job is
  - a. tissue review.
  - b. infection control.
  - c. risk management.
  - d. surgical case review.
22. (008) A performance improvement tool that is conducted by an operating room nurse the day before surgery is the
  - a. records review.
  - b. patient care audit.
  - c. preoperative interview.
  - d. performance appraisal.

23. (008) The ethic you violate if you see a hole in the surgeon's glove and say or do nothing is
- a. peer review.
  - b. empowerment.
  - c. self-assessment.
  - d. surgical conscience.

**Please read the unit menu for unit 2 and continue ➔**

## Student Notes

## Unit 2. Resource Management and Medical Logistics

<b>2–1. Resource Management.....</b>	<b>2–1</b>
009. Review Medical Expense and Performance Reporting System data .....	2–1
010. Identify staffing requirements.....	2–8
011. Develop staffing plans .....	2–9
012. Develop budget requirements .....	2–11
<b>2–2. Managing Equipment and Supplies.....</b>	<b>2–18</b>
013. Identify materiel categories .....	2–18
014. Requesting issue/turn-in of supplies .....	2–20
015. Requesting issue/turn-in of equipment .....	2–26
<b>2–3. Materiel Responsibility .....</b>	<b>2–36</b>
016. Air Force accountability for property .....	2–36
017. Report of survey system .....	2–39

**T**HE COST OF PROVIDING quality medical care is at an all-time high. Although the military system of funding, staffing, and reimbursement is different from the civilian community, the expense of providing health care equals our civilian counterpart and is quite enormous. In the era of managed care, the military must be conscientious of cost and spending, so it must account for all of its resources. Part of your administrative duties as a supervisor is to manage all of your resources effectively. Usually when the term resource is brought up the first thing that comes to mind is money and equipment, but people are resources too and they must also be accounted for.

To help track and manage health care resources more effectively, the DOD uses the Medical Expense and Performance Reporting System (MEPRS). This is unique in that active duty medical personnel are the only active duty personnel in the Air Force required by regulations to fill out time sheets. In this unit, you will learn basic MEPRS coding, data collection, and data entry. In addition, you will learn the process required to determine staffing requirements, how to develop staffing plans, and how to develop budgeting requirements. The last lesson in this unit will focus on medical logistics.

### 2–1. Resource Management

While the commander of an organization has ultimate and overall responsibility for effective management unit resources, these responsibilities must be delegated functionally. Just like everything else in the military, the resource management system is structured and has levels of responsibility. To explain every level is lengthy and beyond the scope of this course. You will learn the basic structure of resource management at the cost center level because this is where you'll likely monitor the utilization of resources in day-to-day operations.

#### 009. Review Medical Expense and Performance Reporting System data

MEPRS is the medical personnel, workload, and expense accounting system used by the Air Force Medical Service. It is a DOD system used for managing all MTFs and is our primary tool for making budgetary, manpower, and other important resource allocation decisions. In this lesson, you will learn a little background information and some basic MEPRS facts. You will also learn the MEPRS coding and how to record/evaluate MEPRS data.

#### Basic structure of the resource management system

Each MAJCOM has a resource management office that acts as the budget office for the MAJCOM Director of Staff and all MAJCOM headquarter directorates. Within most MAJCOM directorates,

there is also a structured resource management system (RMS). The primary building blocks are the responsibility center (RC) and the cost center (CC). The responsibility center manager (RCM) is the unit's primary manager who works in the resource management office (RMO). You probably know this person as the "group RC manager" or simply "resource manager." The cost center manager (CCM) monitors the utilization of resources in day-to-day operations (we'll discuss those duties in more details later). The resource advisor (RA) is the key link between the RCM and the CCM. Communication up and down this chain is essential to good financial management. This lesson discusses the duties of a CCM, which is a level just above the level of the property custodian. Again, communication in this chain is essential; because the CCM will work with the property custodian when determining budget requirements for the CC (we'll talk budgeting at the end of this lesson).

### **Cost center managers**

The CC is the basic production organization in the chain of command. The CCM regulates, on a day-to-day basis, the consumption of man-hours, supplies, equipment, and services in the production of things or the performance of tasks. The CCM shifts resources to or from the various production tasks within his or her CC to ensure a balanced program. In this position at the resource consumption level, the CCM performs the following functions in the financial management system:

1. Performs as base or point of initial action in the building block process of the operating budget development.
2. Develops the resource requirements and justification and determines the validity of the operating budget.
3. Provides day-to-day awareness of the relationship between resources consumed and serviced and provides the basis for resource realignments.

No doubt, you've heard leaders proclaim that people are the Air Force's greatest resources. This doesn't mean that people are the only resource, but leaders want to make sure that we understand that people are valuable and without the worker the mission won't get accomplished. Besides, personnel expenses account for over 75 percent of the expenses in a typical MTF. Managing your personnel data effectively could determine whether you get that extra person to help operate your OR or clinic. Armed with the unit manning document (UMD), unit personnel management roster (UPMR), MEPRS data, and other new innovations, a supervisor can meet personnel goals.

### **Background**

MEPRS was developed to fill a need for uniformity among the military services and to improve overall effectiveness of MTFs. In the early 1970s, an intense study discovered that each MTF maintained separate and independent systems and databases. Because of this, inconsistent and non-comparable data was reported which caused invalid comparisons between the sister services (Air Force, Navy, Army and Marines) and MTFs, which in essence led to unfair manning allocations between the services. Once this was discovered, the Uniform Data System was implemented and a standardized system of determining staffing requirements for all three services was developed. MEPRS was finally introduced officially in fiscal year 1986. Now it is fully automated and used by all MTFs.

### **Basic concepts**

During peacetime, the Military Health System must be concerned primarily with establishing, maintaining, and improving its capability to respond to national security requirements. Secondary concerns include cost, efficient staffing, economic use of resources, establishment of measurable and achievable objectives, and healthcare planning. Predominant requirements and related systems fulfill national security requirements and balance the peacetime requirements. Within these constraints, a constant effort must be made to collect and analyze the expense and performance data necessary for each management level to identify, define, correct, and improve its normal peacetime healthcare

delivery system. Also, there is the need to specify individual group responsibilities and financial accountability for available, used, and expended resources.

In addition to the above processes, MEPRS assists managers at all levels in critical decision-making, and in performance evaluation. Managers need current, accurate, and complete quantitative data for decision-making, comparing actual performance with objectives, analyzing significant deviations, and taking corrective action. The MEPRS is a system of manpower and cost sharing and a system of expense reporting. Consequently, it provides management with a basic framework for determining who is responsible for what. It also provides management the flexibility to categorize financial information of functional activities that may traverse organizational lines.

There are three reasons why a single expense and manpower system should be supported: (1) rising healthcare services cost, (2) increasing concerns about defense expenditures, and (3) improving MHS management. Uniform classification, methodology, workload, and performance definitions provide common standard measurements, more meaningful comparisons, and a basis for more equitable resource decisions in MHS operations. Not only are comparisons possible among similar Army, Navy, and Air Force MTFs, but also comparisons with the civilian health sector can be facilitated.

The correct use of MEPRS results in many benefits, including cost awareness and expense information that is more current, accurate, and complete. It allows the assignment of expenses to the primary work center performing a particular healthcare service. As a reliable and relevant management information system, MEPRS helps managers evaluate cost-effectiveness, manage manpower utilization, and make more effective decisions related to cost and performance. It also allows more valuable comparisons among MTFs and with the civilian health sector.

### *MEPRS program manager*

Most MTFs have a MEPRS program manager (MPM) assigned in the RMO. The MPM is usually a health services management supervisor (4A0) or qualified civilian employee assigned as the MPM. Larger MTFs may have several people responsible for the program. The MPM is the focal point for all of the MEPRS data collection and reporting activities occurring in the MTF. The MPM collects data on personnel, workload, expense, ancillary, and other data to support the MEPRS. This system requires an individual who can learn and understand complex accounting procedures and sophisticated automation tools. Therefore, individuals with experience in MEPRS program management will find themselves in demand when other MPM positions become vacant.

### *MEPRS work center*

A work center is a discrete functional or organizational subdivision of an MTF for which provisions are made to accumulate and measure its expenses and determine its workload performance. The following criteria are considered when establishing a work center:

- Identifiable expenses.
- Allocated physical space.
- Allocated or assigned manpower.
- Valid work outputs as defined by current directives.
- A meaningful workload measure.
- A uniqueness of service provided or expenses incurred when compared to other established work centers.
- Compatibility within the MTF organizational structure.
- Facilitate management decision-making processes.
- Is considered a DOD special interest program (e.g., partnership program).

Now that you are familiar with the basic concepts of the MEPRS, I'll explain the MEPRS coding system to you. Knowing this will help you record your procedures more accurately.

### Medical Expense and Performance Reporting System coding

MEPRS specifies a set of standard work center definitions (as well as standardized accounting definitions, workload measures, etc.) that are used to allocate salaries based on personnel assigned and to report on work center performance. Codes are issued by the DOD medical service and are an integral part of the computerized expense assignment system that each MTF uses. Understanding the MEPRS coding structure is essential to collect workload data and for accurate MTF performance reporting.

First, let's clarify an expression that you may be familiar with—UCA codes. The acronym UCA is short for Uniform Chart of Accounts. Recall that in a previous paragraph we discussed a study that was done to address serious concerns and shortfalls of the Military Health System. From this study arose the need for a uniform data system for use across the three military medical departments (Army, Navy, and Air Force). The UCA was one of the components that resulted and is an essential element for integrating the military accounting and reporting system. Today it is still common to hear the term UCA codes even though the correct reference is functional cost code (FCC) accounts (i.e., AABA).

#### *The basic coding approach; standard FCC accounts*

To understand the standard coding structure used in MEPRS, familiarize yourself with the terms *functional accounts*, *summary accounts*, and *subaccounts*.

#### *Functional accounts*

All activities and associated costs within or relating to an MTF fall into one of seven functional categories. The functional categories are designated using an alphabetic coding structure, and all account codes contain one of these letters (A through G) as the first character “at the first level.” The following table describes each functional account.

Functional Account	Description	Definition
A	Inpatient Care	Care pertaining to the examination, diagnostics, treatment, and disposition of inpatients.
B	Ambulatory Care	Care involving the examination, diagnosis, treatment, and disposition of eligible inpatients and outpatients presenting themselves to the various ambulatory care specialties.
C	Dental Care	Program involving routine and augment the attending physician or dentist in diagnosing and treating illnesses or injuries.
D	Ancillary Services	Services that assist and augment the attending physician or dentist in diagnosing and treating illnesses or injuries.
E	Support Services	Services performing the management, administrative, logistical, and maintenance functions of the MTF.
F	Special Programs	MTF expenses incurred as the result of performing those portions of its military mission other than direct patient care.
G	Medical Readiness	Activities associated with expenses related to medical readiness.

#### *Summary accounts*

Each functional category contains one or more summary account (or subdivision) that covers general areas within the functional category. The second letter of the account code designates the summary accounts. For example, the Inpatient Care functional category (first level code “A”) contains seven summary accounts as do the Ambulatory Care functional category (first level code “B”) as follows:



Functional Account	Summary Account
A – Inpatient Care	AA – Medical Care
	AB – Surgical Care
	AC – Obstetrical and Gynecological Care
	AD – Pediatric Care
	AE – Orthopedic Care
	AF – Psychiatric Care
	AG – Family Practice Care
B – Ambulatory Care	BA – Medical Care
	BB – Surgical Care
	BC – Obstetrical and Gynecological Care
	BD – Pediatric Care
	BE – Orthopedic Care
	BF – Psychiatric Care
	BG – Family Practice Care

### *Subaccounts*

Summary accounts are further refined to identify actual work centers, and these identifications are referred to as subaccounts. This is where you come in. The time you spend doing your job will be charged against a MEPRS subaccount. In accordance with the hierarchical structure, the subaccount designation is in the third position or “at the third level”, as shown in the following table:

Functional Category	Summary Account	Subaccount
A – Inpatient Care	AA – Medical Care	AAB – Cardiology
	AB – Surgical Care	AAC – Coronary Care Unit
		AAL – Pulmonary and Upper Respiratory Disease
		ABB – Cardiovascular and Thoracic Surgery
B – Ambulatory Care	BA – Medical Care	BAC – Cardiology Clinic
	BB – Surgical Care	BAN – Pulmonary Disease Clinic
		BAV – Hyperbaric Medicine Clinic
		BBB – Cardiovascular and Thoracic Surgery Clinic

### *Fourth level codes*

Although DOD does not generally prescribe standard fourth level codes, the military services headquarters can approve the use of site-specific fourth level codes. For example, suppose an MTF has a primary care clinic (BHA subaccount) but is also responsible for a remote primary care clinic located down town. To separate the costs of operating the primary care clinics, the commander might designate fourth level codes to distinguish the two. The main primary care clinic may be designated

BHAA whereas BHAB is used for the primary care clinic down town. The fourth level code can also be used in other applications as well. Some examples are:

- “P” codes used to obtain data pertaining to the Partnership Program or nongovernmental civilian providers.
- “B\*\*5” codes are used to capture data pertaining to the ambulatory procedure visits (APV).
- “B\*\*0” codes are used to obtain data pertaining to observation care services.

DOD 6010.13-M, Medical Expense and Performance Reporting System for Fixed Medical and Dental Treatment Facilities, lists all of the standard FCCs in Appendix 3.

Now that we have identified FCCs for various work centers, we will go on to discuss how to collect data for the work you perform within those work centers.

### **Data processing**

There are three main categories of data collection that pertain to MEPRS: (1) personnel utilization data; (2) workload data; (3) and financial data. We are mainly concerned with personnel utilization data and workload data. Financial data is what the budget analyst uses to decipher expenses and is not pertinent to our discussion at this point.

### **Personnel utilization data**

As previously stated, the biggest expense the MTF budget has is personnel. In fact, personnel expenses account for over 75 percent of the expenses in a typical MTF. The timely and accurate control of personnel data is essential for the total success of the MEPRS.

Personnel utilization data (man-hour reporting) is used to collect and record time by personnel category and skill type to support a given work center. As a military member, you don’t have to punch a clock to sign in and out of your duty day, but your time is tracked just the same. In fact, you should encourage daily recordkeeping to account for your time and your subordinates’ time. It is much easier to do it this way than try to account for everyone’s time each month when the report is due. Accurate and timely collection and processing of this data is essential to developing and evaluating manpower staffing standards, analyzing productivity, and making resource decisions.

### **Analyze MEPRS data (full time equivalent)**

Manpower is expressed in *terms* of full time equivalent (FTE). An FTE equals the number of work-hours in a one-month period. For MEPRS, this figure is set at 168 hours. The number of hours a person works in a month in each functional category is divided by 168 to arrive at the FTE total. MPMs add each month’s FTE figures together to determine the quarterly FTE figure. For example, if a person works 168 hours in a month, he or she has worked 1 FTE. If an individual works 180 hours in a month, the individual has worked 1.07 FTEs. Perhaps this example equation will help clarify it further:

$$\frac{\text{Number of hours worked}}{168 \text{ hours}} = \text{FTE}$$

Four factors to consider when determining personnel utilization data:

1. *Available FTE* refers to the time an individual is available in a given work center in support of an established account based on the normal FTE work month.
2. *Nonavailable FTE* is the time an individual is not available to an MTF work center; however, the salary expense is charged back to his or her assigned work center.
3. *Military and civilian assigned FTEs* are calculated differently. A military assigned FTE is the ratio of the number of days assigned to the number of days in a month. A civilian

assigned FTE is the ratio of the number of workdays assigned to the number of workdays in a month.

4. *Salary distribution.* Military salary expenses are standard rates based on composites of all pay, allowances, and entitlements updated annually. Civilian salary expenses are standard rates based on composites of basic salary, incentive and hazard pay, governmental contributions to benefits, overtime, etc.

### *Data collection methods*

Medical facilities collect personnel utilization data after all MTF personnel enter their labor hours (by MEPRS code) into the Defense Medical Human Resources System internet (DMHRSi) program. This database tracks the amount of time you were available and unavailable for work. Available time refers to hours spent supporting the healthcare mission. Examples of unavailable times are time spent on official leave (LEAVE), medical appointments or treatment (HOSP), and other time spent away from work (e.g., MIL OTH, PME, charge of quarters, parades, formations, details, prisoner escort, etc.).

### *Workload data requirements*

Workload data are performance factors used to *quantify* the amount of work accomplished by a work center, and they are one part of the statistical basis for assigning cost within the MEPRS. Workload data are associated with patient care and nonpatient care activities. Work centers submit data to the MEPRS manager by MEPRS code along with personnel utilization data.

Workload data is used to assign cost of operating expenses to various FCC accounts. The MTF collects workload statistics for each work center and summarizes them for entry into DMHRSi.

### *Weighted procedures*

If all procedures were the same, it would be simple to obtain the cost per procedure by dividing the total cost of the work center by the number of procedures performed by the work center. For example, measuring general surgery workload by unweighted (also known as “raw”) procedures (such as appendectomies) results in a gross distortion of the relative costs of the various procedures performed. As you know, not all general surgery procedures require the same amount of time, materials, or equipment and certainly, some procedures are more complex than others are. To give another example, compare the appendectomy to a bowel resection. In this example, it takes many more resources (time, personnel, and equipment) to complete the bowel resection. Therefore, to obtain useful average cost data for comparison, weighted values must be assigned to the raw procedures that reflect the relative complexity and cost for each procedure performed.

Typically, a procedure is assigned a weighted value to accurately and fairly account for the resources consumed to accomplish or produce that given unit. Depending upon the workload unit considered, many or few variables have been reviewed in establishing relative values of workload performance.

MEPRS is comprised of three main elements; personnel utilization data, workload data, and expense data. Each element contributes to the computation of unit cost for each work center. In other words, your work center earns resources by production. You report work center performance via the MEPRS. The MEPRS manager will compute the data to calculate the amount of budget dollars your unit receives and pass the manpower data up to higher headquarters to help determine manpower authorizations. You can see how important it is to collect data and report it accurately.

While MEPRS is the *primary* tool to make budgetary, manpower, and other resource allocations in a medical facility your manning authorizations are determined at a much higher level than your facility, and incorporate much more data than just MEPRS. For example, you may have noticed that the actual manning authorizations for the ORs in the Air Force have dropped over the years and specialty clinic, or surgical sub-specialty shred manning, has gone up. This is based on a decision made by higher authorities that orthopedic, urology, and ear, nose, and throat (ENT) technicians will accompany their surgeons to the OR and scrub their specialty cases. This decision also means the shredouts will pull

OR call for their specialty in the event an emergency case arises. Understanding how all this works will help you make staffing decisions for your work area.

### **010. Identify staffing requirements**

To a great extent the success of your MTF's mission depends on the assigned personnel. Supervisors in the MTF provide the highest quality health care services with the support of the subordinates assigned to them. If the number of people working in the MTF cannot satisfy patient needs, it becomes increasingly difficult to accomplish the mission successfully.

#### **Manpower documents**

Several computer products are available to assist you in the area of manpower utilization/staffing. Work with the manpower folks in the resource management office to keep these documents accurate and up-to-date. Each requires continuous monitoring to ensure the MTF commander, managers, and supervisors at all levels have accurate and current information on the location of their manpower resources.

#### *Unit manpower document*

The UMD shows authorized manpower spaces by functional account. The authorizations are displayed over fiscal quarters. This is the primary manpower-planning tool for managers. It is a quarterly computer product available to each base, and can be produced locally from a computer program. Manpower authorizations define each position in terms of its function, organization, location, skill, grade, and other appropriate characteristics which commands use to extend end strength resources to their units. End strength becomes the manpower authorizations (or spaces) on a UMD that serves as the basis for personnel actions. Manpower authorizations reflect only validated manpower requirements.

#### *Unit personnel management roster*

The UMPR shows authorized and assigned military manpower allocations by fiscal year, quarter, and name and grade of personnel assigned. The manpower authorizations must correspond to and be verified against the current UMD. Review the UMPR to ensure that the individuals listed are reflected against the correct position number, and are a "match" for the grade and Air Force specialty code (AFSC) requirements for that position. When you discover mismatches on the UPMR, report them to the resource management office.

#### *Authorization change request*

You complete an authorization change request (ACR) in letterform when you want to make a change to an authorization on your manning document; for example, change an AFSC, move an authorization, or change a grade. Send your letter with the rationale for requesting the change through the resource management office to manpower. The format of the letter varies by facility. Contact your RMO for further guidance.

#### *Authorization change notification*

An authorization change notification (ACN) is a letter or perhaps a phone call that you receive from manpower when a change action is completed. The official change is reflected on the UMD printed quarterly. This allows you to move the authorization to another section if that is what you asked for, or if the change increases a paygrade, you may be able to get a new technician authorized.

#### **Urgent manning requests**

Although the UMD identifies what your MTF is authorized, there are times that you need additional manning to execute the mission. This could be due to deployments, retirements, and so forth. The intent of manning assistance is to provide short term manpower to AF units or AF positions within joint units (with additional TDY resources) in the performance of its home base mission. For

example: backfilling a critical one-deep position due to the incumbent being hospitalized or a unit instituting an AF special project (temporary workload surge).

### **Individual mobilization augmentee**

Individual mobilization augmentees (IMA) are individual members of the selected reserve or participating individual ready reserve assigned to an active component of the DOD or other US government agency in war, contingency operations, and peacetime to meet national defense, strategic national interest and domestic objectives. An IMA is an individual reservist who usually is assigned to a regular Air Force unit and provides augmentation when active-duty members are absent. The IMA normally trains with the active-duty organization he or she augments. The primary peacetime mission of the IMA is readiness. *IMAs* are trained and prepared to accomplish their assigned tasks and duties to augment or to offset dwindling active duty manpower in support of the Total Air Force and national objectives.

### **011. Develop staffing plans**

It would be great if all you had to worry about was your own schedule. As the NCOIC of an OR, you are usually in charge of several other technicians. At some large medical facilities, you could be in charge of as many as 75 technicians. These technicians vary tremendously in skill level and ability, even further complicating your scheduling problems. It is your job to schedule personnel so that ample coverage is provided in all areas of the OR. In other words, you are responsible for your OR's staff planning. We discussed scheduling in unit one, so you should have an idea of how the scheduling process works. Staff planning centers around five basic goals. These goals, while basic in nature, capture the entire scope of patient care in the surgical environment. Let's look at the goals of staff planning for your OR. The five goals are to:

1. Project for patient care needs.
2. Evaluate the level of care that is needed versus provided.
3. Provide the appropriate numbers and mix of technical staff needed.
4. Anticipate the availability of patient care staff.
5. Provide cost effective and high-quality patient care.

### **Projecting for patient care needs**

It is critical that you understand your patients' care needs. This will determine the types of cases you are capable of performing in your OR or clinic. Additionally, you must plan ahead and determine what your patients' need in the short term and long term. If you don't understand the patients' care needs, it is extremely difficult for you to effectively project the staffing needed to provide the necessary care. For example, a facility with four older or "seasoned" general surgeons has different care demands to deal with than an OR with four brand new, or just out of residency, general surgeons to work with.

Imagine that your OR schedules the majority of cases on Monday, Wednesday, and Friday. When you are planning the staff load for a particular week or month, you need to be able to project those days that your workload increases or decreases. Generally speaking, the facility with four new general surgeons trying to get board certified requires more from your staff than the facility with the four older surgeons who already have their board certification. Once you can project for your patient care needs, you can begin to evaluate the level of care that is required.

### **Evaluating the level of care that is needed versus provided**

Remember that just because you have a projected need for a type of patient care doesn't mean that you can provide that care in the operating room. Suppose you have a case that requires one of your more skilled technicians, and those same skilled technicians are TDY, deployed, sick or on leave. Obviously, you must work with your surgeons to make do somehow with a lesser skilled technician, reschedule, or cancel the case. Be aware of the technical limitations of your staff. Evaluating the level

of care needed in your OR can help you tailor a training program specific to your needs. Another area in your OR to look at when evaluating your patient care needs is whether or not you have the capability to take care of a particular patient. For example, you may be able to do a certain type of surgery but if you have an extremely obese adult or perhaps a pediatric patient, do you have the proper equipment, instruments or supplies in your OR to take care of the patient? If not then you need to notify the surgeon as quickly as possible so he or she can determine what to do with the patient.

Okay, you've projected a certain level of care. You've evaluated the level of care provided. Your level of care meets the projected need of your OR. What else do you need to do? Keep everyone gainfully employed.

### **Providing the appropriate numbers and mix of technical staff needed**

This is often an overlooked area, but is very important. Not only do you need enough technicians to go around, but you also need an adequate level of training for each of those technical positions. Imagine an OR with 21 authorized technicians. It's staffed with three NCOs and 18 apprentice-level Airmen. The OR would be extremely limited in its capability to treat patients. This limitation would not be evident by looking at the number of technicians, but the mix is wrong. The NCOs would spend so much time answering questions and guiding the junior technicians that someone would be working a lot of overtime to complete the administrative and management tasks. You can probably guess who that would be. All of the advanced tasks would fall on the NCOs' shoulders and those individuals would be tremendously overworked. If you think that scenario is farfetched, think again. It happened to me. Until we got the apprentice level technicians up to speed, a 12- to 16-hour day was the norm.

Even if your overall mix of personnel is good, if you don't plan well you can come up shorthanded. If your best OR technicians are all somewhere else doing other duties when there are a large number of cases, you're not doing yourself or your patients any good. Remember that your three-level technicians work best alongside an experienced five- or seven-level technician.

### **Anticipating the availability of patient care staff**

This goal may seem a little obvious, but needs to be mentioned nonetheless. Patient care staff availability works two ways. Knowing the availability of your staff helps you schedule technicians to work and helps you schedule well-deserved time off for your folks.

Surgery is managed a little differently than other areas in the MTF. In our case, the technicians are highly specialized, so we don't have the luxury of pulling a technician from another area of the MTF to help out. Family Practice, Obstetrics and Gynecology (OB-GYN), and Internal Medicine clinics obtain their personnel from a large 4N0X1 pool. Because of this, resources can be shuffled from clinic to clinic to cover shortcomings as needed. The OR technician pool is much shallower. This will be alleviated somewhat when the specialty (shred) technicians begin scrubbing cases with their surgeons on a full time basis.

This is especially critical in small ORs. If a technician in your OR goes on leave, and you're the only technician left, you probably won't get too many administrative things accomplished. On the flip side of this picture, when your physicians take leave, maybe you can squeeze in some leave for your subordinates or yourself.

Lastly, your goal is to provide the most cost effective, high-quality patient care possible.

### **Providing cost effective and high-quality patient care**

Providing cost effective and high-quality patient care is your ultimate goal, in order to get the "biggest bang for the buck" as they say. While providing the best patient care possible is reflected in all areas of your job—both technical and administrative—the way you plan out your staffing has a significant impact on the care you provide. As learned in our discussion of MEPRS — if you do not staff your OR as efficiently as possible, not all the high-tech equipment available will provide quality care.



### Traditional reservist

An individual reservist usually reports for duty with their parent Air Force Reserve Command unit, typically a wing, group, or squadron, at least one weekend a month and an additional two weeks a year. An MTF requests manning assistance support from the Air National Guard (ANG)/Air Force Reserve (AFRES) through their respective MAJCOM. ANG/AFRES requires coordination and support for “man days” which only the MAJCOMs control.

### 012. Develop budget requirements

The three broad types of resources are manpower, material, and money; the 3-Ms. Manpower and material are usually physically present (maybe not as abundantly as we would like—but present nonetheless). Money has to be obtained. Getting money is sometimes a difficult task, especially when you are competing with all of the other sections in the entire command. Once you get the money, effectively managing funds (i.e., getting the maximum utilization without overspending) is an even more difficult task; because what you don’t use you’ll likely lose for next year’s allocation. It’s a constant juggling act and you have to get everyone in your section on board with a good spending philosophy and plan—the budget.

A working definition of a budget or budgeting is a detailed plan for the acquisition and use of finances (money) and other resources over a specified period for the operation of your section. The financial resources you will be most concerned with include TDY funding, supplies and equipment, continuing medical education (CME) hours, and so forth, because these are the resources that help support the mission and keep your OR running. Your nurses may not obtain necessary CME hours if you forget to budget for them. The ability of your section to support its mission often depends on how well you conduct your financial business.

Funding with the operations and maintenance (O&M) appropriation, although limited, will become more limited over the next several years as Congress addresses the DOD spending. As a result, competition for available funding will become very keen. Consequently, sound financial management at all levels is of paramount importance.

### The Department of Defense’s budget process

The overall defense budget process can be separated into three distinct phases:

1. *Formulation* – This normally lasts approximately 11 months. It involves the President, Council of Economic Advisors, National Security Council, Office of Management and Budget, DOD, Joint Chiefs of Staff, etc.
2. *Review and Enactment* – This normally lasts several months, and involves the President, Congress, etc. When passed (ideally by 30 September – but more often, early the following calendar year) it becomes an *appropriation bill*.
3. *Execution* – This is the actual distribution and administration of funds.

Your organizational budget follows along the same phases as the defense budget and is discussed next.

### Formulation

The foundation of the financial process lies in the formulation of the basic financial document—financial plan (FINPLAN). This plan should be developed based on the organizational goals (requirements) versus the availability of funds. It should be continually updated and maintained in the most current status.

The process for developing the FINPLAN begins when each MAJCOM headquarters places a “Fin Plan Call” to the directorates (levels below MAJCOM) with instructions to prepare the following year’s O&M requirements. This budget “call” is a formal set of instructions that will drive the budget process in your OR.



Although the techniques for preparing the budget have changed many times over the years, the budgetary process still relies on the building block approach for the preparation and consolidation of the budget. The cost center *or* duty section is responsible for the day-to-day operations. The cost account is the lowest level in the process so it is the foundation of the approach. A few months before the beginning of the new fiscal year, the RMO gathers all the MTF CCMs together and distributes the “call” instructions. The CCMs return to their duty sections, develop their budgets and construct the FINPLAN. Once it is completed, the FINPLAN is forwarded to the RMO who then consolidates this information with proposed budgets from the other sections in your facility and creates the budget for the entire facility. RMO takes the facility budget to the base RMO where it is compiled into the budget for the entire base or wing. This process continues up the chain of command until it reaches the top levels of government.

### *Review and enactment*

The budget review and enactment normally lasts several months, after which it is passed (ideally by 30 September) and then becomes an Appropriation Bill. Each MAJCOM headquarters receives its share of the Air Force budget and makes distribution to its different operating budget account number (OBAN). Upon receipt of the operating budget authority document, headquarters MAJCOM starts the process of distributing the OBAN funds to various directorates. The funds are then distributed down to the lowest level through the financial chain.

There’s always the possibility that the budget will not be passed before 1 October and we enter into a Continuing Resolution Authority (CRA). During the CRA period, you are limited as to how much you can spend. You are normally restricted to essential spending only, with no “new starts.” During each CRA, the Air Staff provides additional guidance that you must adhere to, so you must communicate with your financial chain to receive relevant information.

### *Execution*

After distribution is made, the final phase of the budget process begins—execution. This is where you come in. As CCM, you are ultimately the decision maker and should direct the expenditure of all funds. It is critical that you do your best in spending wisely and ensuring that your property custodians are spending money on needs rather than wants.

## **Stages and advantages of budgeting**

Now that you know why we budget, let’s look at the stages of budgeting—planning and controlling. We will also discuss some advantages of budgeting.

### *Planning*

Planning can be considered the first and last part of budgeting. Planning consists of looking ahead and anticipating situations that require a financial obligation and includes actual preparation of the budget. The Air Force prepares budgets annually. Every year you must plan ahead for the next fiscal year by anticipating your unit’s needs based on its mission. Start planning before the call instructions are distributed so that you are prepared by the time they get to you.

### *Controlling*

The second stage is controlling and controlling never ends. Controlling is the active management of your funds. This is the stage where you exercise sound fiscal judgment. Budget planning is different from controlling in that controlling requires hands-on management of funds while planning reviews and anticipates cost requirements. It’s just like a household budget. If you have not budgeted for a particular item or event, then it may have to wait. You may be able to “charge it,” but this is where a lot of people fail to realize that the charged amount has to be paid back sooner or later. Most people pay later, which costs even more money.

If you are constantly running to Medical Logistics for emergency medical issues (EMI), then you aren’t budgeting well. By using EMI on a regular basis, you are essentially using money you haven’t

received yet. Sooner or later, your OR will be held responsible for repayment of the charged amount. You may need to use EMI from time to time for unexpected things, but such use should never become standard operating procedure.

### *Specific advantages of budgeting*

So far, we've only touched the surface of budgeting's advantages, so now we'll take a closer look. Budgeting is sort of a win/win situation. There are *no* disadvantages to planning and operating a good budget program. Listed below are some specific advantages of budgeting:

- Budgeting requires planning as a *top priority*. Planning always results in a superior product. Remember the old saying, "Fail to plan, plan to fail."
- Budgeting provides a *vehicle for communication throughout your OR*. Putting a budget together forces your OR personnel to talk to each other and plan together.
- Budgeting can provide *definite goals to evaluate performance*. Your performance in managing OR funds can be an excellent gauge of fiscal responsibility. Wise management of OR funds can help set you apart from your peers.
- Budgeting ensures that all expenditures of your medical facility have a *central coordination point*. A good resource management section ensures all activities that provide it budget information have their financial needs met. If you don't provide the RMO with budget information when they need it, they can't help get what you (and the rest of the facility) need to do your job. Additionally, if there are limited funds available, the RMO can make sure that these funds are distributed equally throughout the MTF.

### **Types of budgets**

Up until now we've discussed a definition, general principles, stages, and advantages of budgeting your OR funds. Other important aspects you'll need to know in order to understand the budget process are the different types of budgets that the military uses. The two that we will discuss are capital budgets and operating budgets.

#### *Capital budgets*

Capital budgets cover acquisition of land, buildings, and other large items. Acquisition of these types of items may have purchase projections over many years into the future. For example, if you are planning to buy land or a home, you may have a separate savings budget set up specifically to build up cash for that purchase. This would be your personal capital budget.

The Air Force uses this type of budget to purchase new weapons systems like the stealth fighter. Capital budgets in the Air Force are used at the DOD and headquarters levels and should not impact the budget planning for your OR, unless you just absolutely can't live without a stealth fighter in your reception area!

#### *Operating budgets*

This is a type of budget used at the medical group/wing level. You will be managing a small portion of your medical group/wing's operating budget. It represents the funds that you will have available to operate your OR. With these funds, you must purchase all of your operating supplies, fund your TDYs, and purchase your equipment. Whatever you need is purchased from this approved version of your budget. If you need manning assistance, it will be paid out of your medical group's operating budget.

### **Building your operating budget**

As in almost any task, the process of actually preparing a budget is much easier when you break it down into small tasks. Try not to look at the whole task at once. If you are a busy NCOIC, the idea of budgeting may seem like it requires too much time from your already stretched day. Let's look at the steps involved in the budgeting process that will result in a final budget for your OR.

### Collect data

You can collect valid budget data from a number of sources such as those shown in the following table:

Source	Description
Last year's budget.	Look at what your OR thought it would spend last year. Did it meet budget expectations last year?
Actual expenses from last year.	This is an excellent place to start if you have just taken over an area. Unless the previous NCOIC really messed things up or you have had a big change in requirements, your new budget should end up being a modification of the old budget. If the old one isn't broken, don't fix it.
New programs or policies.	If you have just started a new program, factor in its cost when you submit your budget. For example, if state licensure for technicians becomes a requirement, you must budget for testing fees, TDY funds, and continuing education costs.
Review your OR's goals and objectives.	Know whether they will affect your budget.
Be aware of other sections in the medical group.	Other sections' new programs may affect your supply demands.
Inflation rate.	This may seem irrelevant but when you're talking five percent of a \$900,000 budget, it might be the difference between getting a much needed piece of equipment or not. Every little bit counts.
Workload trends.	This is a <i>critical</i> area that is often overlooked. Be aware of changes affecting your population. Is the base's mission changing? How is TRICARE going to affect your patient load? As you can see, this information can significantly impact your budget if you don't plan for situations like these.

### Compare data

Once you collect all this data, compare your findings:

- *Current year expenses versus projected expenses.* Where are you right now? Look at the proposed budget for the current year and see if you are meeting budget. If your current year's expenses are exceeding what was projected, consider that for the next fiscal year.
- *Previous year's budget versus actual expenditures.* Look at the spending history of your OR. Does your OR generally meet your projected budget, or are you constantly requesting additional funds to make it through the rest of the quarter? Medical Logistics can provide information on the amount of EMI your OR requires. Fiscal history can provide an overall view that may not be available any other way. Try to see why your unit did not meet previous budgets and avoid the same mistakes. Look for unanticipated or forgotten areas of expenditure.

### Compile data

This is the stage at which you search for new data for determining the cost of running your OR for the next year:

- *Reference sources.* Begin to compile your current equipment catalogs. If your supply catalogs are dated 2000, they won't provide accurate pricing information. Ask your personnel for information on the TDYs they are planning for the year. Don't let them wait until the month before they want to leave to submit TDY requests.
- *Determine expenses.* At this point, begin to actually project supply usage and the associated costs for the year. Figure in all items such as tape, alcohol pads, electrodes, ventilator circuits, surgical packs, laparoscopic supplies, total joint prostheses, drugs, medication, and so on. This is the most critical phase of budgeting. Because it can be extremely difficult to account for all of the funding needs, you may want to put a "buffer" into your budget to help during the lean

periods. I'm not suggesting that you pad the budget with fictitious items. Instead, try to anticipate all your needs and allow for those you might overlook or simply could not account for.

### *Draft budget*

Now that you have reviewed your old data, factored in your inflation rate, looked at your workload trends, referenced current catalogs, and identified all supplies that you need, the research is over. It's time to prepare an actual draft of your budget. This may or may not be as simple as determining your annual costs and dividing by four to reach your quarterly goals. Depending on your workload, some quarters may require more funds than others may.

It may also be helpful to divide out your expenditures into sub-categories. Straight quarter averaging of your budget will leave you lean one quarter and fat another quarter. An error to avoid is trying to buy all your supplies at once by front-loading your budget in the first quarter. Another common budget error is over-budgeting and running around during September trying to spend it all before 1 October. This shows the resource management folks that you budgeted poorly and generally works against you in the future.

### *Review information/complete final budget*

Once you complete your final draft, review it for errors and omissions. Take this opportunity to let someone else look at the budget. Have the surgical superintendent/NCOIC look at it. Find another NCOIC whose input you value and ask him or her for assistance. Use this time to add or subtract any items not previously identified.

Once you do all this, you have a budget. This budget provides an accurate view of the financial resources that are needed to operate your area through the next year. Remember to keep your own personal copy readily available. A budget is absolutely worthless if it's not used or used properly. If you just leave it on the shelf and conduct business as usual, you will have wasted all the time and effort that went into creating the budget. Additionally, you will be doing yourself, your OR, your medical facility, your patients, and the Air Force a huge disservice. You developed it, so why not use it!

The bottom line of resource management is a total staff responsibility. Although the structured resource management members serve as focal points for monitoring resources, the collective staff has the responsibility for resource management as well. You must convince them that they can help by properly completing their "time sheets", using supplies as they were intended, utilizing their time wisely, and most importantly, doing everything within their power to prevent fraud, waste, and abuse.

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## **Self-Test Questions**

**After you complete these questions, you may check your answers at the end of the unit.**

### **009. Review Medical Expense and Performance Reporting System data**

1. Define MEPRS.
2. What is the supervisor's primary tool for making budgetary, manpower, and other important resource allocation decisions?
3. MEPRS is a single expense and manpower system. List three reasons why this type of system should be supported.

4. Who is the focal point for all of the MEPRS data collection and reporting activities occurring in the MTF?
5. How does the MPM support the MEPRS?
6. In the MEPRS coding concept, how are functional categories designated?
7. What kind of accounts are subdivisions that cover general areas within the functional category?
8. At what level of the MEPRS coding system are actual work centers identified?
9. If an MTF has an OR but is also responsible for a remote day-surgery OR at a satellite location, how can the facility distinguish the two ORs?
10. What are the three main categories of data collection that pertain to MEPRS?
11. How is personnel utilization data used?
12. Why is it important to keep daily records to account for your time and that of your subordinates?
13. How many FTEs are there in 500 work hours?
14. What program is used to track the amount of time a person is available and unavailable for work?
15. What is workload data used for?
16. Why is a procedure assigned a weighted value?

**010. Identify staffing requirements**

1. What is the purpose of the UPMR?
2. What is the intent of the manning assist program?
3. Who normally trains with the active-duty organization where he or she works?

**011. Develop staffing plans**

1. List the five basic goals that staff planning centers around.
2. As the NCOIC of surgical services, you are assigned 10 technicians—six five-level technicians with experience and four three-level technicians. Your task is to staff the OR and SPD. You assign the three-level technicians to the OR and keep the five-level technicians in SPD to work better hours because “they’ve paid their dues.” Which goal of staff planning have you ignored?

**012. Develop budget requirements**

1. Define budget.
2. List the three distinct phases of the defense budget process.
3. When does the budget become an appropriation bill?
4. During what stage of the budgeting process is the budget actually prepared?
5. Explain how the controlling stage of budgeting is different from the planning stage.
6. List the advantages of budgeting.
7. Which type of budget will an OR most likely utilize to manage resources?

8. What steps are involved in building an operating budget for an OR?

## 2-2. Managing Equipment and Supplies

Medical logistics support is necessary to sustain worldwide medical care. Guidance on medical logistics can be found in AFI 41-209, *Medical Logistics Support*. It is a huge manual that covers medical supply and equipment functions in great detail; so if you have a question that isn't addressed here, the AFI is a good source. This section is brief by comparison, but should demystify the process for your practical use. First, we'll discuss how to distinguish between supply and equipment items, and the steps to requesting issue or turn-in of items. Then we'll learn about your responsibilities for property under the Air Force accountability program and the process of the report of survey program. So let's dive in!

Eventually, if you haven't already, you will be given the responsibility of property custodian or someone who has custodial responsibility for the supplies and equipment in your section. The following material will aid you in identifying, procuring, and disposing of supplies and equipment. The goal is to not make you a proficient medical logistician, but rather a functional OR property custodian. With that in mind, let's first find out how to tell the differences between the supply and equipment categories, and then how to manage them properly.

### 013. Identify materiel categories

There are several different categories of medical materiel, and they're procured in different ways, require different forms, and have different levels of approval and even funding. It's important for you to be able to differentiate between the categories of materiel so you can process the items efficiently and effectively. Nothing is more exasperating than having to redo paperwork because you failed to recognize the category of an item properly in a purchase request. Air Force materiel is broken down into these two major categories:

1. Equipment—categorized as medical capital investment or medical expense.
2. Supplies—categorized as medical or nonmedical, and consumable or durable.

The following table is a quick reference of each category, cost, durability (life expectancy), and examples.

Air Force Medical Materiel					
Major Category	Subcategory	Unit Cost	Durability	Requirements	Example(s)
Equipment	Medical investment (capital)	\$250,000 or more.	Durable for at least five years.	Maintains its identity during use.	- Urology floro/cysto table system. - Portable digital c-arm system.
Equipment	Medical expense	\$2,500—less than \$250,000.	Durable for at least five years.	Maintains its identity during use.	Operating room table.
		Less than \$2,500		- Maintains its identity during use. Requires additional local control as designated by Medical Logistics flight	Sequential compression devices (SCDs)
Supply	Maintenance significant item	Less than \$5000.	Durable	Requires maintenance	Pulse-oximeters, portable X-ray viewer, calibration syringe, etc.



Air Force Medical Materiel					
Major Category	Subcategory	Unit Cost	Durability	Requirements	Example(s)
Supply	Medical item	Less than \$2,500.	Consumables	- Does not require any form of maintenance. - Loses its identity when used, and cannot be reused for its original purpose.	Drugs, adhesive tape, oxygen masks, and other single patient use items.
			Durable	- Does not require any form of maintenance. Maintains its identity when used, and may be reused for its original purpose.	Aspiration needles, stethoscopes, EKG lead wires, etc.
Both	Nonmedical materiel	Any	Both	None	Office and janitorial primarily

Notice in the table that *equipment items* are generally higher cost, have longer life expectancy, and require medical maintenance. *Supply items* are lower cost, have shorter life expectancy, and require no maintenance (with the exception of maintenance significant supply items). Also, it is important to identify which category of item you wish to purchase; as this dictates varying levels of paperwork, justification, and approval. As always, ask the gurus in Medical Logistics for guidance when purchasing or ordering materiel. Let's now learn the procedures for reporting material complaints.

### Material complaints

Occasionally, you may receive an item or package that is unsatisfactory, or a salesman may call to inform you of a problem with a product you use. AFI 41-209, *Medical Logistics Support*, offers guidance for reporting and processing materiel complaints, as well as disposition of the items. The personnel in your Medical Logistics section will also assist you in this procedure.

To help you determine how serious a problem is, and how rapidly you should report it, you should know the three types of medical materiel recalls.

#### Category I

This category includes a supply or equipment item, which has been determined by use or test, to be harmful or defective to the extent that has caused or may cause illness or death. You must immediately report such an item and remove it from using activities and serviceable inventories.

#### Category II

Category II includes equipment items that are determined to be unsatisfactory because of malfunction, design deficiency, defects, or performance. Complaints of this type may or may not require suspension of the item.

#### Zero overpricing

Another type of complaint you may need to file is known as zero overpricing. If you notice items procured from supply, which appear to be overpriced when compared to local purchase items, report it to the folks in Medical Logistics through the Defense Medical Logistics Standard Support (DMLSS) system (fig. 2-1). If they find you are correct, they will submit a challenge and ensure corrective action is taken, including obtaining a price reduction and refund from the vendor if applicable.

The screenshot displays the 'DMLSS/Customer Support - 355245/MEDICAL LOGISTICS - [Create New Complaint]' window. The 'Complaint Detail' tab is active, showing a form with the following sections:

- Complaint Type:** I, II, III (I is selected). **Doc Num:** [blank]. **Rec.Date:** 08/16/2016.
- Cause of Complaint:** [blank].
- Item ID:** [blank]. **NDC:** [blank].
- Item Desc:** [blank]. **UPC:** [blank].
- Close Reason:** [blank]. **NSN:** [blank].
- Manufacturer:**
  - Name:** [blank].
  - Address:** [blank].
  - City/State:** [blank].
  - Country:** [blank].
  - Zip/Phone:** [blank].
- Contractor (if other than Mfg):**
  - Name:** [blank].
  - Contract or Purchase Order #:** [blank].
- Remarks:** [blank].
- DOD Requisition #:** [blank]. **Qty On Hand:** [blank]. **Qty Suspended:** [blank].
- Date Manufactured:** [blank]. **Expiration Date:** [blank]. **Date Packed:** [blank].
- Depot Source:** [blank]. **Close Date:** [blank].
- Person Initiating Complaint:**
  - Name:** [blank]. **Autovon/DSN Phone:** [blank]. **Commercial Phone:** [blank].
  - User ID:** jgonzo.
- Supply Officer:**
  - Name:** [blank]. **Autovon/DSN Phone:** [blank]. **Commercial Phone:** [blank].
  - Lot Number:** [blank].

At the bottom, there is an 'Add/Edit' button. The taskbar shows the Start button and several open applications, including 'U1.doc - Mic...', 'AFM1-216...', 'DMLSS Syste...', 'DMLSS/Cus...', and 'Fig 1-30, CS...'. The system clock shows 12:29 AM.

Figure 2-1. Example of creating a new item complaint.

## 014. Requesting issue/turn-in of supplies

Each MTF may conduct medical logistics procedures a little differently; some might use all paper forms exclusively, and others used a mix of forms with DMLSS software. In this lesson, we will discuss how to order supplies the old-fashioned way (paper forms) and proper procedures for turn-in of unwanted supplies. The last part will cover the main points of DMLSS in case you are unfamiliar with the program. This information will give you a solid foundation when your facility, if it hasn't already, eventually upgrades to DMLSS software.

### Ordering supplies

The following table identifies the types of supplies and examples.

Category	Description	Example
Medical	An item with a medical use.	Alcohol pads, arterial blood gas kits, EKG electrodes, gloves, etc.
Nonmedical	Could be used by virtually anyone, regardless of job.	Pencils, pens, light bulbs, lamps, copier paper, etc.
Consumable	An item that is used up and discarded as it loses its "identity."	Alcohol pads, light bulbs, EKG electrodes, etc.
Durable (see note)	Something that can be used several times and still maintains its "identity."	35mm projectors, blood pressure cuffs, pulse oximeters, etc.

Category	Description	Example
<p><b>NOTE:</b> The significance of this is that you might find a supply item on the Custody Receipt/Locator List (CRL). The reason is that a high dollar supply item that's durable and requires occasional maintenance may be identified by Medical Equipment Management Office (MEMO) personnel as a maintenance significant supply item for accountability purposes (maintenance significant supply items will be explained in more detail later in this lesson). So, it is not uncommon for an item like your pulse oximeter (which is really a supply item) to show up on your CRL. It's a durable electronic item that requires periodic maintenance, and MEMO just wants to keep tabs on it.</p>		

### Medical shopping guide

The majority of your property custodian duties will be reordering consumable supplies. To make life easier for you, your account can create its own medical shopping guide. The contents of your guide are up to you, so make it practical and useable. Use it for common items like gauze, syringes, and other items used often. You wouldn't want to fill up your guide with rarely ordered items like pulse oximeters or pulmonary calibration syringes.

Each shopping guide item will have its own unique index number assigned by your supply people. Once you have generated a complete shopping guide, ordering is a snap! Simply print up your account's shopping guide list, indicate the quantity of the item you wish to order, and submit it to your supply customer service section. One of the best tips I could give you is keep your guide current and relevant.

### Nonmedical shopping guide

The nonmedical shopping guide is a listing of administrative and nonmedical supplies made up by the medical logistics personnel. Unlike the medical shopping guide, it isn't customized for each section; rather, it is a convenient source of supplies common to most departments in the MTF. Use it to order pencils, pens, highlighters, staplers, paper, etc. Ordering from this shopping guide is as easy as from your medical shopping guide. Just mark the quantity you want in the appropriate space for a specific item. The property custodian will put the clinic account number on the filled out nonmedical shopping guide, sign it, and send it to the supply customer service section for processing. It's just that simple.

### *DD Form 1348-6, Single Line Item Requisition System Document (Manual-Long Form)*

Those involved in logistics operations commonly call this form the "dash-six." The dash-six is used to order infrequently ordered supplies, or any new item not currently on your account shopping guide. Whether you are going to only order the item once, or add it to your account's shopping guide, you must use this form to give the logistics personnel the required ordering information. To complete the DD Form 1348-6, provide the following information (fig. 2-2):

1. Item identification (blocks 8 through 22). Enter the national stock number (NSN), if there is one. Be advised that not all NSNs are 15 characters long.
2. Unit of issue (blocks 23 and 24). Examples to use include entering "bx" for "box", "pg" for "package", "bt" for "bottle", "ea" for "each", etc.
3. Quantity (blocks 25 through 29). How many you need to order.
4. Requisitioner (blocks 31 through 35). Clinic supply account number.
5. Manufacturer's name, if a local purchase (LP) item (section 2).
6. Name of item requested (section 7). Use exact wording used by manufacturer.
7. Description of item requested (section 8). Be very descriptive.
8. Requisitioner (section 10). Enter name and grade of property custodian, office symbol/phone number.

DOCUMENT IDENTIFIER			ROUTING IDENTIFIER			M & S	ITEM IDENTIFICATION* (NSN, FSCM/Part No., Other)																UNIT OF ISSUE		QUANTITY				DOCUMENT NUMBER																		
							FSCM						PART NUMBER																S E R V	REQUISITIONER																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35													
							7	5	2	0	0	1	3	5	0	1	8	1	9			p	g					6	2	4	5	6	4	5													
DOCUMENT NO. (Cont.)						D E C M A N D	S U P P L Y	SUPPLEMENTARY ADDRESS						S I G N A L	FUND CODE		DISTRIBUTION CODE		PROJECT CODE		PRIORITY		REQUIRED DELIVERY DAY OF YEAR		ADVICE CODE		BLANK																				
DATE		SERIAL																																													
36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69														
												REJECT CODE (FOR USE BY SUPPLY SOURCE ONLY)		IDENTIFICATION DATA																																	
												65		66		*1. MANUFACTURER'S CODE AND PART NO. (When they exceed card columns 8 thru 22)																															
																2. MANUFACTURER'S NAME																															
3. MANUFACTURER'S CATALOG IDENTIFICATION												4. DATE (YYMMDD)												5. TECHNICAL ORDER NUMBER																							
6. TECHNICAL MANUAL NUMBER												7. NAME OF ITEM REQUESTED																																			
8. DESCRIPTION OF ITEM REQUESTED												8a. COLOR																																			
HIGHLIGHTER, 3 COLOR																								8b. SIZE																							
9. END ITEM APPLICATION												9a. SOURCE OF SUPPLY																																			
9b. MAKE												9c. MODEL NUMBER												9d. SERIES												9e. SERIAL NUMBER											
10. REQUISITIONER (Clear text name and address)												11. REMARKS																																			
SSgt IWAN MOORE 383 TRS/XUEAA												\$2.90/pg																																			

**DD Form 1348-6, FEB 85 (EG)**  
Designed using Perform Pro, WHS/DIOR, Feb 96

*Edition of Apr 77 may be used until exhausted.*

**DOD SINGLE LINE ITEM REQUISITION SYSTEM** SI055588002  
**DOCUMENT (MANUAL - LONG FORM)**

Figure 2-2. DD Form 1348-6, DOD Single Line Item Requisition System Document.

If the item on the dash-six needs to be added to your shopping guide, annotate this in the "Remarks" section with a statement that reads, "add to medical shopping guide in quantity indicated," or something similar. If the item you need doesn't have an NSN, make an LP of the item. In this case, you fill out an LP request letter in addition to the dash-six. Your local supply office will use a locally produced form. Check with them for local guidance.

Before moving on, there is something you should bear in mind when ordering supplies. Each using activity in the MTF is encouraged to establish an appropriate stock level of consumable and durable supplies to support operations. The actual level of stock is based upon average usage and resupply frequency of recurring demand supplies. This level varies with the type of commodity, the user, and location of the supply account. Medical logistics personnel should issue supplies to customers frequently. Doing this reduces the levels of consumable and durable supplies maintained in the using activities. There are always exceptions of course. For example, ORs may be authorized to stock extra items if they are unique or infrequently procured items (things not normally stocked in the logistics warehouse).

An example might be laparotomy packs. Who else in the hospital is going to be using laparotomy packs? Since there won't be a stock of these items just sitting around the warehouse waiting for your OR to ask for them, these unique items may be kept in greater than normal quantity, so you have enough on hand to hold your OR over until the items can be procured through supply channels. The only restriction is that the quantity of these items maintained in the using activity (your OR) should be kept to the minimum required for efficient operation.

### ***Blanket purchase agreements***

Blanket purchase agreements (BPA) are contracts negotiated with a specific vendor to cover the recurring requirements for selected local purchase items. BPAs may be established locally through your base contracting office (BCO), or by Defense Logistics Agency (DLA). When utilized properly, BPAs can reduce issue waiting time, provide quality supplies at a stable price, and allow you to be more selective in the items you use. BPAs are being used less today than in the past due to the increased use of previously mentioned resupply methods. DMMonline (Directorate of Medical Materiel Online) provides the military medical community information regarding medical products and services supplied by DLA. It also contains information about DLA negotiated BPAs in effect, copies of new agreements, ordering instructions, and guidance in the proper use of DLA negotiated BPAs.

### ***Forward logistics***

This system is an automatic resupply system; that is, medical logistics personnel replenish supplies automatically, so the customer seldom has to inventory them. Under this system, you will work with Medical Logistics to designate a primary supply storage area and establish reasonable levels on routine items for automatic resupply. Once the listing is established, logistics personnel automatically inventory balances and deliver routine supply requirements to their customers via an established delivery schedule. Once the supplies are delivered to your supply point, it's your responsibility to ensure security and monitor consumption of the supplies. In addition to this automatic resupply, logistics folks screen stock for quality control standards, such as destruction, suspension, and dated item control. You should review stock levels monthly and coordinate with your account rep or contact customer service with any required changes.

In addition to being an automatic resupply system, the method also allows logistics to issue less than the standard unit of issue. For example, an item with a standard unit of issue of "box," containing 12 tubes, with a total cost of \$1.44 may now be issued as an individual tube costing 12 cents. This could drop operation costs significantly.

### ***Backorders and backorder release issues***

Now that you've learned the proper methods for ordering supplies, you need to know what action to take in the unlikely event your item doesn't reach its intended destination—your OR! Yes, the supply folks have occasionally made a mistake; or maybe you didn't thoroughly review the steps on filling out the dash-six. Nonetheless, you get your end of month Issue Summary Sheet and notice a section called "Backorder Action." Let's find out what this means.

Backorders are established when there's no stock on hand or there is not enough to fill the total order. This item appears on your using activity issue list in the section titled **\*\*BACKORDER ACTION\*\***. When the item is received and processed by the supply personnel, your OR will finally get it. If an item has been listed on backorder for more than 30 days, get in touch with the supply personnel again to have them follow up on the order. This helps ensure it doesn't disappear as a requirement for your OR. The key to backorder items is follow-up.

### ***Turning in supplies***

At some point in your custodial duties, you will come across that mysterious pile of excess or expired supplies taking up shelves of supply room space. It is the user's responsibility to turn in applicable materiel to the supply section. When you do this, first coordinate the turn-in with the supply personnel. They don't really like it when people just show up with things to turn in, especially if it's a lot of supplies or bulky items. Furthermore, some supply sections have days set aside just for turn-ins. The supply personnel will inspect the materiel for acceptability. Help them with any information that would aid in determining the condition of the item.

In some cases, the property custodian has to prepare a *turn-in document*. For supplies, use the dash-six. Enter the reason for the turn-in in the "Remarks" block. The warehouse clerk receiving the turn-



in will provide you with a signed copy of the turn-in document. Maintain this copy until you receive a copy of the medical logistics (MEDLOG)-generated Issue/Turn-In Listing. The reason for this is that the section's account may actually receive a credit for the turned-in item(s), so you want documentation showing the action.

### **Defense Medical Logistics Standard Support**

This major program was developed to provide the best medical logistics support at *reduced costs to MTFs and field medical units*. It is being utilized by the Army, Navy, and the Air Force, and integrates all aspects of the supply and equipment process. The following are key features of DMLSS:

- View and modify your customer catalog (shopping guide).
- Retrieve transaction history.
- Check pending transactions.
- Search database for supplies.

Our discussion of DMLSS will not include a tutorial; as you receive this training at your local MTF, you do need to become familiar with some of the most used modules in the DMLSS software.

### **Customer Area Inventory Management**

Customer Area Inventory Management (CAIM) enables the customer to identify materiel required for patient care and clinical support by providing automated support for requesting materiel, physical inventory, ordering, storage, receipt, and tracking of patient care-related materiel up to the point of use. This application provides a user-friendly inventory management tool that a materiel manager can use to establish and maintain local storage of items in the customer area.

### **Inbox**

The Inbox opens automatically when accessing the CAIM module when there are pending actions for users to complete. Pending actions are listed by the "As of" dates. Users may also gain access to the Inbox by selecting *Utilities* from the menu bar and clicking on *Inbox* or by using the hotkey. Review and work processes in the inbox daily to ensure proper management of the customer's area. To initiate a process or report, click on the "Jump To" icon located at the bottom of the window. Make changes as required and save actions to complete the process. Print any required reports as needed. When processes are complete; close the window to return to the inbox. Delete pending actions once they are completed.

### **Customer Support**

The Customer Support (CS) module provides MTF personnel with a convenient and efficient means of managing requests for materiel and maintenance work. In CS, you can search extensively for products in the database and retrieve detailed data on pharmaceutical and medical/surgical items, including pricing information. You also have online ordering capabilities if you have the appropriate privileges. In addition, CS lets you create, submit, and monitor work requests online.

### **Customer Catalog**

This module is accessed from the *Search* feature from the CS module, and is the most useful feature to you, the property custodian (fig. 2-3). This "shopping guide" will list all items you have authority to order and the specifications for the products in your inventory (fig. 2-4). You must coordinate with the supply customer service section on your catalog's contents to ensure it is a workable list. When ordering a new item, you need to specify if it will be a recurring supply item so it shows up on the catalog (fig. 2-5). I cannot stress enough the importance of this part of DMLSS.



**DMLSS Customer Support - 355245/MEDICAL LOGISTICS - [New Item Request]**

File Edit Data Navigate Utilities Window Help

Customer ID: 355245 Expense Center: 355245 Equivalent MTF Item:

Item Description:

Unit of Purchase: U/P Price: .00 X Quantity: 1 = Total Price: .00

Requires One To Be Entered: Manuf Cat No: UPN: NSN: NDC:

PVON: Type VIN:

Item ID: Type Item ID: Document No:

Contract No: Source of Supply: Recurring: Est. Usage/Month:

RDD: Advice Code: Customer Catalog: Ozone Depleting Substance:

**Vendor Information**

Name: State: Street: Zip: City: Phone: POC:

**Justification:**

User ID	Date	Status
Originator: jgonzo	16 Aug 2016	
Approval Authority:		Approved <input type="radio"/> Disapproved <input type="radio"/>
Log Authority:		Approved <input type="radio"/> Disapproved <input type="radio"/>
Ordering Authority:		Received <input type="checkbox"/>

Ready [Taskbar icons] [System tray: jheplog3 / 3.05 b123 c 30.40 12:21 AM]

Figure 2-5. DMLSS new item request window.

### *Military Treatment Facility Catalog*

The MTF catalog is an additional searchable database in the CS module, but this catalog *contains every product processed through the entire DMLSS system*. This includes all MTF accounts and as you could guess, the listing is rather extensive. You would want to search this catalog for an item not currently in your customer catalog. For instance, if you notice the intensive care unit using a really good sticky tape, you might decide to obtain some for your OR. Once an item is found in the MTF catalog, you can simply add it to your customer catalog.

DMLSS is a very useful tool once you learn to navigate the modules properly. Your Medical Logistics section has training available and the customer service desk is more than willing to help you. The whole purpose of the DMLSS system is to provide superior customer support while lowering the ever-increasing costs of medical supplies and equipment. Another added benefit is complete operating inventory control, which reduces stock level overhead.

### **015. Requesting issue/turn-in of equipment**

Let's now shift gears and talk about equipment—you remember, the durable and expensive stuff? By MEMO definition, equipment is any item that has a life expectancy of five years or more, maintains its identity when in use, and costs \$2500 or more. Equipment is further divided into three categories: (1) expense, (2) investment, and (3) maintenance significant supply item.

**NOTE:** It is always best to consult with your local MEMO for guidance on *current* equipment categories and price cut-offs.



There's a reason for the different classifications of equipment, as you'll see when you get to the information on ordering equipment.

### **Expense equipment**

Expense equipment is a piece of equipment that meets the following:

1. Has a life expectancy of at least five years.
2. Costs less than \$250,000.
3. Maintains its identity during use (doesn't fall apart or get used up).

Approval to purchase expense equipment is made by the MTF commander. The hospital staff prioritizes its equipment needs at an equipment review authorization activity (ERAA) meeting, and the commander reviews and approves or disapproves the request.

An ERAA board is made up of individuals representing the major sections of the medical center and may convene to review equipment requests and make recommendations to the commander. If the item is approved and funded, you'll get the item. On the other hand, an item can be approved but not funded. This simply means that the board agreed that the item is needed but there are no funds available. Your request will be purchased when or if funds become available that fiscal year (FY). Usually, the MTF will get "fallout" money at the end of the FY to purchase unfunded items. Fallout money is extra money not used by other sections in the organizations that has been pooled together at the end of the fiscal year. If this money does not become available, then you'll have to resubmit the request in the next FY.

In the military, the FY extends from 1 October to 30 September. Be familiar with the FY. All supply transactions end before 30 September, so you need to plan ahead for this event. Usually, the supply section does not accept any routine orders after a certain time. Check with your local MEMO office for exact deadlines.

### **Investment (capital) equipment**

To be considered investment equipment, it must meet the following requirements:

1. Has a life expectancy of at least five years.
2. Is an item with a unit cost of \$250,000 or more (unlike expense equipment mentioned above).
3. Maintains its identity during use (doesn't fall apart or get used up).

Approval to purchase investment equipment must go through the same local approval channels as expense equipment. In other words, it must go through the ERAA board meeting and receive approval and get prioritized. From there, the hospital commander will review and agree or disagree with the ERAA board findings. The difference is if the commander agrees, the request is routed through MAJCOM and the Air Force Medical Logistics Office (AFMLO) for final approval and funding. If the commander does not concur, well, better luck next time.

Expense and investment equipment require good documentation in order to be considered. This means you should do extensive research and thoroughly justify the need for purchase. If you are replacing a piece of equipment, you may want to contact the Medical Equipment Repair Center (MERC) and get the historical maintenance record (HMR) on the item you want to replace. The HMR shows the date the item was purchased, its life expectancy, amount spent for repairs, and the time the item was down due to failure/maintenance. Armed with this information you can show how it negatively affected mission impact and can justify its replacement.

In addition to doing the paper work correctly, be ready to defend your request under heavy scrutiny and the possible criticism of the ERAA board, commander, and MAJCOM approving authority. Don't take this personally; they are just doing their job. In this environment, you not only want your request approved, you want it given a high priority. To do this, you must convey how your equipment

will benefit the patient, how it can dramatically improve the mission of your section and ultimately the entire hospital or clinic.

### **Maintenance significant supply items**

Medical and nonmedical equipment items are maintenance significant supply items if they meet the following requirements:

1. Cost less than \$2500.
2. Not consumed in use.
3. Require occasional maintenance.

Maintenance significant supply items are maintained on accountable inventory records (such as the CRLI) along with expense and investment equipment. As mentioned before, these would be items such as your pulse oximeter. Pulse oximeters usually (1) cost less than \$2500, but are (2) not consumed in use, and (3) require occasional maintenance.

### **Equipment authorization list**

Also known as *allowance standard (AS)*, this equipment allowance document prescribes basic allowances of organizational equipment and provides the control to develop, revise or change Equipment Authorization Inventory Data (EAID). Basically in laymen's terms it is used to assist you in determining what equipment you can (and cannot have) within your facility or unit. This can be a complicated procedure, so it's best to seek assistance from the folks in the Medical Logistics office.

### **Equipment Replacement Report**

This Equipment Replacement Report list is produced in DMLSS and used for budgetary and financial plans for replacement equipment. During equipment budget cycles, this report can be produced for capital or expense equipment types by organization or selected customer. You also have the option to print replacement projections for up to five years out from the current date. The report does not list any equipment currently identified in the equipment detail record as replacement. Equipment items are reviewed, and items are suggested for replacement based on MEMO (and other) criteria. If you are the custodian, review the list and validate the requirements of your activity. If you determine a requirement is valid, indicate the replacement priority and prepare a request through The Integrated Global Equipment Request System (TIGERS).

### **Preparing the request for equipment**

MEMO personnel handle orders for equipment in the hospital. They'll give you information to guide you when it comes time to order equipment. Essentially, you must complete an AF IMT Form 601, Equipment Action Request, when you have identified the requirement or need to order new equipment (fig. 2-6). In addition, there is guidance on completing the AF IMT Form 601 on the back of the form.

**NOTE:** It is important that you realize the approval process for investment equipment can take several months depending on when the board meets and how much equipment they have to consider. Also, it can take several more months to get the funding from your MAJCOM. Plan your equipment needs three years in advance and be patient! When vendors come around to demonstrate their products is a good time to start planning for future purchases.

When you wish to buy a new piece of equipment, submit an AF IMT Form 601. If the item is on your Basis of Issue List (BIL); no 13-point justification is required (discussed next). The BIL is a medical/dental equipment guidance document. This document is the basis for your equipment authorizations list, formerly known as a table of allowances. This is a listing of the equipment you are authorized to have in your department. Assume the item you want is listed in the BIL. You don't currently have the item and you will not be ordering more than the amount authorized by the BIL. In this case, you complete the AF IMT Form 601. In block 21, Justification and Item Description block, put the statement: "This equipment is authorized under HQ USAF/SGP medical/dental equipment

guidance document for operating rooms dated XX XXX XXXX.” This is your justification for why a 13-point justification is not attached.

TO		FROM		SIGNATURE		DATE		ACTION TAKEN	
882 TRG		Account 123456 383 TRS/XUFA						APPROVED	<input checked="" type="checkbox"/>
								DISAPPROVED	<input type="checkbox"/>
								APPROVED	<input type="checkbox"/>
								DISAPPROVED	<input type="checkbox"/>
								APPROVED	<input type="checkbox"/>
								DISAPPROVED	<input type="checkbox"/>
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								APPROVED	<input type="checkbox"/>
								DISAPPROVED	<input type="checkbox"/>
								APPROVED	<input type="checkbox"/>
								DISAPPROVED	<input type="checkbox"/>
1. CUSTODIAN REQUEST NO. 3073-0001		10. IN USE DOC. NO. LE-5	11. NATIONAL STOCK NO. OR PART NUMBER 6525-00-999-9999		20. ACTION REQUESTED A. AUTHORIZATION and Spec ID (PD) INCREASE <input type="checkbox"/> ADD NEW <input type="checkbox"/> REDUCE <input type="checkbox"/> DELETE <input type="checkbox"/>				
2. CUSTODIAN NAME/DUTY PHONE MSgt Bruce Wilson, 6-1800		12. USE CODE B	13. PRICE \$53,635.2	14. UH ea	15. EERCD 53.6	B. ISSUE/DUE OUT ADVISE CODE (NR) INITIAL ISSUE <input checked="" type="checkbox"/> REPLACEMENT <input type="checkbox"/> CANCEL DUE OUT <input type="checkbox"/>			
3. ORGNCUSTODIAN CODE 123456/383 TRS/XUFA		16. EQUIP CODE M	17. NOMENCLATURE V02 Max System		C. TURN IN (Complete all applicable blocks)				
4. CMD AETC	5. FAD	6. UND B	7. BUD	18. ALLOWANCE IDENTIFICATION		19. QUANTITY		CONDITION	STATUS
8. CUSTODIAN SIGNATURE		ASC		COMPOSITION CODE		IN USE	CURR AUTH	NEW AUTH	NO. REQ'D
9. SIG OF ORGN COMDR (I certify that I have evaluated this request and the action herein is required.)		PART	SECT	SUB SECT	COL				
		041			3	1	1	1	1
21. JUSTIFICATION AND ITEM DESCRIPTION  Cardi02/CP/MAX System Attachment: 13 point justification									
22. REVIEWING AUTHORITY COMMENTS									
23. ORGN		24. UKC		25. LEVEL		26. DET		27. WRM	
28. EMOLOC		29. SUPPLY CONTROL NO.		30. CEMO CONTROL NO.		31. AFLC CONTROL NO.			
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

AF Form 601, 19910601 (EF-V3) PREVIOUS EDITION WILL BE USED.

SI055588003

EQUIPMENT ACTION REQUEST  
(See Instructions on Reverse)

Figure 2-6. AF IMT Form 601, Equipment Action Request.

If the equipment item you want is not on the BIL, or you are getting more items than authorized by the list, a 13-point justification is required. It is called a 13-point justification because of the 13 areas that require addressing. The points are listed and briefly explained in the following table:

13-Point Justification		
#	Point	Justification
1	Reference	Describe the item.
2	Functional description	Explains where and how item will be used.
3	Current method	Tells how you are doing the task now, without this item.
4	Workload data	Explain how often the item will be used.
5	Similar items	Describe items, if any, already in the hospital that could do the job.
6	Savings/benefits	Give <b>STRONG</b> justification here. Do extensive research; this is critical.
7	Comparable items	List other brands and models available that would do the job.
8	Operational costs	Explain additional operating cost and items; example, bulbs, quality control, required service and maintenance, etc.
9	Qualified users	Who will be qualified to use/operate the equipment?
10	Installation	Are medical equipment repair technicians or factory representatives needed to set up the equipment? Will the building require modification? (Consider water supply or electrical modification here.)
11	Maintenance support	This is determined by MERC personnel.
12	Historical maintenance report	Leave blank.
13	High cost medical/dental equipment	This is established by MEMO personnel.
<b>NOTE:</b> Figure 2-7 is a good example of a 13-point justification.		

As always, consult the MEMO personnel in your facility for any unique local requirements they may have for completion of the 13-point justification.

Requests for local purchase equipment—equipment without an NSN—have to have a copy of the catalog page or descriptive brochure attached to the AF IMT Form 601. Many times, when you are trying to obtain a piece of specialized equipment, there will be only one manufacturer. When this is the case, submit a letter justifying “sole source” procurement. Although there is only one source right now; keep in mind that within a few months there could be several competitors who will have a similar product for sale.

Sole source justification is required by the BCO to avoid the appearance of favoritism since other companies won’t be given the opportunity to bid for the contract. The sole source justification is separate from the 13-point justification and, while it has no particular format, it *must* include the following:

1. Complete nomenclature, descriptive date, manufacturer, and local distributor (if any).
2. An explanation of the exclusive features of the desired item or services, and why these features are needed.
3. An explanation that there are no known substitutes.
4. Why it is not practical to consider other sources for the item.
5. The extent of your research of possible sources in making the sole source determination.
6. What the impact would be without this particular item or service.
7. Statements as to its dependability, safety, ease of use or operation, etc.

**1. Reference:** Custodian request number: 3073-0001. Nomenclature: V02 Max System. This request is for a MedGraphics Cardio2/CP/MAX System for use in the Cardiopulmonary Laboratory. This request applies to the attached AF Form 601.

This system is available on GSA contract from:

Medical Graphics Corporation  
350 Oak Grove Parkway,  
St. Paul, Minnesota 55127  
Phone: (651) 484-4874  
FAX: (651) 484-8941  
V797P-3473k

**2. Functional Description:** The requested item will be used by the pulmonary physician assigned to the Internal Medicine Clinic to perform cardiopulmonary exercise and indirect calorimetry studies. Cardiopulmonary exercise studies are performed on a variety of patients with the most common being the evaluation of oxygen uptake and the heart and lungs response to exercise for determination of disease process. Indirect calorimetry studies are performed to evaluate and recommend exercise programs in outpatients and to assess energy expenditure of mechanically ventilated patients. An additional advantage would allow for the performance of stress echocardiography and tilt-table studies to be performed with this same equipment.

**3. Current Method:** Currently, there are few procedures being done. The facilities pulmonologist will begin performing approximately 10-20 studies per month with the addition of this equipment. The current equipment is three years beyond its life expectancy and unable to meet the demands of current standards.

**4. Workload Data:** This facility will perform approximately 10-20 studies monthly. Currently, a backlog of patients exists and tests will not be performed until this system is made available.

**5. Similar Items:** There is no similar equipment in use or available at this facility.

**6. Savings/Benefits:** The performance of an indirect calorimetry study on a critically ill patient who is being mechanically ventilated will provide invaluable information to the provider. Information obtained will aid in evaluating and determining a course of therapy to include nutritional requirements (determine caloric needs and rule out over or under feeding) and early removal from mechanical ventilation (provide assessment on work of breathing and oxygen cost of breathing) resulting in fewer bed days. The test is invaluable in following treatment and determining the need for treatment in patients with interstitial lung disease, especially idiopathic pulmonary fibrosis.

**7. Comparable Items Evaluated:** Sensormedics was considered for evaluation; however, extensive requests for information resulted in the lack of availability for review.

**8. Operational Cost:** The only operational costs would be the disposable supplies needed during the procedure. This cost would average approximately \$6.50 per patient.

**9. Qualified Users:** There is one pulmonologist and 10 Cardiopulmonary Laboratory Technicians (4HOX1) assigned to this facility trained to operate this equipment. Additional training is being provided by the manufacturer at no additional cost.

**10. Installation:** Installation provided with purchase of equipment by manufacturer.

**11. Maintenance Support:** In-house maintenance capability will be determined upon expiration of the manufacturer's warranty.

**12. Historical Maintenance Report:** Attached.

**13.** This is not a high cost item IAW AFR 167-13.

Figure 2-7. Sample 13-point justification.

Submit the completed AF IMT Form 601 (and any required attachments) to the MEMO folks for further action. If the item has a cost of \$249,999.99 or less, the final approval authority is the hospital commander. If the cost is \$250,000 or more, the request must be approved by MAJCOM and AFMLO. It is not satisfactory just to write a good justification for your item. You should also attend the medical ERAA board meeting to justify and answer any questions concerning why your item must be approved. Once your AF IMT Form 601 is approved, no further action can be taken until it is funded.

All *completed* AF IMT Forms 601 need to be documented in the AF IMT Form 126, Custodian Request Log. This log serves as the control register for tracking AF IMT Forms 601. Each custodian keeps a log of 601s turned into the MEMO. This log is used to track new (initial) requests, replacement requests, turn-ins, and (although no block is shown for it) transfers of equipment. Transfers can be noted in the "Remarks" section.



As with all things, your hospital places your approved equipment on a priority list with all other approved equipment for the hospital. Just where your requested item is placed on the priority list is largely dependent on the justification and your involvement in the process. These priorities are established at the ERAA board meeting, so be ready to fight to get your equipment listed as a high priority for purchase. Also, remember that just as your ERAA board and commander made a priority list, so will the MAJCOM. Your request will compete with all of the other 601s submitted from other bases within your command. So, be prepared for a long ride, and try to project as far in advance as possible. Remember, projecting equipment requests three years in advance is the proper way to keep up with your equipment needs.

### **Turning in equipment**

Every so often, you will need to turn in equipment because of a reduced workload, changed procedures, changed mission, or overstocking.

**NOTE:** Don't wait until just before an inspection to start looking at your excess supplies and equipment. This places a burden on MEMO because you'll probably not be the only procrastinator.

Equipment turn-in requests are also processed through the MEMO. To turn in an equipment item, follow these three steps:

1. Prepare an AF IMT Form 601 for turn-in. In block 21 indicate why the equipment is no longer needed. The comment "no longer needed" isn't enough; instead, you must specifically indicate why the item is no longer needed (e.g., mission/scope of care change, reduction in patient load, unserviceable, etc).
2. Get MERC personnel to inspect the equipment. They will determine the serviceability of the item and enter an equipment condition code on the AF IMT Form 601. In addition, they'll place an inspection tag on the item.
3. Turn in the completed AF IMT Form 601 to the MEMO personnel. After the MEMO folks receive the completed 601, they take these two actions:
  - a. Schedule pick-up of the item.
  - b. Sign the AF IMT Form 601 and give you a copy for your equipment folder (the signed AF IMT Form 601 relieves you of responsibility for the item). Keep this and make sure the item drops off of the CRL. In fact, ask MEMO to print you a new CRL as soon as possible.

Once again, remember to log the AF IMT Form 601 action onto the AF IMT Form 126. This log provides a history of your clinic's AF IMT Form 601 actions, and prevents possible liability against you if the equipment turns up "lost."

### **Transfer of equipment**

Equipment may be relocated between property custodians. The property custodian losing the item completes the AF IMT Form 601 stating in block 21, "relocation of property" along with "transfer from (the losing account number) to (gaining account number)." After this is accomplished, the *losing property custodian* does the following:

1. Retains the original copy of the 601.
2. Forwards four copies to the MEMO.
3. Obtains MEMO personnel approval of the relocation (always check with MEMO prior to initiating such transaction. This could save you some time).
4. Obtains the signature of the gaining property custodian on the AF IMT Form 601 when the relocation is accomplished.
5. Forwards the completed AF IMT Form 601 to the MEMO for processing.

MEMO personnel process the document and send a copy to both property custodians. The MEMO folks also provide a Custodian Actions List (CAL) to both custodians showing the transfer. This documentation is filed in the equipment folder. The original AF IMT Form 601 can be destroyed upon receipt of the CAL. The CAL is also used to show *any action or change* to the custodians equipment account.

Remember, property custodians maintain a log of all AF Forms 601 actions, using AF IMT Form 126, which serves as the custodian's control register for tracking AF IMT Form 601.

### **Additional materiel options**

Some other things to keep in mind when ordering supplies or equipment are petty cash and the Air Force Medical Logistics Website.

#### ***Petty cash***

Petty cash can be used to purchase supplies and nonpersonal services. This isn't the preferred way to procure supplies or services, but it is an option if unusual circumstances warrant. Check with your MEMO personnel to determine when petty cash can be used and what the procedures are for its use.

#### ***The Air Force Medical Logistics Website***

The objective of this site is to provide timely medical materiel support data to all Air Force medical activities. Many of the actions required involve the using activity. The AFML Website includes attachments on items to be suspended, destroyed, or returned for credit. It is your responsibility to ensure your stocks are screened against these attachments. The Medical Logistics office will screen recurring stocks. The attachments are as follows:

1. The Clinical Engineering and Technical Services Brief attachment contains information on modifications, recalls, or complaints related to equipment items. Use this attachment to determine if your equipment is affected.
2. The DPSC backorder attachment is used to identify items delayed for issue. Please notify logistic if the delay will cause problems for your activity. This allows timely action for ordering a substitute or replacement item through LP channels.
3. The Recall/Hazard Alert Notices, Item Suspension, Item Destruction, Release from Suspension, and Extension of Expiration Dated Items attachment should be checked against stock on hand in your using activity. After action has been completed, notify the Medical Logistics office of your findings.
4. The Excess Materiel Available for Redistribution listing is a very important listing. Items on this list can be obtained at no cost to your account. Screen the list for items needed for your account. Annotate the quantity, your activity code, and signature; then forward to the personnel in logistics. They will review your request to ensure the items can be used without causing existing warehouse stock to expire or become excess. Use the list wisely, and remember the stock currently on hand in your facility must also be properly utilized.

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## **Self-Test Questions**

After you complete these questions, you may check your answers at the end of the unit.

### **013. Identify materiel categories**

1. Why is it important to identify the categories of items you are ordering?
  
2. Match each materiel category in column B with its example in column A. Items in column B may be used once, more than once, or not at all.

*Column A*

- \_\_\_\_ (1) Coronary implantable stent (\$1,275/ea).
- \_\_\_\_ (2) EKG monitoring cables (\$37/pack).
- \_\_\_\_ (3) Blood gas syringe kit (\$350/case).
- \_\_\_\_ (4) OR suite upgrade system (\$1.2 million).
- \_\_\_\_ (5) Dry erase markers (\$2.73/pack).
- \_\_\_\_ (6) Pulse oximeter (\$350/unit).
- \_\_\_\_ (7) Ventilator (\$120,000/each).
- \_\_\_\_ (8) Gauze (\$2.35/each).

*Column B*

- a. Medical investment (capital) equipment.
- b. Maintenance significant supply item.
- c. Medical expense equipment.
- d. Nonmedical supply item.
- e. Medical supply item.

3. At what cost does an item become categorized as *capital equipment*?

**014. Requesting issue/turn-in of supplies**

1. Which category of supply item might you find listed on the CRL?
2. Which types of items would you want on your medical shopping guide?
3. Describe the types of items on the nonmedical shopping guide? Give examples.
4. How do you order an infrequently ordered supply item with an NSN? How about an item without an NSN?
5. When is a backorder established?
6. Which form is used to turn in excess/unwanted supplies?
7. The property custodian will get a signed copy of his/her turn-in request when supply items are turned in. Why is it important that the property custodian keep this form until he/she receives the MEDLOG generated issue/turn-in listing?
8. What two DMLSS modules can be used to search for a needed supply item?



**015. Requesting issue/turn-in of equipment**

1. Who approves the purchase of expense equipment for your section?
2. Pending commander concurrence, which hospital staff activity prioritizes a request for hospital equipment?
3. Generally speaking, what form must be filled out to request equipment?
4. How far in advance should you plan your equipment needs?
5. What document must accompany the AF IMT Form 601 if a requested item is *not* on the BIL, or you are requesting more of the item than is authorized?
6. What should requests for local purchase (items without an NSN) of equipment be accompanied by?
7. You are attempting to get a specialized piece of equipment. You can find only one manufacturer of the item requested. What documentation will you attach to your AF IMT Form 601 request?
8. All completed AF Forms 601 (initial requests, replacement requests, turn-ins, or transfers) should be documented or logged in on what form?
9. Who inspects equipment being turned in to determine its serviceability?
10. What statement goes in block 21 of the AF IMT Form 601 when transferring equipment from one custodian's account to another?

## 2-3. Materiel Responsibility

Now that you've become a wizard at ordering supplies and equipment, what happens now that you have possession of hundreds of thousands of dollars' worth of stuff? As a property custodian, you have an immense responsibility to the Air Force, your MTF, and your operating room. With that in mind, we'll review and hopefully clarify the things you already know. We will briefly cover the Air Force accountability program and your responsibilities as the property custodian. We'll then discuss the report of survey system—the process of investigating damaged or misplaced materiel. Let's start with accountability for property!

### 016. Air Force accountability for property

All Air Force members and employees can be held liable for losing, damaging, and/or destroying government property, if the loss was caused by negligence, willful misconduct or deliberate unauthorized use. If the loss was not caused by these things, an individual is not held liable. Except in certain circumstances, liability is limited to one month's pay at the time of the loss.

#### Custodial management of public property

Government property is considered public property given that it is essentially paid for by taxpayer's dollars. However, this does not mean that the public can use the property at will. Property management responsibilities limit the use of government property for official purposes only. To ensure official use, a commander appoints a property custodian.

**NOTE:** In the past, a clinic may have had a property custodian and a supply custodian. Now, supply custodian is no longer a separate title according to AFI 41-209, *Medical Logistics Support*. Property custodian is the proper title for the person responsible for supplies and equipment.

A property custodian is any person designated by the organization commander or chief of staff agency to have custodial responsibility for government property in his or her possession. The hospital commander appoints a property custodian for each area or unit in the MTF based on the recommendation of the flight NCOIC or the NCOIC of each area. The appointment is a typewritten delegation of authority letter. Two copies are made containing sample signatures of the authorized representative (appointed property custodian and alternate). One copy is forwarded to the MEMO and the original is kept in the new property custodian's folder. Let's discuss property custodian and supervisory responsibilities.

#### Property custodian's responsibilities

Several management responsibilities are associated with property custodian duties. Generally, they are the following:

1. Plan and forecast requirements to meet mission goals.
2. Prepare and forward materiel requests to the proper agency or individual.
3. Sign custody receipts or listings for property charged to their organization.
4. Report loss/irregularities relating to property charged to their organization.
5. Take action to reconcile and correct property records.

Resource advisors report unusual purchase patterns to commanders.

Personnel having custodial responsibility may incur financial liability for the loss, destruction, or damage to property caused by willful misconduct, deliberate unauthorized use, or negligence in the use, care, custody, or safeguard of the property from causes other than fair wear and tear. Obviously, there is more to being a property custodian than the list above suggests.

Once appointed by the commander, property custodians are authorized to request and receive medical materiel for their particular account/clinic. The new appointees have, in essence, assumed the

commander's responsibilities for managing materiel for the clinic's account. Property custodians maintain the care, custody, and safekeeping of property under their supervision.

The property custodian may delegate some responsibility to others, as the commander did with the property custodian. The reason is that the property custodian may need to take leave, go TDY, or may get sick or injured. In these cases, someone needs to be authorized to order and receive materiel for the clinic; so, an alternate will be appointed and identified to the MEMO. In appointing an alternate, the property custodian is assuming responsibility for materiel requested and received by the alternate custodian. One *cannot* take this lightly; be careful when choosing to whom you delegate this authority.

The property custodian must promptly report any losses, or other irregularities relating to materiel, to his or her supervisor. Then, the custodian should notify MEMO personnel who will help determine what should be done to solve the discrepancy.

There will be times when a property custodian must turn his or her account over to someone else; for example, when the property custodian is being relieved from duty, transferred, separated from service, or will be absent from the account in excess of 45 days. When any of these happen notify MEMO personnel so they can take action to have the property transferred to an authorized successor. If you assume custodial responsibility for your clinic, MEMO personnel will provide a copy of the CRLI showing all property charged out to the clinic's account. You take responsibility for the account and the materiel on it when you sign the CRLI. *Before signing the CRLI*, you and the current property custodian must *perform a physical inventory*. This means that all listed property must be accounted for by site. To accomplish this, you must ensure to confirm the index number on the equipment, and then to match to the index number on the CRLI. If an item isn't present (i.e., loaned out), it should have been signed out on an AF IMT Form 1297, Temporary Issue Receipt. As the new custodian, review all AF IMT Forms 1297 on file, then go to the people/section who signed out the equipment and verify that they still have it. Again, the item should be physically seen. Don't accept the old "yeah, I still have it" statement. Once an item has been located, annotate on the AF IMT Form 1297 the date and the name of the person contacted. This shows when it was last accounted for.

If an item isn't found and it isn't signed out on an AF IMT Form 1297, it's highly likely that a report of survey (ROS) will need to be conducted.

**NOTE:** Don't sign the list (CRLI) if you can't account for an item and the ROS is not initiated.

Assuming the inventory is going fine, note any damaged equipment. If an item is broken or inoperable, the current custodian reports it to MERC. MERC personnel assign a repair number to the item. Check with the MERC folks on any damaged equipment to be sure it has already been reported. Sign for the property only after the inventory is performed, all items are physically seen, and you verify that broken or inoperable equipment were identified and reported to MERC. If an item is missing and you sign the list, you're now responsible. If an item is damaged and you didn't verify that it was previously reported, you're now responsible.

**NOTE:** Don't sign the CRLI if you're in doubt about anything.

If there are any problems, you and the current custodian need to go to the MEMO personnel for advice on a resolution. Even though you and the current custodian may be good friends, and your friend assured you everything was okay, you still need to conduct an inventory. This person may be unaware of an item that was stolen just yesterday. Maybe a piece of equipment is damaged but it's in storage and nobody thought to report it. For these reasons, you must check and double check everything before you sign the CRLI and become accountable for thousands of dollars' worth of equipment. When it comes to money and your career, it just makes sense, doesn't it?

When you sign and date the CRLI, you assume responsibility for all items (in the quantities indicated) on the list. As custodian, the equipment becomes your administrative and financial responsibility. The original of the signed CRLI is returned to MEMO and you retain a signed copy as

a record of what equipment was signed for. As items are issued to or turned in from the account, a signed AF IMT Form 601 or a CAL will be maintained showing the item's status until the item is correctly listed or removed from the CRL. Once the item shows up or is removed (as appropriate) from the CRL, the AF IMT Form 601 or the CAL may be disposed of appropriately.

As a proper custodian, conduct an inventory *at least annually* to ensure all the equipment is still accounted for. This may be accomplished more frequently by your choice or at the request of the commander.

### **Supervisory responsibility**

When it comes to materiel, supervisors have a twofold responsibility:

1. Training their personnel on the proper use of equipment.
2. Ensuring supply discipline is exercised by those under their supervision.

When new personnel arrive at their work center, the supervisor (or a designated safety representative) is responsible for training them on the proper operation of the equipment. It is crucial to identify the safety hazards and safety features associated with each piece of equipment. This training just may save equipment from damage or more importantly, save a patient or staff member from unnecessary harm. In addition, medical equipment is quite expensive and funding can be limited. Statistics show that over 70 percent of medical equipment malfunctions are preventable and can be attributed to operator error. This can be eliminated through proper training and orientation.

Supervisors are also responsible for indoctrinating personnel in the principles of supply discipline and ensuring they follow them. Since everyone in the section uses the supplies, it is important that a basic understanding of the maintenance of supplies be known. Some of the tenets of supply discipline are as follows:

1. Safeguard and preserve public property.
2. Use equipment and supplies only for their intended purpose.
3. Avoid ordering excess materiel. If excess is discovered, turn it in.
4. Adhere to the procedures contained in established regulations and directives governing requisition, storage, issue, and turn-in of property.
5. Ensure requests for supplies and equipment are valid and in minimum quantities necessary to perform the assigned mission, and that these assets are protected, conserved, and maintained in the best possible condition to meet Air Force commitments.

These tenets apply even if you aren't the property custodian. For example, don't tell the property custodian to order 24 pens when the section only needs six. Additionally, if you open a drawer and find 100 pens, get with the supply custodian to have what's not needed turned in.

It's the supervisor's job to provide training on equipment, but we're all responsible for its care and proper use. The supervisor also has the responsibility to ensure that his or her workers exercise supply discipline and don't waste supplies, use them for personal projects, or hoard excess. We should all make an effort to be honest and responsible equipment and supply users.

### **Relief from custodial responsibility**

Under certain circumstances—permanent change of assignment (PCA) or duty station (PCS)—you will be required to transfer accountability. Commanders provide relief from custodial responsibility by the following:

1. Documents or computer records showing turn-in or transfer of items to another custodian.
2. Approved ROSs or certificates, schedules or collection, and other authorized adjustment documents.
3. Approved reports that provide for disposition of or relief from responsibilities for items that have become unusable due to damage, loss, deterioration, obsolescence, or destruction.

4. Approved inventory adjustments or a prescribed document to adjust losses incidental to normal operation.

As you can see, the circumstances of relief depend on the situation. Now let's look at what happens if an item is misplaced or broken from neglect.

### **017. Report of survey system**

The Air Force must account for and attach responsibility and liability to lost, damaged, or destroyed public property in its possession. The ROS system was instituted for this purpose. For further guidance beyond this CDC, Air Force Manual (AFMAN) 23-220, *Reports of Survey for Air Force Property*, outlines responsibilities and procedures for the whole ROS process. The ROS is an official report of the facts and circumstances supporting the assessment of financial liability for the loss, damage, or destruction of Air Force property, and serves as the basis for the government's claim for restitution. This system consists of a series of checks and reviews to ensure justice for all parties.

#### **What does the report of survey do?**

The ROS does four things:

1. Serves as a property accounting document. A properly executed ROS is suitable for supporting property dropped from prescribed records and adjusting inventories.
2. Serves as an instrument for establishing responsibility and liability for the loss, damage or destruction of Air Force property, and it is the basis for a claim against responsible individuals. Conversely, it may be the instrument that absolves all parties of liability.
3. Utilized as a method of prescribing corrective action to prevent recurrence of the loss, damage, or destruction of Air Force property.
4. Authority for effecting collection of indebtedness.

#### **General procedures for processing a report of survey**

The person or organization that possessed the property at the time it was lost, damaged, or destroyed will initiate the ROS. This organization's unit commander, or in some cases the appointing authority, will appoint an investigating officer who will determine the facts in the case. The case is then assigned an ROS number by the ROS program manager.

Once the investigating officer is appointed, he or she gathers facts and makes findings and recommendations on the issue of liability of the person(s) involved. Subsequently, you may often hear the accountable officer referred to as the ROS, who is responsible to adjust the records as required. Next, the investigating officer allows the person(s) involved an opportunity to review the case and provide a rebuttal to refute the findings and recommendations.

The ROS is then processed by the appointing authority for assignment of financial responsibility against the individual(s) charged or relieving them from responsibility. If financial responsibility is to be assessed, the ROS is referred to the legal office for review, so it is very important that the investigating officer conducts a thorough investigation. A thorough investigation will also eliminate the need to appoint a financial liability officer.

Finally, the ROS is submitted to the accused for acknowledgment. The individual(s) are advised that the ROS action may be appealed to the next level in the chain of command above the person who assigned the financial liability assessment.

#### **Investigating officer responsibilities**

The investigating officer must be an officer, senior NCO, or civilian employee in grades GS-7, WG-9, WL-5, WS-1 or above and, when feasible, be senior ranking to the person(s) being investigated.

Should you progress to the rank of E-7, you will probably be appointed investigating officer for one of these investigations. You must not take this responsibility lightly. Once appointed, the

investigation will become your primary duty and won't end until the investigation is completed and blocks 1 through 12 of the ROS (DD Form 200, Financial Liability Investigation of Property Loss) are filled out. The investigating officer must be a disinterested, impartial individual who has no interest in the custodianship, care, accountability, or safekeeping of the property. When practical, the investigating officer must also be from a different unit than the individual(s) under investigation.

Once appointed, the investigating officer must ask fundamental questions such as: what happened, how, where, and when; who was involved; and was there any evidence of negligence, misconduct, or deliberate unauthorized use or disposition of the property. In addition, investigators are responsible for the following general duties when applicable:

- Review and evaluate as a minimum the adequacy of existing procedures to protect property.
- Determine compliance with existing procedures and directives.
- Present facts indicating whether or not negligence or abuse was involved.
- Determine the proximate cause of the loss, damage, or destruction.
- Recommend corrective action to minimize or preclude recurrence.
- Establish when it was first determined that the property was lost or damaged.
- Determine if the custodian(s) performed their duties properly.
- Determine if the custodians were properly trained.
- Determine what actions were taken to find lost property.
- If vehicle damage is involved, determine if the operator was properly briefed regarding governing directives and if the driver was properly trained.

#### **Time frames for processing a report of survey**

As stated before, the ROS investigation will become your primary duty; therefore, you will be relieved of normal duties that could impair the expeditious completion of the investigation. The ROS investigation lasts until it is completed and blocks 1 through 12 of DD Form 200 are filled out. Processing time limits are discussed and outlined in the Table 1 and Table 2. They are mandatory for active Air Force units.

ANG and AFRES units are encouraged to adhere to them if feasible; however, because ANG and AFRES units train on weekends, extended time frames have been established to meet the administrative requirements of these organizations. The program manager, acting for the approving authority, is responsible to ensure that they are met. If circumstances preclude adherence to these time limits, this information must be provided to the ROS program manager so that the ROS file can be properly annotated.

<b>Air Force Processing Time from Discovery of Loss</b>	
<b>Number of Days</b>	<b>Action Taken</b>
15	The organization will complete the preliminary investigation phase – blocks 1 through 8. This includes obtaining an ROS investigation number and appointing an investigation officer.
30	Time allowed for the investigating officer and the responsible officer to complete the initiation phase – blocks 9 through 12 and return the ROS to the ROS program manager. This includes interviewing all persons involved in the case. These times assume that the person(s) that may be held liable are located on the same base as the investigator. If it is necessary to obtain statements by mail, these times are additive to the 30 days; however, it is not feasible to indicate the time required to obtain mailed testimony.
5	Time allowed for the ROS program manager to send the ROS to the accountable officer for the adjustment of property records and to send a copy of the ROS file to person(s) who may be held liable based on the investigators findings and recommendations.
40	30 days for the person(s) who may be held liable to respond to intent notifications plus 10 days mailing times from and to the program manager.

<b>Air Force Processing Time from Discovery of Loss</b>	
<b>Number of Days</b>	<b>Action Taken</b>
5	Time allowed for appointing authority to review the files and pass it to the approving authority.
30	Time allowed if the appointing authority requires a review by a financial liability officer or board.
20	Time allowed for a legal review if financial liability is recommended.
5	Time allowed for the approving official to approve the findings and recommendations.
100	Total time to complete the ROS – 100 days if there is no assessment of financial liability, 130 days if a financial liability officer or board is appointed, and 150 days if financial liability is recommended because a legal review is required.

Table 1. Air Force Processing Time.

<b>Air National Guard and Air Force Reserve Processing Time from Discovery of Loss</b>	
<b>No. of Days</b>	<b>Action Taken</b>
45	To complete blocks 1 through 8.
100	To complete blocks 9 through 12, 16, and 17.
145	Total time to complete the ROS – 145 days if no financial liability is assessed. Add 40 days if a legal review is required (total 185 days) and another 60 days if a financial liability officer or board(s) is/are appointed (total 245 days).

Table 2. Air National Guard and Air Force Reserve Processing Time.

### Forms used during the investigation

If an individual admits financial liability, and can pay for the loss, a DD Form 1131, Cash Collection Voucher, is used. If an individual admits financial liability, but does not have enough money to pay cash for the property, prepare a DD Form 362, Statement of Charges/Cash Collection Voucher. This document is similar to the DD Form 1131 but authorizes payroll deductions to pay for the property in question. These two forms are used when the individual admits financial liability, is willing to pay, and the amount is less than \$500; if the amount is over \$500 a different process is involved. If the person refuses to pay, refuses to admit financial liability, or if the amount is over \$500, an ROS for Air Force property is documented on DD Form 200, Financial Investigation of Property Loss. If the amount involved is \$500 or more an ROS is prepared regardless of whether or not the individual admits to financial liability.

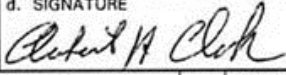

Figure 2–8 show an example of a completed DD Form 200. Many blocks in the form are self-explanatory; therefore, explanatory notes are provided only to further explain selected entries or to emphasize the entry.

Prepare and complete the DD Form 200 by typing it and giving the original and one copy to the program manager. If the originating office wants a suspense file copy with the control number in block 2, return it to the originating office and it will provide an original and two copies. More copies can be reproduced, if required, to fill the requirements of the base.

<b>How to Fill Out DD Form 200</b>	
<b>Block No.</b>	<b>Explanation</b>
2	The ROS program manager assigns a control number within the first 15 days of the date the ROS is initiated. This provides a control or suspense for completion of the initiation phase.

How to Fill Out DD Form 200	
Block No.	Explanation
4	Enter either the national stock number or manufacturer's part number. In the event there is no stock or part number, enter N/A. Any number of transactions can be listed, as long as they pertain to the same incident and the persons responsible for the property are the same. Use an attachment if needed for additional items.
5	Enter the correct name of the property lost, damaged, or destroyed, including any serial numbers. If the property is not stock listed, give an accurate description sufficient for identification. If only a portion of a major item is damaged, describe the major item fully, and then describe the damages. If a vehicle is damaged, describe the type of vehicle and vehicle number. If additional space is needed, use bond paper, suitably captioned, as a continuation sheet.
6	Enter the quantity and if applicable, standard unit measure for the item.
7	Enter actual unit cost or standard price (current replacement cost). A copy of the Custodian Authorization/Custody Receipt Listing (CA/CRL) and a copy of the Automated Data Processing Equipment (ADPE) listing that identifies the current replacement cost of the item(s) should be forwarded with the ROS. Refer questions regarding prices to the officer who is accountable for the property.
8	Enter the result of quantity times unit cost.
9	The individual who initiates or investigates the ROS completes this block. Include the recommendation of the investigating official in this block or attached as an exhibit to the ROS. Further, if negligence, willful misconduct, or deliberate unauthorized use appears to be evident, the amount of financial liability recommended will be computed. If this block is properly accomplished, the appointment of a financial liability officer is unnecessary. Make sure you are thorough with the investigation and recording of the results. Further, the information in this block can assist the appointing or approving authority in making a determination of whether or not negligence, willful misconduct, or deliberate unauthorized use was the proximate cause of the loss, damage, or destruction.
10	If investigations reveal deficiencies in directives, procedures, controls, etc., a statement of corrective action is required to document the action that was taken or will be taken to prevent recurrence of the incident. The originating office or the initial investigating official prepares the corrective action statement.
11	After the investigating officer completes and signs Block 11, he or she will then pass the case to the responsible officer for the completion of Block 12. As stated before, your job is completed once blocks 1 through 12 are complete. Refer to AFMAN 23-220, <i>Reports of Survey for Air Force Property</i> , if you have any questions and want more information on how to complete the rest of the form.
12	The responsible officer or the reviewing authority enters his or her comments and recommendations. Use an attachment if needed.



FINANCIAL LIABILITY INVESTIGATION OF PROPERTY LOSS					
<b>PRIVACY ACT STATEMENT</b>					
<b>AUTHORITY:</b> 10 USC 2775; DoD Directive 7200.11; EO 9397.  <b>PRINCIPAL PURPOSE(S):</b> To officially report the facts and circumstances supporting the assessment of financial charges for the loss, damage, or destruction of DoD-controlled property. The purpose of soliciting the SSN is for positive identification.			<b>ROUTINE USE(S):</b> None.  <b>DISCLOSURE:</b> Voluntary; however, refusal to explain the circumstances under which the property was lost, damaged, or destroyed may be considered with other factors in determining if an individual will be held financially liable.		
1. DATE INITIATED (YYYYMMDD) 20160920		2. INQUIRY/INVESTIGATION NUMBER 02-53		3. DATE LOSS DISCOVERED (YYYYMMDD) 20160916	
4. NATIONAL STOCK NO. See attached Sheet		5. ITEM DESCRIPTION See attached Sheet		6. QUANTITY  7. UNIT COST  8. TOTAL COST \$1021.34	
9. CIRCUMSTANCES UNDER WHICH PROPERTY WAS (X one) (Attach additional pages as necessary)  See Attached Sheet				<input checked="" type="checkbox"/> LOST <input type="checkbox"/> DAMAGED <input type="checkbox"/> DESTROYED	
10. ACTIONS TAKEN TO CORRECT CIRCUMSTANCES REPORTED IN BLOCK 9 AND PREVENT FUTURE OCCURRENCES (Attach additional pages as necessary)  See Attached Sheet					
11. INDIVIDUAL COMPLETING BLOCKS 1 THROUGH 10					
a. ORGANIZATIONAL ADDRESS (Unit Designation, Office Symbol, Base, State/Country, Zip Code)  383 TRS/XUFA Sheppard AFB TX 76311-2262		b. TYPED NAME (Last, First, Middle Initial) CLARK AUBERT H.		c. DSN NUMBER 736-7646	
		d. SIGNATURE 		e. DATE SIGNED 25 Sept 16	
12. (X one) <input checked="" type="checkbox"/> RESPONSIBLE OFFICER (PROPERTY RECORD ITEMS) <input type="checkbox"/> REVIEWING AUTHORITY (SUPPLY SYSTEM STOCKS)					
a. NEGLIGENCE OR ABUSE EVIDENT/SUSPECTED (X one)  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		b. COMMENTS/RECOMMENDATIONS  Recommend no financial liability be assessed			
c. ORGANIZATIONAL ADDRESS (Unit Designation, Office Symbol, Base, State/Country, Zip Code)  383 TRS/CC Sheppard AFB TX 76311-2262		d. TYPED NAME (Last, First, Middle Initial) GOVEN, PAUL, D.		e. DSN NUMBER 736-2397	
		f. SIGNATURE 		g. DATE SIGNED 1 Oct 16	
13. APPOINTING AUTHORITY					
a. RECOMMENDATION (X one)  <input type="checkbox"/> APPROVE <input type="checkbox"/> DISAPPROVE		b. COMMENTS/RATIONALE		c. FINANCIAL LIABILITY OFFICER APPOINTED (X one)  <input type="checkbox"/> YES <input type="checkbox"/> NO	
d. ORGANIZATIONAL ADDRESS (Unit Designation, Office Symbol, Base, State/Country, Zip Code)		e. TYPED NAME (Last, First, Middle Initial)		f. DSN NUMBER	
		g. SIGNATURE		h. DATE SIGNED	
14. APPROVING AUTHORITY					
a. RECOMMENDATION (X one)  <input type="checkbox"/> APPROVE <input type="checkbox"/> DISAPPROVE		b. COMMENTS/RATIONALE		c. LEGAL REVIEW COMPLETED IF REQUIRED (X one)  <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	
d. ORGANIZATIONAL ADDRESS (Unit Designation, Office Symbol, Base, State/Country, Zip Code)		e. TYPED NAME (Last, First, Middle Initial)		f. DSN NUMBER	
		g. SIGNATURE		h. DATE SIGNED	

DD FORM 200, OCT 1999

PREVIOUS EDITION IS OBSOLETE.

SI055588006

Figure 2-8. Sample of DD Form 200, Financial Liability Investigation of Property Loss.

## Self Test Questions

After you complete these questions, you may check your answers at the end of the unit.

### **016. Air Force accountability for property**

1. Who can be held liable for losing, damaging, and/or destroying government property?
2. Under what circumstances are Air Force members and employees held liable for losing, damaging, and/or destroying property?
3. Who provides the recommendation to the hospital commander for appointing the surgical suite property custodian?
4. When the property custodian finds equipment or supplies missing, or damage to equipment, whom should he or she notify?
5. What must occur if the property custodian will be absent from the account for 46 days or more?
6. What list or form shows all property charged out to the pulmonary clinic account?
7. If an item were listed but not present during the inventory, what form would it have been signed out on?
8. What are the supervisory responsibilities regarding medical materiel?
9. What percentage of medical equipment malfunctions can be attributed to operator error?
10. List three of the five tenets of supply discipline.

### **017. Report of survey system**

1. List two reasons for using the ROS.

2. How can the investigating officer avoid the appointment of a financial officer?
3. If an individual were found liable for damaging a piece of equipment but feels that the action is unjust, to whom can he or she appeal the action?
4. What qualifications must an investigating officer possess?
5. How long does the investigation portion of the ROS last?
6. What organizations must adhere to strict processing time limits?
7. What are the total time limits for completing the ROS for active Air Force units?
8. What are the total time limits for completing the ROS for ANG and AFRES units?
9. If an individual admits financial liability, but does not have enough money to pay cash for the property, what form must be prepared during the investigation?
10. If an individual refuses to pay, refuses to admit financial liability, or if the amount is over \$500, on what form must the ROS for Air Force property be documented?

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### **Answers to Self-Test Questions**

**009**

1. The medical personnel, workload, and expense accounting system used by the Air Force Medical Service.
2. MEPRS.
3. (1) Rising healthcare services cost.  
(2) Increasing concerns about defense expenditures.  
(3) Improving MHS management.
4. The MPM.
5. The MPM collects personnel, workload, expense, ancillary, and other data.
6. Using an alphabetic coding structure; all account codes contain a letter from A to G as the first character "at the first level."

7. Summary accounts.
8. At the subaccount level.
9. By designating a fourth level code.
10. (1) Personnel utilization data.  
(2) Workload data.  
(3) Financial data.
11. To collect and record time by personnel category and skill type to support a given work center.
12. Because accurate and timely collection and processing of this data is essential to developing and evaluating manpower staffing standards, analyzing productivity, and making resource decisions.
13. 2.97 FTEs.
14. DHMRSi.
15. To assign cost of operating expenses to various FCC accounts.
16. To accurately and fairly account for the resources consumed to accomplish or produce that unit given.

**010**

1. Carefully scrutinize the function and decide if it lends itself to competitive sourcing.
2. A precise tool used to determine and measure each task in the MTF through accepted industrial engineering techniques.
3. It shows authorized and assigned military manpower allocations by fiscal year, quarter, and name and grade of personnel assigned.

**011**

1. (1) Project for patient care needs.  
(2) Evaluate the level of care that is needed versus provided.  
(3) Provide the appropriate numbers and mix of technical staff needed.  
(4) Anticipate the availability of patient care staff.  
(5) Provide cost effective and high quality patient care.
2. The goal of providing appropriate numbers and mix of technical staff needed.

**012**

1. A detailed plan for the acquisition and use of finances and other resources over a specified period for the operation of your section.
2. (1) Formulation.  
(2) Review and Enactment.  
(3) Execution.
3. During the review and enactment phase of the budget process.
4. Planning stage.
5. Controlling requires hands-on management of funds while planning reviews and anticipates cost requirements.
6. Requires planning to be a top priority, which in turn results in a superior product; provides a vehicle for communication throughout your OR; can provide definite goals to evaluate performance and gauge fiscal responsibility; ensures that all expenditures of your medical facility have a central coordination point to ensure your section's financial needs are met.
7. Operating budgets.
8. Collect data, compare data, compile data, draft budget, review information and compile final budget.

**013**

1. They're procured in different ways, require different forms, and have different levels of approval and even funding.
2. (1) e.

- (2) e.
  - (3) e.
  - (4) a.
  - (5) d.
  - (6) b.
  - (7) c.
  - (8) e.
3. \$250,000 or more.

**014**

- 1. Maintenance significant supply item.
- 2. Frequently ordered supplies.
- 3. Administrative and nonmedical supplies. For example: pens, paper, staplers, etc.
- 4. (1) With a DD Form 1348-6 and (2) with a DD Form 1348-6 and local purchase request letter.
- 5. When no stock is on hand or not enough to fill the total order.
- 6. DD Form 1348-6.
- 7. The section's account may actually receive a credit; this documentation acts as proof of the turn-in.
- 8. Customer and MTF catalogs.

**015**

- 1. The MTF commander.
- 2. ERAA meeting.
- 3. AF IMT Form 601.
- 4. Three years.
- 5. A 13-point justification.
- 6. The catalog page or descriptive brochure attached to the AF IMT Form 601.
- 7. A sole source justification letter.
- 8. The AF IMT Form 126.
- 9. MERC personnel.
- 10. "Relocation of property" and "transfer from (losing account #) to (gaining account #)."

**016**

- 1. All Air Force members and employees.
- 2. If the loss was caused by negligence, willful misconduct, or deliberate unauthorized use.
- 3. The flight NCOIC or the NCOIC of each area.
- 4. His or her supervisor, then the MEMO personnel.
- 5. MEMO personnel need to be notified so they can take action to have the property transferred to an authorized successor.
- 6. CRLL.
- 7. AF Form 1297.
- 8. Training of personnel on the proper use of equipment and ensuring supply discipline is exercised by those under his or her supervision.
- 9. 70 percent.
- 10. (1) Safeguard and preserve public property.
  - (2) Use equipment and supplies for their intended purpose.
  - (3) Avoid ordering excess materiel. If excess is discovered, turn it in.
  - (4) Adhere to procedures contained in established regulations and directives governing requisition, storage, issue, and turn-in of property.

- (5) Ensure requests for supplies and equipment are valid and minimum qualities necessary to perform the assigned mission.

**017**

1. Any two of the following:
  - (1) Serves as a property accounting document.
  - (2) Serves as an instrument for establishing responsibility and liability for the loss, damage or destruction of Air Force property, and it serves as the basis for a claim against responsible individuals. Conversely, it may be the instrument that absolves all parties of liability.
  - (3) Utilized as a method of prescribing corrective action to prevent recurrence of the loss, damage, or destruction of property.
  - (4) Authority for effecting collection of indebtedness.
2. By performing a thorough investigation.
3. The next level in the chain of command above the person who assigned the financial liability assessment.
4. He or she must be an officer, senior noncommissioned officer, or civilian employee in grades GS-7, WG-9, WL-5, WS-1 or above and, when feasible, be senior ranking to the person(s) being investigated.
5. Until it is completed and blocks 1 through 12 of DD Form 200 (ROS) are filled out.
6. All active Air Force units.
7. 100 days if there is no assessment of financial liability, 130 days if a financial liability officer or board is appointed, and 150 days if financial liability is recommended because a legal review is required.
8. 145 days if no financial liability is assessed. Add 40 days if a legal review is required (total 185 days) and another 60 days if a financial liability officer or board is appointed (total 245 days).
9. DD Form 362.
10. DD Form 200.

**Do the unit review exercises before going to the next unit.**

## Unit Review Exercises

**Note to Student:** Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter.

**Do not return your answer sheet to AFCDA.**

24. (009) Under the Medical Expense and Performance Reporting System (MEPRS), how often is each person's work hours reported to the resource management office?
  - a. Daily.
  - b. Weekly.
  - c. Monthly.
  - d. Quarterly.
25. (009) A generic measurement of the number of work-hours in a one-month period is known as
  - a. expense assignment.
  - b. workload assignment.
  - c. a full-time equivalent.
  - d. available time equivalent.
26. (009) The performance factors used to quantify the amount of work accomplished by a work center are known as
  - a. man-hour data.
  - b. workload data.
  - c. manpower standards.
  - d. unit manpower requirements.
27. (010) The item that shows authorized manpower spaces by *functional account* is referred to as the unit
  - a. management document.
  - b. manpower document.
  - c. management roster.
  - d. manpower guide.
28. (010) What is trained/prepared to accomplish their assigned tasks and duties to augment or to offset dwindling active duty manpower in support of the Total Air Force and national objectives?
  - a. Traditional reservist.
  - b. Air Force National Guard.
  - c. Oversees contingency operations.
  - d. Individual mobilization augmentee.
29. (011) It is *critical* that you understand your patient care needs because this will determine the
  - a. type of cases you can perform in the operating room or clinic.
  - b. amount of cases you can perform in the operating room or clinic.
  - c. proper skill level of technicians needed to perform cases in the operating room.
  - d. proper nursing skills and level of care needed to perform cases in the operating room.
30. (011) You must evaluate the level of care needed for a patient to determine
  - a. the supplies needed for the case.
  - b. if you can do the case in your operating room.
  - c. what day you want to do the case in the operating room.
  - d. which personnel you want to assign to the case in the operating room.

31. (012) A detailed plan for the acquisition and use of finances and other resources for the operation of your section is known as
- executing.
  - bogeying.
  - budgeting.
  - accounting.
32. (012) The *lowest level* at which costs may be accumulated in the resource management chain is the
- cost center.
  - cost account.
  - responsibility center.
  - responsibility account.
33. (012) The cost center manager (CCM) submits the cost center budget request to the
- resource advisory office.
  - medical group commander.
  - resource management office.
  - medical equipment maintenance office.
34. (013) An item of medical equipment with a unit cost *greater* than \$2,500 but *less* than \$250,000, a life expectancy of at *least* five years, and *maintains* its identity during use is classified as
- medical expense equipment.
  - a durable medical supply item.
  - medical investment equipment.
  - a maintenance significant supply item.
35. (013) Medical supply items cost
- between \$2,500 and \$250,000 and have a life expectancy of over five years.
  - over \$250,000 and have a life expectancy of over five years.
  - less than \$5,000, is durable and requires maintenance.
  - less than \$2,500 and do not require maintenance.
36. (014) How can you request a nonrecurring routine issue from supply?
- Use your shopping guide to order the item.
  - Submit AF Form 601, Equipment Action Request.
  - Order the item through the Internal Distribution Operation.
  - Submit DD Form 1348-6, Single Line Item Requisition System Document.
37. (014) What paperwork is filled out and used to turn in supplies to medical logistics?
- DD Form 1348-6, Single Line Item Requisition System Document.
  - AF Form 601, Equipment Action Request.
  - Using activity backorder report.
  - Shopping guide.
38. (014) Which area of the Defense Medical Logistics Standard Support (DMLSS) system lets you see *all supply items* in the database?
- Customer catalog.
  - DMLSS system inbox.
  - Medical treatment facility catalog.
  - Customer area inventory management.



39. (015) Which customer support listing is produced each time medical logistics processes a change action affecting a custodian's equipment account?
- a. Back order report.
  - b. Custodial actions list (CAL).
  - c. Custody receipt/locator list (CRL).
  - d. Using activity issue/turn-in summary.
40. (015) Which materiel reference tool can be used by property custodians to review *excess* materiel available for redistribution?
- a. Air Force Medical Logistics (AFML) website.
  - b. Using activity issue/turn-in summary.
  - c. Custody receipt/locator list (CRL).
  - d. Custodial actions list (CAL).
41. (016) Before signing the custody receipt/locator listing (CRL) to assume custodial responsibility for equipment, you must
- a. perform a thorough inventory.
  - b. prepare your three-year budget.
  - c. submit AF Form 601, Equipment Action Request.
  - d. submit DD Form 1348-6, Single Line Item Requisition.
42. (017) Air Force employees can voluntarily reimburse the government for lost, damaged or destroyed property as long as the amount is *less* than
- a. \$500.
  - b. \$750.
  - c. \$1000.
  - d. \$1500.

**Please read the unit menu for unit 3 and continue ➔**

## **Student Notes**

## Unit 3. Ancillary Areas of Surgical Service and Advanced Surgical Practices

<b>3–1. Sterile Processing Department and Infection Control .....</b>	<b>3–1</b>
018. Organization, functions, and services of the sterile processing department .....	3–1
019. Infection control .....	3–4
020. Components of infection control programs .....	3–7
021. Monitoring sterilization cycles and sterile storage .....	3–12
022. How to handle and store sterile supplies.....	3–16
<b>3–2. Clinic Administration.....</b>	<b>3–21</b>
023. Medical record documentation and coding.....	3–21
024. Customer service .....	3–23
<b>3–3. Medical Readiness .....</b>	<b>3–26</b>
025. Readiness Skills Verification Program .....	3–26
026. Expeditionary medical support .....	3–27
<b>3–4. Advanced Surgical Practices .....</b>	<b>3–29</b>
027. Electrosurgical hemostasis.....	3–30
028. Mechanical hemostasis .....	3–33
029. Wound closure techniques .....	3–36

**T**HE FIRST SECTION OF THIS UNIT focuses on administrative procedures of ancillary areas of surgery such as central sterile supply. At some point in time you may also have to assist in the general surgery clinic or one of the specialty clinics so it's important for you to understand the administrative functions of these clinics.

With the threat of terrorist attack, you may deploy overseas. This is what medical readiness is all about. This section will help you understand how the different programs and surgical augmentation team systems work during your involvement in mobility and contingency exercises and operations.

As you progress in your career, you will be expected to have knowledge of advanced surgical procedures. The last section in this unit covers these procedures.

### 3–1. Sterile Processing Department and Infection Control

As a 4N171, one of your ancillary areas of responsibility is in the Sterile Processing Department (SPD). This area of the hospital plays a pivotal role in the infection control process. Because surgical technicians are the infection control “gurus” when it comes to sterilization and disinfection, they’re usually selected to run SPD, and to act as consultants on infection control to the rest of the facility. In your 5-level CDCs, you focused on many activities performed in SPD. In this section, we’ll look at more than just the tasks and duties performed by the people in SPD; we’ll also look at the organization, functions, layout, and workflow of this crucial department.

#### 018. Organization, functions, and services of the sterile processing department

The department we refer to in this course as Sterile Processing Department is known by many names. Depending on the facility, it has been known as Central Services, Central Supply, Central Materiel, and Materiel Management, only to name a few. Regardless of the name, most of the activities performed by the surgical technicians in SPD are related to decontamination, cleaning, and processing of instruments and other non-disposable items. However, these are not the only functions performed in most SPD departments. To get the true picture, you must be familiar with the general organization and function of SPD.

## Organization

The range of services provided by SPD personnel varies depending on the needs of the particular MTF. Since no two existing MTFs are alike in physical layout, organization, and service, the SPD in each one will also vary. In all cases, the folks in SPD render service to a highly specialized group—patients, and medical and nursing personnel.

In *most* cases, SPD falls *under* the MTFs organizational umbrella of surgical services in the medical or surgical services flight. It may be under the surgical suite or it may be on the same organizational level as the surgical suite.

In some small facilities, such as medical squadrons, there is no surgical department. In this case, SPD usually falls under the medical support flight. You may be responsible for training 4N0s to help run the SPD if there are no 4N1s in the facility other than yourself or if your facility is closing your surgical department and the staff is being transferred to other facilities in the Air Force. Regardless of where SPD falls in the organizational chain, the mission and purpose remains constant.

## Mission and purpose

SPD is a *service organization* with a threefold mission:

1. Improve patient care by releasing the nursing staff from certain non-nursing functions.
2. Create a system whereby sterile supplies are properly controlled, distributed, maintained, and utilized.
3. Assure bacteriologically safe sterilization procedures.

In today's medical facilities, SPD has emerged as a very important factor in the maintenance and improvement of patient care. This importance has increased as SPD personnel provide more and more assistance to patient care units, specialized areas, and off-site unit activities.

The primary purpose of any SPD is service. The specific types of service and the various procedures carried out by the people in the SPD vary from facility to facility, but should always reflect the overall goal of improving patient care. To this end, SPD personnel should strive to provide sterile supplies through efficient and economical means. They should also have standard practices and techniques for processing equipment and supplies.

## Goals and functions

Now let's take a look at the goals and functions of the SPD.

### Goals

Each SPD should have specific objectives that are well known to the personnel who work in that department. These objectives should be written specifically for each facility and reviewed annually. The objectives of a SPD should include, but are not limited to the following:

1. Providing prompt, accurate services and supplies to nursing units, clinics, specialty areas, and medical staff. Service may also be provided to other units, on or off base, such as dispensaries, fire stations, flight medicine, occupational medicine, dental and veterinary services, and aeromedical evacuation units.
2. Providing special medical equipment items.
3. Maintaining high quality supplies.
4. Maintaining accurate records of the effectiveness of various processes of cleaning, sterilization, and disinfection.
5. Maintaining written procedures for all decontamination and sterilization activities performed in the facility.
6. Maintaining a current, accurate inventory of supplies.
7. Developing and contributing to educational programs within SPD, the medical facility, and the community.

### **Functions**

The functions of a SPD evolve from the objectives. Some of the functions of a SPD include the following:

1. Procure, maintain, process, and dispense supplies required for patient care, diagnosis, and treatment.
2. Use acceptable methods and techniques for processing materials.
3. Develop and maintain controls in order to provide supplies economically, effectively, and efficiently.
4. Take part in supply research that provides information to nursing and medical personnel.
5. Provide representation on committees such as Infection Control, Quality Improvement/Risk Management, and Staff Development.

### **Services provided**

The following gives an overview of the factors involved in determining the scope of a specific SPD and the types of services SPD personnel offer to meet local needs.

#### **Scope of services**

The scope of any SPD is determined by the factors on which it bases the objectives of its services. The factors involved in determining the scope of a specific SPD are as follows:

1. Geographical location.
2. Type of services provided by the facility.
3. Size.
4. Number of beds.
5. Number of procedures in the emergency room, operating room (OR), and obstetrical suites.
6. Clinic patient load.
7. Number of research areas.
8. Specialties of medical officers.
9. Funds available to invest in space, supplies, equipment, and personnel.

**NOTE:** In all cases, the SPD must be flexible and adaptable to change.

#### **Types of services**

SPD personnel offer various services to meet local needs. Some of the most common services offered include the following:

1. Maintaining an adequate stock of sterile and non-sterile supplies. SPD personnel also provide sterile and non-sterile supplies for patient care required by all elements of the MTF and satellite activities.

**NOTE:** SPD does *not* store or dispense medications; the pharmacy does.

2. Providing a distribution and collection service. Distribution of sterile items and collection of contaminated items is a service that should be provided to the nursing units and other using areas. Each of these areas must maintain a supply level of the items needed for day-to-day operation.
3. Developing, maintaining and updating a list of sterile and non-sterile supplies. The folks in each SPD publish a list of all the items they provide. These are classified in appropriate groups. For example, a partial list may look like the following:

Sterile sets and packs	Qty	Sterile instruments	Qty	Sterile dressings and bandages	Qty
Tracheostomy sets		Forceps, Allis		4 x 8 plains	
Instrument sets—Basic		Needle holders		Kerlix	
Towels		Hemostats, Criles		Ace	

- Maintaining a current list of the contents of sets. This list should indicate the contents of all sets, and which items and sets are disposable. The contents of each set sterilized by SPD personnel should be listed on the outside of the wrapper or package.
- Providing a continuous service on a 24-hour basis. Around the clock coverage is necessary in order to complete the SPD mission; however, few MTFs have the staff to maintain personnel in SPD 24 hours a day. Usually, an “on call” system is adequate for emergency issue of supplies during evenings, nights, weekends, and holidays.

It’s important for SPD personnel to work with the using activities in planning their supply needs. A properly organized SPD greatly facilitates patient care.

These are just some of the services provided by the folks in a typical SPD. Of course, as we mentioned earlier, SPD is designed for sterilizing and processing equipment and supplies, which is a vital infection control function.

### 019. Infection control

The Joint Commission requires every hospital to have an active, effective, hospital-wide infection control program to receive accreditation. Not only is infection control important for accreditation, it is absolutely necessary to ensure that the risk of infection—for both patients and staff members—is minimized. We now look at some of the infection control measures and programs found in Air Force medical facilities, particularly those related to surgery.

Infection control encompasses a variety of activities inside and outside the surgical suite. This subject is so broad that a complete, detailed discussion is impractical for this text. So, we limit our discussion of infection control to the major topics of concern to surgical personnel.

#### The infection control structure and organization

The goal of the infection control function is to identify and reduce the risks of acquiring and transmitting *nosocomial infections* among patients, employees, physicians and other independent licensed practitioners, contract service workers, volunteers, students, and visitors. Nosocomial infections are those identified as hospital associated or hospital acquired. In other words, they are infections the patient developed because of entering the hospital.

#### General standards

The Centers for Disease Control and Prevention (CDC) is a US Public Health Service agency that provides valuable information to hospitals outlining how infection control programs should be developed and operated. The CDC also assists hospital infection control personnel in solving infection problems, analyzing infection survey data, and investigating the outbreak of serious infections or disease. One of the CDC’s most important functions is conducting research and publishing guidelines on a variety of infection control topics. We use many of these published guidelines for developing infection control programs, policies, and procedures.

In addition to the CDC, numerous government agencies and private organizations provide information, guidance, and consultation services to hospital and ambulatory infection control personnel. These agencies include local, state, and federal public health services, the Environmental Protection Agency (EPA), The Occupational Safety and Health Administration (OSHA), the Accreditation Association for Ambulatory Health Care (AAAHC), and the JC. Information regarding surgery-specific infection control practices is also found in publications provided by the Association of Surgical Technologists (AST), American College of Surgeons and the Association of periOperative Registered Nurses (AORN). The JC establishes the criteria by which hospitals are evaluated and accredited, and AAAHC establishes the criteria by which ambulatory organizations are evaluated and accredited. Infection control programs are a major area of consideration. To attain certification, the JC requires that each facility have a coordinated process to reduce the risks of nosocomial infections in patients and healthcare workers, and this process must be managed by one or more qualified individuals. In most facilities, an infection control committee manages the infection control process.

The JC establishes the criteria by which hospitals are evaluated to determine whether they should be accredited. Infection control programs are a major area of consideration. The JC standards are the following:

1. The organization uses a coordinated process to reduce the risks of endemic and epidemic nosocomial infections in patients and healthcare workers. This process is managed by one or more qualified individuals.
2. Surveillance data includes case findings and identification of nosocomial infections.
3. When appropriate, the hospital reports infection information both internally and to public health agencies.
4. The hospital takes action to prevent or reduce the risk of nosocomial infection in patients, employees, and visitors.
5. The hospital takes action to control outbreaks of nosocomial infection when they are identified.
6. The hospital's infection control process is designed to lower the risks and improve the rates or trends of infections. Management must support the infection control process, and at least one activity they should support should be aimed at preventing the spread of infection from patients to staff.

As stated in the standards, to attain certification, the JC requires that each facility have a coordinated process to reduce the risks of nosocomial infections in patients and healthcare workers, and one or more qualified individuals must manage this process. In most hospitals, an Infection Control Committee (ICC) manages the infection control process.

### **The Infection Control Committee**

The ICC is governed by AFI 44-108, *Infection Prevention and Control Program*, and is a multidisciplinary committee charged with managing the Infection Prevention and Control Program. The executive committee of the medical staff oversees the ICC, and only they can override the recommendations or actions of the ICC (a very rare occurrence). The ICC members are responsible for informing personnel of the committee's decisions and actions as well as their own individual responsibilities. Each ICC member must also promote awareness of and compliance with existing infection control directives.



### **Membership**

To comply with nationally recognized standards, the ICC members *must include* representatives from the following:

1. Medical staff.
2. Dental staff.
3. Administration.
4. Nursing.
5. Laboratory service.
6. Environmental health officer.
7. Housekeeping.
8. Other representatives as appropriate.

Representatives from the pharmacy, SPD, food services, linen, and OR are recommended as consultants. The membership can meet as often as needed, but *not less than once per quarter*. The ICC's job is to assess the effectiveness of the hospital infection control program, review data on hospital infections, and make recommendations for the infection control program.

### **Functions of the ICC**

Air Force medical facility ICCs implement the most current standards of the Joint Commission or AAAHC inspection standards appropriate for the facility type (i.e., hospital, ambulatory or home health environment). Additionally, the ICC uses the Air Force inspection agency's Health Services Inspection (HSI) evaluation criteria for MTFs when performing self inspections. The committee must clearly define nosocomial infections and establish a system of reporting and investigating infections among patients, personnel, and visitors. They also keep records of infections and recommendations for remedial measures. The committee distinguishes, to the best of its ability, between nosocomial infections and other types of infections. The ICC interacts with other committees as needed.

### **Committee chair**

A physician who is trained in infection control standards with an interest in and knowledge of infectious disease chairs the ICC. The commander appoints the physician to the assignment.

### **Infection control officer**

The unit commander appoints an *infection preventionist* (IP) in writing. This individual must be an officer or civilian equivalent with a minimum of three years clinical experience in their field (e.g., nursing, dental, lab, public health, or medical).

The infection control officer assesses the MTF's infection control needs. This includes evaluating specific infection risks and selecting the methods of surveillance to meet current standards. The infection control officer also drafts the infection control plan and coordinates approval through the ICC. Other duties include performing or supervising infection control activities, and coordinating on equipment and supply purchases, construction or renovation projects, contracts, and other areas that have infection control implications.

### **Departments, patient care units, and support areas**

Each department, patient care area, and support facility develops and maintains written area-specific operating instructions explaining policies and procedures for infection control. Each area is responsible for reviewing the documents annually and revising as necessary. The ICC reviews and approves these operating instructions at least every two years. Two exceptions to this rule are the blood-borne pathogen exposure control plan (required by OSHA) and the patient isolation plans (*reviewed annually*). Supervisors in each department ensure all personnel know and comply with all

infection control policies and practices. The supervisors also conduct and document infection control-related education and training, such as orientation and in-service education.

The ICC is an integral part of the MTF's quality initiatives. The executive committee reviews and the commander approves the ICC minutes. Unresolved issues are documented in the ICC minutes and forwarded to the executive committee for resolution. The minutes also include discussion of identified problems and corrective actions recommended and taken. The ICC manages a hospital-wide program; infection control requires active involvement and commitment of all personnel. All medical personnel must support the committee and provide any assistance needed for identification and investigation of infections.

## 020. Components of infection control programs

While the infection control process is complex, it is generally divided into two major functions: surveillance/reporting and prevention/control of infections (some texts consider prevention and control separately). These components are *not* independent; they are related to and dependent upon each other, forming a continuous loop of infection control activities.

### Surveillance

Surveillance includes data collection, analysis, and reporting; we gather as much information as possible about our infection “enemy” to help us defeat it. Some of the surveillance techniques we use include the following:

1. Investigating all patient infections to determine if the infection is community acquired (non-hospital associated) or nosocomial.
2. Reporting the occurrence of and type of all patient infections in the hospital.
3. Monitoring all patients, personnel, and the environment according to nationally recommended standards.
4. Identifying factors that make a patient a high risk for infection.
5. Clearly defining infections, and defining the roles, including responsibility and authority, of the infection control coordinator.
6. Using computerized records for storage and comparison of infection data.
7. Monitoring the infection *rate* and alerting staff to *trends*.
8. Protecting patients and staff by using reasonable controls, and monitoring effectiveness of the controls.

We collect detailed information on all patient infections encountered in our hospitals. This information establishes the *rate of infection*—defined as the percentage of patients who acquire infections per patient day. We monitor the infection rates of different services, individual units, and other specific areas to determine problem areas. We also look at whether the problem is isolated or whether we have an outbreak of infection.

Surveillance data are also analyzed to track *infection trends*; we look at infection rates and each infection for common links or events that tend to cause infection in our patients. The following are some of the questions that help us determine not only whether we have an infection problem, but also indicate measures we may take to prevent and control the problem:

1. Do patients having a specific type of surgery tend to develop infection?
2. Do patients operated on in a specific room develop them?
3. Did one individual staff member come in contact with most post-operative infectious patients?

### Surgical wound classification

One of the tools we use in surveillance of surgical wound infections is a classification system. Surgical patients run a greater risk of developing a nosocomial infection than any other group of

patients. In fact, studies done by the CDC indicate that approximately 70 percent of all hospital-acquired infections occur in patients who undergo surgery. Most of these infections are not related to the wound, but to instrumentation of the urinary and respiratory tracts.

The CDC cites surgical wound infections as being the second most frequent source of nosocomial infections, next to urinary tract infections, and considers them a major cause of increased hospital costs, disease, and death. Because surgical wound infections are such a major problem in all hospitals, you need to become familiar with how they are classified and what basic steps can be taken to prevent them.

Any post-operative wound that emits *purulent* (pus-containing) drainage is defined as a surgical wound infection. A surgical wound is also considered infected if the surgeon diagnoses it as such.

Wounds are classified by the *degree* of probable microbial wound contamination during surgery. Because the classification depends on the conditions encountered during surgery, a CDC surgical wound classification should be assigned to each case at the end of the procedure. The CDC outlines four classifications for surgical wounds—Class I—clean wounds, Class II—clean contaminated wounds, Class III—contaminated wounds, and Class IV—dirty wounds. These are explained in the following table:

CDC Classification for Surgical Wounds				
Class	Name	Description	Examples	Risk Of Infection
I	Clean Wounds	Clean wounds are uninfected wounds in which: 1. No inflammation is found. 2. No breaks in surgical technique are made. 3. The respiratory, digestive, or genitourinary tracts are not entered.	Usually, breast biopsies, thyroidectomies, and hernia repairs.	Between 1 and 5 percent.
II	Clean Contaminated Wounds	Any procedure where the respiratory, digestive, or genitourinary tracts are entered under controlled conditions without unusual contamination.  Includes cases where only a minor break in surgical technique occurs.	Normally, cholecystectomies and vaginal hysterectomies.	Between 8 to 11 percent.
III	Contaminated Wounds	Wounds in this category include: 1. Any open, traumatic wounds. 2. Operations with major breaks in surgical aseptic technique or gross spillage from the intestinal tract. 3. It also includes cases where severe non-purulent inflammation is encountered.	Normally, the removal of an inflamed, but unruptured, appendix.	Between 15 to 20 percent.

CDC Classification for Surgical Wounds				
Class	Name	Description	Examples	Risk Of Infection
IV	Dirty Wounds	Includes: 1. Old traumatic wounds with areas of dead tissue. 2. Evidence of gross spillage of intestinal contents. 3. Acute infection.	An operation to incise and drain a pus-filled abscess.  Includes cases where microorganisms are present at the surgical site before the procedure, or if the patient has an infection or bacterial inflammation.	Over 27 percent.

Surgical wound infection classification serves three purposes in the infection control program.

1. It helps infection control personnel predict the relative probability that a certain type of wound will become infected.
2. Surgeons use it to evaluate their own infection rates and compare their surgical techniques to those of other surgeons.
3. It alerts surgical personnel to wounds that run a high risk of infection; thereby, enabling them to take appropriate prevention and control measures.

### Prevention and control

Prevention of infection refers to the measures we take to keep patients and personnel from acquiring infections. Control refers to the measures we take to keep infections from spreading. Because the measures we take to prevent or control infections are often the same, we generally consider prevention and control as a single function.

Medical-service-wide prevention and control measures include the following:

1. Health and safety education of personnel.
2. Immunization programs.
3. Work restrictions for sick staff members.
4. Restricted access to high-risk areas.
5. Other general health measures.

Each area of the hospital also has specific practices and measures to prevent and control infections. A detailed discussion of all hospital-wide measures is impractical for this text; you should learn and follow the local policies and guidelines that apply to your MTF.

Some specific measures for prevention and control of infection have been developed that apply to all facilities and all personnel. The two categories of these measures are standard precautions and transmission-based precautions.

### Standard precautions

**NOTE:** The following material is based on the “Guidelines for Isolation Procedures in Hospitals; Notice,” published in the *Federal Register* by the Department of Health and Human Services, Centers for Disease Control and Prevention, November 1994. Check the CDC website <http://www.cdc.gov/> for updated information on a regular basis.

The CDC has issued *Standard Precautions* that apply to the following:

- Blood.
- All body fluids, including secretions and excretions.
- Non-intact skin.
- Mucous membranes.

As you can see, this means standard precautions *must* be used for *all surgical procedures*, and for *most* patient contact. You *must* use standard precautions daily, so you need to make sure you fully understand what they are and where they apply.

Standard precautions are discussed in the following table. In addition to these standard precautions, additional precautions must be taken for some patients.

Standard Precautions	
Application	Description
Handwashing	<p>Wash your hands after touching blood, body fluids, secretions, excretions, and contaminated items, <i>even if you were wearing gloves</i>.</p> <p>Wash your hands after removing gloves, between all patient contacts, and whenever you may potentially transfer microbes to other patients or areas.</p> <p>Use an ordinary cleansing agent (soap) to wash your hands unless specific circumstances require you to use an antiseptic. Local infection control policy</p>
Gloves	<p>Wear clean, non-sterile gloves when touching blood, body fluids, secretions, excretions, and contaminated items.</p> <p>Put on fresh gloves <i>before</i> touching mucous membranes or non-intact skin.</p> <p>Remove gloves <i>immediately after use</i> and <i>before touching non-contaminated items or surfaces</i>. Also put on fresh gloves before going to another patient.</p> <p>Remember to wash your hands when changing the gloves.</p>
Mask, eye protection, face shield	<p>Wear a mask and eye protection or a face shield to protect mucous membranes of the eyes, nose, and mouth during patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions.</p>
Gown	<p>Wear a gown (a clean, non-sterile gown is adequate for non-invasive procedures) to protect skin and prevent soiling of clothing during activities that are likely to generate sprays or splashes of blood, body fluids, secretions, or excretions, or likely to cause soiling of clothing.</p> <p>Select a gown that is appropriate for the activity and amount of fluid likely to be encountered.</p>
Patient care equipment	<p>Handle used patient care equipment contaminated with blood, body fluids, secretions, or excretions in a manner that prevents exposure or contamination of clothing, patients, and other environments.</p> <p>Ensure reusable equipment is <i>not</i> used to care for another patient until it has been cleaned, decontaminated, and reprocessed.</p> <p>Ensure that single-use items are properly discarded.</p>
Linen	<p>Handle, transport, and process used linen soiled with blood, body fluids, secretions, or excretions in a manner that prevents exposure or contamination of clothing, patients, and other environments.</p>

Standard Precautions	
Application	Description
Blood-borne pathogens	<p>Use mouthpieces, resuscitation bags, or other ventilation device as an alternative to mouth-to-mouth resuscitation in areas where the need for resuscitation is predictable.</p> <p>Take care to prevent injuries when using needles, scalpels, and other sharp instruments or devices; when handling sharp instruments after procedures; when cleaning used instruments; and when disposing of needles.</p> <p>Never recap used needles or otherwise manipulate them using both hands or any other technique that involves directing the point of a needle toward any part of the body. Use either a one hand "scoop" technique or a mechanical device designed for holding the needle sheath.</p> <p>Do not remove needles from disposable syringes by hand, and do not bend, break, or otherwise manipulate used needles by hand.</p> <p>Place used disposable syringes and needles, scalpel blades, and other sharp items in appropriate puncture resistant containers located as close as practical to the area in which the items were used.</p>

### *Transmission-based precautions*

The CDC has also issued *transmission-based precautions* to be used on patients who are known or suspected to be infected by epidemiologically important pathogens known to be transmitted by airborne, droplet, or contact routes. These patients are generally kept isolated from other patients, and staff and visitors must take special precautions to prevent spreading of the illness. The disease or conditions necessitating these precautions usually prevent these patients from being candidates for elective surgery, but you may come across these conditions in emergency or critical surgery patients.

Transmission-Based Precautions	
Precaution	Description
Airborne precautions	<p>Airborne precautions apply to patients with illnesses, such as measles, chicken pox, and tuberculosis. The patients are usually kept in an isolation room with negative air pressure. Staff members who are susceptible to measles or chicken pox (have not been immunized) should avoid contact with patients with these illnesses. All staff members and visitors should wear surgical masks in the presence of tuberculosis patients. During transport, the patient should wear a surgical mask to reduce spreading the microbes.</p> <p>If operative procedures must be performed on these patients, the doors must remain closed and traffic greatly restricted. Opening or closing the doors, and staff moving around the room, generate air currents and disperse the microbes. If possible, the procedure is performed when other patients are not in the surgical suite (such as at the end of the day). Anesthesia providers should take special precautions in selecting the equipment and ventilation method to reduce airborne microbes and equipment</p>
Droplet precautions	<p>Droplet precautions apply to patients with illnesses that can be transmitted through droplets generated by talking, coughing, sneezing, or otherwise. Illnesses in this category include meningitis, pneumonia, sepsis, and many others. All staff members and visitors should wear surgical masks when within 3 feet of the patient. During transport, the patient should also wear a surgical mask. In surgery, most of the precautions for airborne microbes are also applied for droplet precautions.</p>

Transmission-Based Precautions	
Precaution	Description
Contact precautions	<p>Contact precautions apply to patients with illnesses that may be transmitted via direct or indirect contact. Fortunately, most of the conditions that fall into this category are rarely seen. However, use these precautions for patients with herpes virus and some antibiotic-resistant strains of infection. Generally, contact precautions are the same as standard precautions, except they apply to all patient contact rather than to only blood, body fluids, secretions, and excretions.</p> <p>Masks, gloves, and a gown should be worn by all in the presence of the patient.</p> <p>Handwashing is essential.</p> <p>All patient care equipment and supplies must be properly handled and decontaminated after use.</p> <p>When possible, use disposable or patient-dedicated equipment.</p> <p>Transport of the patient should be avoided, but if necessary, take precautions to prevent contact with other staff, patients, or visitors.</p>

These precautions are echoed in various areas throughout this volume. The rest of this unit deals with infection prevention and control measures you, as a surgical technician, practice routinely.

## 021. Monitoring sterilization cycles and sterile storage

As we mentioned at the beginning of this unit, you are considered an infection control guru because of your knowledge of aseptic technique and sterilization. As a part of the infection control process, we have to ensure that our supplies are sterile and stay that way until we are ready to use them. This next section describes several different methods commonly used in the OR and sterile processing department to monitor, verify, and record steam sterilization processes. Our discussion is divided into three parts. First, we'll look at methods of monitoring and verifying sterility; second, we'll focus on two types of monitoring "tools", the sterilizer test packs and sterilization cycle documentation; and third, we'll cover storage of sterile supplies.

To check for proper functioning of the sterilizer and verify sterilization efficiency, you must become familiar with various mechanical, chemical, and biological monitoring systems. Mechanical indicators record the physical conditions in the sterilizer, chemical indicators show that certain sterilization parameters have been met, and biological indicators confirm that microbes were destroyed—at least the ones in the test pack were—during the sterilization process.

### Mechanical indicators

Mechanical indicators are devices used to measure and monitor various conditions of the sterilizer. Mechanical indicators include thermometers, gauges, timers, recording devices, and other devices that monitor the conditions of various phases of the cycle, or that measure other conditions of the sterilizer. Not all sterilizers have all mechanical controls listed, but all sterilizers have some of them.

#### Thermometers

Thermometers or temperature sensors are generally located in the exhaust line of the sterilizer. They measure the internal temperature of this line, which theoretically is the temperature of the coolest area inside the sterilizer chamber. The thermometer or temperature sensor continuously measures the temperature in the sterilizer and transmits this temperature reading to a gauge or other readout device on or near the sterilizer control panel.

#### Gauges

Gauges are found on many sterilizers, particularly on older models. Gauges are used to measure the jacket pressure of a steam sterilizer and to measure the chamber pressure of steam sterilizers. Some



sterilizers also use a temperature gauge as one of the devices used to report the sterilizer chamber temperature registered by the internal thermometer.

### *Timers*

Timers are primarily used to monitor the exposure period of the sterilization cycle. The timer is generally set by the operator before starting the cycle, then it automatically controls the exposure period. Other timers are built-in and used to control various phases of different sterilization cycles automatically.

### *Recording devices*

Many recording devices simply provide the operator with information about the conditions during the sterilization load. The temperature and pressure gauges discussed previously are examples of these types of recording devices. Many sterilizers have digital displays that show conditions such as the temperature, pressure, phase of the sterilization cycle, and the time remaining in the cycle. By closely monitoring the temperature and pressure at various points in the cycle, the operator can quickly identify problems or discrepancies and take corrective action.

Most national standards recommend that personnel operating the sterilizer at the beginning of, during, and at the end of every sterilization cycle to verify proper function of monitor mechanical control devices. Standards also recommend that all time and temperature recording devices and pressure-temperature gauges be calibrated at least semiannually, and immediately after any repairs affecting sterilizer performance.

Recording devices are also used to provide automatic documentation to show that various sterilization parameters have been met. The two most common recording devices for documentation are round charts (also called graphs), and digital printouts. The round charts provide a constant record of the sterilizer conditions. They usually record only the temperature and time of exposure in a steam sterilizer. These charts must be changed daily, usually in the morning before cleaning the sterilizer. The digital printouts usually list the time, temperature, pressure, and phase of the sterilization cycle at regular intervals throughout the cycle. Check the paper supply at the start of each day. Maintain the chart or paper strip with the sterilization records (discussed later). As a minimum, label the chart or digital printout with the sterilizer number, the date, the time, and the load or lot control number. Most local policies also require the operator's name to be documented on the record.

### *Other mechanical control monitors*

Most sterilizers have other mechanical devices or controls that relate to safety or automatic operation. These automatic controls include the following:

1. The sterilizer door safety lock that prevents opening the chamber if the cycle is not complete or if dangerous conditions exist in the chamber.
2. The cycle phase controls that condition the load, allow the sterilant to enter, time the sterilizing cycle, exhaust the sterilant, and dry or aerate the contents.
3. Alarms that tell the operator when the cycle is complete. Some sterilizers have alarms to warn if conditions do not meet the normal operating parameters of each phase of the cycle.

One important thing to remember: While mechanical devices do much to prevent faulty sterilizer operation, they generally do not detect cool air pockets or other abnormalities in the sterilization chamber. Since cool air pockets are the leading cause of sterilizer failure, additional controls are necessary for complete safety. Do not rely on mechanical monitors as the sole method to determine sterilization effectiveness. Other indicators are used to more accurately monitor sterilization; the best of these are biological sterilization indicators.

### **Biological monitoring**

Testing sterilizers with biological indicators is considered the best method available for determining the efficiency of a sterilizer's ability to sterilize an item. Like other sterilization indicators, biological

indicators *do not* prove each item in the load is sterile. It does, however, prove that the sterilizer conditions killed the microbes in the testing medium.

The exact biological indicator used varies, but most use commercially prepared ampules or vials that contain a strip or dot impregnated with the recommended test bacteria. The bacteria used for biological testing of steam sterilizers is *Bacillus stearothermophilus*; for biological testing of hydrogen peroxide plasma sterilizers, *Bacillus subtilis* var. *niger* spore strips are used and for the peracetic acid sterilizer, *Bacillus subtilis* or *Bacillus stearothermophilus* spore strips are used. The hydrogen peroxide plasma and peracetic acid sterilizers do not use an ampule; after sterilization the spore strip is placed in vial containing a growth medium. For steam sterilizers, the ampule or vial also contains a liquid growth medium. To expose the spore strip to the medium the ampule must be activated, usually by crushing either the top or the sides of the test indicator. The test ampule is activated after it is subjected to the sterilization cycle. The ampule or vial is then placed in an incubator. If the sterilizer fails to kill all microbes in the test ampule or on the spore strip, the growth medium changes color (called a positive result) to indicate the bacteria survived. If the sterilization cycle killed all microbes in the ampule or on the spore strip, the color of the growth medium generally does not change (a negative result).

A control indicator is required to show that the microbes in the test ampules used are viable and will grow when subjected to the same conditions as the test indicator. At least one control indicator must be processed from each lot number of test indicator used, and in each incubator used. The control indicator is simply a biological test indicator that is not subjected to the sterilization process. The indicator is activated and placed in the same incubator as the test indicator. The test indicator is compared to the control indicator each time it is “read,” usually at 12, 24, and 48-hour intervals. If the control indicator has changed color (is positive) and the test indicator has not (is negative) at each reading the sterilization cycle is considered acceptable. If the control indicator does not indicate microbial growth (change colors) the test results are inconclusive and the sterilization cycle is not considered valid. Control ampules that do not turn positive indicate a problem with either the incubator or with the microbes in the test ampule. The incubator and other ampules from the negative control lot number should not be used for sterilizer testing until the problem is identified and corrective action is taken. On the other hand, if a test ampule does change colors (is positive) the problem is always assumed to be with the sterilization cycle. Any cycle that results in a positive test result is not acceptable and the contents of the cycle must not be used.

The biological test indicator is placed in a *test pack* that is placed in the sterilizer chamber in an area that is difficult for the sterilant to reach, usually directly over the chamber drain. These test packs maybe commercially manufactured, or they may be made locally.

According to nationally accepted standards, biological test packs should be run after initial installation and after any major repairs to the sterilizer, before the sterilizer is placed in service.

- Biological test packs should also be run in *each steam sterilizer at least weekly, but preferably daily.*
- A biological test pack should also be run in *every sterilizer load containing implantable devices*; the devices should be quarantined until the results of biological testing are confirmed (if possible).

**NOTE:** If a facility uses the event-related method for shelf life, every sterilization load should be tested with a biological indicator. In addition, every load in a chemical sterilizer should have a biological indicator ran with the load.

### **Sterilization “challenge tests” and documentation**

We mentioned in the last lesson that you place biological indicators in test packs before subjecting them to a sterilization process. There are several different types of test packs. Make sure you become familiar not only with any commercial packs that may be routinely used in your facility, but also with

the locally prepared test packs. Even if your hospital does not routinely use locally prepared packs, you need to know how to make and use them; they are used during contingency situations, and may be used when commercial packs are not available.

### **Locally prepared sterilizer test packs**

Numerous commercially manufactured test packs are available for use; too many to practically describe in this course. If your facility uses commercially prepared packs, ensure you follow the manufacturer's directions for use.

### **Test packs for steam sterilizers**

Two types of locally prepared test packs are acceptable for either gravity displacement or pre-vacuum steam sterilizers. The following table lists the contents and construction of each.

If using the two indicator test pack, sterilize it on its side; if using the one indicator pack, sterilize it flat. Regardless of the test pack used, *place* it on the sterilizer cart or rack in the *bottom front* of the sterilizer, just *above* the chamber drain. *Run the biological test pack during a fully loaded, normal sterilization cycle.*

<b>Locally Prepared Test Packs for Steam Sterilizers</b>	
<b>2-Indicator Test Pack (Traditional)</b>	
<b>Contents</b>	<b>Instructions</b>
12 laundered, fan-folded linen hand towels 3 fabric gowns 5 laparotomy sponges, 12" x 12" 1 fabric drape sheet 30 gauze sponges, 4x4 inches 2 biological test indicators	The linen and gauze are stacked into two equal piles with the towels in the center.  Two biological indicators are placed in the center of the pack, separated by a hand towel.  The chemical indicator is placed in the center, one layer above or below the biological indicators.  The pack is double wrapped; it should be about 12" x 12" x 20" and weigh 10–12 pounds.
<b>1-Indicator Test Pack</b>	
16 laundered hand towels, folded to 9" x 9" 1 biological indicator 1 chemical indicator	The towels are stacked to form one pile.  The biological indicator and chemical indicator are placed side-by-side in the geometric center of the stack, between the seventh and eighth towels.

### **Interpreting test results and supply recall procedures**

If incubated biological indicators show negative results (no bacterial growth), you can be reasonably assured that the sterilizers are functioning properly and personnel are following proper sterilization procedures. However, *if the results of the test are positive, then the sterilizer is re-tested immediately.* This is necessary because *false positive results often occur.* Do not run any loads in the sterilizer after the load that includes the second test pack. If the second test is positive, remove the sterilizer from service, notify maintenance personnel, and implement a recall of all items processed in the suspect sterilizer. If maintenance checks indicate proper sterilizer function, then supply processing, wrapping, loading, and operating techniques are reviewed and revised as necessary.

A recall of items includes sending out a written notice to the using activities that received the sterilized items. Identify the items in question by sterilization lot number (or other identifying data). Include with the recall notice the number and type of items affected and outline what to do with the items (discard or return for reprocessing). Follow local policy established for item recalls; this usually includes completing an AF Form 765, Medical Treatment Facility Incident Statement, because the impact of a sterilization failure can affect many areas in the hospital. Your local policies and procedures specify what steps to follow when biological tests are positive for bacterial growth.

### Sterilization record keeping

All biological and chemical indicator test results *must* be documented to facilitate item recalls and act as quality assurance tools to ensure consistent sterility of patient care items. Information and records that are normally kept on file include, but are *not* limited to the following:

1. Date and time of test (Julian date is often used).
2. Sterilizer number.
3. General description of load contents.
4. Sterilization cycle number.
5. Sterilization conditions (temperature, exposure time).
6. Results of biological control indicator.
7. Results of biological test indicator(s).
8. Results of and usually the indicator from each test pack. (This includes air removal test indicators.)
9. Completed recorder charts or computer printouts showing sterilization cycle parameters.
10. Name of sterilizer operator (or initials).

The exact method used to document sterility depends on local policy developed to meet state, national, and Air Force standards. Also, keep a repair or maintenance log for each sterilizer.

Monitor each sterilization cycle to ensure locally processed items have been subjected to the proper conditions for sterilization. This lesson covered the mechanical, chemical, and biological indicators used to ensure items used on surgical patients are as biologically safe as possible. It also described in detail the methods for constructing test packs to test specific sterilizers. Ensure you learn and follow the specific methods your facility uses to monitor sterilization cycles.

### 022. How to handle and store sterile supplies

The protective barrier around sterile items, provided by packaging materials, can be breached—resulting in package contents contamination—by improper handling and storage. If placed on a wet surface, handled with damp or wet hands, or stored in a high-humidity area, moisture can “wick” into a package, carrying microorganisms from non-sterile surfaces into the sterile package (strike through). If a package is dropped on the floor, dust or dirt may be forced through the packaging. If too loosely wrapped or if placed in too big a package, the item may not fit on the storage shelf properly and the package may be torn, scraped, punctured, or otherwise damaged. Proper handling of sterile items prevents these methods of contamination.

#### Proper handling of sterile items

The basic rule to follow when handling sterile items is to *handle them as little as possible between the time of sterilization and their use*. As you know, sterilized items should remain on the sterilizer cart until they are cool. They should not be handled or even touched during this time. Even when steam sterilized items are cool to the touch, condensation may occur if you place them on a cool storage shelf.

*Always* check the integrity of a sterile package:

- Immediately after sterilization.
- When putting the item in storage.
- When removing the item from storage.
- Just before use.

Packages that are torn, soiled, wet, or distorted are considered contaminated; do not use them. If a sterile item falls or is dropped on the floor, it is contaminated because the force of the impact can

drive dirt and microbes into the package. Discard contaminated disposable items and reprocess reusable ones. If the contaminated package contains linen items, launder them before they are wrapped and sterilized again to prevent fabric superheating.

If a plastic dust cover is used to extend the shelf life of a sterilized item, allow the item to cool to room temperature to prevent moisture condensation from forming inside the sealed dust cover. Since the dust cover is not sterile, condensation results in strike-through contamination. Place the dust cover as soon as possible after sterilization (and cooling). The dust cover must allow the sterilization control label to be read, and must have a label indicating the plastic wrap is a dust cover. Most facilities use a label that reads “Outer wrap not sterile, only inner contents are sterile” or a similar statement.

Avoid picking up and moving packages when performing sterile supply inventories. If they are properly stored, you should be able to see and count them with minimal touching of the packages. *Do not* “squeeze” sterile packages to remove excess air after they are sterilized; the air should have been removed before the cycle. Squeezing excess air out of the package may result in un-sterile air being sucked into the package. When transporting supplies from one place to another, use a covered cart or basket: especially, if traveling through non-restricted areas. Avoid hand-carrying items whenever possible; use a pillowcase or plastic bag for small items, a cart for large items. If you must hand-carry a sterile item, hold it in your hands. Never carry items cradled in your arms or tucked under your arms; the excessive contact with your perspiration-prone skin may result in strike-through.

### Storing sterile items

The basic principle behind storage of sterile items is simple: once an item is sterile, it should be stored in a manner that keeps it sterile. Sterile storage is a temporary condition; it is a holding area for sterilized items until they are used.

Traffic is restricted in sterile storage areas to limit access and minimize traffic. This helps reduce the number of potentially contaminating incidents and excessive air movement that transports airborne contaminants from other areas.

Ideally, sterile items are stored in designated sterile storage rooms or areas. However, space limitations, types and amount of supplies, and other factors dictate the exact configuration of your storage areas. If sterile and non-sterile supplies must be stored in the same area, keep them strictly separated. Do not store them touching, next to, or even on the same shelf. If sterile supplies are stored with non-sterile supplies, the storage area should meet the environmental requirements for storage of the sterile items. The best practice for fluid storage is to designate separate cabinets only used for fluids. However, if fluids (saline/water) need to be stored in the same storage cabinet as sterile supplies they should then be stored below all sterile supplies to avoid contamination if fluid containers leak.

Some medications such as Sodium Dantrolene must be refrigerated. Many ORs are equipped with medication refrigerators normally kept in the anesthesia work room. These refrigerators will be designated for medication use only and should not be used for anything else. (**NOTE:** They do not meet the requirements for tissue or blood storage [we will discuss blood refrigeration later in this unit]). At the start of each duty day, the refrigerators should be inspected for proper function. This inspection should include checking and logging the temperature. The temperature must be kept between 2 – 8 degrees Celsius (°C) as indicated by a mercury thermometer placed in the middle of the refrigerator. Local policy will dictate what form to document these temperatures and what action is required if there is any deviation from the normal temperature range.

Sterile storage areas need to be clean, free of dust, dirt, and vermin. They should be cleaned routinely in a manner similar to the methods used to clean the ancillary areas of the surgical suite.

The sterile storage area should have a positive-pressure ventilation system similar to the one used in each OR. This type of ventilation system helps reduce the level of airborne microorganisms and dust

in the storage room. A minimum of 10 exchanges per hour is recommended for sterile storage areas. To prevent excessive air movement, do not use fans in sterile storage areas.

Make sure sterile storage cabinets and shelves are kept moisture-free to prevent strike-through contamination of sterile packages. Temperature and humidity are controlled to prevent extremes. Keep the temperature between 64 and 72 degree Fahrenheit ([°F] 18 to 22°C) and the humidity between 35 and 70 percent. The right combination of temperature and humidity is important because an environment that is too warm and too moist accelerates bacterial growth; one too cold is uncomfortable for workers. Extremes of temperature and humidity can compromise package integrity and renders the item unserviceable.

Disposable items are typically delivered to the OR or SPD in bulk shipping containers or boxes. Remove the sterile items from these containers outside the storage area and transport them to the storage area on or in a clean supply cart. *Never bring boxes and shipping cartons into sterile storerooms because they harbor dust, microorganisms, molds, fungi, and insects.* Never use a shipping carton (commonly called an “outside box”) as a sterile supply dispenser. Make sure that the transport carts you are using for sterile supplies are periodically cleaned and decontaminated with an approved detergent-germicide.

Closed or covered cabinets are the preferred method for storage of sterile items in Air Force facilities, but open shelves are acceptable. Regardless of the storage system used, store sterile supplies at least 18 inches below the ceiling, 8 inches above the floor, and 2 inches away from outside walls. The shelves should be non-porous materials to aid in cleaning (no wooden shelves). Never store supplies near or under sinks or pipes. If you do, you are inviting water contamination of your sterile supplies. Dust covers and covered storage bins help maintain the sterility of items, particularly supplies stored on open shelves.

Although closed shelves or cabinets offer greater protection against sterile item contamination, there are a couple of rules you follow to ensure their purpose is not defeated. First and foremost, keep the doors and drawers closed! If the doors or drawers are open, it is not a closed cabinet. Another rule is—always open cabinet doors slowly. This is important because opening the door too fast can cause rapid air movement near the door opening that draws dust, dirt, and airborne contaminants into the cabinet. Opening the doors slowly also reduces the likelihood of a sterile item falling out of the cabinet and onto the floor.

Avoid overstocking shelves. Cramming packages together or stacking them too high distorts and damages wrappers and package contents. Good supply management and inventory control prevents accumulation of supplies on your shelves. Ideally, you maintain only enough sterile supplies (both disposable and reusable) to satisfy weekly needs, plus a small reserve for emergencies. Store large or heavy items on lower shelves and smaller or lighter items on upper shelves. This is done primarily as a safety precaution to prevent someone from being injured by a heavy, falling object. It also saves “wear and tear” on back, arm, and shoulder muscles.

Periodically clean all storage areas, shelves, cabinets, and bins with a detergent-germicide. This is usually done on a weekly basis in conjunction with “checking outdates.” Remember to dry all storage surfaces thoroughly before placing sterile supplies in or on them.

Having studied the material in this section, you should know better understand the supply storage and handling policies in your hospital. More importantly, your newfound knowledge will enable you to avoid making errors that contaminate supplies, waste valuable resources, and harm your patients.

## Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

### **018. Organization, functions, and services of central sterile supply**

1. List some of the names by which SPD is known as in various facilities.
2. Describe the mission of SPD.
3. What is the primary purpose of SPD?
4. List three of the common services provided by SPD personnel.

### **019. Infection control**

1. What organization requires every hospital to have an infection control program?
2. What is the goal of the infection control program?
3. List three areas that are required to have a representative on the infection control committee.
4. Which two infection control plans must be reviewed annually?

### **020. Components of infection control programs**

1. What are the two major components of the infection control program?
2. What percentage of hospital acquired infections is accounted for by surgical patients?
3. What is the definition of a surgical wound infection?
4. What is the difference between prevention of infections and control of infections?



**021. Monitoring sterilization cycles and sterile storage**

1. Name four types of mechanical indicators used on sterilizers.
2. Where are thermometers or temperature sensors located and what do they measure?
3. What do the gauges on a steam sterilizer measure?
4. Sterilizer recording charts are usually changed how often and when?
5. What minimum information should a sterilizer chart or recording strip be labeled with before it is placed with the sterilization records?
6. What is the best available method of determining sterilizer efficiency?
7. Name the bacterial spore used to test:
  - (a) Steam sterilizers.
  - (b) Hydrogen peroxide plasma sterilizers.
8. What is a control biological indicator and how is it used?
9. How often are steam and chemical sterilizers recommended for testing using biological indicators?

**022. How to handle and store sterile supplies**

1. What may occur if you place steam sterilized items on a cool storage shelf?
2. If sterile and non-sterile storage areas are combined, what conditions must be met?

3. What is the proper temperature range for sterile supply storage?
4. Which type of shelves or cabinets offers greater protection against sterile item contamination?
5. When are sterile storage areas most often periodically cleaned?

## 3-2. Clinic Administration

As the Air Force medical service changes with the times, we must change along with it. As a surgical technician and NCO, you may have to provide manning assistance or even be assigned to the general surgery clinic or in one of the surgical specialty clinics. It is important for you to have an understanding of some of the administrative functions related to the clinics.

### 023. Medical record documentation and coding

A medical record is a permanent, individual, chronological record of medical and dental examinations, evaluations, and treatments given Air Force members and their dependents (or retired Air Force members and their dependents). The outpatient health record contains a concise summary of every visit made to a provider. Health records are filed numerically by using the sponsor's SSN, so the members and their dependents have the same color-coded folders. The AF Form 2100A series, Health Record - Outpatient (Orange), is the folder used for outpatient records; it is divided into four sections for ease in organizing its contents.

Although maintenance of these records is normally the responsibility of the outpatient records section, you, as a surgical service technician, must know the purpose of the health record and its contents.

The main purpose of the health record is to ensure all information on the care of an individual is available and accessible to medical personnel. The medical summaries contained in these records provide valuable assistance to medical officers in conducting and rendering medical or dental care.

#### Documentation of health records

The two most important forms in the health record are Standard Form (SF) 558, Medical Record-Emergency Care and Treatment, and SF 600, Medical Record-Chronological Record of Medical Care. As additional SF 600s are prepared, place them on top of the earlier ones so the latest report of treatment is always on top, (interfile SFs 558 with SFs 600 in date order). Together, these two forms make up the "basic" outpatient health record for all military personnel. Every appearance for treatment must be recorded on one of these forms. Normally, the healthcare provider or assistant who sees the patient during a visit makes the record entry. Each entry *must* be legible and in reproducible blue-black ink, and each entry should show the following:

- Date.
- Pertinent history of the illness or circumstances of the injury.
- Significant clinical findings.
- Diagnosis or impression, treatment given.
- Statement regarding essential follow-up care.
- Signature of the treating practitioner. The practitioner's name stamp is placed below his or her signature on all handwritten documents.

Each form and document to be filed in the record contains a *minimum* identification of patient's name, and SSN under which the record is to be filed. Each form must contain the name and location of the MTF that maintains the patient's health record if other than the treating facility, so the original record (or a copy, if specified) can be sent to the custodian of the patient's record.

One area of responsibility you have in an outpatient clinic is that you will perform administrative functions to include proper maintenance of health records. This often means performing quality checks on all consults, lab reports, and X-ray requests for completeness. While you won't initiate these documents (the provider must do this), you will have to make certain the following information is recorded on the document:

- Patient's name.
- SSN.
- Status.
- Home/duty phone.

Administratively, part of your job will be to see that, on follow-up appointments, any provider-requested lab work or X-rays were accomplished and documented in the health record prior to the patient being seen by the provider. As we mentioned earlier, it is imperative that the information contained in the patient's medical records be accurate and complete. This record is vital to the continued chronological care of the patient. Missing information can cause problems for our patient down the road and open us up to liability. Another way we have of ensuring we have accurate and complete information concerning the care of our patient is record coding.

### **Coding**

There are two main things you need to know about coding procedures. First, coding is supposed to be performed by the provider; that is, the provider is supposed to code his or her patient records, or personnel specifically trained and certified in coding procedures should do it. These personnel are usually a 4A0 or a civilian coder. As with many programs, each facility determines who can perform the coding procedures in the patients' medical records. In any case, you or your personnel must be trained and certified to code patient records before you are allowed to do any diagnosis or procedure coding. This is to prevent any medical legal liability and to ensure the proper coding is done. Second, you must be aware of which codes you can use to code patient visits where you, the technician, are the "provider" for the visit, i.e. cast changes, certain urology procedures, ear cleanings, and so forth. Even though you do the procedure, if proper coding is not done, you won't get credit for the procedure.

Coded data must be accurate if it is to be used for reimbursement, staffing considerations, program management, and utilization control. Coded clinical encounters are used at various levels within the DOD to assist in decision-making processes. To attain the goal of quality data, review (or audit) processes need to be in place. Internal audits are currently required on a monthly basis as a part of the Data Quality Management Control Report. External audits can be very informative and provide an objective and sometimes more knowledgeable review for facilities that lack certified coders. After completion of these audits, appropriate actions must be taken to improve the quality of the coding outputs. Actions may include feedback to providers and coders, provider education on documentation and coding, coder training, access to current coding books, revision of system templates, or developing system change requests to correct problems inherent in the system.

The main reason we do diagnosis and procedure coding is because they are an integral part of recording the patient's visit and ensuring that the treatment or procedure is correctly annotated in the patient's chart and proper credit is given for the patient's visit. In today's health care environment, both civilian and military, an improper coding of the visit or procedure performed can cost the clinic money and manpower, not to mention the patient's record of healthcare will not be correct. It has been said that in the civilian sector a good coder can make his or her employer as much as \$300K a

year more by ensuring the proper codes are correctly assigned for each patient's visit or procedure. The same thing holds true for coders in a military medical facility. For the most part we don't collect our money from insurance agencies. Our reimbursement comes from higher headquarters in the form of our facility's annual budget and manpower authorizations. However, we do get some money returned to our facility through third-party collections.

By now, you can see it is very important that the coding is done accurately, from both the patient care and the reimbursement standpoint. Without proper documentation and coding, the patients will not get the necessary medical care and follow-up they deserve. Similarly, the MTF would lose vital resources from higher headquarters, and perhaps even affect the overall manpower requirements. The result would cause the MTF to be unable to continue to provide the needed and sought out care for each patient.

#### **024. Customer service**

As with any organization that exists to provide service to a population, we must have good relations with our customers. This lesson may be a repeat for most of you but it does not make it any less important in your day-to-day activities. In addition, you may be appointed as the unit's customer service representative or patient advocate. If this is the case, you will receive in-depth training by your facility patient advocate manager.

#### **In the surgical suite**

Over the years many surgical technicians have said, "I like working in surgery because all of our patients are either drugged or asleep." Now this may be true but it is no less incumbent on us to have good customer relations with our surgical patients than with our patients in the clinic. We should always be aware of how we or our subordinates treat our patients. The main goal of customer service to our patients is to remember the Golden Rule: treat others as you wish to be treated. That patient is somebody's son or daughter, mother or father, wife or husband, and most importantly of course, a human being.

As you learned back in your 5-level CDCs, surgical patients put themselves completely in our hands. We must do everything in our power to treat them with the utmost respect and courtesy even if it seems that they cannot hear us or understand us. Many times patients remember things that we think they were not even aware of. If you treat the patients with courtesy and respect at all times you will never have a problem with complaints about the care you gave them. Now this doesn't mean you will never get complaints, it just means that the patients will not be able to complain about the way they were treated by surgical personnel.

If you do get a complaint from a patient, you must be objective and evaluate the facts of the complaint. It is easy to say "We didn't do that," or "No one said that." However, you must still look into any complaint by the patient as if it were factual. Someone may have slipped up or the patient overheard may have overheard something, but it was not about him or her. Think hard about the times you have heard others talk about a surgical case. We all know of times when patients have been referred to in a derogatory manner about their size or personnel hygiene. How many of you have made the comment about the 'beached whale' or the "really smelly patient?" How about the discussion of the actual procedure? Do you know who was within hearing distance? Did the room you were in share an air duct with another room a patient may have been in? Was there someone standing just around the corner? You never know who may have overheard the conversation, do you? Another true example was when an Airman was overheard talking to another technician about a really tough case and they were overheard by a patient's family member who was not related to the patient whose case they were discussing. The family member became very irate and it took a lot of effort to calm down the situation finally. In this instance, nothing derogatory was actually said about the patient, the only things being discussed were the technical matters of the case itself. As you can see, this is why we must be very careful what we do or say when we are in a patient care area. The same is particularly true if you work in a clinic.

### **In the surgical clinics**

When you are working in a clinic environment, you are even more susceptible to getting complaints from patients. Many times the complaints will not be about the actual care they have been given but about having to wait past the appointment time or the perceived attitude of the reception clerk or clinic personnel. If this occurs, the first thing to do is try to explain to the patients why they have to wait past their appointment time; there may have been an emergency or the provider may have had to take more time than he or she thought with another patient. In these instances, try to get the patients to empathize by putting themselves in the place of whomever the provider is taking care of. Most people will calm down if they understand what is going on.

Occasionally you will run across the unruly or angry patient who will not calm down no matter what you say or do. The most important thing for you and your subordinates to remember is that under no circumstances should you ever argue with the patient in public. It may be tempting to tell the patient that he or she is a total imbecile and can take a hike, but this will only escalate the situation. Try to get the patient to a more private area and contact your patient advocate. If this is you then find out why the patient is upset and try to rectify the situation. If you cannot resolve the situation then follow your facility's guidelines on whom to contact next.

**NOTE:** There is no reason for you or your subordinates to be verbally or physically abused by anyone. If this occurs, contact your chain of command and try to remove yourself and/or your subordinates from the situation if possible.

The protocol in some facilities is for the patient to go to the facility patient advocate next; other facilities have protocols for the patient to see the clinic NCOIC or OIC next. You need to be extremely knowledgeable in this matter. It can save you a lot of pain and heartache in the end. Our patients are our lifeblood, without them we wouldn't have a job. We must always strive to have the best relationship possible with our customers, the patients.

### **Telephone etiquette techniques**

Patients are influenced not only by personal contact with clinic personnel, but also by the presence or absence of good telephone technique. Here are a few rules for good telephone manners.

#### ***Answer promptly and smile***

Don't ignore a ringing telephone. Many patients won't quit trying. They know someone is there and they're going to let the phone ring until someone picks up. Besides, it really annoys those who have to hear the incessant ringing. It doesn't look very professional when patients know you're ignoring the phone. They start to wonder if that's why it took them so long to get through. This isn't the image you want a patient to leave with. Even if you're providing care to a patient, you can answer the phone, ask if the caller can hold or if you can get a number, and call him or her back.

When you do answer, smile. Yes, it's true, the person at the other end of the phone line can't see you smile, but he or she can certainly hear you smile. It gives the patient who called the sense you're pleased he or she called and you enjoy your job. It also provides those who can see you (i.e., patients, visitors, other staff members, etc.) the same impression. This is the image you want to present.

#### ***Identify yourself and your office***

Have the courtesy to let the caller know who answered the phone. Give the name of your office, then your name, and offer assistance. Something like, "Ortho clinic. Airman Razorsharp. This is an unsecure line – May I help you?" It never hurts to use sir or ma'am once you know the caller's sex. If you're too busy to carry on a conversation, answer the phone and see if the individual will hold or allow you to call him or her back. If the individual wants to hold, don't make him or her hang on too long. A minute is about all most people will tolerate before feeling like you've forgotten them. Listening to a silent, forgotten line quickly makes people angry. If you're too busy to take care of the caller in 30 to 60 seconds, return to the phone and tell the caller you'll need to get his or her name and

number and call him or her back. Set a time period the caller can expect to hear from you. When you finally return the caller's call, thank him or her for waiting.

### *Speak distinctly*

How many times have you called somebody and heard just a quick mumble for the person's identification? This does not leave a good first impression. When you speak on the phone, speak distinctly. It will save time and trouble for you and the caller. I'm sure all of us have experienced the drive-through window at a fast food restaurant. The incoherent mumble-jumble over the speaker when the attendant took your order did not leave a good impression. You wonder what they've said and if they understood what you said. It's irritating and frustrating. You can avoid a poor image for your clinic by communicating clearly.

### *Be prepared to take a message*

If the person called is unable to come to the phone, take the message (include at least the name of the caller, time, and good call back number) on whatever form your clinic prefers to use, and then make sure the message is delivered. If the call is for a doctor or technician who is busy with a patient, don't interrupt the patient's treatment, but deliver the message at the earliest opportunity. It's usually better to have the person in the clinic return the call rather than having the caller phone again, since the caller may once again call when the person he or she wishes to speak with is busy.

### *Avoid giving medical advice*

Medical advice over the telephone usually leads to inaccurate self-treatment by patients and is legally risky. It is always better to see the patient and health records before making a decision or giving advice. If in doubt, especially if you don't understand exactly what the patient is saying, have him or her come in. Never diagnose a patient's problem over the phone. General information is one thing; medical advice is quite another.

### *Be attentive*

Listen to what the caller has to say. Don't try to listen to the phone and do something else at the same time. Your attention to both the calling patient and the other job will be degraded. Paraphrase what you think you heard back to the caller to ensure you've understood him or her correctly. Take notes if necessary.

### *Don't yell into the mouthpiece*

If the call is for someone a little distance from the phone, put the phone down gently (or put it on hold) and approach the person, telling him or her there is a call. Don't put your hand over the mouthpiece and yell down the hall. The caller will still hear you quite clearly and won't be thankful!

### *Calls for the doctor*

If the doctor is with a patient and receives a call and the caller cannot wait, write down the caller's name and a short message and put it where the doctor will see it as soon as he or she is free. If it's really urgent, indicate that on the note. Don't interrupt an examination by sticking your head in the door and announcing a routine call. Only disturb an examination if the caller has a true emergency. Not surprisingly, the patient sitting in the doctor's chair feels the appointment time reserved for the patient should be used for the patient. Also, interruptions of an examination may cause your doctor to inadvertently overlook something important.

## Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

### 023. Medical record documentation and coding

1. What is a medical record?
2. Who is responsible for the maintenance of medical records?
3. Why *must* a record be coded properly after a patient visit?

### 024. Customer service

1. What is the goal of customer service?
2. How *must* we treat every customer's complaint?
3. Your doctor is running behind schedule and is with a particularly difficult patient. The phone rings and the caller insists on talking to the doctor. What do you do?

## 3-3. Medical Readiness

As you well know, the threat of war or terrorist attack is very real. You or your subordinates may even deploy to a third world country in support of a humanitarian mission. As an NCO in the Air Force medical service, it is important that you ensure that you and your subordinates are capable of functioning in a contingency environment. This simply means that you can do your job under less than perfect or even dangerous conditions. You need to know how to keep up your airmen's training in order to be ready when the orders to be deployed come down. This is what medical readiness is all about. As a supervisor, you need to understand how the Readiness Skills Verification Program (RSVP), and Expeditionary Medical Support (EMEDS) surgical augmentation team systems work during your involvement in mobility and contingency exercises and deployments.

### 025. Readiness Skills Verification Program

Hopefully you already know the basic concepts of medical readiness, but just as a refresher let's go over it again. As medical personnel, we take care of patients in our home base hospitals and clinics as a normal part of our daily routines but our main purpose is to sustain the war-fighting force. That means we go where we are needed and do whatever it takes to get the job done. One of the main areas you will become familiar with in the coming months and years, in order to accomplish this purpose, is your mobility training cycles. This highly visible program is as important to your mission as your regular day-to-day job. Let us begin with RSVP, more commonly known as the RSV program, and how it pertains to you as a supervisor.



## Readiness Skills Verification Program

The concept behind the RSV program is to *ensure* that you and your technicians are trained in the tasks needed to perform your job in wartime *or* contingency. This training is designed to work directly with your Qualification Training Package (QTP) to make the training easier because you have an objective “go/no-go” standard. The great thing about being a surgical technician is that most of the tasks listed in the RSVP task list are done as a routine part of your job, so you will not need formal training for your technicians after they have been upgraded to the 5-skill level. This means you don’t have to have formal lessons on how to do these tasks unless you don’t do a particular task listed at your facility.

## Evaluation frequency

However, this does not excuse you from remaining current in those skills. You and your technicians must still be evaluated every 20 months on the QTPs and have it documented on an RSV checklist that can be downloaded from the KnowledgeExchange Website at [https://kx.afms.mil/kj/kx9/RSVP/Documents/RSVP\\_Checklists/Enlisted\\_4N1X1.pdf](https://kx.afms.mil/kj/kx9/RSVP/Documents/RSVP_Checklists/Enlisted_4N1X1.pdf) and placed in your training record. You will need to be able to perform these skills if you are ever deployed. As a surgery technician, you will likely deploy as part of a mobile field surgical team (MFST) team or as part of a surgical augmentation team in a hospital package known as the EMEDS force package.

## 026. Expeditionary medical support

In a contingency environment, you may deploy directly in support of an EMEDS facility on a surgical augmentation team instead of going out in the field in a stark or “bare bones” environment. Let’s look at the basic concepts of the EMEDS system and the surgical technician’s role in all of this.

## EMEDS health response team

The *first increment* of the EMEDS concept is the EMEDS HRT (health response team). It provides a maximum of 40 personnel organized within various unit type codes (UTC) and can stabilize and hold four patients (three of which can be critical) for 24 hours.

Designed for rapid mobility and efficient setup, EMEDS HRT can deploy within 24 hours of notification, establish emergency room (ER) capability within two hours, operating room capability within four hours, and critical care capability within six hours. It can reach full operational capability (FOC) within 12 hours of arrival.

Its primary goal is to stabilize patients and prepare them for movement to the next level of care. Patient evacuation within 24 hours is critical to mission success. EMEDS HRT is designed to support the early phases of military operations and requires reinforcement of personnel and equipment for operations longer than 10 days. Specialty care includes internal medicine, OB/GYN, and pediatrics.

## Expeditionary Medical Support +10

The next two increments of the EMEDS concept is the EMEDS +10 and the EMEDS +25. Both modules increase the capabilities of the facility to do more surgeries and hold the patients for a longer time.

EMEDS+10 is the *second increment* of EMEDS concept and builds on EMEDS HRT. This combined capability has a total of 10 medical/surgical beds and can support a population at risk of 3,000–5,000. EMEDS+10 provides medical/surgical and critical care augmentation. Laboratory service is added, as well as additional Bioenvironmental, public health, administration, and medical logistics support. EMEDS+10 can reach full operational capability within 36 hours upon arrival.

## Expeditionary Medical Support +25

EMEDS+25 is the *third increment* of EMEDS capability and builds on EMEDS+10 and EMEDS HRT. This combined capability has a total of 25 medical/surgical beds and can support a population at risk of 5,000–6,500. EMEDS+25 provides expanded medical/surgical care, emergency/trauma

care, dental care, and ancillary services, as well as additional medical command and control (C2), logistics, and patient administration support. It adds basic physical therapy and enhanced dietary services. EMEDS+25 can reach full operational capability within 60 hours of arrival. By the time an EMEDS is upgraded to a + 25 package you might see equipment start coming in like you are used to using at your home station. For instance as things settle down and the medical facility becomes more permanent, you might see endoscopic surgeries increase or become the “norm” again instead of all surgeries being done through an extended open incision.

### **Additional capabilities**

The surgical area for EMEDS HRT and EMEDS+10 consists of one surgical tent and one operating table. When fully operational, EMEDS HRT and EMEDS+10 can perform 10 major surgeries or 20 non-operative trauma resuscitations. FFEP5 and FFEE3 provide a second surgical team, operating table, anesthesia machine, and additional surgical equipment and supplies at the EMEDS+25 level. Surgical capability increases to 20 major surgeries or 20 non-operative trauma resuscitations. Each operating table requires 100 square feet of operating space. The EMEDS configuration does not allocate separate space for pre-operative care.

### **Personnel UTCs**

EMEDS UTCs are postured against units in the unit type code availability (UTA) database and medical resource letter (MRL). EMEDS equipment and facility infrastructure packages may be pre-positioned in theater based on requirements from geographic combatant commanders (CCDR) and the Commander, Air Force Forces (COMAFFOR).

The FFEP3 10-bed personnel augmentation team provides additional physician, surgical, nursing, critical care, medical logistics, and administration personnel to support the increased population at risk. Expanded capabilities include advanced cardiac life support (ACLS), advanced trauma life support (ATLS), medical ward, and lab. At least one nurse (046N) must be a Major or above.

The FFEP4 25-bed personnel augmentation team provides additional physician, nursing, ancillary services, medical logistics, and administration personnel. The nurse administrator (046A3) must be a Lieutenant Colonel or above. At least one nurse (046N) must be a Major or above.

### **Sterile Processing Department in the deployed environment**

Of course, another important job we do as surgical technicians is to work in SPD. EMEDS HRT has no dedicated SPD to receive, clean, and sterilize instruments and other medical items. The OR is equipped with a tabletop steam sterilizer. EMEDS+10 and EMEDS+25 have a separate area adjacent to the operating room. The EMEDS+10 equipment package provides a large sterilizer and water reclaimer unit, which should be placed in or near the operating room.. You will appreciate the larger sterilizer since the tabletop model will only hold one instrument set at a time. The EMEDS+25 equipment package adds an ultrasonic cleaner and an additional sink. Both sterilizers need to be located near the OR, but you may want to think about setting up a separate covered area outside the main tent to place your sterilizers. When operating, the sterilizers produce a tremendous amount of heat and steam that is released into the atmosphere making it difficult to work in an enclosed area like a tent. The heat and steam also make a perfect environment for breeding bacteria. SPD is responsible for issuing and storing small instrument sets for use in the ICU, emergency medicine, dental, ward, and flight medicine areas.

The possibility of being short manned is highly likely; therefore, you may have to train non-OR personnel to do part of your job.. For instance, you can't scrub and circulate a surgical case at the same time can you? What if something needs to be sterilized while you are scrubbed in? Who is going to do it? In addition, SPD and the surgical suite are to be operational 24 hours a day. How will you accomplish this? If you are the only surgical technician assigned and you don't have a surgical nurse in your deployed unit, you will end up training nurses and 4N0s to do some of the things we are trained to do as surgical technicians. Similarly, if there are no surgeries on a given day, you may end

up being trained to perform some tasks you would not normally do as a surgical technician. You may be tasked to do patient care, work in the emergency room, pull guard duty or be an escort for local workers on your facility. When you are deployed, everyone must work as a team to get the job done.

By understanding your role in the Air and Space Expeditionary Force (AEF) concept, and completing the training you must have for the RSV program, you will be prepared to do your job in a contingency environment as a part of an EMEDS. When everyone practices core values and works together as a team, you can go through your deployment confident the job will be done well and you can be proud of your accomplishments.

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## Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

### 025. Readiness Skills Verification Program

1. What is the purpose of the RSV program?
2. How often are QTP skills evaluated?

### 026. Surgical augmentation team

1. What is the *first increment* of the AFTH medical system?
2. What are the *next* two increments in the AFTH medical system?
3. Upon arrival, how many hours should it take for an EMEDS +25 to reach full operational capability?
4. Which EMEDS package introduces the large sterilizer and water reclaimer unit?
5. When manning is short in your duty section, what should you do to alleviate the hardship?

## 3-4. Advanced Surgical Practices

We just looked at medical readiness. Did you know that your role as a technician may be expanded in a contingency environment? This role may even be expanded in your day-to-day job. As you progress in rank and knowledge, you are expected to perform more advanced procedures and practices than those expected of lower ranking and less skilled technicians. You may be expected to help close wounds and use the electrocautery or other methods to help with hemostasis. One of the main things you are going to be expected to do is help with hemostasis during a procedure.

## 027. Electrosurgical hemostasis

You know hemostasis is stopping the free-flow of blood or hemorrhage; bleeding stops by coagulation, which is the formation of a blood clot. We have an old saying in surgery, “All bleeding eventually stops.” Without controlled hemostasis, surgery would not be possible—our patients would bleed to death! Coagulation occurs naturally in the body, as when a cut finger stops bleeding and heals, or the coagulation can be induced. In the operating room, when we refer to hemostasis, we are generally referring to this induced coagulation.

Electrosurgery, commonly known as the “Bovie”, is the primary thermal method we use to achieve hemostasis. This method involves using energy to produce intense heat. High-frequency electrical energy, called electrosurgery, is used extensively to cut tissue and coagulate bleeders in every modern operating room. Electrosurgery is the most common method of hemostasis used in surgery.

Electrosurgical units (ESU) are safe, reliable, and time-saving tools for the surgeon—when setup and used properly. As a surgical technician, you may be asked to operate the electrosurgical active electrode under the direct supervision of a physician, so you must become familiar with its operation and uses. Remember, you must be signed off in your training records before you can use the ESU on a patient.

### Basic electrosurgical operating principles

ESUs use high-frequency (HF) oscillating electrical current to cut or coagulate tissue. A generator within the ESU converts normal electrical current (110 or 220 volts alternating current [VAC]) to HF oscillating current. This HF oscillating current can be localized and does not overly stimulate muscle and nerve tissue near the active electrode through which the current is delivered to the patient. This current is delivered from the active electrode, cuts or coagulates the tissue, then follows the path of least resistance (usually the inactive electrode), and is returned to the ESU.

We use two basic methods to deliver electrosurgical energy, *monopolar* and *bipolar*. Some machines are specifically designed to operate using one method; other machines are capable of providing both.

### Monopolar (unipolar) systems

The monopolar system is the one most commonly used in the operating room. This system generally utilizes a pencil-style active electrode (commonly called a Bovie handpiece) and a separate patient ground plate or pad that serves as the inactive electrode (commonly called a Bovie pad). The current flows from the active electrode, to the tissue, and acts on the tissue. The current then travels through the patient, following the path of least resistance, until it reaches the inactive electrode (grounding pad) that is in contact with a broad area of the patient’s skin. The inactive electrode may be some distance from the active electrode, but should be placed as closely as possible to the surgical site. The current then flows from the ground pad, through a cable, back to the electrosurgical unit to complete its circuit. Most modern-day electrosurgical devices use isolated generators; they have built-in electrical safeguards that prevent the unit from delivering monopolar current if any area of the electrical pathway is disrupted. For example, if the inactive electrode (grounding pad) is not attached to the patient, the return path is disrupted so the unit will not work. Some older ESUs use a grounded generator, which means the machine will continue to emit electricity as long as the current can return to earth. They are more dangerous than isolated generators because the patient may be grounded by other than the machine. Most ESUs have audible and visual ground cable fault indicators and alarms to warn the operator of operational or patient grounding problems. Some units measure the energy output delivered through the active electrode, and compare it to the energy returned through the inactive electrode (return energy monitoring); if the return energy does not equal the output, the ESU alarms and does not operate.

### Bipolar systems

In a bipolar system, the instrument delivering the current must be a two-pronged instrument such as a thumb-forceps. One prong of the instrument serves as the active electrode, delivering the current; the

other side serves as the inactive electrode, and conducts the current back to the ESU. The surgeon grasps the tissue between the prongs and activates the unit (usually with a foot switch). The current flows from the active side of the forceps, through the tissue, to the inactive side and then back to the generator. A separate patient ground pad or plate is not generally needed when bipolar electrosurgery is used. Because the current flow is small compared to the monopolar system, only the tissue between the instrument prongs is usually affected. This gives the surgeon precise control over the amount and intensity of the desired action. This fine control makes bipolar electrosurgery ideally suited for delicate surgery such as neurosurgery. The primary limitation to the instruments used for bipolar cautery is it must have two conductive sides capable of being insulated from each other, one side for active current, and one side for return current.

Bipolar systems usually operate without fail; monopolar systems do as well, as long as the two most important parts—the active and inactive electrodes—are connected and used properly. As a surgery technician, you will often be responsible for correctly preparing both electrodes; so we now take a closer look at them.

### *Active electrode*

The active electrode actually conducts the HF oscillating current from the ESU to the tissue chosen by the surgeon. Because this electrode is used in the patient's wound and on the sterile field, it too must be sterile. The active electrode is generally the tip of the instrument, and it comes in many different sizes and shapes. Monopolar systems usually use a pencil-shaped handpiece to control and activate the active electrode "tip"; this handpiece allows you to change just the tip rather than changing the entire instrument. The surgeon can choose between blade, ball-end, needle-point, or loop style tips. Sometimes, the surgeon uses an instrument as an extension of the active electrode. The surgeon uses a hemostat or forceps to grasp or clamp the tissue, then touches the active electrode tip to the instrument. The current flows through the instrument to the tissue held in the jaws.

As stated previously, the active electrode of a bipolar system is one side of a two-pronged instrument. The most commonly used instrument is a pair of forceps with a plug-in top for the cord. These forceps come in different sizes and shapes, and are both insulated and non-insulated. The amount of insulation also varies. Some are fully insulated with only the very tip of the metal exposed, some are insulated with slightly more than the tip exposed, and others are insulated only where the surgeon normally holds the instrument. Other instruments used for bipolar electrosurgery include grasping forceps with wire, loop, ball, or ring tips.

### *Inactive electrode*

The inactive electrode of a bipolar system is built into the instrument. You do not have to worry about it because the instrument will not work if the current is not completing its circuit through the tips. The inactive electrode of a monopolar system is one you do have to worry about. This inactive electrode (patient ground) is designed to disperse the HF current flowing through the patient's body over a wide skin surface area, then, channel it back to the ESU. By dispersing the current across a wide area, the point of exit from the body, we reduce the risk of heat building up in the tissue and burning the patient. Most dispersive ground electrodes are adhesive pads with a conductive gel. It is absolutely critical for you to remember to place an inactive electrode (grounding pad) on the patient before the start of any procedure requiring monopolar electrosurgery. If you forget, the least effect is a delay in surgery (and an irate surgeon) as someone crawls under the drapes to place the pad. More serious effects are possible, including the patient being burned or even electrocuted.

### **Uses of electrosurgery**

Electrosurgery can be used to perform different functions based on the type of current and the tip used. Bipolar systems use coagulation, so this section applies primarily to monopolar use.

### Coagulation

Electrosurgical coagulation stops bleeding by literally burning or “searing” the ends of vessels. The electrode tip is placed in direct contact with the vessel or tissue, power is activated, and the electricity generates intense heat in the tissue and seals the vessels it contacts. Coagulation is effective on small-to-medium-sized vessels; using it on large vessels can cause extensive damage to surrounding tissues.

A form of extensive coagulation seldom used today is called *dessication*. Dessication involves deliberately destroying an area of tissue, such as a small tumor, by applying electrosurgery until the tissue cells are dehydrated and the tissue destroyed. The surgeon places the active electrode in direct contact with, or sticks it directly into, the area and applies the current until the tissue is charred (turns brownish-black). Laser ablation has virtually replaced this method of electrosurgery. But you may not always have a laser available.

### Cutting

Cutting via electrosurgery involves creating an *arc* (continuous spark) of electricity between the tissue and the active electrode. The surgeon holds the electrode slightly above the tissue, and the tissue is divided by the intense heat of the arc without coagulating the vessels in surrounding tissue. (Cutting uses undamped current, which, simply described, applies constant energy to the electrode.)

### Blended coagulation and cutting

Blended coagulation and cutting is simply what it sounds like; the coagulation and cutting modes are combined. As the active electrode cuts through the tissue, the current used also coagulates the cells and vessels of nearby tissue. Most ESUs have controls that allow the user to set the amount of “cut” energy and the amount of “coagulation” energy delivered simultaneously to the electrode. (This method blends undamped with damped current, and the level of cut or coagulation is determined by the amount of each type of current delivered.)

### Fulguration

Fulguration uses spray coagulation, which is actually a form of the cutting energy, to char the surface of an area without destroying the deeper tissues. Fulguration involves holding the active electrode slightly away from the tissue, then applying energy to create a “spray” of sparks to destroy the surface of the tissue. It is mainly used by urologists and gynecologists during endoscopic procedures.

### Electrocautery

This term is sometimes used to refer to electrosurgery, but it is not technically correct. Electrosurgery uses current to heat the tissue; electrocautery uses current to heat the instrument. The electrocautery device you will most likely see in surgery is a small, battery-operated, disposable device. It has a handle like a small flashlight, but where the lamp would be is a small wire loop. When you press the button on the handle, the current heats the loop, and the hot wire sears (burns) and seals the blood vessels. This device is used mainly during minor surgeries and is used for shallow tissue coagulation. You must be careful when using this device since it has been known to cause fires in the OR if it is placed on the drapes before the tip has cooled down or the activation button is pushed inadvertently while the device is laying on flammable materials.

As you can see from our discussion on electrical hemostasis devices, being skilled in their use is vital for operating room technicians. As we discovered, while it might not happen, it is possible to burn patients even while we are trying to help them. During your effort to become more skilled as a technician and supervisor, you will be expected to take good care of your patients as well as train your subordinates how to do the same.

During this lesson, we have discussed a variety of different means to perform *electrical* hemostasis. Now let's take a look at the different means to perform mechanical hemostasis.



## 028. Mechanical hemostasis

Mechanical hemostasis works by clamping or compressing the blood vessel(s) to stop the flow. We use several products and devices to ligate blood vessels and control bleeding. Suture ligatures can be used to achieve mechanical hemostasis, but, since we usually associate suture with wound closure, we cover it in the next lesson. The devices we cover in this section include the various clips and stapling devices we use in surgery. We'll start with surgical clips.

### Surgical clips

Though there are several kinds of surgical clips used in the operating room, we use them for two basic purposes. We use scalp clips to control bleeding from superficial tissue during procedures such as craniotomies. We also use clips to “clamp-off” (ligate) vessels and small body structures during many other procedures.

#### Scalp clips

Scalp clips are used primarily during neurosurgical procedures involving the skull or brain. They are placed side-to-side along the edges of the highly-vascular scalp flap as the surgeon makes the incision. The clips are left in place throughout the procedure to maintain hemostasis, and then removed as the surgeon closes the wound.

Scalp clips may be metal or plastic, and, like all ligating clips, a specific applicator is used for the specific clip used. Most of the clips used today are disposable, but you may come across a surgeon who prefers the non-disposable silver or carbon-steel clips. Two of the more popular clips used are the Raney clip and the Leroy clip; a Leroy-Raney clip is available that combines features of both.

Most scalp clips are applied in a similar fashion. You load the clip on the end of the applying forceps, and then lock the instrument ratchet; locking the ratchet opens the jaws of the clip. Unless the surgeon prefers otherwise, lock the applier to only the first notch. This prevents over-stretching the clip before it is applied; over-stretching it reduces its clamping tension; thereby reducing its effectiveness. You should have at least two appliers loaded at all times, preferably more, because the surgeon applies the clips as rapidly as possible. After the surgeon places all the clips, ensure you keep at least one applier loaded for back-up, and one empty. The surgeon will need an empty applier to remove the clips at closing. Disposable scalp clip appliers are also available; they usually contain 10–12 clips and allow the surgeon to apply them rapidly. A separate removal tool is required when the disposable applier is used.

#### Ligating clips

Ligating clips, commonly called Liga-clips or Hemo-clips, are most commonly used instead of individual suture free-ties or ligatures. Ligating clips have two “legs” that squeeze together when the clip is compressed; they literally “clamp off” small blood vessels, tubular structures (like the bile duct), and nerves. They are particularly useful for ligating major vessels in deep, hard-to-reach areas, where the surgeon’s ability to see and maneuver needles and other instruments is limited. Ligating clips are also used on bleeders in more superficial tissues; they help “speed-up” the operation because the surgeon simply slides the clip over the desired area, then squeezes the applier to clamp the area. Using conventional suture ligatures, the surgeon has to clamp the area, maneuver the suture around the structure, tie the knot, and cut the loose ends. Metallic ligating clips can also serve as X-ray detectable “markers” in a wound. For example, a surgeon can place the clips in an area where tissue biopsies were removed, then use the clips as postoperative markers to determine if a cancerous mass is spreading or shrinking under follow-on therapy. Either ligating clips are made from metal, and are non-absorbable, or they are made from synthetic polymers, and are absorbable. The two types are used similarly, but are different in design so deserve individual attention.



### *Nonabsorbable clips*

Nonabsorbable ligating clips are usually made from stainless steel, titanium, or tantalum; these metals will not corrode, and they produce very little tissue reaction when implanted in the body. Tantalum clips usually have a dull gray finish and are heavier than stainless steel or titanium clips; titanium clips usually have a metallic blue finish. Most metal ligating clips are usually a modified “V”-shape and have small serrations on the inside surface. The serrations keep the clip from slipping after application. Most clips are pre-packaged sterile. Some clips come pre-loaded in a disposable “multi-fire” applicator, but most are packaged in plastic cartridges in groups of six or more. Some ligating clip cartridges come un-sterile from the manufacturer (in which case, they must be wrapped and sterilized). The clips come in different sizes for different applications, and each type and size clip requires a specific applicator.

The applicators used with each sized clip come in different styles, with different shaped tips, and in various lengths. There are even “double-clip” applicators that apply two clips simultaneously. Labeling and terminology is sometimes confusing. One accurate method is to label and call the applicator by its overall length, by its style and tip shape, and by the type and size clip it applies. For example, the label “5-inch, alligator, right-angled tip, small Liga-clip applicator” tells the user exactly what instrument is in the package. The label “short-small clip applicator” is ambiguous and could refer to numerous applicator types.

When loading a metal ligating clip, grasp the applicator by the box lock with its jaws pointed down. Insert the tips in a loaded slot on the cartridge until the tips touch the base of the groove. Ensure you slide the applicator tip straight down over the clip; this means you may have to tilt the instrument to load its tip. *Do not use excessive force*, and do not “rock” the applicator as you insert the clips; you may damage the tip. After the clip is loaded, pull the applicator straight out of the cartridge to withdraw it. Do not handle the loaded applicator by its ring handles; hold it *only* by the box lock. If you hold it by the handles you may accidentally squeeze them, and even a small compression will bend the clip and make it fall out of the jaws.

### *Absorbable clips*

Absorbable ligating clips are made from synthetic polymers such as polydioxanone; the same slow-dissolving chemical compound used in some absorbable sutures. Unlike the metal clips, which are designed to remain permanently clamped around a structure, absorbable clips eventually dissolve. They are not used when a secure, permanent ligation is required. The absorbable clips are usually dyed violet to enhance their visibility in the tissues, and because they contain no metals they are X-ray transparent. The clips are also shaped in a modified V, but unlike metal clips, they have projections at the end of each “leg” to lock together and secure the clip. Absorbable clips come in pre-sterilized cartridges designed for use with reusable applicators, or in disposable multiple clip applicators. Loading and handling of the absorbable clip applicators is basically the same as for the metal clip applicators.

### **Surgical stapling devices**

Surgical stapling devices have revolutionized wound closure and the methods used to perform certain surgical procedures. Most surgeons now use disposable stapling devices for a variety of procedures.

### *General information*

Surgical stapling devices come in many sizes, shapes, and configurations. Some devices are multi-purpose; others are designed for use in specific body areas or on certain types of tissues. General surgeons most commonly use stapling devices, especially for procedures involving structures of the gastrointestinal tract. They are also routinely used for many thoracic and gynecological surgical procedures.

The pattern, length, and type of staple line vary with each specific type of stapler. Some place a parallel double row of staples in the tissue; others implant a double circle of staples. The length of each staple depends on the pattern of the staple line and the tissue it is designed to be used in. Some

staplers not only place staples, but also cut the tissue between the rows. Ligator-dividers place two staples and cut between them. Skin and fascia staplers replace sutures by approximating the wound edges with a series of individually applied single staples.

Most staplers use non-absorbable staples; the staples are made from thin surgical stainless steel wire. In the double row staplers, the most commonly used type; the puncturing “legs” are staggered. In other words, the rows of staples are staggered so a staple in one row is positioned between two staples in the other row. This forms a leak-proof approximation, which is very important in gastrointestinal and lung surgery. The shape, size, and length of the staples vary with the thickness and type of tissue the stapler is designed for. Most staplers bend the staples into a noncrushing “B” shape after the staple passes through the tissue. This shape provides a secure approximation while preserving the blood supply to the stapled tissues. Skin staples are the primary exception; they bend the staples into a rectangular or d-shaped pattern.

Most stapling devices used today are completely disposable units; though there are still a few reusable stainless steel units that use disposable cartridges. Regardless of the type your operating room uses, ensure you are thoroughly trained in their assembly, preparation, use, and care. Always use a new cartridge and anvil when using any unit with reusable parts. A used anvil may misalign and misshape the staples, causing the staple line to leak (or even rupture). Disposable staplers are designed for single patient use. Because they require no reprocessing and are used on only one patient, they help lower the risk of cross-contamination. Regardless of the type stapling devices your surgeons use, you must be familiar with preparing and handling the device properly. Fumbling to prepare them not only wastes valuable operative time, but also can compromise patient safety. Always read and follow the manufacturers’ operating instructions before scrubbing a procedure where stapling devices are used.

### *Advantages of surgical stapling*

Staplers offer several advantages over sutures. Probably the most noticeable advantage is the amount of time they save. When using the right stapler, surgeons can ligate, approximate, and anastomose tissue in one or two simple steps. Using suture requires individual placement, tying, and cutting of each stitch—plus resecting and re-anastomosing the tissue. Staplers also require less preparation and handling than multiple sutures, so the scrub can set up the case quicker and devote more attention to anticipating the surgeon’s needs during the operation. Using staplers also reduces tissue manipulation and handling that, in turn, reduces postoperative inflammation and risk of infection. As mentioned earlier, the use of disposable staplers further reduces the risk of wound infection by eliminating the need for reprocessing. By using staples, particularly those that are positioned in double row patterns, the surgeon can create a leak-proof seal between tissues. This is very critical in gastrointestinal surgery, where leaking stomach or bowel contents could cause peritonitis. It is also very important during thoracic surgery involving the lungs or bronchial tree because a leaking lung can cause air to enter the pleural space, a condition that can lead to impaired breathing and a collapsed lung. The noncrushing seal created by the “B” shaped staples also accelerates wound healing and prevents tissue necrosis. The staples are made from an inert metal, and cause little, if any, tissue reaction after implantation. Using surgical staplers reduces the number of, thereby the risk of losing, needles in a wound and makes needle counts faster and easier. Finally, skin staples are easier to remove postoperatively than are nonabsorbable skin sutures.

### *Disadvantages of stapling*

The primary disadvantage of surgical staplers is their cost; they are not cheap. A single-use stapler can cost more than 10 times as much as a box of sutures. Because they are so expensive, all personnel who handle these devices must be intimately familiar with them to prevent waste caused by accidental contamination, premature staple firing, or physical damage due to improper handling. The surgeons must also be well trained in their proper use. If the device is improperly placed, tissue approximation may be poor or leaks may develop. Incorrectly placed sutures can be cut, removed, and replaced with minimal difficulty. Not so with malpositioned staples. Correcting a stapling error may require

excision of healthy tissue, subjecting the patient to unnecessary surgery, greater risk of infection, and prolonged anesthesia.

Because of the many different manufactures, types, and variety of staplers, the use of surgical stapling devices requires more training for all surgical personnel, including the surgeons, than the use and handling of suture materials. Most manufacturers offer in-service and other type training. Technicians and nurses not only need to learn the basic applications of staplers but also need to learn how to properly prepare, handle, and maintain them to ensure they are ready when needed. As a senior technician you may be required to use the staplers under the supervision of a physician.

### **Types and uses of stapling devices**

As we said earlier, there are many types of surgical staplers. We briefly cover the ones most frequently used.

#### ***Ligating and dividing staplers***

These staplers save the surgeon and scrub technician a lot of time and effort because they take the place of hemostats, ligatures, and scissors (both tissue and suture) when ligating and dividing vessels and other small tubular structures. The most popular type ligator-divider fires two single staples side-by-side; then uses a single straight knife blade to cut the tissue between the staples. These staplers are most often used for rapid ligation and division of blood vessels supplying the omentum during gastrointestinal surgery. Gynecologists and thoracic surgeons also use them.

#### ***Linear staplers***

Linear staplers place a double, staggered row of staples in the tissue. As previously described, the staples are bent into a capital “B” shape, which gives a leak-proof closure without crushing the tissue. Linear staplers are widely used in lung and gastrointestinal surgery. The staplers vary in size and jaw length depending on the desired staple line length and the thickness of the tissue to be stapled. The three most common jaw lengths are 30 millimeters (mm), 55mm, and 90mm. These staplers are used by nearly all surgical specialties, especially in the chest and abdomen, for stapling and resecting a variety of tissues and structures. Many linear staplers are rigid, pistol-like instruments; however, some have heads that rotate, tilt, or both. One manufacturer even offers a disposable linear stapler with a flexible “goose neck” to allow the surgeon to staple tissues in hard to reach areas.

There are other types of stapling devices available, and there are also absorbable staples available, but the ones we just covered are the most commonly used.

### **029. Wound closure techniques**

Effective wound closure is one of the most important aspects of any surgical procedure. For wounds to heal properly, the wound edges must be held together, or approximated, until the body’s natural healing process can restore enough strength to withstand stress without additional support. We use a number of products to approximate wounds, including sutures, surgical staples, and non-suture wound closure products. The surgeon chooses the wound closure materials, and how these materials are used. As an experienced surgical technician, one of your most important jobs is to assist the surgeon with wound closure. To anticipate the surgeon’s needs and contribute to the smooth flow of an operation, you need to understand why and when the different types of wound closure materials are used.

This lesson is not designed to teach you how to suture, you will get that skill from being taught at your facility, but to familiarize you with various techniques and why they are used. There are numerous suturing techniques used by surgeons to approximate tissues. It is important that you be familiar with some of the more common techniques so that you can better anticipate the surgeon’s suture requirements during a surgical procedure. Understanding basic suturing techniques also enables you to assist the surgeons more effectively with wound closure if and when you are called upon to assist during surgical procedures.

## Wound healing

As you know, a wound is described as an abnormal break in the continuity of normal tissue pattern by physical means. It follows then, that wound healing is the restoration of the tissue. There are four basic types of wounds:

1. Incised wounds are made by a clean cut with a sharp instrument such as a surgeon's incision with a scalpel.
2. Contused wounds are made by blunt force, do not puncture the skin, and cause considerable soft tissue damage, hemorrhage, and swelling.
3. An object that tears the tissue and produces jagged, irregular edges such as a piece of glass or barbed wire makes lacerated wounds.
4. Puncture wounds are made by a pointed object, such as a bullet, ice pick, knife stab, and cause a small opening in the skin. .

Wounds vary in severity from the simple, clean wound, to the more serious deep, contaminated wound. The severity of the wound determines how long it will take for the wound to heal, how much pain the patient will have postoperatively, probability of wound complications, and whether tubes, drains, or suction devices will be used. How a wound heals, as well as the type and severity of the wound, also determine what type of closure technique and closure device the surgeon will use to close the wound.

### *Mechanisms of wound healing*

As soon as the surgeon makes the initial skin incision, the body's defense mechanisms begin the healing process. There are three stages of wound healing: first intention, second intention, and third intention. Each stage has a significant role in the healing process.

#### *First intention*

All surgeons would like their wounds to heal by first intention following primary union. An incision that heals by first intention shows no postoperative swelling, no serious discharge or local infection, no separation of wound edges, and minimal scar formation. The pattern and rate of wound healing differ in different tissues. In general, first-intention wound healing consists of three distinct phases that overlap considerably.

#### *Lag or substrate phase of acute inflammatory response (from day zero to day five)*

During this phase, blood cells and blood serum form a network of fibrin in the wound. At the surface, fibrin and other proteins dry, forming a scab that protects the wound from microbial invasion and further fluid loss. The wound has no tensile strength and wound edges would fall apart if the sutures were removed.

#### *Healing phase of fibroplasias (from day five to day 14)*

This phase is characterized by the growth of fibroblasts (fibrous tissue germ cells) in and along the fibrin network. These fibroblasts and accompanying small blood vessels are called granulation tissue. The granulation tissue grows to restore the continuity of the injured tissue. It is soft and light red in color and very friable. Epithelial cells begin to grow from the edges to cover the wound. Depending on the size of the wound, the connective tissue cells fill in the area and form a scar, which is considerably stronger than the granulation tissue.

The wound has approximately 5 percent of its original skin strength by the time the skin sutures are removed. After one month, it has 35 to 50 percent of its original strength; and after three months a maximum strength of 70 to 80 percent of its preoperative strength.

#### *Phase of maturation (from day 14 until the wound is fully healed)*

During this phase, the small blood vessels in the new tissue disappear and the scar becomes smaller. Tensile strength continues to increase up to one year postoperatively.

### *Second intention*

This stage of healing occurs when infection is present. The healing process is also prolonged. Usually there is extensive tissue injury and pus, and approximation of the wound edges is difficult or impossible. The wound may be left open and allowed to granulate (heal from the bottom toward the outer surface).

### *Third intention*

This stage of healing is also referred to as *delayed primary closure* and occurs when two surfaces of granulation tissue are brought together. This is a safe method of repair of contaminated, dirty, and/or infected traumatic wounds, where tissue loss may be extensive. These types of wounds usually result from traffic accidents, gunshot, and deep penetrating knife wounds. These wounds are initially treated by debridement and/or drainage.

Delayed closure is usually done four to six days post-injury. The skin edges and underlying tissues must be accurately and securely approximated. A deeper and wider scar usually results.

### *Complications in wound healing*

The patient is immediately at risk whenever the integrity of tissue is violated. No matter how many precautions are taken in observing surgical principles and proper techniques, complications will occur in a few patients. Some complications that could arise during the healing process are hemorrhage, hematoma, infection, hernia, and wound disruption and keloid. We'll discuss the two most common complications—postoperative infection and/or wound disruption.

### *Postoperative infection*

After a patient is diagnosed as having a postoperative wound infection, obtain a specimen of the purulent drainage or tissue culture. Surgical infections are produced by a variety of bacteria—anaerobic, aerobic, Gram-positive and Gram-negative. *Staphylococcus aureus* accounts for many postoperative infections. Antibiotic therapy is initiated after the invasive organism is identified and sensitivity tested. It is important that adequate irrigation and debridement be performed on the infected area. Without adequate debridement, antibiotic therapy will not succeed.

### *Wound disruption (dehiscence)*

Disruption, or *dehiscence*, is defined as a forcible splitting open of the wound. It occurs when the pressure or stress on the wound exceeds the strength of the tissue or the suture. A partial dehiscence involves one or more layers, and is usually in the superficial tissues. In a total dehiscence, the entire wound opens and the underlying structures protrude. The location and direction of the incision are considered to be important factors in wound disruption. Dehiscence occurs mostly in incisions in the upper part of the abdomen. The relative tenseness of the muscles and fascia in this area, due to attachment to the thoracic cage, is a major factor. Hematomas, infection, excessive coughing, retching, distention, or poor nutrition often underlie this catastrophe. Inadequate sutures or excessively tight closures are also offenders because they cause the blood supply to be compromised.

Wound disruption usually occurs more frequently in older patients, but it may occur at any age. It also occurs more frequently in males than females. It is most common between the fifth and twelfth postoperative day.

The first sign is usually a gush of serosanguineous peritoneal fluid from the wound. The rupture may occur suddenly with coils of intestine escaping through the abdominal wall (evisceration). This rupture causes considerable pain and is often associated with vomiting. When the wound edges part slowly, the intestines may protrude gradually or not at all.

After a diagnosis of wound disruption is made, the patient is usually returned to the operating room where the wound is cleaned and reclosed using very heavy sutures and binders over the sutures.



### Interrupted suturing techniques

Meticulous approximation of tissues is required to ensure that wound edges heal rapidly and without complications. Sutures placed with the main intent of holding wound edges together until they are healed are referred to as the *primary suture line*. The surgeon can use two basic techniques with several variations to establish a primary suture line, each with its distinct advantages and disadvantages. One basic technique that was commonly used to approximate nearly all tissues in the past, and that is still widely used in certain instances, is the interrupted technique.

#### Characteristics of interrupted sutures

When interrupted sutures are used, each stitch is placed, tied, and cut separately. This type of suturing takes more time than continuous suturing techniques, but it offers two important advantages over continuous suturing. First, interrupted sutures provide better security for the wound. If one suture breaks, the wound edges will not completely separate because the other interrupted sutures are still there to hold the wound together. Secondly, if a wound is infected or grossly contaminated, placement of interrupted sutures helps prevent the spread of infection along the primary suture line.

You should know something about the basic and special interrupted suturing techniques you'll see surgeons use in different situations.



Figure 3-1. Simple interrupted sutures.

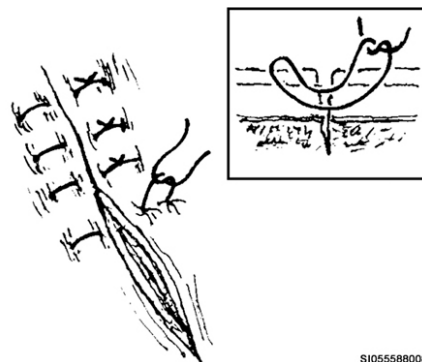


Figure 3-2. Interrupted vertical mattress sutures.

#### Basic interrupted suturing techniques

The most commonly used interrupted suturing techniques involve placement of simple sutures, vertical mattress sutures, and horizontal mattress sutures.

##### Simple sutures

Simple sutures are sometimes called over-and-over sutures because the suture makes a single loop down through, between, and over the top of the tissue edges on either side of the wound. When using this technique, the surgeon makes sure that the suture needle is inserted and brought out of the tissues equidistant from the wound edges. (In surgical terms, this is called taking equal “bites” on either side of the wound.) After the needle is removed from the suture, the two free ends of the suture strand are tied so that the knot rests to one side of the incision line. The knots are tied off to one side so that they will not become incorporated into the healing wound.

Simple sutures allow for close approximation of wound edges without excessive eversion (pushing wound edges up and out) or inversion (pushing wound edges down and in). Simple interrupted sutures are often used to approximate deep tissues where strength of the closure is critical. For example, surgeons will often use interrupted sutures on fascia and muscle layers during closure of large abdominal wounds because these tissues must be closely approximated and supported during healing to prevent the wound from rupturing when the patient moves postoperatively. Simple interrupted sutures placed closely together are also frequently used by plastic surgeons to sew skin

grafts and flaps in place so that scarring can be minimized. Figure 3-1 illustrates the placement of simple interrupted sutures.

### *Vertical mattress sutures*

Interrupted vertical mattress sutures are placed as a combination of vertical superficial and deep needle bites taken equidistant from the wound edges. The surgeon begins by taking a deep bite in the tissue making sure the needle goes into and emerges at approximately the same distance from the wound edges. After the deep bite is taken, the surgeon takes a superficial bite in the tissue, inserting the needle in the direction opposite from the direction in which the first bite was taken. Once again, the surgeon ensures the needle enters and emerges the same distance from the edges of the wound. The needle is removed and the free suture ends are tied uniformly on one side of the incision line.

Interrupted vertical mattress sutures are frequently used for skin closure. The additional superficial bite allows for more exact approximation of skin edges without eversion or inversion. This suturing technique provides the most cosmetic skin closure with the possible exception of closely spaced interrupted simple sutures. Figure 3-2 shows how interrupted vertical mattress sutures are placed and what the sutures look like in a cross-sectional view.

### *Horizontal mattress sutures*

Interrupted horizontal mattress sutures are placed horizontally instead of vertically. The surgeon places these sutures by making a shallow bite through both sides of the tissue, and then reverses direction to make the second shallow bite parallel to the first bite (fig. 3-3). Since the implanted suture ends are parallel to each other and are brought out of the tissue at different points along the incision, one interrupted horizontal mattress suture can take the place of two interrupted simple or vertical mattress sutures. Like the other sutures we have talked about, the free ends of the sutures are tied so that all knots are on one side of the wound.

Horizontal mattress sutures evert the edges of the wound and, as a result, causes more scarring when used for skin closure. They are used for skin closure when suture economy is desired and cosmetic closure is unnecessary. Some surgeons will also use interrupted horizontal mattress sutures for end-to-end anastomosis of blood vessels.

In addition to the basic interrupted suturing techniques we just outlined, surgeons also use some special interrupted suturing techniques to achieve hemostasis.

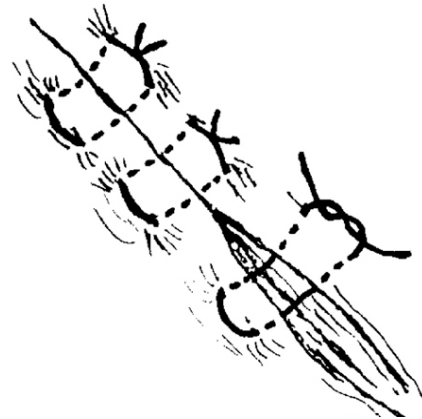


Figure 3-3. Horizontal mattress sutures.

### *Suture ligation*

Two special interrupted suturing techniques you need to know are the ones most often used by surgeons to control bleeding. One of these techniques involves the placement of a simple interrupted stitch in the end of a large blood vessel before the suture ends are tied around the vessel. This, as you may recall, is referred to as a stick tie, suture ligation, or transfixion suture. When the surgeon places a suture ligation, he or she will pass the suture through the middle of the vessel, tie the suture, then pass the free ends of the suture around the vessel proximal to the first tie and tie them again. This second tie not only prevents the suture ligation from slipping, it also prevents the first tie, which passes through the middle of the vessel, from bleeding and tearing the vessel wall.

The other special interrupted suture is called a figure-of-eight suture (fig. 3-4). This suture gets its name from the crossed, figure-of-eight pattern the suture makes in the tissues. This stitch squeezes the tissue edges tightly together and distributes the pressure almost equally across the surfaces of the tissue approximated by the suture. Figure-of-eight stitches are frequently used by OB/GYN surgeons



to suture the cut ends of uterine ligaments during hysterectomy procedures, and they may be used to stop profuse bleeding from the incised wall of the uterus following cesarean deliveries.

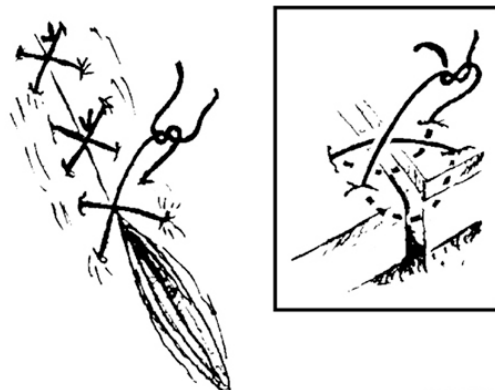


Figure 3-4. Figure of “eight” sutures.

### Continuous suturing techniques

Another group of suturing techniques that is prevalent is the continuous suturing techniques. Now let's take a look at the characteristics and techniques of the continuous suturing techniques.

#### *Characteristics of continuous sutures*

Unlike interrupted sutures, continuous sutures are a series of stitches taken with a strand of suture that is tied only at each end of the strand. These suturing techniques are often called running stitches. Continuous sutures can be placed much faster than interrupted sutures and provide a strong closure because tension is evenly distributed along the entire suture line. (With interrupted sutures, uniformity of tension along the primary suture line depends on the surgeon's ability to tie the individual sutures with the same tension each time.) Another advantage to using continuous suturing technique is the fact that less foreign material is left in the wound, so there is less likelihood that a severe foreign body reaction occurs postoperatively.

Continuous suturing techniques have two major drawbacks. First, if one area along the implanted suture strand breaks, the whole primary suture line is disrupted and unravels. This can lead to partial or complete wound dehiscence (separation of the layers of a surgical wound) and, in the case of an abdominal incision, evisceration (protrusion of the internal organs through the abdominal wall). The other disadvantage is if continuous sutures are used in the presence of infection, microorganisms can travel down the length of the suture line, transferring infection from one area to another. Infection along a continuous suture line can lead to the formation of draining tracts and sinuses in the tissues.

#### *Basic continuous suturing techniques*

Surgeons can use many different continuous suturing techniques in particular situations. The most common ones are the over-and-over, horizontal mattress, and subcuticular stitches.

#### *Over-and-over sutures*

The continuous over-and-over stitch is similar to the interrupted version. Like the interrupted over-and-over stitch (simple suture), the continuous stitch uses needle bites that are placed at equal distances from both wound edges. However, with the continuous over-and-over stitch, the only points along the suture line where the suture loops over the top of the tissue layer at a right angle to the incision are at the very start and end of the suture line (where the first and last stitches are taken). At all other points along the incision, the part of the suture that can be seen on top of the approximated tissue edges appears to be diagonal to the incision line (fig. 3-5). The part of the

suture buried in the tissue is perpendicular to the wound edges, just like in the interrupted over-and-over stitch.

Continuous over-and-over stitches are mainly used on the skin, but they can also be used to approximate delicate tissue layers where strength of the closed wound layer is not a major concern. An example of this is the continuous over-and-over technique routinely used for approximating the peritoneum during routine abdominal wound closure. Some surgeons may also use this type of closure for approximating heavier tissue (fascia, intercostal muscles, etc.), as long as larger diameter, stronger suture materials are used.

#### *Horizontal mattress sutures*

A continuous horizontal mattress stitch is much the same as an interrupted horizontal mattress stitch. The surgeon begins by making a stitch (which looks a bit like a simple suture) perpendicular to the end of the wound edges. After this initial stitch is made, the end of the suture farthest from the needle is tied and the excess suture is trimmed off. The stitches are then made horizontal and parallel to the wound edges where they emerge on top of the tissue and perpendicular beneath the tissue where the two edges are joined together (fig. 3-6). This pattern is continued to the other end of the incision, where the last stitch is made in the same fashion as the first stitch (the exposed suture crosses over the incision like a simple suture). The needle is cut off, and the free end of the suture thus created is tied to an adjacent loop of the continuous suture. The excess suture is then trimmed off.

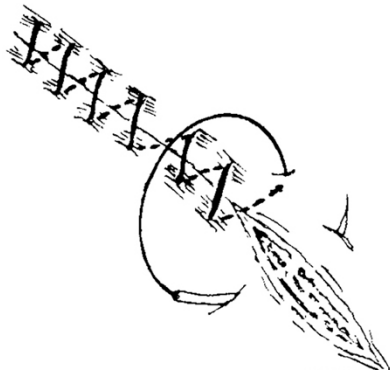


Figure 3-5. Over-and-over continuous suture.



Figure 3-6. Continuous horizontal mattress suture.

Continuous horizontal mattress sutures cause eversion of the approximated tissue edges and are most often used as an alternate method of suturing skin. Because this type of suture technique causes more scarring than noneverting techniques, it is used in areas of the body where cosmetic closure is not critical (areas that would normally be covered by clothing, such as the abdomen, back, flank, etc.).

#### *Subcuticular stitch*

This is a very popular type of continuous closure used to approximate skin. It is used when the surgeon wishes to achieve good cosmetic results (minimal scarring). A subcuticular running closure involves placing stitches in the subcutaneous tissue, just beneath the epithelial layer, in a line that is parallel to the wound. The stitch is started by inserting the suture needle in a direct line with the incision, just beyond the end. The free end of the suture (end opposite the needle) is either tied in a knot or anchored with a lead split shot (just like the small split shot sinkers used in fishing). The suture is then loosely “woven” back and forth between the subcutaneous tissues on both sides of the wound using short lateral needle bites (fig. 3-7). Unlike the other continuous suturing techniques, the subcuticular stitch is not pulled taut after every progressive bite. Instead, the tissues are left loosely approximated until the last stitch has been brought out of the skin in line with the other end of the incision. Once the last stitch is placed, the surgeon cuts off the needle and gently draws the suture taut,

straightening out wrinkles in the skin edges with a pair of fine-toothed forceps. The end is then secured in the same fashion as the opposite end, using either lead shot or a knot.

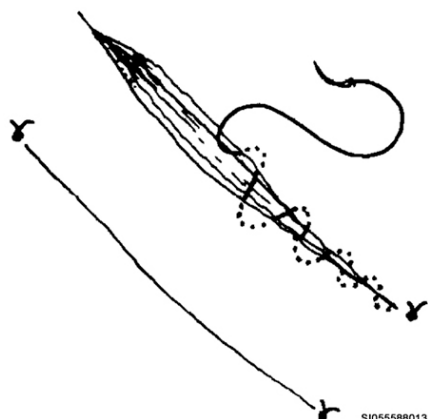


Figure 3-7. Continuous subcuticular suture.

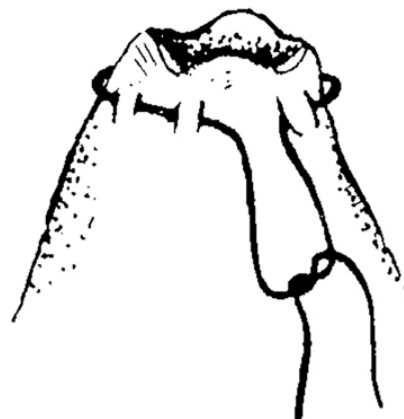


Figure 3-8. The purse string suture.

Because this type of closure creates a hairline scar without the “railroad tracks” associated with other types of skin stitches, it is often used during pediatric surgery, in plastic surgery, and in all types of surgery on women where incisions are made in potentially visible areas of the body (face, neck, legs, upper and lower back, and mid to lower abdomen). There are also some special continuous suturing techniques that you may see used only for specific purposes.

### *Special purpose continuous suturing techniques*

Although there are many variations on the basic over-and-over continuous suturing technique, three techniques in particular bear further study because of their frequency of use. The special continuous suturing techniques we’ll look at are the purse string suture, the Cushing continuous inverting stitch, and the locking over-and-over stitch.

#### *Purse string suture*

A purse string suture is a continuous strand that is stitched around an opening, then tightened in a drawstring manner to invert the edges of the opening (fig. 3-8). The most common use of a purse string suture is to invert the stump of an appendix within the bowel. Purse string sutures are also used to suture around the openings created in organs and other body structures for insertion of drainage tubes. Once the drainage tube is inserted, the purse string suture is pulled tight to create a seal around the tube. The suture ends are then tied around the tube to hold it in place.

#### *Cushing inverting continuous stitch*

This special suturing technique is used *solely* for *closing* the *outer* layer of a gastro-intestinal anastomosis (fig. 3-9). The needle is inserted about 2 to 3mm back from the end of the resected intestine and parallel to the incision (bowel end). The stitch is then passed through the outer fibrous coat of the bowel (serosal layer), through the middle smooth muscle layer, and back out again. The suture is crossed over the tissue edges at right angles, and the needle is inserted on the other severed end of the bowel directly opposite the site where the needle emerged from the tissue on the first side of the anastomosis. The stitches are alternated back and forth in this manner all the way around the circumference of the intestinal anastomosis. In effect, this stitch does the same thing that the end-to-end anastomosis (EEA) and intraluminal staplers (ILS) stapling guns do. By starting the stitch 2 to 3mm back from the edges of the two bowel ends, the surgeon inverts the serosal layer into the lumen of the bowel to about the same degree as the tissue that is left in the lumen after the circular scalpel in the stapler trims away the excess tissue.

### *Locking over-and-over stitch*

This stitch is a basic over-and-over continuous stitch with a slight modification (fig. 3–10). Instead of bringing the needle outside the previous loops of suture created as the needle is passed through the tissue on both sides of the wound, the needle is brought inside the previous loops. This creates a chain of self-locking loops that hold securely when the suture is pulled taut after each stitch is taken. Unlike the basic over-and-over continuous suturing technique that relies on the suture to hold tension on the suture at all times during the placement of stitches, this technique keeps tension on the previously placed stitches without having to pull steadily on the suture. Since constant tension is maintained on the placed stitches, the locking continuous suturing technique is commonly used for intestinal anastomosis. When used for this purpose, the stitches are placed through all three layers of the intestine (serosa, muscle, and mucosa). The main purpose of this stitch is to achieve hemostasis along with a secure closure. You may see some surgeons use this same locking stitch for skin closure.

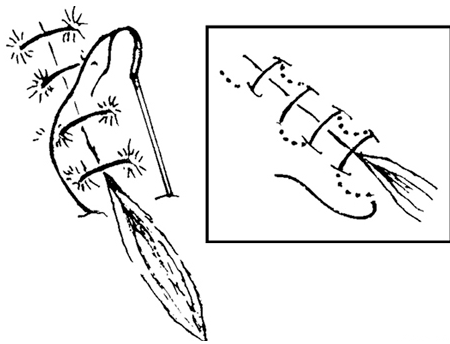


Figure 3–9. Cushing inverting continuous stitch.



Figure 3–10. Locking over-and-over stitch.

### **A typical layered abdominal wound closure**

With today's surgeries being mostly laparoscopic, you may not have seen a lot of abdominal wound closures so you may be asking yourself, "Why is a layered closure necessary?" You may also be wondering why you need to know how to close an abdominal wound. The reason is that if you can close an abdominal wound you can suture any type of wound because the layers of an abdominal wound represent any type of body tissue you may come across with any wound closure.

### *Purpose of a layered closure*

Remember that the main function of all suture and nonsuture wound closure devices is to hold the edges of a wound closely together until Mother Nature heals the tissues enough that they no longer require artificial support. In the abdominal wall there are several different layers of tissue, each with very different characteristics. One tissue is very thin and easily torn; other layers are very tough and fibrous. Each layer must be closed separately with different combinations of suture, needles, and staples to ensure that the wound edges within each tissue layer line up with each other properly. If this is not done, dead spaces may be created between the tissue edges that will collect body fluids and blood. These fluid-filled spaces would then become ideal breeding grounds for microorganisms, and nasty infected abscesses would develop. If left untreated, the infection could become a systemic infection that could kill the patient. Another primary reason for closing the various layers of the abdomen separately is to ensure that the wound heals strong enough to withstand the day-to-day stresses and strains the body is put through, without rupturing and causing an evisceration to occur.

### *Layers of the abdomen and closure materials*

Layers of the abdomen that must be closed individually are, from inside out: (1) peritoneum, (2) fascia, (3) abdominal muscles, (4) subcutaneous fat, and (5) skin.

### Peritoneum

The peritoneum is the first layer of the abdominal wall the surgeon usually closes. It is the thin serous membrane that lines the abdominal cavity and lies directly beneath the posterior fascia in the anterior abdominal wall. The peritoneum heals very quickly, and many surgeons will argue over whether or not this layer needs to be closed at all as long as the posterior fascia is adequately approximated. If the peritoneum is closed, the surgeon will most likely use a 3-0 or 4-0 chromic gut suture with a swaged-on, fine shaft, taper point, gastrointestinal (GI) needle. A running, continuous sewing technique is usually used to approximate the peritoneum.

### Fascia

The fascia is the next layer the surgeon encounters during abdominal wound closure. It is a layer of firm connective tissue that covers and supports muscles throughout the body. It is the strongest tissue in the abdominal wall and heals very slowly. Once cut, fascia will never regain its original strength and takes over a year to heal enough to withstand the normal stresses placed on it. Fascia, therefore, needs to be closed with a suture material that retains its tensile strength for a long period of time.

A medium size multifilament or monofilament nonabsorbable suture that will last indefinitely, or monofilament slow-absorbing suture, should be used. As we mentioned earlier in this unit, a monofilament suture should be used in the presence of infection, and multifilament sutures may be used if the wound is clean. The most commonly used nonabsorbable monofilament suture materials are size 0 or 2-0 polypropylene (Prolene) or stainless steel. Nonabsorbable multifilament sutures such as 0 and 2-0 silk or polyester (Mersilene) are also frequently used for fascia closure. The most frequently used absorbable sutures are the synthetic absorbables such as size 0 or 2-0 polydioxanone (PDS), polyglactin 910 (Vicryl), and polyglycolic acid (Dexon). Occasionally, surgeons will also use #1 or 0 chromic gut to close fascia on smaller abdominal wounds. The needle of choice for fascia closure is a medium size and medium diameter, half-circle taper needle such as a Mayo needle. (Manufacturers of swaged-on sutures have different names and number codes for their needles; so, until you learn them, look at the pictures on the suture boxes to get a rough idea of the size.) Special staples may also be used for fascia closure.

A layer of fascia lies over and under abdominal muscles. The layer that lies under the muscles, closest to the peritoneum, is the posterior fascia. The layer that lies above the muscles is the anterior fascia. The posterior fascia is always closed during abdominal wound closure; the anterior fascia is seldom closed. Most of the time, the surgeon will use an interrupted suturing technique to close the posterior fascia. This technique ensures that the closure remains secure in the event that one or more of the sutures break after the wound is completely closed.

### Muscles

During abdominal surgery, the surgeon usually tries to make an incision that splits the muscles along the length of their fibers rather than cut across them. This is done to allow the muscles to heal quickly after surgery. If the muscles are cut *across the grain*, they are forever weakened, and there is a much greater chance that a major artery or nerve will also be cut in the process. (The nerves and blood vessels that feed the muscles normally run in the same direction as the muscle fibers.) The surgeon may also try to make an incision that allows retraction of the muscles toward their nerve supply; thereby eliminating the need to incise them and preventing damage to the nerves.

When abdominal muscles are split or retracted, there is no need to suture them during wound closure. Suturing a muscle inhibits normal movement so that the surgeon normally chooses to suture the surrounding fascia layers instead. This provides the necessary wound support and still allows the muscles to move freely within the fascial layers. If a muscle-cutting incision is used, the muscles will need to be sutured together during wound closure. In this instance, the surgeon normally uses the same size and type of sutures and suturing techniques used to close the fascia.

### *Subcutaneous fat*

The subcutaneous fat layer may or may not be closed, depending on the surgeon's preferences and the thickness of the fat layer. Most surgeons will place a few plain gut sutures in a thick fat layer on an obese patient to prevent the formation of dead spaces, which, as we indicated earlier, can lead to a wound infection and abscess formation. Closure of the subcutaneous fat layer is usually not necessary in average or thin adults and in pediatric patients. The most frequently used suture and needle combination for closure of subcutaneous fat in an adult is 3-0 or 4-0 plain gut on a large taper needle.

### *Skin*

Placement of a suture through the skin creates a wound or tract along which epithelial cells migrate into the deeper skin layers. When the suture is removed, a tract lined with epithelial cells remains. Even though most of these cells will eventually disappear, some remain in the tract and form keratin (an insoluble protein that is the main component in epidermis, hair, and nails). This material is what is seen as a scar on the skin. These scars can be avoided through the use of careful subcuticular closure or by avoiding excessive tension on skin sutures and removing them within seven days postoperatively. (Most skin sutures are removed between three and 10 days postoperatively.).

As we stated previously, skin closure can be done using interrupted or continuous suturing techniques. Whenever practical, interrupted techniques are preferred to prevent the passage of the same suture strand repeatedly through the tissue. Either absorbable or nonabsorbable suture may be used, though the use of nonabsorbable monofilament sutures is generally preferred by most surgeons because they are inert and do not have capillary action. Since skin is a tough, superficial tissue, a  $3/8$  circle reverse cutting needle is usually used. Synthetic nonabsorbable monofilament sutures, such as nylon or polypropylene (Prolene), in sizes 3-0 or 4-0, are the sutures used most often for adult skin closure. As you already know, surgical skin staples have virtually replaced sutures for skin approximation in most routine abdominal wound closures.

### *Retention sutures*

All the sutures we have discussed for a layered abdominal closure up to this point have been those used in the primary suture line (fig. 3-11, A). Occasionally, the surgeon may decide to use a secondary suture line to help support the primary closure and to help eliminate potential dead spaces in the wound. The secondary sutures, more commonly called retention or stay sutures, are placed at intervals along and around the primary suture line. They are used when the surgeon feels that the postoperative strain on the wound caused by coughing, retching, abdominal distention, and even normal movement greatly increase the risk of wound dehiscence in certain patients. For example, retention sutures are often used to help support the primary closure in obese or chronically ill patients whose wound healing capabilities are significantly diminished.



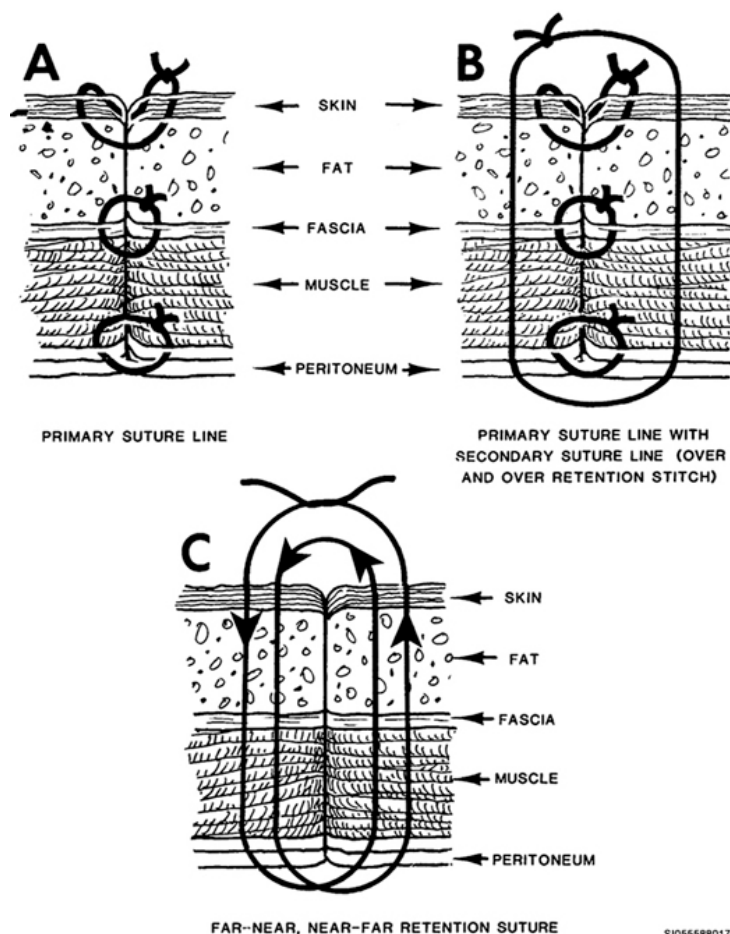


Figure 3-11. Primary and secondary wound closure.

Large diameter nonabsorbable materials (size 0 to #5) are usually used for retention sutures. Large sizes are used mainly to prevent the sutures from cutting through the tissues by distributing the tension over a wider surface area, not just, because they are stronger than the sutures used in the primary suture line. To reduce the risk of the sutures cutting into the skin further, they are threaded through special bolsters or rubber “shods” made from cut pieces of tubing. The surgeon may also thread the suture over plastic suture bridges designed especially for use with retention sutures and use buttons beneath the suture knots.

There are two commonly used techniques for placing retention sutures: the over-and-over technique and the far-near, near-far technique. The over-and-over retention suture is placed in the tissues in basically the same manner as a simple interrupted suture, except that it encompasses considerably more tissue. The over-and-over retention suture passes through all the tissue layers in the abdominal wall, from the skin down through the peritoneum (fig. 3-11, B). The far-near, near-far technique produces better approximation of the tissue edges because of the double suture line that is created (fig. 3-11, C). The surgeon in place of a layered primary closure may use this type of retention suture as long as several of the retention sutures are placed at approximate  $\frac{1}{2}$ -inch intervals along the incision. After wound dehiscence, it is sometimes difficult for the surgeon to distinguish between the different abdominal tissue layers, a circumstance that makes a layered primary closure impossible. In this instance, retention sutures are used as the sole method of re-approximating the disrupted wound edges.

Congratulations! You now know how to close the wound, and this also closes this volume and course.



## Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

### 027. Electrosurgical hemostasis

1. Which method or system of electrosurgery is *most* commonly used in the operating room?
2. Briefly describe what an isolated electrosurgical generator does.
3. How does current flow through a monopolar electrosurgical system? Through a bipolar electrosurgical system?
4. What is the role of the active electrode?
5. What is the purpose of the inactive, or patient ground, electrode?
6. List the electrosurgical application(s) that require the active electrode to directly contact the tissue.
7. Describe the basic difference between electrocautery and electrosurgery.

### 028. Mechanical hemostasis

1. Describe how scalp clips are used during neurosurgical procedures involving the skull.
2. Why is a loaded scalp clip applier locked to only the first notch on the ratchet?
3. How do ligating clips work?
4. What are nonabsorbable ligating clips usually made from? Why?
5. Briefly describe the feature that locks and secures absorbable ligating clips.

6. Why are the staples forming the double-row implanted by most surgical staplers staggered?
7. What shape do most staplers bend the staples into? What does this shape provide?
8. Why should you always use a new cartridge and anvil when using any stapling unit with reusable parts?
9. List five advantages of surgical stapling.
10. What is the primary disadvantage of surgical staplers?
11. What are the three most common jaw lengths of linear staplers?

#### **029. Wound closure techniques**

1. Briefly describe the four basic types of wounds.
2. What is the ideal intention of wound healing?
3. Describe wound dehiscence.
4. What is the primary suture line?
5. What are two advantages of using interrupted sutures over a continuous suturing technique?
6. What is another name for simple sutures?
7. Why are the knots used to secure interrupted sutures tied on the side of the incision line?

8. Simple interrupted sutures often are used to approximate what type of tissues?
9. What interrupted suturing technique everts wound edges and causes greater scarring when used for skin closure?
10. What special interrupted suturing technique used mainly for hemostasis squeezes tissue edges tightly together and distributes pressure almost equally across the surface of approximated tissues?
11. What is another name for continuous sutures?
12. Cite advantages and disadvantages associated with the use of continuous sutures.
13. For what are continuous over-and-over sutures primarily used?
14. For what are continuous horizontal mattress sutures mainly used?
15. What type of running stitch provides the best cosmetic results?
16. For what is a purse string stitch most often used?
17. Which special continuous suturing technique may be used for intestinal anastomosis?
18. What continuous suturing technique allows the suturer to keep tension on the previously placed stitches without having to pull on the suture?
19. Why is it necessary to approximate tissues in the abdominal wall separately?
20. What is the first layer of tissue the surgeon usually closes during an abdominal wound closure?

21. What abdominal tissue heals very slowly and needs to be closed with a suture that retains its tensile strength for a long period of time?
22. Why does the surgeon not usually have to suture the muscle layers together?
23. When are most skin sutures removed?
24. What are the two main reasons for using retention sutures on an abdominal wound closure?
25. What can the surgeon use to prevent retention sutures from cutting through the skin?
26. Name the two common types of retention sutures.

### Answers to Self-Test Questions

#### 018

1. Central services, central supply, central materiel, central sterile supply service, internal sterilization and processing, and central processing and distribution.
2. SPD is a *service* organization. The mission is threefold:
  - (1) Improve patient care by releasing the nursing staff from certain non-nursing functions.
  - (2) Create a system whereby sterile supplies are properly controlled, distributed, maintained, and utilized.
  - (3) Assure bacteriologically safe sterilization procedures.
3. Service.
4. Any three of the following:
  - (1) Maintaining an adequate stock of sterile and non-sterile supplies.
  - (2) Providing a distribution and collection service.
  - (3) Developing, maintaining, and updating a list of sterile and non-sterile supplies.
  - (4) Maintaining a current list of the contents of sets.
  - (5) Providing a continuous service on a 24-hour basis.

#### 019

1. Joint Commission.
2. To identify and reduce the risks of acquiring and transmitting nosocomial infections among patients, employees, physicians and other independent licensed practitioners, contract service workers, volunteers, students, and visitors.
3. Any three of the following eight areas:
  - (1) Medical staff.
  - (2) Dental staff.

- (3) Administration.
  - (4) Nursing.
  - (5) Laboratory service.
  - (6) Environmental health officer.
  - (7) Housekeeping.
  - (8) Other representatives as appropriate.
4. The blood-borne pathogen exposure control plan and patient isolation plans.

**020**

- 1. Surveillance/reporting and prevention/control of infections.
- 2. 70 percent.
- 3. Any post-operative wound that emits purulent (pus-containing) drainage. A surgical wound is also considered infected if the surgeon diagnoses it as such.
- 4. Prevention of infection refers to the measures we take to keep patients and personnel from acquiring infections. Control refers to the measures we take to keep infections from spreading.

**021**

- 1. Thermometers, gauges, timers, and recording devices.
- 2. They are generally located in the exhaust line of the sterilizer. They measure the internal temperature of this line, which theoretically is the temperature of the coolest area inside the sterilizer chamber.
- 3. They measure the jacket pressure of a steam sterilizer and the chamber pressure of steam sterilizers. Some also use a temperature gauge as one of the devices used to report the sterilizer chamber temperature registered by the internal thermometer.
- 4. Daily, usually in the morning before cleaning the sterilizer.
- 5. Sterilizer number, the date, the time, and the load or lot control number. Most local policies also require the operator's name.
- 6. Testing with biological indicators.
- 7. (a) *Bacillus stearothermophilus*; (b) *Bacillus subtilis* var. *niger*.
- 8. A biological indicator that is not subjected to a sterilization process, but is incubated along with the test pack biological indicators to prove viability of the spores and proper function of the incubator.
- 9. Steam sterilizers—at least weekly, preferably daily; chemical sterilizers—every load; also in every sterilizer load containing implantable devices. If a facility uses the event-related method for shelf-life, every sterilization load should be tested with a biological indicator.

**022**

- 1. Even when steam sterilized items are cool to the touch, condensation may occur if you place them on a cool storage shelf.
- 2. Keep them strictly separated. *Do not* store them touching, next to, or even on the same shelf. If sterile supplies are stored with non-sterile supplies, the storage area should meet the environmental requirements for storage of the sterile items.
- 3. Keep the temperature of the sterile storage area between 64 and 72°F (18 to 22°C).
- 4. Closed or covered are the preferred method, but open shelves are acceptable.
- 5. This is usually done on a weekly basis in conjunction with checking outdates.

**023**

- 1. A permanent, individual, chronological record of medical and dental examinations, evaluations, and treatments given a member of the Air Force and his or her dependents (or retired Air Force member and his or her dependents). The outpatient health record contains a concise summary of every visit made to a provider.
- 2. The outpatient records section.

3. It must be accurate if it is to be used for reimbursement, staffing considerations, program management, and utilization control. Coded clinical encounters are used at various levels within DOD to assist in decision-making processes.

#### 024

1. The main goal to our patients is to remember the “golden rule”: treat others as you wish to be treated.
2. Be objective and evaluate the facts of the complaint, and look into any complaint by the patient as if it were factual.
3. Write down the caller’s name and a short message and put it where the doctor will see it as soon as he/she is free. If it’s really urgent, indicate that on the note. Don’t interrupt an examination by sticking your head in the door and announcing a routine call. Only disturb an examination if the caller has a true emergency.

#### 025

1. To ensure that you and your technicians are trained in the tasks needed to perform your job in wartime or contingency.
2. Every 20 months.

#### 026

1. The EMEDS HRT.
2. The EMEDS + 10 and the EMEDS +25.
3. Within 60 hours of arrival.\
4. EMEDS + 10.
5. You may have to train nonOR personnel to do part of your job.

#### 027

1. The monopolar (unipolar) system.
2. It has a built-in electrical safeguard that prevents the unit from delivering monopolar current if any area of the electrical pathway is disrupted.
3. The *monopolar system* uses a pencil-style active electrode and a separate patient ground plate or pad that serves as the inactive electrode. The current flows from the active electrode through the patient, following the path of least resistance, until it reaches the inactive electrode. The inactive electrode may be some distance from the active electrode, but should be placed as closely as possible. The current then flows from the ground pad back to the electrosurgical unit. In a *bipolar system*, the instrument delivering the current must be a two-pronged instrument such as a thumb-forceps. One prong of the instrument serves as the active electrode, delivering the current; the other side serves as the inactive electrode, and conducts the current back to the ESU. A separate patient ground pad or plate is not generally needed when a bipolar is used.
4. It actually conducts the high-frequency oscillating current from the electrosurgery unit to the tissue chosen by the surgeon.
5. It is designed to disperse the HF current flowing through the patient’s body over a wide skin surface area, then channel it back to the ESU.
6. Coagulation and dessication.
7. Electrosurgery uses current to heat the tissue; electrocautery uses current to heat the instrument.

#### 028

1. They are placed side-to-side along the edges of the highly-vascular scalp flap as the surgeon makes the incision. The clips are left in place throughout the procedure to maintain hemostasis; then removed as the surgeon closes the wound.
2. To prevent over-stretching the clip before it is applied.
3. They have two “legs” that squeeze together when the clip is compressed, they literally “clamp off” small blood vessels, tubular structures (like the bile duct), and nerves.
4. Metals such as stainless steel, titanium, or tantalum. Because these metals will not corrode; and they produce very little tissue reaction when implanted in the body.
5. They have projections at the end of each “leg” to lock together and secure the clip.

6. This allows a staple in one row to be positioned between two staples in the other row. This forms a leak-proof approximation, which is very important in gastrointestinal and lung surgery.
7. A noncrushing “B” shape after the staple passes through the tissue. This shape provides a secure approximation while preserving the blood supply to the stapled tissues.
8. A used anvil may misalign and misshape the staples, causing the staple line to leak (or even rupture).
9. Any five of the following:
  - (1) The amount of time they save.
  - (2) When using the right stapler, surgeons can ligate, approximate, and anastomose tissue in one or two simple steps.
  - (3) Staplers require less preparation and handling than multiple sutures.
  - (4) Using staplers also reduces tissue manipulation and handling that, in turn, reduces postoperative inflammation and risk of infection.
  - (5) By using staples, particularly those that are positioned in double row patterns, the surgeon can create a leak-proof seal between tissues.
  - (6) The noncrushing seal created by the “B” shaped staples also accelerates wound healing and prevents tissue necrosis.
  - (7) The staples are made from an inert metal, and cause little, if any, tissue reaction after implantation.
  - (8) Using surgical staplers reduces the number of, thereby the risk of losing, needles in a wound and makes needle counts faster and easier.
  - (9) Skin staples are easier to remove postoperatively than are nonabsorbable skin sutures.
10. Their cost.
11. 30mm, 55mm, and 90mm.

## 029

1.
  - (1) *Incised wounds* are made by a clean cut with a sharp instrument such as a surgeon’s incision with a scalpel.
  - (2) *Contused wounds* are made by blunt force, do not puncture the skin, and cause considerable soft tissue damage, hemorrhage, and swelling.
  - (3) *Lacerated wounds* are made by an object that tears the tissue and produces jagged, irregular edges such as a piece of glass or barbed wire.
  - (4) *Puncture wounds* are made by a pointed object, such as a bullet, ice pick, knife stab, and cause a small opening in the skin.
2. First intention.
3. A forcible splitting open of the wound. A partial dehiscence involves one or more layers, and is usually in the superficial tissues. In a total dehiscence, the entire wound opens and the underlying structures protrude.
4. Sutures placed with the main intent of holding wound edges together until they are healed.
5.
  - (1) They provide better wound security (if one suture breaks the others remain intact to hold wound edges together).
  - (2) In infected or contaminated wounds, interrupted sutures help prevent the spread of infection along the primary suture line.
6. Over-and-over sutures.
7. To prevent the knots from being incorporated into the wound during healing.
8. Deep tissues where strength of closure is critical.
9. Horizontal mattress.
10. Figure-of-eight.
11. Running stitches.
12. (a) Advantages: They can be placed faster than interrupted sutures. They provide a strong closure because tension is distributed evenly along the suture line. Less foreign material is left in the wound so there is less risk of a severe foreign body reaction.



- (b) Disadvantages: If one area of the suture breaks, the whole suture line unravels and partial or complete dehiscence may occur. If used in the presence of infection, microorganisms can travel down the length of the suture, transferring infection from one area to another.

13. Approximating skin edges.
14. For skin closure in areas of the body where cosmetic closure is not critical.
15. Subcuticular stitch.
16. To invert the stump of an appendix within the bowel.
17. Cushing inverting continuous stitch.
18. Locking over-and-over stitch.
19. To ensure the wound edges within each tissue layer line up so dead spaces will not form and evolve into infected abscesses. Also, to ensure the wound heals properly and is strong enough to withstand normal postoperative stress without rupturing.
20. The peritoneum.
21. Fascia.
22. The surgeon usually tries to make an incision that splits the muscles along the length of their fibers rather than across them. This is done to allow the muscles to heal quickly after surgery. If the muscles are cut across the "grain", they are forever weakened, and there is a much greater chance that a major artery or nerve will also be cut in the process.
23. Between three and 10 days postoperatively.
24. To help support the primary suture line and to eliminate dead spaces in the wound.
25. Bolsters, rubber shods, special plastic suture bridges, or buttons.
26. Over-and-over; the far-near, near-far techniques.

## Unit Review Exercises

**Note to Student:** Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter. When you have completed all unit review exercises, transfer your answers to the Field Scoring Answer Sheet.

**Do not return your answer sheet to AFCDA.**

43. (018) Where in the medical treatment facility (MTF) does sterile processing department *usually* fall?
  - a. Under medical logistics in the medical support flight.
  - b. Above medical logistics in the medical support flight.
  - c. Under surgical services in the medical or surgical services flight.
  - d. Above surgical services in the medical or surgical services flight.
44. (018) Which service is *not provided* by sterile processing department (SPD)?
  - a. Providing a distribution and collection service.
  - b. Maintaining an adequate stock of sterile and non-sterile supplies.
  - c. Developing, maintaining, and updating a list of sterile and non-sterile supplies.
  - d. Storing and dispensing medications for all elements of the medical treatment facility (MTF) and satellite activities.
45. (019) Which United States public health agency provides valuable information to hospitals outlining *how* infection control programs should be developed and operated?
  - a. Centers for Disease Control and Prevention (CDC).
  - b. Association of perioperative Registered Nurses (AORN).
  - c. Association for the Advancement of Medical Instrumentation (AAMI).
  - d. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO).
46. (019) Who can override the recommendations or actions of the Infection Control Committee (ICC)?
  - a. Operating surgeon.
  - b. Officer-in-charge of the operating room.
  - c. Surgical services committee.
  - d. Medical staff executive committee.
47. (020) The Centers for Disease Control and Prevention (CDC) surgical wound classification should be assigned at the
  - a. end of each surgical procedure.
  - b. beginning of each surgical procedure.
  - c. end of elective (scheduled) surgical procedures only.
  - d. beginning of elective (scheduled) surgical procedures only.
48. (020) Surgical wound classification serves all of the following purposes *except*
  - a. alerting surgical personnel to wounds with a high risk of infection.
  - b. helping infection control personnel predict which wounds might become infected.
  - c. assisting laboratory personnel in identifying specific pathogenic microorganisms.
  - d. helping surgeons evaluate personal infection rates and compare surgical techniques.

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49. (020) Standard precautions *must* be used on
- all surgical procedures.
  - Centers for Disease Control and Prevention (CDC) class II, clean-contaminated surgical procedures only.
  - CDC class III, contaminated surgical procedures only.
  - CDC class IV, dirty or infected surgical procedures only.
50. (021) A sterilizer's thermometer measures the
- steam temperature as it enters the chamber at the steam inlet port.
  - sterilizer steam jacket temperature at the steam supply line junction.
  - exhaust line external temperature, which is the coolest area inside the sterilizer chamber.
  - exhaust line internal temperature, which is the coolest area outside the sterilizer chamber.
51. (021) When a round chart or graph is used as a sterilizer-recording device, it should be changed
- daily.
  - weekly.
  - after each sterilization cycle.
  - before each sterilization cycle.
52. (021) A biological test pack should be placed in a steam sterilization load in the
- upper back, just below the steam inlet.
  - bottom front, just above the steam inlet.
  - upper back, just below the chamber drain.
  - bottom front, just above the chamber drain.
53. (022) What basic rule do you follow when handling sterile packaged items?
- Hand-carry supplies close to your body, cradled in your arms.
  - Wear sterile gloves anytime you are handling wrapped sterile supplies.
  - Handle supplies as little as possible between the time of sterilization and use.
  - Never let sterile supplies be handled by the same person twice following sterilization.
54. (022) If a reusable sterile peel-packed item falls, or is dropped, on the floor, it may
- be used when picked up quickly enough.
  - not be used unless it is reprocessed.
  - be used as there is typically no contamination.
  - never be used again due to dirt and microbes in the package.
55. (022) What is the *minimum* number of exchanges per hour recommended for sterile storage areas?
- 5.
  - 10.
  - 15.
  - 20.
56. (022) Which type of storage is *preferred* for storage of sterile items?
- Storage bins.
  - Supply carts.
  - Open shelves.
  - Closed cabinets.
57. (023) Who is responsible for *correctly coding* the patient's visit to see a provider?
- Technician.
  - Team nurse.
  - Patient's provider.
  - Resource management office.

58. (023) The *main purpose* behind the coding of a patient's visit is to
- ensure your clinic is properly manned.
  - ensure proper credit for the patient visit.
  - provide a chronological record of patient care.
  - get the maximum dollar amount from third-party collections.
59. (024) You must be very careful where you discuss your surgical cases because you
- might be overheard.
  - are restricted by law.
  - can be sued for slander.
  - might be sued for libel.
60. (024) What is the *first* thing you should do in your clinic if a patient comes to you complaining about his or her appointment time passing and the patient hasn't been seen yet?
- Take the patient to another room.
  - Explain why the patient hasn't been seen.
  - Tell the patient to talk to the patient advocate.
  - Call the NCOIC and have him or her take care of it.
61. (024) Why are good telephone techniques important for clinic personnel?
- They can pursue part-time work in telemarketing.
  - Patients will be at ease and convinced you have an outstanding clinic.
  - Air Force policy directs good telephone techniques in all medical facilities.
  - Patients are influenced by the presence or absence of good telephone technique.
62. (024) Should technicians give medical advice over the telephone?
- No, advice over the phone leads to inaccurate self-treatment and is legally risky.
  - Yes, the problem may be simple and the patient could treat himself or herself.
  - No, only doctors can legally give medical advice over the telephone.
  - Yes, many medical problems do not require a doctor's examination.
63. (024) How should you handle a telephone call for the surgeon if he or she is with a patient and the caller does *not* want to hold?
- Take a message and put it where the doctor will see it *as soon as* he or she is free.
  - Knock on the door and tell the surgeon he or she has a telephone call.
  - Inform the caller the doctor is busy and ask him or her to try to call back later.
  - Inform the caller the doctor is not taking calls during appointment hours.
64. (025) Which type of skills is the readiness skills verification program (RSVP) designed to provide?
- Normal.
  - Wartime.
  - Advanced.
  - Peacetime.
65. (025) What is the number of months between each cycle of training under the readiness skills verification program (RSVP)?
- 5.
  - 10.
  - 15.
  - 20.

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66. (026) Which increment of the surgical augmentation team can deploy within 24 hours of notification?
- EMEDS + 25.
  - EMEDS + 10.
  - EMEDS + 5.
  - EMEDS HRT.
67. (027) Which thermal hemostasis method is most commonly used in the operating room?
- Laser.
  - Electrocautery.
  - Bipolar electrosurgery.
  - Monopolar electrosurgery.
68. (027) In a *monopolar* system, the *inactive* electrode is usually
- a separate patient ground plate or pad.
  - at the tip of a pencil-like handpiece.
  - one side of a pair of forceps.
  - not necessary.
69. (027) Which method of electrosurgery involves holding the electrode in *direct contact* with the tissue?
- Cutting.
  - Fulguration.
  - Coagulation.
  - Spray coagulation.
70. (027) Electrocautery achieves hemostasis by
- applying an instrument to the tissue and using electricity to heat the tissue.
  - using electricity to heat an instrument and applying the instrument to the tissue.
  - applying an instrument to the tissue and using electricity to cool the tissue.
  - using electricity to cool an instrument and applying the instrument to the tissue.
71. (028) When, if ever, are scalp clips usually removed?
- As the surgeon closes the wound.
  - After the surgeon enters the skull.
  - They are left in the wound to absorb.
  - They are left in the wound to permanently ligate the vessels.
72. (028) Some ligating clips have small *serrations* on the inside surface to
- lock the ends of the two legs together.
  - keep the clip from slipping after application.
  - prevent the clip from falling out of the applicator.
  - allow the tissue to granulate and encapsulate the clips.
73. (028) When passing a loaded ligating clip applier to the surgeon, how should you hold the applier to *prevent* the clip from bending and falling out of the jaws?
- Hold the applier by one of the shafts, above the ring handle.
  - Hold the applier by the box lock and avoid squeezing the handles.
  - Hold the index finger of the passing hand over the tip of the applier jaw.
  - Put your thumb and fingers through the ring handles to hold the jaw open.

74. (028) The projections on the end of each leg of an absorbable clip
- lock the ends of the two legs together.
  - keep the clip from slipping after application.
  - prevent the clip from falling out of the applicator.
  - allow the tissue to granulate and encapsulate the clips.
75. (029) Which characteristic is *not* a characteristic of interrupted suturing techniques?
- Each stitch is placed separately.
  - Wound edges will completely separate if a stitch breaks.
  - They take more time than continuous suturing techniques.
  - They hinder the spread of infection in contaminated wounds.
76. (029) The knots of a skin suture are tied to *one side* of the incision to
- keep the suture from being incorporated into the wound.
  - lock the stitches together in a chain-pattern to reinforce the closure.
  - increase the tensile strength of the suture at one of its weakest points.
  - allow antibiotic ointments and/or dressings to make maximum contact with the incision.
77. (029) Which is *not* an advantage of the *continuous* suturing technique?
- They can be placed much faster than interrupted stitches.
  - They evenly distribute tension along the entire suture line.
  - The wound is more secure because if one stitch breaks, the others still hold.
  - Less foreign material (suture) is left in the wound to cause potential reaction.
78. (029) Which layer is closed with a suture material that retains its tensile strength for a *long* period of time because, once cut, it takes over a year to heal enough to withstand the normal stresses placed on it?
- Skin.
  - Fascia.
  - Peritoneum.
  - Subcutaneous.
79. (029) What type of suture is used in an abdominal wound closure to support the primary suture line and eliminate dead spaces?
- Tertiary.
  - Traction.
  - Retention.
  - Retainable.
80. (029) Why are bolsters and suture bridges used on the sutures to support the primary suture line and eliminate dead spaces?
- Make it easier to remove the sutures.
  - Prevent the suture from cutting into the skin.
  - Prevent uneven tension on the wound edges.
  - Identify the order the sutures should be removed.

## Glossary

### Terms

**nosocomial infection**—Those infections identified as hospital associated or hospital acquired infections the patient developed as a result of entering the hospital.

**resistance**—Restriction to the flow of electrical current through a conductor.

**scrub**—1. A surgical technician (or nurse) who performs sterile duties in direct support of the surgeon and other sterile surgical team members. 2. To perform sterile duties in direct support of the surgeon and other sterile surgical team members on a surgical case.

**shredout (shred)**—1. An alphabetical suffix on an AFSC to designate an ability, skill, or special qualification closely related to the base (slick) AFSC. 2. A technician who performs duties in a shredout AFSC.

### Abbreviations and Acronyms

°C	degrees Celsius
°F	degrees Fahrenheit
AAAH	Accreditation Association for Ambulatory Health Care
ACLS	advanced cardiac life support
ACN	authorization change notification
ACR	authorization change request
ADPE	Automated Data Processing Equipment
AEF	Air and Space Expeditionary Force
AFCFM	Air Force career field manager
AFHCP	Air Force Hazard Communication Program
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFMLL	Air Force Medical Logistics Letter
AFMLO	Air Force Medical Logistics Office
AFMS	Air Force manpower standard
AFOSH	Air Force Occupational Safety and Health
AFPAM	Air Force Pamphlet
AFRES	Air Force Reserve



<b>AFSC</b>	Air Force specialty code
<b>AFTC</b>	Air Force Training Course
<b>AFTH</b>	Air Force Theater Hospital
<b>AHA</b>	American Hospital Association
<b>AMH</b>	Manual for Hospitals
<b>ANG</b>	Air National Guard
<b>AORN</b>	Association of periOperative Registered Nurses
<b>APV</b>	ambulatory procedure visits
<b>AS</b>	allowance standard
<b>AST</b>	Association of Surgical Technologists
<b>ATLS</b>	advanced trauma life support
<b>BCO</b>	base contracting office
<b>BE</b>	Bioenvironmental Engineering
<b>BIL</b>	Basis of Issue List
<b>BPA</b>	blanket purchase agreements
<b>C2</b>	command and control
<b>CA/CRL</b>	Custodian Authorization/Custody Receipt Listing
<b>CAIM</b>	Customer Area Inventory Management
<b>CAL</b>	Custodial Actions List
<b>CC</b>	cost center
<b>CCDR</b>	combatant commander
<b>CCM</b>	cost center manager
<b>CDC</b>	Centers for Disease Control and Prevention; career development course
<b>CFETP</b>	Career Field Education and Training Plan
<b>CJR</b>	career job reservation
<b>CME</b>	continuing medical education
<b>COMAFFOR</b>	Commander, Air Force Forces
<b>CRA</b>	Continuing Resolution Authority
<b>CRLL</b>	Custody Receipt/Locator List
<b>CS</b>	customer support
<b>CSS</b>	central supply service, central sterile supply, commander's support staff
<b>DLA</b>	Defense Logistics Agency

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<b>DMLSS</b>	Defense Medical Logistics Standard Support
<b>DMMonline</b>	Directorate of Medical Materiel Online
<b>DMHRSi</b>	Defense Medical Human Resources System internet
<b>DOD</b>	Department of Defense
<b>DTF</b>	dental treatment facility
<b>EAID</b>	Equipment Authorization Inventory Data
<b>EMEDS</b>	Expeditionary Medical Support
<b>EMI</b>	emergency medical issues
<b>ENT</b>	ear, nose, and throat
<b>EPA</b>	Environmental Protection Agency
<b>ER</b>	emergency room
<b>ERAA</b>	equipment review authorization activity
<b>ESU</b>	electrosurgical unit
<b>FCC</b>	functional cost code
<b>FEQ</b>	field evaluation questionnaires
<b>FHCTP</b>	Federal Hazard and Communication Training Program
<b>FINPLAN</b>	financial plan
<b>FOC</b>	full operational capability
<b>FTE</b>	full time equivalent
<b>FY</b>	fiscal year
<b>GAS</b>	graduate assessment survey
<b>GI</b>	gastrointestinal
<b>HAZCOM</b>	Hazard Communication Program
<b>HF</b>	high-frequency
<b>HIPPA</b>	Health Insurance Portability and Accountability Act
<b>HMIS</b>	Hazardous Material Information System
<b>HMR</b>	historical maintenance record
<b>HRT</b>	health response team
<b>ICC</b>	Infection Control Committee
<b>ICU</b>	intensive care unit
<b>IP</b>	infection preventionist
<b>JC</b>	Joint Commission

<b>LP</b>	local purchase
<b>MAJCOM</b>	major command
<b>MEDLOG</b>	medical logistics
<b>MEMO</b>	Medical Equipment Management Office
<b>MEPRS</b>	Medical Expense and Performance Reporting System
<b>MERC</b>	Medical Equipment Repair Center
<b>MFST</b>	mobile field surgical team
<b>MHS</b>	Military Health System
<b>mm</b>	millimeter
<b>MPM</b>	MEPRS program manager
<b>MPS</b>	Military Personnel Section
<b>MRL</b>	medical resource letter
<b>MSDS</b>	material safety data sheet
<b>MTF</b>	medical treatment facility
<b>MTP</b>	master training plan
<b>NCO</b>	noncommissioned officer
<b>NCOIC</b>	noncommissioned officer in charge
<b>NSN</b>	national stock number
<b>O&amp;M</b>	operations and maintenance
<b>OAR</b>	Occupational Analysis Report
<b>OBAN</b>	operating budget account number
<b>OB/GYN</b>	obstetrics and gynecology
<b>OI</b>	operating instruction
<b>OIC</b>	officer in charge
<b>OJT</b>	on-the-job training
<b>OPR</b>	office of primary responsibility
<b>OR</b>	operating room
<b>ORM</b>	operational risk management
<b>OSHA</b>	Occupational Safety and Health Administration
<b>PA</b>	physician's assistant
<b>PCA</b>	permanent change of assignment
<b>PCS</b>	permanent change of station

<b>PDG</b>	Professional Development Guide
<b>PI</b>	performance improvement
<b>PME</b>	professional military education
<b>QTP</b>	Qualification Training Package
<b>RA</b>	resource advisor
<b>RC</b>	responsibility center
<b>RCM</b>	responsibility center manager
<b>RM</b>	risk management
<b>RMO</b>	resource management office
<b>RMS</b>	resource management system
<b>ROS</b>	report of survey
<b>RSV</b>	readiness skills verification
<b>RSVP</b>	Readiness Skill Verification Program
<b>SCDs</b>	sequential compression devices
<b>SF</b>	Standard Form
<b>SKT</b>	specialty knowledge test
<b>SPD</b>	Sterile Processing Department
<b>SSN</b>	social security number
<b>STS</b>	specialty training standard
<b>TDY</b>	temporary duty
<b>TIGERS</b>	The Integrated Global Equipment Request System
<b>TO</b>	technical order
<b>UCA</b>	Uniform Chart of Accounts
<b>UCMJ</b>	Uniformed Code of Military Justice
<b>UMD</b>	unit manpower document
<b>UPMR</b>	unit personnel management roster
<b>USAF</b>	United States Air Force
<b>UTA</b>	unit type code availability
<b>UTC</b>	unit type code
<b>UTM</b>	unit training manager
<b>VAC</b>	volts alternating current
<b>WWHCP</b>	Workplace Written Hazard Communication Program

## **Student Notes**

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