

Teach them well: Educating sterilization techs toward competency

WELCOME TO THE first installment of the Accreditation Focus series. Over the course of 2019, we will present columns discussing recurring infection prevention and control (IPC) challenges during accreditation surveys. Each installment will provide ideas, tips, and guidance on common IPC challenges and how to address them.

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As you all probably know, sterile processing of reusable surgical instruments is of utmost importance in the control of infection among patients. Infections attributed to sterilization failures are well-documented in the scientific literature; therefore, the requirement for sterilization technicians to demonstrate competence is absolute.¹ Even without the occurrence of infection, a mere breach of sterilization protocol is considered a serious incident, especially when large numbers of instruments or devices are affected. Therefore, we must teach sterilization techs using adult learning theories and methods that are effective at transferring knowledge.

Speaking in the simplest of terms, knowledge is stored within one of two types of long-term memory: declarative (“knowing”) and procedural (“doing”). Declarative knowledge is the ability to name things, or recall facts, and can be easily articulated. Procedural knowledge is the ability to perform tasks, and articulation is difficult.² For a sterile technician to demonstrate competency, they must possess both declarative and procedural knowledge, but there are different methods for teaching the two types of knowledge.

MEETING THE ACCREDITATION STANDARDS

In the U.S., the definitive standards outlining sterile processing procedures and their related requirements are jointly developed by the American National Standards Institute (ANSI) and the Association for the Advancement of Medical Instrumentation (AAMI). Though these standards are voluntary, once a healthcare organization adopts them through policy, they must

follow them. Accreditation surveyors usually review adherence to the standards during a survey and will cite any number of potential deficiencies related to sterile processing. Indeed, failure to follow ANSI/AAMI standards regarding sterile processing education and training is a routinely cited deficiency.

ANSI/AAMI ST79:2017, *Comprehensive guide to steam sterilization and sterility assurance in healthcare facilities*, provides guidelines for personnel qualifications, training, and education, which are typically adopted by most healthcare facilities who re-process critical instruments. As such, most acute care facilities require sterilization techs to be certified prior to hiring, or they are required to achieve certification within two years, as recommended by ST79.³ Some facilities, however, including many outpatient clinics operating only bench top sterilizers, may not have a certification requirement at all. This practice is still in accordance with ST79 because the requirements are contained within “*should*” statements, not “*shall*”

statements, since ANSI/AAMI standards are consensus standards and not regulations.

ST79 states: “The responsibility for sterile processing should be assigned to qualified individuals who have *demonstrated competence* [emphasis added] in all aspects of sterile processing, including biohazard transportation, decontamination, preparation, packaging, sterilization, sterile storage, and distribution of sterile medical devices.” They go on to state that “Qualifications” include demonstrated knowledge and documented competence in topics specified in the standard. This demonstration of knowledge and competency is required at regular intervals, usually annually.

As for education and training, ST79 requires three levels of education: 1) an initial orientation; 2) continuing education at regular intervals; and 3) in-service training. All three of these levels could be performed by personnel working for the organization—and often are—especially in outpatient clinics and smaller hospitals. This begs the question: Are people training their sterilization technicians



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adequately? That is, are they ensuring transfer of knowledge and competency using well-known adult learning theories and methods? Maybe. But to confidently approach a re-accreditation survey, and more importantly, to optimize patient safety, this answer should be: definitely.

**LEARNING TRANSFER/
ADULT LEARNING**

So, how does one go about *ensuring* learning transfer so that the learner can

demonstrate knowledge and competency? Adult learning is a complex and fascinating field of study that draws greatly from cognitive psychology. There have been extensively researched theories over decades on the subject, resulting in considerable scientific evidence to guide one in conducting effective training.

As stated earlier, declarative knowledge is that knowledge that allows people to “know” information. For example, reciting the steps for sterilizing reusable medical instruments:

removal of gross soil, transporting, cleaning, wrapping, sterilizer operation, and so on. On the other hand, procedural knowledge allows people to “do,” or perform, things, such as measuring correct ratios of enzymatic cleaners or properly wrapping instruments (see Table 1). Let’s use riding a bicycle as another example of the differences between declarative and procedural knowledge. Declarative knowledge is being able to name the parts of a bicycle; procedural knowledge is being able to ride one. We can train someone for

Table 1. Types of knowledge with examples

Type of knowledge	Example
Declarative Facts, principles, concepts	Sterilization Fail Policy statements, basic microbiological principles
Procedural Less complex	Transporting soiled instruments
Procedural More complex	Sterilization failure investigation and procedures, sterilization procedures, proper wrapping, measuring liquid enzymatic detergents

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hours using PowerPoint-based lecture, but they would not likely be able to actually ride the bicycle after this type of training alone. The only way to teach procedural knowledge is through direct, hands-on training followed by *practice*. Clearly, it is necessary to learn declarative knowledge first, especially for sterile processing, but hands-on learning and practice are essential for procedural knowledge transfer so a sterilization tech can *perform* the task.

While there are volumes of literature describing how best to teach procedural knowledge, the following offers a very basic method for training sterilization techs on the sterilization procedure:

1 Chunking or All-At-Once: Decide whether you will use “chunking” or teach the entire procedure all at once. Chunking is dividing the entire process into “chunks” of activities.² For instance, there could be the following chunks: 1) point-of-use gross cleaning and transporting; 2) pre-cleaning and cleaning; 3) wrapping and packaging; 4) sterilizing; and 5) storing.

2 Teach Declarative Knowledge: Whether chunking or teaching the entire procedure, begin with teaching the facts, principles, and concepts—this is the declarative knowledge.

3 Hands-On Learning and Practice: After teaching declarative knowledge, the instructor must make sure the learner has access to the equipment they are going to use, or at least something closely related, to effectively learn procedures. Have the learner access the equipment and walk through the steps. After either proceeding, through each chunk or the entire procedure, provide the learner time to practice on the equipment. **Important Note:** Have a subject matter expert close-by to answer questions and observe that no errors get incorporated into the procedure.

A highly useful tool to help the learner perform the procedures correctly, and to have as a continuous reminder, is a “Job Aid.” A Job Aid can be a sign, worksheet, or other written device that includes flow diagrams and other instructions to help the sterilization tech remember how to correctly and consistently perform the tasks.²

To ensure successful accreditation scrutiny of a facility’s sterilization processes and procedures, sterilization techs *must* be taught with the correct type of instruction methods, so they can demonstrate competency and knowledge. Remember, these fundamental

concepts are of utmost importance when considering training methods for a learning transfer. **R**

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Additional resources

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- Clark R. *Building Expertise: Cognitive Methods for Training and Performance Improvement*, 3rd Edition. San Francisco; Pfeiffer; 2008
- Knowles M, Holton III E, Swanson R. *The Adult Learner: The definitive classic in adult education and human resource development*, 8th Edition. Boston; Elsevier; 2005



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Leveraging Shared Leadership in the Sterile Processing Department to Engage Staff in Process Improvement. Bisol S, Roy A. *Am J Infect Control*, Vol. 42, Issue 6, S69–S70.