

STERILE PROCESSING UNIT – A CRITICAL PARTNER IN INFECTION PREVENTION

Joy Kezia *

Governed by soundly designed principles, quality systems, and attributing to one's dedication to deliver an infection free unit that is consistently superior to any other, in terms of function, reliability, cost effectiveness, ergonomics, environmental considerations and customer satisfaction, is the need to prevent infection in a health care setting. Time has now come to form strong local support gaining momentum with people who can think globally, yet act locally. We stand at an era where infection control is the key philosophy at work.

FIGHTING THE POWER OF MICROBIAL DISEASE

Hospital acquired infection/nosocomial infection is the spread of pathogenic micro organisms to patients as a result of treatment or care given to them. These organisms develop during the time the patient is in the hospital or afterwards, or may be transmitted during treatment or may come from the patient himself. This infectious disease that the hospital staff may acquire as a consequence of their work is not limited to hospitals. Medical and dental clinics also serve as potential reservoirs.

Patients in the hospital are particularly vulnerable to infection, having lowered resistance, adding to the weakness caused by disease or injury. Adding to this infectious load, the increase in antibiotic-resistant bacteria, food preparation unit, and the difficulty of cleaning complex modern equipment pose serious threat to the development and spread of infection in hospitals. This makes the sterile processing unit/central sterile supply department [CSSD] a risky place – unless standard methods are implemented to sever the infectious cycle.

GOOD HYGIENE CUTS COST!

Good infection control and cleaning equipment costs money. The lack of good equipments, costs even more. In addition to the unnecessary suffering, there are huge costs for extra hospitalization and lost working hours. A well – functioning hygiene system is crucial to minimizing the enormous costs involved with treating these infections. Hence an investment in the right direction in terms of a sterile supply unit, not only makes sense medically, it is a sound fiscal policy as well.

DISINFECTION:

Process that inactivates [kills] nearly all recognized pathogenic microorganisms but not all microbial forms such as bacterial endoscopes or inanimate objects. Hot water and steam are the most commonly employed agents that have proven efficient in the healthcare environment. A cleaning and disinfection unit, where thorough cleaning is performed by flushing with cold and warm water, followed by disinfection at a minimum temperature of 80°C [176°F] for ten minutes or at 90°C [194°F] for one minute [$A_0=600$], is a good solution.

STERILIZATION:

Process that kills all microorganisms, including the non-sporiferous varieties that are fairly insensitive to heat. The safest and the most economical method is treatment with heat, i.e. steam under pressure in a sterilizer, achieving sterilization within a minimum of 15 minutes at 121°C [250°F] or 3 minutes at 134°C [272°F]. However, it should be noted that an item is either sterile or not sterile – it can never be “nearly sterile”.

The word “sterile” is defined as the condition of a medical device that is free from viable microorganisms. [European Norm 556]. The measure of the microbial status [bioburden] of the medical device is also used as a definition: the item

* Joy Kezia, MSc [N], RN, RM, Nurse Educator,
Global Hospitals and Health City, Chennai

shall have a Sterility Assurance Level [SAL] = 10^{-6} , or among a million items there must not be more than one living microorganism.

Recommendation:

THE CHAIN IS ONLY AS STRONG AS ITS WEAKEST LINK.

Recognizing that an effective and efficient system for disinfection and sterilization takes more than equipment alone, it is appropriate to apply expertise in infection prevention and infection control, to the planning and the design of the entire system.

MAXIMUM RELIABILITY AT THE CENTRAL STERILE SUPPLY DEPARTMENT [CSSD]:

used for disinfection and sterilization; offers a number of advantages - cleaning, disinfection, inspection, packing, sterilization, storing, and distribution which are carried out by specialized experienced personnel.

POINT-OF-USE STERILE PROCESSING/THEATRE STERILE SUPPLY DEPARTMENT [TSSU]:

could be a decentralized sterilization facility, or sub sterile department, a relatively small unit usually located close to where the sterilized equipments are used. The main advantage of this being, shorter instrument circulating time, and lesser or nil transport time.

Zone 1: Reception of soiled goods: Unclean items from the Operating Theatres, Wards, Out-patient and other departments arrive at the reception area for soiled goods by covered trolleys or by lift - in the same instrument trays, baskets or containers as they were delivered in.

Barrier 1: The fight against pathogenic microorganisms starts right here between the reception area for soiled goods and the clean zone where sorting, inspection and packing take place. The barrier itself must consist of high capacity, pass-through washer-disinfectors.

Zone 2: Clean zone: Sorting, inspection and packing: On leaving the washer - disinfectors, the clean [but not sterile] goods enter the area for sorting, inspection and packing. After packing the instrument trays are placed in the pass - through sterilizers. Fabric are sorted, inspected, packed and labeled in a separate area before moving along for sterilization.

Barrier 2: The second barrier, between the clean zone and the sterile store, consists of pass-through sterilizers. Staff must be separated, one group working in the clean zone, the other working in the sterile zone.

Zone 3: Sterile storage: Over - pressure is maintained in the sterile storage to keep the goods free from dust. The room must be dry to prevent moisture from penetrating the packages, which might lead to recolonization of microorganisms.

Service excellence skills are essential for the sterile processing unit to support a healthcare facility's infection control department and various infection control initiatives. Therefore, assessing and meeting the needs of the user – end customers are of prime importance. It is not enough to have the knowledge, tasks and processes in place to provide quality products. Unparalleled, innovative ability and secure controls are also required, along with quality services and products.