Sterile Storage Standards

A great deal of time and effort goes into the cleaning, preparation, packaging and sterilisation of products processed in the CSSD. However, items that are sterile when they are removed from the steriliser may not be sterilised when they reach the patient. In the life cycle of a sterile time the events that happen after sterilisation are just as important as the events leading up to sterilisation and the sterilisation process itself. In other words how a product is handled and the conditions in which it is stored before use can cause it to become contaminated. One common problem is that many hospital employees believe that sterile packaging is an indestructible barrier.

CONTAMINATION

In order to prevent contamination of sterile products, it is important to understand how contamination occurs. Contamination can occur when the integrity of the barrier packaging is compromised. This means that the packaging no longer has its original resistance to bacterial penetration.

Practices and conditions that can lead to events that compromise the barrier integrity of sterile packages include:

- moisture
- an unclean storage area
- improper handling
- failure to rotate supplies
- poorly trained employees.

MOISTURE

Moisture can penetrate pervious packaging materials like cloth, non-woven fabrics and paper. These conditions allow for easy penetration of bacteria. Care should be taken to ensure that all sterile packages wrapped in pervious materials are stored away from sinks, pipes etc. Another cause of moisture contamination is handling a sterile package with wet hands, or writing on a cloth or paper sterile package with a marker. Please note however, that items contained in plastic packaging (e.g. Polyethylene bags and Tyvek® pouches) cannot be contaminated by moisture.

CLEAN STORAGE AREA

Sterile items must be stored in a clean area with limited traffic, and that designated storage space must be routinely disinfected. Keeping sterile products safe from dust and soil is usually an easy task in the CSSD or Operating Theatre sterile storage areas, where procedures and facilities are geared to facilitate sterility maintenance. However the task becomes more difficult for items that are dispensed to nursing units and ancillary department where there is no designated storage space.

The storage area should have a relative humidity of 35% to 70% with temperatures between 18˚C and 22˚C. Floors, walls, cabinets, racks and other materials in the sterile area should be constructed of nonporous material that are easy to clean. Windows to the outside should not be allowed as they can allow insects and dust to enter.

External shipping containers would be removed outside the storage area if possible as they increase the probability of contamination within the storage area. Also, storing items being moved around before they are used. This puts them at risk of being dropped, which can damage the contents and/or compromise the packages' sterility.

IMPROPER HANDLING

Sterile packages should not be used if they have been visibly damaged from a fall or otherwise punctured or torn. They should never be opened and resealed, or opened and saved for later use. Avoid excessive handling. Each time a sterile package is handled increases the risk of compromising the bacterial barrier. Therefore, systems should be developed to ensure that the handling of each sterile package is kept to a minimum. When handling sterile packages, avoid cramming them tightly into a drawer of shelf. Cramming sterile packages into a tight area can cause breaks in the barrier that are not easily detected.

SUPPLY ROTATION

Maintaining a proper inventory level and setting up a supply rotation system help to ensure that sterile items won't be in storage for long periods of time and expose them to more opportunities for contamination to occur. Supply rotation follows the simple concept that items should be used in the order in which they were sterilized or stocked - first in, first out. Perhaps the most difficult part of supply rotation is getting everyone to practise it. Be sure that there are set standards that everyone can continue on page 3
understand. Another common problem with supply rotation is shelf layout. If the supply shelves are too crowded, it becomes very difficult to rotate items without removing them all from the shelf. This wastes time and effort, and quite often employees will not bother to do it.

**EDUCATION**
All employees who enter sterile storage areas, including maintenance personnel and environmental services personnel, should inservice on maintenance procedures. The risks to the patient who receives and unsterile product should be clearly defined and all CSSD personnel should be instructed to carefully inspect and resterilize if necessary any package that they suspect might have had its sterility compromised.

**CONCLUSION**
The objective of sterile packaging is to provide a safe product for the patient. That product must remain sterile until its use. In order to accomplish that, careful handling of sterile packaging, proper storage and proper training on how to maintain package integrity must be a part of every healthcare worker’s job.
SATS – Remaining Focused

By: Villie Pieterse, Chairperson of the SATS

The nursing profession has faced tremendous challenges and SATS has had to accommodate and work with its members to meet change head-on.

Steri-view took time out to speak to Villie Pieterse, chairperson of the National Society of South African Theatre Sisters (SATS) and asked her more about how the society had performed in the past year and whether she had any special plans for 1998.

Says Villie: “By relying on and using our available resources and remaining focused in terms of our objectives, I believe SATS has weathered the storms very well.”

“An accurate measure of our success as an association is an increase of our membership over 1997.”

“A number of critical areas have been addressed over the past year and numerous plans have been set in motion. For instance, a new constitution has been drafted and circulated to members and a guidelines for basic procedures has been developed. ENT books have been printed and can be obtained from all regional chairpersons as well as from head office.”

“I am pleased to announce that our finances are stable. As an association we have been able to give financial assistance to members to attend congresses and in particular to individuals for the World Congress held in Canada.”

“SATS is also involved in key areas such as education. We have been approached by the SAINC to assist them in the process of the rationalisation of education and in the election of a new council.”

“We have also been approached by Denosa who has asked for our view on policy matters regarding HIV, Euthanasia and termination of pregnancy.”

“A very successful National Congress organised by our Free State Chapter was held in May, allowing professionals to network, get informed and equipped to deal with current issues facing the nurse today.”

“Without the commitment and dedication of our members SATS would not have experienced the success it had over 1997.”

The national committee remains dedicated to its objectives which primarily focus on growing and developing the SATS with a view to influencing key areas in the health care profession.

“We rely heavily on our members to meet the challenges 1998 will bring.”

“We urge SATS members and prospective members to pull together to make the profession strong, independent and united. Only then can we seize the day and the opportunity to be part of a new dispensation developed by nurses for nurses.”

“SATS wishes all its supporters and the health care professionals throughout this country a safe, wonderful and blessed festive season.”
It is essential, especially in invasive theatre surgery, that sources of possible cross-contamination are kept to an absolute minimum. Packaging must contain and protect its contents from deterioration, damage and contamination and should not itself contribute to product contamination e.g. with loose fibres and particles.

Until now, existing knowledge of materials and process have produced pouches and reels that have not changed significantly for many years. While Industrial packaging has for a long time used materials and manufacturing processes that have produced packaging of a superior performance level to that of standard packaging, the high cost of these processes has been beyond the reach of most hospitals.

Safmed is pleased to announce that introduction of Integra Med® Reels which utilize the BOP technology, it is now possible to offer with no increase in price over the presently available SteriReel® range. The new BOP products give a clean, easy-peel with virtually no fibres time after time, regardless of the speed or manner in which it is opened. Integra Med Reels, which are easily recognisable by their pink film, will replace the SteriReel range of products.

NEW FILM
An intrinsic element to this revolutionary packaging is based on the new film technology. Conventional films used in most hospital pouches and reels have a low resistance to tearing which results in poor aseptic presentation of the pack contents - and ultimately cross contamination. This new generation of film has been specifically designed to eradicate this major weakness that exists in ordinary pouches and reels. The impact strength of this film is in excess of 10 times that of ordinary film and thus the occurrence of “shattering” film can be virtually eliminated.

NEW PAPER
This specifically treated paper has been developed to not only exhibit a wide range of sealing capabilities but also to considerably reduce the amount of fibre released when a pouch or reel is opened. While the permeable fibre construction allows for steam and ETO gas to pass freely, it will maintain the sterility of the pack throughout its life even during unfavourable storage conditions.

Med pouches and reels, the only truly fully peelable, low fibre products, are now available to the SA market.