Sterilization is the hospital beating heart and the nutrient and spine. Its main function on the patient safety and staff defense system. Sterilization is the major chunk of the services of all medical departments in the hospital. The most significant tools of security and safety in health facilities. Therefore, it is essential for the health staff in qualifying them in sterilization, through training and education.

by, Dr. Ahmed Ali Baggshi, Founder of the Sterilization Today Newsletter
Sterilization Today Newsletter Team are honored to congratulate the King of Saudi the celebration of the 88th anniversary of the National Day of the Kingdom of Saudi Arabia

Sep 23, 2018
Sterilization Today Newsletter

Provides updated information, news, articles, worldwide educational information in the field of Micro-organism, Cleaning, Disinfection, Sterilization of Medical Devices to prevent Infection Control and Prevention and topics that are related to the Central Sterilization Services Department.

Additionally, it provides information about Saudi CSSD Team updates and activities in the field of sterilization development around Kingdom Saudi Arabia.
<table>
<thead>
<tr>
<th>0-1</th>
<th>Front page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Saudi society for sterilization &amp; disinfection and infection control</td>
</tr>
<tr>
<td>4</td>
<td>CSSD Training &amp; Education Team “certified training course 18-19”</td>
</tr>
<tr>
<td>5</td>
<td>AESCULAP academy in cooperation with GETINGE group</td>
</tr>
<tr>
<td>6</td>
<td>Critical thinking</td>
</tr>
<tr>
<td>7-8</td>
<td>CSSD attire &amp; environment</td>
</tr>
<tr>
<td>9</td>
<td>Aseptic technique</td>
</tr>
<tr>
<td>10</td>
<td>Traits of a successful technician</td>
</tr>
<tr>
<td>11</td>
<td>We kill to save lives</td>
</tr>
<tr>
<td>12</td>
<td>How to read SDS’s quickly</td>
</tr>
<tr>
<td>13</td>
<td>Brushing technique</td>
</tr>
<tr>
<td>14</td>
<td>The classification of bacteria according to the survival temperature degree</td>
</tr>
<tr>
<td>15</td>
<td>Proposal on how to role on how to reduce the rate of missing instruments</td>
</tr>
<tr>
<td>16</td>
<td>Cleaning a foundation for sterilization process</td>
</tr>
<tr>
<td>17-18</td>
<td>How to choose when to HLD ultrasound probe</td>
</tr>
<tr>
<td>19-21</td>
<td>Guidelines for the cleaning &amp; sterilization of intraocular surgical instruments</td>
</tr>
<tr>
<td>22</td>
<td>Sterilization methods</td>
</tr>
<tr>
<td>23</td>
<td>H2O2 plasma sterilizers</td>
</tr>
<tr>
<td>24</td>
<td>Why sterilization?</td>
</tr>
<tr>
<td>25</td>
<td>CSSD book fundamental international guidelines “best practices in CSSD”</td>
</tr>
<tr>
<td></td>
<td>Last page</td>
</tr>
<tr>
<td></td>
<td>The Loyal CSSD specialist</td>
</tr>
</tbody>
</table>
The editorial team is pleased to introduce to students, researchers, health specialist and sterilization and disinfection, CSSD specialist the Sterilization Today Newsletter launched by the society of Saudi Society For Sterilization & Disinfection And Infection Control.

This newsletter is a crucible in which the ideas of CSSD specialist are compiled to improve and solidify the knowledge of CSSD among healthcare givers and encourage researchers and CSSD specialists to invent cost-effective new CSSD techniques and structure new CSSD chemicals that are environmentally friendly.

This newsletter intends to inspire CSSD specialist to do their best to innovate and structure chemical disinfectants that are save to healthcare givers, patients, community as well as the surrounding environment. CSSD specialist are also encouraged to share the experiences with using different CSSD techniques with colleagues.

The journal is a single-blind peer-reviewed journal, which will be published in cooperation with Dr. Ahmed Baggashi.

Sterilization Today newsletter will publish high-quality original articles on cutting-edge scientific researches on CSSD as well as review articles on topics that covers all aspects of CSSD, CSSD machine invention and CSSD chemical structuring.

The editorial team encourage all healthcare practitioners especially CSSD specialists to share their ideas, researches and inventions with their colleagues through this promising journal.

Thank you for your support to the CSSD journal. We look forward to publishing your original researches, innovative results, reports and reviews.

Prof. Dr. Abdurrahman M. Alqurashi, Founder and President of Saudi Society for Sterilization & Disinfection and Infection control
Ejadah Group is now one of the leading and fastest growing training and consultancy companies in Saudi Arabia and has more than 8 years of consulting and training experience fields such as health, safety, and administration. Ejadah ensures a higher level of excellence, quality control, and efficiency is achieved in order to elevate the capacities, abilities, and performance level of organizations by providing required consultations, training and education in various courses including but not limited to; public administration, and safety; occupational health and safety, civilian safety and aviation safety. Ejadah’ training and education programs are thoroughly developed in order to meet today’s business world requirements.

Saudi CSSD Training and Education Team:
Under the sponsorship and supervision of Ejadah Center for Health Training and Development, the Saudi CSSD Training & Education Team will provide several courses in the field of sterilization development in different regions around KSA. The education programs will start from Tabuk, Jeddah, Riyadh, Jizan, Qassim, Dammam, Al-Jouf, Taif, Al-Madinah, Al Ahsaa, Hail, and the end will be held in Arar – North region of Saudi Arabia. Led by head of the team Dr. Baggashi and group of distinguished Reprocessing Medical Devices Specialists. The courses discussed several topics including:

- CBAHI & JCI standard in CSSD
- How to be qualified CSSD manager
- Safety and quality in CSSD
- How to build CSSD teamwork
- International licenses in CSSD
- Guidelines and best practice in reprocessing flexible scopes
- The impact of poor quality of CSSD processes on the patient health
- Best practices of reprocessing medical devices (cleaning, disinfection and sterilization)

Ejadah Group is now one of the leading and fastest growing training and consultancy companies in Saudi Arabia and has more than 8 years of consulting and training experience fields such as health, safety, and administration. Ejadah ensures a higher level of excellence, quality control, and efficiency is achieved in order to elevate the capacities, abilities, and performance level of organizations by providing required consultations, training and education in various courses including but not limited to; public administration, and safety; occupational health and safety, civilian safety and aviation safety. Ejadah’ training and education programs are thoroughly developed in order to meet today’s business world requirements.
AESCULAP ACADEMY IN COOPERATION WITH GETINGE GROUP

AESCULAP Academy-Germany in collaboration with Getinge Group-Sweden conducted the very first time an essential course on AESCULAP Sterile Processing Expert Program- accredited by International Association Of Healthcare Central Service Materiel Management (IAHCSMM) at AESCULAP Academic Center, Dubai-UAE.

Dr. Ahmed Baggashi, a Saudi Arabian is one of the active participants together with Heads and Managers of CSSD’s from several Asian and African countries.

The next course is "Sterilization Services Management" that will be held on
21-25 October 2018
at AESCULAP Academic Center,
Dubai Science Park- Dubai, UAE
CSD, or central supply, is an integrated place in hospitals and other health care facilities that performs sterilization and other actions on medical devices. If we go through direct explanation of the meaning, it's centralized place of Sterile Supply! As you can understand the big difference & the confusion should be very clarified, from this point of making changes.

I recommend to change the name of CSSD to CDD, Central Decontamination Department. Disinfection and Sterilization New CDC Guidelines

Reference:
- https://www.cdc.gov/infectioncontrol/guidelines/disinfection/sterilization/steam.html
- http://www.ast.org/uploadedFiles/Main_Site/Content/About_Us/StandardDecontamination_Surgical_Instruments_.pdf

After long years of experience & reflection, I come out with the idea of having a new name for the CSSD Central Sterile Supply Department to **Central Decontamination Department (CDD)**. My reference and evidence is the CDC Center for Disease Control and Prevention, definition of Decontamination itself, which is the combination of processes, that including cleaning, disinfection, and sterilization. As for the definition of Central Sterile Supply Department The department (CSSD), also called sterile processing department (SPD), sterile processing, central supply department

Prepared by:
Mr. Mounir Hathroubi
CBSPD/ Educator/Consultant
**CSSD ATTIRE AND ENVIRONMENT**

**Preventing** the spread of microorganisms and maintaining appropriate environments for clean and sterile items requires good self-management skills. Hygiene and adherence to dress code protocols are critical components of infection prevention in CSSD.

**Hand Hygiene**, Hand hygiene is a term that means either handwashing or using an approved antiseptic hand rub. Hand hygiene is considered the single most important factor in reducing infections.

**What is the Importance of the Specific Attire in CSSD and what is the Serious Instructions to Follow?**

The professionals in CSSD must wear attire specific for the area in which they work. This provides protection to the employee, patients and the public. Attire should be clean, provided by the facility, and not worn outside the facility. Specialists and technicians should take off their street clothing and shoes, and wear scrubs and shoes kept at the facility. In addition, makeup and jewelry are not worn in the department because they can refuge microorganisms. One of the aspects that should be on focus, staff movement between dirty and clean areas is not possible without passing through a clothing change and hand wash area. Freshly laundered scrub attire should be changed daily or whenever it becomes visibly soiled or wet. Also, a clean, single use, low lint surgical head cover that confines all head hair except eyelashes and eyebrows should be worn in all areas in the department. Bards and mustaches should be covered with an approved cover to prevent facial hair from shedding onto the items being processed. Some of the points which should not be ignored is that, sturdy shoes with non-slip soles should be worn in the department and a cover gown/lab coat may be used to protect the scrub attire when leaving the department for another area of the same facility.

**Is there anything special about the attire in Decontamination Area?**

All of the basic attire mentioned previously except the cover gown / lab coat, should be worn in the decontamination area. And all employee working in the decontamination area must comply with dress code requirements for PPE according to (OSHA) which includes:

- Gloves approved for the decontamination area. These gloves are thicker and have longer cuffs than examination gloves to protect the hands.
- Fluid repellent masks with visor eye shields or goggles to reduce the risk of microbes being transferred to the eye, nose and mouth.
- Fluid-resistant gown with long cuffed sleeves or jumpsuit to protect clothes and skin. Fluid-resistant materials will keep fluids away from the skin, while standard fabrics will absorb fluids allowing the skin beneath the fabric to become wet and contaminated.
- Shoe covers to protect regular shoes from becoming wet and contaminated during cleaning procedures.

**How to Manage the Environment to Prevent the Spread of Bacteria?**

The first step maintaining environmental integrity is to control the traffic that enters and passes through the CSSD. The aforementioned dress codes apply to all who enter the CSSD. Department dress...
standards for visitors vary between facilities. In some facilities they must change into surgical scrubs; in other coveralls (worn over street clothes) are required. In fact, dress code requirements may change as CSSD specialists and technicians move from one area to another. So, areas that CSSD specialists and technicians routinely travel through may have three separate traffic control/dress code requirements:

**Restricted Areas:** where sterile surgical procedures are performed. Surgical scrub attire, hair coverings and masks are required in restricted areas. Those working within the sterile field (including surgeons, surgical technologists and nurses) are also required to wear a sterile surgical gown and gloves. **Semi-restricted Areas:** these areas include peripheral support areas to the OR, CS clean assembly, and sterile storage areas. Surgical scrub attire and hair coverings are required in these areas. **Unrestricted Areas:** these areas include normal traffic areas, such as hospital corridors, most offices, locker rooms and general public areas. Street clothes may be worn in this area.

**What are the CSSD Environment Requirements?**

The unit is used exclusively for reprocessing reusable medical devices, must be physically separated from other work areas and never used as a thoroughfare to other units. It requires unit access due to the critical nature of this unit and the access must be restricted to authorized personnel and trained specialists. Also, the light is kept at a brightness and color balance for good working practices and visual examination of reusable medical devices. Over that, room temperature has to be controlled between 18-25°C (64-77°F) and kept at a relative humidity of (30-60 %) depending on the activities carried out in the area. Other important point is the air pressure. Air pressure is regulated to prevent cross contamination of airborne pathogens between each zone. A ventilation system is used to either exhaust air out of a room, creating negative air pressure as in decontamination area, or vent air into the room, creating positive air pressure as in IAP (Inspection, Assembly and Packaging) area and sterile area. In regarding to work, walls are smooth, non-shedding, water resistant and withstand frequent cleaning. And floors are a washable non-slip material and have no exposed seams or openings. Finally, all tables, workstations and shelving are made of easily cleanable materials with non-glare surfaces.

**CONCLUSION:**

CSSD specialists and technicians work with items at all stages of the decontamination, sterilization, storage and distribution processes. So, every CSSD specialist and technician must appreciate the importance of infection control and prevention, and thoroughly understand their role in the process.

Prepared by:
Ms. Taghreed Homoud Albatti, CSSD Specialist
ASEPTIC TECHNIQUE

The goal of aseptic approach is to guard the patient via stopping or minimizing postoperative contamination by using growing prerequisites and following approaches to prevent the introduction of microbial contamination to sterile.

General Considerations

1. Only sterile objects are used inside the sterile field. a. Prior to gadgets being distributed to the sterile subject test the exterior and inner chemical symptoms on and in the package, test for package deal integrity, and package expiration (if appropriate).

2. Items which show a manufacturer’s expiry date shall be regarded risky for use after that date.

3. If in doubt about the sterility of the packaged item, it is now not considered sterile.

This includes:

A. Objects discovered in unmonitored areas.

B. Any indication of the package being wet (eg. water stains, dampness or condensation in package).

C. (Any bundle except chemical indicator Cl) displaying a “pass” result.

D. Any package deal that has been dropped.

E. Any package that suggests evidence of crushing, perforations or holes.

4. Whenever a sterile item has been compromised, the package contents, robe or the sterile field concerned ought to be regarded contaminated.

His may manifest when:

A. Non sterile things contact sterile things.

B. Drinks or wet soak via a drape, gown, or package deal (strike through).

5. Single-use clinical devices shall solely be used on AN character Client for one method so got to be discarded.

6. Reusable restorative contraptions might be reprocessed in understanding to the manufacturer’s headings for utilize and in understanding With Modern Alberta Wellbeing Standards.

The goal of aseptic approach is to guard the patient via stopping or minimizing postoperative contamination by using growing prerequisites and following approaches to prevent the introduction of microbial contamination to sterile.

General Considerations

1. Only sterile objects are used inside the sterile field. a. Prior to gadgets being distributed to the sterile subject test the exterior and inner chemical symptoms on and in the package, test for package deal integrity, and package expiration (if appropriate).

2. Items which show a manufacturer’s expiry date shall be regarded risky for use after that date.

3. If in doubt about the sterility of the packaged item, it is now not considered sterile.

This includes:

A. Objects discovered in unmonitored areas.

B. Any indication of the package being wet (eg. water stains, dampness or condensation in package).

C. (Any bundle except chemical indicator Cl) displaying a “pass” result.

D. Any package deal that has been dropped.

E. Any package that suggests evidence of crushing, perforations or holes.

4. Whenever a sterile item has been compromised, the package contents, robe or the sterile field concerned ought to be regarded contaminated.

His may manifest when:

A. Non sterile things contact sterile things.

B. Drinks or wet soak via a drape, gown, or package deal (strike through).

5. Single-use clinical devices shall solely be used on AN character Client for one method so got to be discarded.

6. Reusable restorative contraptions might be reprocessed in understanding to the manufacturer’s headings for utilize and in understanding With Modern Alberta Wellbeing Standards.

Prepared by:
Ms. Khadijah Nasser, CSSD Specialist
We all agree that CS technicians are vital to medical settings and are responsible for insuring each and every surgical instrument is safe for use. In order to perform the duties ensuring the safety of all involved, the CS technician should have certain features. These important features can be shortened as follows:

1. **Cautious**, CS technicians must be cautious at all times when handling and cleaning surgical equipment. They must prevent contamination or exposure to blood and body fluids when cleaning each instrument. They also must wear gowns, masks, face shields, shoe covers, and two pairs of gloves to protect themselves from body fluids and harsh cleansing agents.

2. **Patient**, though routine in nature, the CS technician role requires patience to work through the details and processes that make this job so vital in healthcare settings. The job requires swiftness and extreme accuracy. You will spend your whole shift washing, flushing, drying then sterilizing each and every screw, hinge, tube, and crevice. Then each piece must be reassembled properly for patient safety and surgical effectiveness.

3. **A Rule-Follower**, carefully reading and following instructions is required at all times. Every surgical and ancillary instrument has specific instructions for how to clean, sanitize, and reassemble. Disassembly of the equipment must also be done precisely for proper cleaning and sterilization. The process needs to be accomplished efficiently and effectively.

4. **Analytical and Hands-On**, this job is very hands-on and requires an analytical mind. You are completely in charge for the sterilization, assembly, and disassembly process from A to Z ensuring the kits for surgeries, medical procedures, and exams is safe to use. You are also responsible for inspecting each instrument for possible defects and reporting all defects to staff. After this process is completed, you are responsible for delivering instruments to different hospital and clinic departments.

5. **Detail-Oriented**, as a CS technician, you must pay careful attention to every detail during the sterilization process. The safety of patients and staff is in your hands. In addition to the sterilization process, you will also take inventory to ensure each instrument is accounted for, order supplies, assemble instrument trays, distribute supplies, and diligently check to ensure the sterile supplies are safe to use.

This job requires passion, dedication, patience, precision, and a meticulous approach to ensure the safety and wellbeing of patients and staff. Technical skills aren’t the only ones needed to perform this job well. To succeed as a CS technician, you not only need to be able to work independently, but you also need to have strong interpersonal skills to successfully collaborate and work with colleagues. You will interact with other medical staff on a daily basis which requires excellent communication skills in order to build relationships and prevent mistakes caused by miscommunication.

Prepared by:
Ms. Ilham Mohamed, Manager, CSSD, Ministry of National Guard-Health Affairs, Prince Mohammed Bin Abdulaziz Hospital, Al Madinah Al Munawwarah
WE KILL TO SAVE LIVES!

Human life is our focal goal of our work in the CSSD and all our work is being done to save human life. As we know that the CSSD is a patient support department we make sure to supply the reusable instruments to the patients care people to give the proper care. And this requires certain conditions to be fulfilled. First we must understand the true meaning of sterile. This means free of microbes completely including spores and this can be explained as a Log-6 which means every one million microbes only one is allowed at the moment of use, because microbes can reproduce in time by themselves that is why we package the items we sterilize to maintain the sterility till the moment of use and this packaging follows international regulation called sterile barrier system (SBS). In order to reach this level of log reduction we must do a validated process in well designed department that is divided into three isolated areas and to have a pressure deferential between each area to control the air flow to go in one direction from the sterile store into the clean area and finally into the decontamination area to be filtered and sent outside as a clean air once again. Another step in our work is to reduce the count of microbes gradually in well verified process all the way, that is why the first step is cleaning which can be done manually or mechanically using the right chemicals with the right temperature and the right time all that in the proper mechanical action to fulfill all the requirement in the center circle all in good quality water flowing all the time. This will create a condition of reduction called CLEAN and the level of reduction is Log-2. Then a disinfection process will be done to reach another level of reduction called DISINFECTED to reach the level of Log-4. This way we can validate each step and have the proof for that. Then a visual inspection is done to all the instruments for quality and function too. As we mentioned earlier PACKAGING is a must before sterilization and after inspection using proper material to be compatible with method of sterilization STERILIZATION is done by many methods (depending on the material of the equipment needed to be sterilizes) by applying a high energy release to demolish the microbes, we can use high temperature like steam to go in a well calibrated cycle that goes from vacuuming the air out in pulses then heating then holding the temperature for sterilizing time then goes into drying to be validated process, this can be done by using indicators (mechanical, chemical, biological and electronically) to insure all parameters are completed and recorded. Or we can use low temperature which include either a toxic gas such as ethylene oxide which is used in big scale in medical manufacture as bulk and used to be used in hospital but the world is making a lot of regulations to reduce the environmental danger there for we use hydrogen peroxide plasma in well validated process to insure the final result of sterility. This will give us instruments that comply with five rights of CSSD: Right instrument, Right quality, Right place, Right time, Right documentation. This will insure the killing of all microbes to save the human life there for we say "WE KILL TO SAVE LIVES"

Prepared by:
Mones Barood, Sterilization Expert & Medical Waste Treatment
HOW TO READ SDS’S QUICKLY

**Safety Data Sheets** SDSs which is formerly was called Material Safety Data Sheet MSDSSs provide the needed information about all of the chemical products that are used in a workplace such as CSSD. Those documents illustrate the potential hazard that are associated with the chemicals such as health, fire, reactivity, and environmental. By reading the SDS, you will know what is the physical and chemical properties of the product. Besides, you will find the safety precautions for handling, sorting, and transportation of it.

In CSSD, the staff are dealing with different chemicals daily like ethylene oxide EO which means accident may occur at any time. Regarding of the safety plan of the hospital, here is a quick review of where you need to look up in case a chemical hazard happen. In general, SDS contain 16 sections that are required by Occupational Safety and Health Administration OSHA. During the hazard, the important information will be between section one and section eight.

In the first section, the identification information of the product will be given as well as the contact information of the manufacturer. In addition, most of the possible hazard of the chemical will be identified in section two. In the third section, you will recognize what are the components of the material.

Moreover, in case of an exposure, directly skip to section four because the needed first aid recommendation will be there. You will find a description of the initial care that can be given by any individual to the person who has been exposed to the chemical. Plus, you will find some symptoms and effect of the chemical.

Furthermore, supposing a fire initiated by the chemical, section five will state the best way to control it. For instance, it will recommend the suitable extinguishing equipment. Section six will provide the proper way to handle the chemical in case of spillage or leakage. The seventh section of the SDS will give the best way to handle and store the chemical.

Finally, the personal protection and the exposure control of the chemical will be described in section eight.

References:
https://www.ccohs.ca/oshanswers/legisl/msdss.html

Prepared by:
Ms. Zakeyah Alsharif, CSSD Specialist
BRUSHING TECHNIQUE

There are many types of instruments require specific brush to clean so understanding anatomy of brushes handle, bristle and types help to complete decontamination process.

Handle is part of brush use to hold during cleaning and come with different length and diameters. Wooden brushes handle never be used due to their ability to absorb water and blood.

Bristle:
Two types of bristle brush Synthetic Brush according to AAMI nylon bristle brush is preferred. This type less abrasive so don’t scratch the instruments.

Stainless Steel Brush these brushes are used when face challenging soil that remain on instrument. stainless steel brush should never be used on coated or insulated instrument because instrument damage may occur.

Types:
1. Molded plastic style
2. Spring Coil Stainless Steel Style

Prepared by:
Khaled Al Shamari,
Instructor in PSMMC, CRCST, CIS,
Local Speaker in KSA
THE CLASSIFICATION OF BACTERIA ACCORDING TO THE SURVIVAL TEMPERATURE DEGREE

Bacteria may grow across a wide range of temperatures, from very cold to very hot. A mesophile is an organism that grows best in moderate temperature, neither too hot nor too cold. All human pathogens are mesophiles. Organisms that prefer extreme environments are known as extremophiles: those that prefer cold environments are termed psychrophilic, those preferring warmer temperatures are termed thermophilic or the rmutrophs and those thriving in extremely hot environments are hyperthermophilic.

• **Psychrophile**: An organism that live in low temperature reach up to 2°C.
• **Mesophile**: An organism, especially a microorganism that lives and thrives at moderate temperatures.

• **Psychrophile**: An organism that can live and thrive at temperatures much lower than normal; a form of extremophile.
• **Thermophile**: An organism that lives and thrives at relatively high temperatures, a form of Extremophile.
• From the above types of bacteria is Extremophiles, which is a kind of resistance bacterium due to its extreme environment of living. These extreme environments include intense heat, highly acidic environments, extreme pressure and extreme cold. Extremophiles form great fear due to of varying ways of adapting to the environments that were not once thought to be able to sustain life.

Indeed, it’s truly that Extremophiles adapting to extreme heat at very high temperatures reach up to 120 degree and 251 Fahrenheit. They can be found in places like hydrothermal vents, volcanic sediments, and hot springs. Their survival in such places can be accredited to their extremozymes. The amino acids of these types of enzymes do not lose their shape and misfold in extreme heat, allowing for continued proper function.

A few years after these discovered, other bacteria, hyperthermophile, were found living under even more extreme conditions. An article about Hyperthermophile will be written in the next release widely.

Prepared by: **Ms. Abeer Zaila**, CSSD Specialist
PROPOSAL ON HOW TO REDUCE THE RATE OF MISSING INSTRUMENTS BY USING LEAN SIX SIGMA IMPROVEMENT PROCESS

Introduction
Health care is a vital component of modern society, presenting an enormous display of social, political, technological and economic challenges. Despite these challenges health care professionals strive to deliver the highest quality care possible. The ability to provide impeccable preventative care consistently is of great importance to achieving the goal of reducing the overall cost of health care for patients and providers alike. In order for a surgeon to have the best chance of performing a successful operation, he or she requires a proper set of sterile instruments. The Central Sterilization Services Department (CSSD) is responsible for this chain of tasks referred to as instrument reprocessing. It is a complex process driven by the needs of the operating rooms they support. Therefore, hospitals all over the world are working to improve their CSSDs to ensure safety and effectiveness.

Rational for the study
The researcher will study the causes of the missing instruments that occur in the CSSD of this hospital while utilizing an A-3 problem solving approach. Lean process improvement and a 5S methodology to drive change were implemented and the researcher will study the factors that influence the implementation. Lean Six sigma is a method of increasing process efficiency by reducing non-value-added time. 5S is a Lean tool that increases efficiency and is characterized in the five steps of Sort, Set in Order, Standardize, Shine and Sustain. A3 is a problem solving process that can use Lean methods to bring improvements in the CSSD.

Procedure
➢ The researcher will observe the workflow to identified why and how these instruments get lost.
➢ Does the end-user count the instruments perioperative?
➢ Does the end-user report missing instruments immediately?
➢ Does the CSSD technicians count instruments in the packing and assembly room?
➢ The researcher also plan to have a questioners for the operating room staff and CSSD staff about their understanding to reduce the missing rate of instruments.

Conclusion
Proper instrument management requires good collaboration to help teams in the OR and CSSD to protect the health facilities surgical instruments to increase patient safety and decrease the enormous amount of missing instruments.

Scan the barcode to reach the published study.

Prepared by:
Annalene Vries, CSSD Nurse Manager, Ministry of National Guard health affaires, King Abdulaziz Medical City - Hassa
CLEANING A FOUNDATION FOR STERILIZATION PROCESS

All medical or surgical instruments used for invasive procedures come in contact with sterile tissues or mucous membrane when used in patients. Breach in processes of cleaning, disinfection or sterilization of reusable instruments increase the risk of introduction and transmission of pathogenic microorganisms. For effective disinfection and sterilization, all items must be freed from soil and organic matter. This is achieved by thorough cleaning of all instruments or devices. Cleaning is considered to be the most essential step in the instrument reprocessing cycle. Improper or inadequate cleaning decreases microbicidal action of chemicals and disinfectants on microorganisms. Though the principles of cleaning remain the same but the methods of cleaning can vary. Cleaning can be achieved manually or mechanically, using water with detergents or enzymatic products, brushing or flushing, ultrasonic washer disinfector etc. Removal of soil at the earliest after use of equipment’s not only reduces the microbial load but also reduces the risk of environment contamination and risk of infection to staff with pathogenic microbes. Cleaning can be enhanced by soaking the disassembled instruments in enzymatic solution. Usage of brushes when required (eg. instruments with lumen) must be done with utmost care to prevent generation of infective aerosols. Factors affecting the cleaning process include volume and type of soil, quality of water used, the temperature of at which cleaning is done, availability of detergents or chemicals for cleaning and their appropriate use in correct dilution as per manufacturer instruction.

Any detergent or chemical used at home or laundry are not suitable for cleaning of medical devices. Effective cleaning can be achieved by rendering periodic training to all staff involved in the process of cleaning and decontamination. Staff must be aware of the policy and procedure for instrument cleaning, adhere to standard precaution at all times and follow the manufacturers’ instruction for cleaning. Selection of cleaning products must be done considering the nature of the product, its shelf life and must be cost effectiveness.

Finally hence cleaning is to be considered as the first and most essential step in surgical items reprocessing, one must remember that you can clean without sterilizing, but you can never sterilize without cleaning.

Prepared by:
Ms. Shamsa Salem Al Rabhi, CRCST,
Department of Infection Prevention & Control,
CSSD, Directorate General for Disease Surveillance & Control, Ministry of Health,
Sultanate of Oman
and accordingly most guidelines permit high level disinfection in lieu of sterilization for ‘critical’ probes so long as a sterile sheath is also used. Both endocavitary and surface probes are often used in conjunction with a sheath or condom.

Importantly, guidelines state that use of a sheath (or condom) does not replace the need for disinfection as sheaths (and condoms) can have microscopic tears and can break during use.

It is important that this classification system is applied before the procedure commences. This means that information about what tissues or body sites may be contacted, is required in advance, so that an appropriately disinfected or sterilized probe can be selected. Furthermore, there is a strong preference in guidelines for automated, validated reprocessing procedures.

The Essential for Acceptable Reprocessing

Ultrasound usage in the United Kingdom has increased significantly with diagnostic procedures in England rising over 24% from 7 million to 9.3 million over five years.

Table 1 overleaf summarizes their recommendations.

While the Spaulding Classification is a good general classification system for devices, ultrasound probes have specific usage and reprocessing factors that also need to be considered (Table 1).

Many ultrasound probes cannot be sterilized and accordingly most guidelines permit high level disinfection in lieu of sterilization for ‘critical’ probes so long as a sterile sheath is also used. Both endocavitary and surface probes are often used in conjunction with a sheath or condom.

Importantly, guidelines state that use of a sheath (or condom) does not replace the need for disinfection as sheaths (and condoms) can have microscopic tears and can break during use.

It is important that this classification system is applied before the procedure commences. This means that information about what tissues or body sites may be contacted, is required in advance, so that an appropriately disinfected or sterilized probe can be selected. Furthermore, there is a strong preference in guidelines for automated, validated reprocessing procedures.
<table>
<thead>
<tr>
<th>DR. SPAULDING CLASSIFICATION</th>
<th>PROBE CAN CONTACT</th>
<th>DISINFECTION/STERILIZATION REQUIREMENTS</th>
<th>EXAMPLES OF PROCEDURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRITICAL</td>
<td>Sterile Area</td>
<td>Sterilization + (cover optional. If used, cover must be sterile)</td>
<td>O Intraluminal</td>
</tr>
<tr>
<td></td>
<td>Tissues</td>
<td>Or HLD + Sterile Cover</td>
<td>O Intraoperative</td>
</tr>
<tr>
<td></td>
<td>Blood</td>
<td></td>
<td>O Biopsy</td>
</tr>
<tr>
<td></td>
<td>Body Cavities</td>
<td></td>
<td>O Puncture Techniques</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O Non-Invasive probe-guided cannulation/venipuncture**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O Non-Invasive probe-guided wound assessment</td>
</tr>
<tr>
<td>SEMI-CRITICAL***</td>
<td>Internal organs via non-sterile natural orifices</td>
<td>HLD + cover (preferable sterile)</td>
<td>O Transoesophageal echocardiography (TOE)</td>
</tr>
<tr>
<td></td>
<td>Blood contact expected occurs during procedure</td>
<td></td>
<td>O Transvaginal ultrasound (TV)</td>
</tr>
<tr>
<td></td>
<td>Mucous membranes</td>
<td></td>
<td>O Transrectal ultrasound (TR)</td>
</tr>
<tr>
<td></td>
<td>Non-intact, broken skin</td>
<td></td>
<td>O Non-invasive probe-guided cannulation/venipuncture</td>
</tr>
<tr>
<td>NON-CRITICAL Non-Invasive***</td>
<td>Only Healthy Intact Skin</td>
<td>Cleaning and or Low or Intermediate Level Disinfection (cover optional)</td>
<td>O Abdominal ultrasound, healthy skin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O Pelvic ultrasound healthy skin</td>
</tr>
</tbody>
</table>

Ultrasound probes, as with all reusable medical devices, carry infection risks and a number of infections have been attributed to improper use and reprocessing. A fatal hepatitis B infection contracted during a transoesophageal procedure led to a Medicines and Healthcare products Regulatory Agency alert requesting all users to review their decontamination procedures. Furthermore, a retrospective cohort study by NHS Scotland and Health Protection Scotland demonstrated an infection risk when high level disinfection was not performed for endocaviatry procedures. The study found that patients undergoing transvaginal scans with low level disinfection probes, were 41% more likely to have positive bacterial cultures compared to matched patients not undergoing ultrasound procedures. The need for standardized infection control procedures is paramount to improving patient outcomes in healthcare settings. With increasing applicability of ultrasound and

Is subsequent increase, an ultrasound procedures infection control becomes infection control becomes increasingly more important. Proper application of the Dr. Spaulding Classification system and adherence to Local guidelines will ensure an adequate level Of disinfection is performed and will protect patients from infection risk.

Reference: MM08-12-UK-FY Spaulding Clinical BulletinLR

Virgilio “Tom” Jackson Casinares, PhD.H CSSD International Certified, Specialist and Management-American, European and Middle East Exec-Director- CSSCSA-Central Sterile Supply Club in Saudi Arabia President-FISPM Inc.-Fil-International Sterile Processing Management Inc.

Juan Carlos Floresca BSN, CR CST, CIS, CER, Dubai DHA CSSD Certified, DHCC CSSD Certified Rommel Failana RN, CR CST, UAE MOH CSSD Certified
GUIDELINES FOR THE CLEANING AND STERILIZATION OF INTRAOCULAR SURGICAL INSTRUMENTS

This year the Ophthalmic Instrument Cleaning and Sterilization (OICS) Task Force issued a joint statement updating their recommended guidelines for sterilizing intraocular instruments. The following is a synopsis of the statement.

Postoperative infectious endophthalmitis and toxic anterior segment syndrome (TASS) are rare, but potentially sight-threatening complications of cataract and other intraocular surgery. The small volume of the eye and its sensitivity to minute amounts of chemical or microbial contaminants means that improper instrument cleaning or sterilization practices might pose a significant risk to patients.

Most of the recommended practices are derived from existing evidence-based recommendations for cleaning and sterilizing all surgical instruments in general, from published analyses of TASS outbreaks, and from manufacturers’ instructions for use (IFU) for surgical instruments and equipment. In addition, task force members have collaborated in performing new research that supports certain recommendations. Toxic anterior segment syndrome is an acute severe inflammatory reaction to a toxic contaminant introduced into the anterior chamber during intraocular surgery. In addition to severe anterior chamber cell and flare, it might be associated with fibrin, hypopyon, diffuse limbus-to-limbus corneal edema, atonic pupil, secondary glaucoma, and in some cases, vitreous cells. Because of these signs, TASS might be misdiagnosed and mistreated as infectious endophthalmitis. Even if TASS resolves with treatment and without permanent sequelae, the patient often suffers the emotional trauma of believing he or she might have a potentially blinding infection.

All facilities should establish written protocols for instrument cleaning and sterilization. These “policies and procedures” should be based on industry standards and guidelines with input from the nursing and medical staff. Personnel involved should be properly trained in handling, cleaning, and sterilizing intraocular surgical instruments and subject to periodic oversight. Cleaning and decontamination, which include thorough rinsing and flushing, should precede disinfection or sterilization.
Inappropriate use or incomplete rinsing of enzymatic detergents has been associated with outbreaks of TASS. Studies have shown that while following the manufacturer’s IFU, even minute enzyme residue left on intraocular instruments can cause TASS. The small-diameter lumens and fragile nature of intraocular instruments often make complete removal of all traces of enzyme detergent difficult. Much larger enzyme residues are found if thorough rinsing is not performed. Ultrasonic cleaning poses another risk factor for TASS according to the TASS Task Force surveys. If an ultrasonic cleaner is used, the technician should remove all visible soil before placing instruments in the ultrasonic cleaner. The ultrasonic unit should be designated for cleaning medical instruments and preferably should only be used for ophthalmic instruments. If a unit is used for other types of surgical instruments, it should be emptied, cleaned, and rinsed before use with ophthalmic instruments to avoid cross contamination. Ultrasonic machines should be emptied, cleaned, disinfected, rinsed, and dried at least daily.

It is recommended that ophthalmic instrumentation should be cleaned separately from nonophthalmic surgical instruments. Contaminated and soiled instruments should also be cleaned in an area separate from where packaging and sterilization take place. During decontamination and cleaning, all debris inclusive of ophthalmic viscosurgical device (OVD) should be removed from the instruments. It might be helpful to keep instruments moist until the cleaning process begins to avoid drying of debris and OVD. A dampened lint-free cloth or soft brush should be used to clean instruments in accordance with the manufacturer’s IFU. Additional or repeated cleaning and rinsing steps might be required on an instrument-by-instrument basis to ensure removal of all debris and OVD. One practice that is controversial is the use of enzymatic detergents for decontaminating intraocular surgical instruments. The manufacturer’s IFU that accompany ophthalmic instruments and ultrasound cleaning baths often call for the use of enzymatic cleaners, the omission of which would therefore be considered off-label. However, the necessity of enzymatic detergents for cleaning contaminated intraocular instruments has not been established. Contrary to some manufacturers’ IFU for their intraocular instrument, it is our position that enzymatic detergents should not be routinely required for intraocular instruments for several reasons. These detergents typically contain subtilisin or alpha amylase exotoxins, neither of which is denatured by autoclave sterilization. Corneal endothelial toxicity from enzymatic detergents has been documented in both animal and human studies.

It is recommended that ophthalmic instrumentation should be cleaned separately from nonophthalmic surgical instruments. Contaminated and soiled instruments should also be cleaned in an area separate from where packaging and sterilization take place. During decontamination and cleaning, all debris inclusive of ophthalmic viscosurgical device (OVD) should be removed from the instruments. It might be helpful to keep instruments moist until the cleaning process begins to avoid drying of debris and OVD. A dampened lint-free cloth or soft brush should be used to clean instruments in accordance with the manufacturer’s IFU. Additional or repeated cleaning and rinsing steps might be required on an instrument-by-instrument basis to ensure removal of all debris and OVD. One practice that is controversial is the use of enzymatic detergents for decontaminating intraocular surgical instruments. The manufacturer’s IFU that accompany ophthalmic instruments and ultrasound cleaning baths often call for the use of enzymatic cleaners, the omission of which would therefore be considered off-label. However, the necessity of enzymatic detergents for cleaning contaminated intraocular instruments has not been established. Contrary to some manufacturers’ IFU for their intraocular instrument, it is our position that enzymatic detergents should not be routinely required for intraocular instruments for several reasons. These detergents typically contain subtilisin or alpha amylase exotoxins, neither of which is denatured by autoclave sterilization. Corneal endothelial toxicity from enzymatic detergents has been documented in both animal and human studies.

It is recommended that ophthalmic instrumentation should be cleaned separately from nonophthalmic surgical instruments. Contaminated and soiled instruments should also be cleaned in an area separate from where packaging and sterilization take place. During decontamination and cleaning, all debris inclusive of ophthalmic viscosurgical device (OVD) should be removed from the instruments. It might be helpful to keep instruments moist until the cleaning process begins to avoid drying of debris and OVD. A dampened lint-free cloth or soft brush should be used to clean instruments in accordance with the manufacturer’s IFU. Additional or repeated cleaning and rinsing steps might be required on an instrument-by-instrument basis to ensure removal of all debris and OVD. One practice that is controversial is the use of enzymatic detergents for decontaminating intraocular surgical instruments. The manufacturer’s IFU that accompany ophthalmic instruments and ultrasound cleaning baths often call for the use of enzymatic cleaners, the omission of which would therefore be considered off-label. However, the necessity of enzymatic detergents for cleaning contaminated intraocular instruments has not been established. Contrary to some manufacturers’ IFU for their intraocular instrument, it is our position that enzymatic detergents should not be routinely required for intraocular instruments for several reasons. These detergents typically contain subtilisin or alpha amylase exotoxins, neither of which is denatured by autoclave sterilization. Corneal endothelial toxicity from enzymatic detergents has been documented in both animal and human studies.

It is recommended that ophthalmic instrumentation should be cleaned separately from nonophthalmic surgical instruments. Contaminated and soiled instruments should also be cleaned in an area separate from where packaging and sterilization take place. During decontamination and cleaning, all debris inclusive of ophthalmic viscosurgical device (OVD) should be removed from the instruments. It might be helpful to keep instruments moist until the cleaning process begins to avoid drying of debris and OVD. A dampened lint-free cloth or soft brush should be used to clean instruments in accordance with the manufacturer’s IFU. Additional or repeated cleaning and rinsing steps might be required on an instrument-by-instrument basis to ensure removal of all debris and OVD. One practice that is controversial is the use of enzymatic detergents for decontaminating intraocular surgical instruments. The manufacturer’s IFU that accompany ophthalmic instruments and ultrasound cleaning baths often call for the use of enzymatic cleaners, the omission of which would therefore be considered off-label. However, the necessity of enzymatic detergents for cleaning contaminated intraocular instruments has not been established. Contrary to some manufacturers’ IFU for their intraocular instrument, it is our position that enzymatic detergents should not be routinely required for intraocular instruments for several reasons. These detergents typically contain subtilisin or alpha amylase exotoxins, neither of which is denatured by autoclave sterilization. Corneal endothelial toxicity from enzymatic detergents has been documented in both animal and human studies.

It is recommended that ophthalmic instrumentation should be cleaned separately from nonophthalmic surgical instruments. Contaminated and soiled instruments should also be cleaned in an area separate from where packaging and sterilization take place. During decontamination and cleaning, all debris inclusive of ophthalmic viscosurgical device (OVD) should be removed from the instruments. It might be helpful to keep instruments moist until the cleaning process begins to avoid drying of debris and OVD. A dampened lint-free cloth or soft brush should be used to clean instruments in accordance with the manufacturer’s IFU. Additional or repeated cleaning and rinsing steps might be required on an instrument-by-instrument basis to ensure removal of all debris and OVD. One practice that is controversial is the use of enzymatic detergents for decontaminating intraocular surgical instruments. The manufacturer’s IFU that accompany ophthalmic instruments and ultrasound cleaning baths often call for the use of enzymatic cleaners, the omission of which would therefore be considered off-label. However, the necessity of enzymatic detergents for cleaning contaminated intraocular instruments has not been established. Contrary to some manufacturers’ IFU for their intraocular instrument, it is our position that enzymatic detergents should not be routinely required for intraocular instruments for several reasons. These detergents typically contain subtilisin or alpha amylase exotoxins, neither of which is denatured by autoclave sterilization. Corneal endothelial toxicity from enzymatic detergents has been documented in both animal and human studies.
Unless otherwise specified by the manufacturer, cleaning should be performed as per the machine’s IFU. The method of instrument sterilization should be based on guidelines from the medical device, packaging system, and sterilizer manufacturer. Routine monitoring and verification of sterilizer function with biological indicators should be performed at least weekly, and preferably daily, in accordance with the sterilizer manufacturer’s IFU and documented in the facility log.

My advice? Do the research, check how many cases of TASS and endophthalmitis you have had at your facility. Talk to the vendor who supplies your instruments. Discuss with your CSSD Team the pros and cons of using enzymatic versus non-enzymatic detergents. Review your policies for reprocessing Intraocular Surgical Instruments from pre-cleaning at point of use, to decontamination and washing and wrapping terminal sterilization.

Use Enhanced Visual Inspection on these delicate instruments. If an enzymatic detergent is used ensure that they are rinsed of all residue and OVA debris. If you have the ability to do residual protein testing you might consider including it as part of your QA procedures. Look at the possibility of using a non-enzymatic detergent for these instruments. Each and every member of the sterile processing Team can play their part in ensuring that their patients receive the highest quality reprocessed instruments and that we do not put them at risk due to outdated practices. Their vision is in our hands.

Prepared by: Raymond Moore RN, CSPDT, AGTS, CRCST. Manager CSSD, Imam Abdulrahman Bin Faisal Hospital Ministry of National Guard Health Affairs-Dammam.
STERILIZATION METHODS

In sterilization field there are many methods we rely on:

• Steam Sterilization
• Dry Sterilization

We are going to give a simple of steam sterilization to clarify that it is suitable for the type of packaging SMS wrap contrast to dry sterilization.

Moist heat sterilization describes sterilization techniques that utilize hot air that is heavily laden with water vapor and where this moisture plays the most important role in the sterilization. Heating an article is one of the earliest forms of sterilization practiced. The various procedures used to perform moist heat sterilization process cause destruction of micro-organisms by denaturation of macromolecules.

Melt-blown nonwovens are produced by extruding melted polymer fibers. The extremely fine fibers (typically polypropylene) differ from other extrusions, particularly spun bond. Often melt blown is added to spun bond to form SM or SMS webs, which are strong and offer the intrinsic benefits of fine fibers such as fine filtration, low pressure drop as used in face masks or filters and physical benefits such as acoustic insulation as used in dishwashers.

Spunlaid nonwovens Spunlaid, also called spunbond, nonwovens are made in one continuous process. Fibers are spun and then directly dispersed into a web by deflectors or can be directed with air streams. This technique leads to faster belt speeds, and cheaper costs. Several variants of this concept are available, such as the REICOFIL machinery.

PP spunbonds run faster and at lower temperatures than PET spunbonds, mostly due to the difference in melting points. Spunbond has been combined with melt-blown nonwovens, conforming them into a layered product called SMS (spun-melt-spun). Melt-blown nonwovens have extremely fine fiber diameters but are not strong fabrics. SMS fabrics, made completely from PP are water-repellent and fine enough to serve as disposable fabrics. Melt-blown is often used as filter media, being able to capture very fine particles. In fact, Spunjet is the bonding of the cycle Spunlaid filaments thanks to the hydroentanglement.

so after these short explain about SMS and moist heat sterilization we conclude that kind of sterile method is more suitable with SMS wrap on the contrary with dry heat sterilization because the presence of water which lead to a lower fiber temperature during the cycle.

Prepared by:
Ms. Mashail Omair, CSSD Specialist
more accurate, faster and more effectively with the bacteria Altouselh
Here are removed excess hydrogen from the material and peroxide are the subjects of the Federation hydrogen peroxide plasma with the material.
Here are the subjects of the Federation at peroxide with a hydrogen plasma results in the subjects of material (water and oxygen)
For the work of sterilization of the instruments inside the room has a plasma STERRAD
The last stage is the stage here and VENT called practical stage of exchange and the exchange here, the internal and not external hoses without exchange.
And the pressure equation is an equation EQUILIZATION internal pressure of the sterilization chamber to the outside air pressure to avoid problems.
Thus, the plasma sterilization cycle has been completed.

Prepared by:
Ms. Latifah Al Onaizi, CSSD Specialist
WHY STERILIZATION?

Most of the people just doubting the importance of sharing the awareness of sterilization? What is the purpose of the effort uniting to provide continuous high qualified training and education in the field of sterilization? Moreover, what so important of budget customizing for CSSD?

The answer is that, the health staff believes that the CSSD services are directly associated to the life safety of patients throughout handling the sterilized instruments in surgical procedures and primary care.

Sterilization is the hospital beating heart and the nutrient and spine. Its main function on the patient safety and staff defense system. Sterilization plays a vital role in achieving the objectives of the infection control program. Whence, minimizing exposure time to contaminated instruments. Participating in maintaining the hospital environment by preventing the spread of microbes throughout handling, transport and reprocessing of contaminated instruments. Also tolerating a large burden of the healthcare staff work as well as reducing expenses on contaminated material handling procedures.

The sterilization is the major chunk of the services of all medical departments in the hospital. The most significant tools of security and safety in health facilities. Therefore, it is essential for the health staff in qualifying them in sterilization through training and education.

Dr. Ahmed Baggashi
Head of Saudi CSSD Training & Education Team
Fidelity is the sense of loving something and give it the vigor, time and get-up-and-go passion that are necessary to labor as well as refrain from default. It is reflected in the labor integrity of charity performance, any complete accomplishment with and without the monitoring bodies existence. The loyal is a self-motivated person who acts good and not waiting or needs to an external drive to act properly.

At the main time, the CSSD’s aim is to provide high-quality services for patients care and safety making sure to include the healthcare workers. Besides, minimizing the economy of the equipment that is needed to achieve the high-quality services.

To achieve this high-quality performance, we need a loyal CSSD specialist who is dedicated to delivering an appropriate health care and labor to provide all possible means to ensure patient safety.

The Loyal CSSD specialist

By Ms. Amani Ismail Hawsawi
Co-Founder Assistant of the Sterilization Today Newsletter