

Review of Central Sterile Supply Department (CSSD) in a Hospital

Sonal Chaturvedi¹

Abstract

Central sterile supply department (CSSD) forms an important and integral part of a hospital. Efficient and effective sterilization and aseptic technique are in the fore front of the continuing battle against hospital acquired infection. Also since the demand of hospital services all over the world have increased tremendously, it was considered that all large and medium size hospital must have a properly functioning CSSD.

Keyword: CSSD; Sterilization; Infection.

Definition of CSSD

It may be defined as a service responsible for processing, issue, and control of professional supply and equipment to various areas in a hospital.

The central sterile services department (CSSD), also called sterile processing department (SPD), sterile processing, central supply department (CSD), or central supply, is an integrated place in hospitals and other health care facilities that performs sterilization and other actions on medical devices, equipment and consumables; for subsequent use by health workers in the operating theatre of the hospital and also for other aseptic procedures, e.g. catheterization, wound stitching and bandaging in a medical, surgical, maternity or pediatric ward.

The operations of a Central Service department usually consist of the reprocessing, that is cleaning, disinfecting, and sterilizing of reusable medical equipment. Reusable medical equipment, or RME, can consist of any medical equipment from stainless steel surgical instrumentation, to IV pumps and crash carts. do not have direct contact with a patient.

Sterilization is the process of destroying all living organisms on an item and is the main task of most

¹Medical Officer, Chaudhary Brahm Prakash Ayurved Charak Sasnthan, Government of NCT, New Delhi-110073, India.

Correspondence and Reprint Requests:

Sonal Chaturvedi, Medical Officer, Chaudhary Brahm Prakash Ayurved Charak Sasnthan, Government of NCT, New Delhi-110073, India.

E-mail: drsonalms@gmail.com

Received Date: 01 May 2018

Accepted Date: 22 May 2018

Central Service departments. Items to be sterilized must first be cleaned in a separate decontamination room and inspected for effectiveness, cleanliness and damage. There are multiple methods of sterilization, and which one is used is dependent on many factors including: operational cost, potential hazards to workers, efficacy, time, and composition of the materials being sterilized. In the US, one of the cheapest and easiest methods is steam sterilization, where instrumentation trays and packages are placed in a chamber which is then filled with steam (usually 250-270°F), killing all microorganisms. Sterilization can also be achieved using Ethylene Oxide (ETO) gas. This process was created in the 1950s by the US military and is used on items that cannot withstand the high temperatures of steam sterilization. ETO sterilization takes far longer than steam sterilization and is hazardous to workers, so alternative methods were created in the 1990s. The most common method for sterilizing at low temperatures today is by using hydrogen peroxide plasma, which has near zero risk to workers and cycles take a fraction of the time of ETO sterilization.

Depending on the healthcare facility's policy, there will be either an event related or time related sterile storage policy. If the policy is time related, an expiration date is placed on the sterile package, before being supplied to the end-user as a *sterile* product. If along the supply route, the sealed package got damaged or opened by a health worker, it needs to be returned to the CSSD for re-sterilization. If the healthcare facility's policy

is event related, the package is considered sterile until an event occurs to compromise its sterility (e.g. opened, dropped package, high humidity conditions, torn muslin wrap, etc.)

Planning and organization of CSSD

The CSSD should be planned and organized with the following objectives in mind-

- To provide sterilized materials from a central department under proper control, so as reduce the incidence of hospital infection.
- To provide maintenance, cleaning, storage and issue of surgical supplies.
- To provide costly heat sensitive items to highly specialized units such as cardiac catheter laboratory, heart lungs machine catheter\ tubing etc.
- To provide essentially needed standardization in conformity to the prescribed standards.
- To provide education to the nursing and paramedical staff.
- To provide quality control measures and to institute research.
- To provide sterilized linen and portable suction apparatus.
- To provide inventory control management system of all the equipments used in O.T.

Area Requirements

The minimum area requirement per bed is as follows

75 - 99	BEDS	10 SQ.FT. PER BED
100 -149	BEDS	9 SQ. FT. PER BED
150 - 199	BEDS	8 SQ. FT. PER BED
200 - 249	BEDS	8 SQ. FT. PER BED
250 - 299	BEDS	7 SQ. FT. PER BED
300 AND ABOVE	BEDS	7 SQ. FT. PER BED

Departments or basic division of CSSD

Sterile processing departments are typically divided into four major areas to accomplish the functions of decontamination, assembly and sterile processing, sterile storage, and distribution.

Decontamination

- Decontaminating used surgical instruments and other medical devices
- Operating and maintaining special decontamination equipment like automatic washers
- Inspecting decontaminated items to make sure they are clean
- Assembly
- Organizing clean items and packaging them into appropriate instrument trays and sets

Sterilization and storage

- Sterilizing assembled trays of instruments
- Precisely operating and monitoring special sterilization equipment like autoclaves
- Keeping detailed records of items that have been cleaned, sterilized, and stored

Distribution

- Stocking crash carts
- Organizing sterilized medical supplies
- Ensuring that sterile supplies don't become outdated / preventing event related sterility issues
- Delivering sterile supplies where they are needed and picking up dirty ones

Layout of CSSD- The flow of equipment from the receiving counter to dispensing counter should be unidirectional through the various section in the department, ensuring that no contamination of sterile goods.

Work flow diagram

Dirty Area Clean Area Sterile area Issue area

Organization of work flow

Laundered linen, clean goods ,and dressings from manufactures are added to the washed and dried reusable items , which are made into suitable packs for sterilization and issue . it is important to ensure by a careful and logical workflow that clean packs awaiting sterilization can at no time be mistaken with sterile supplies. If this arrangement is not made, mistaken can occur and clean and

sterile can get mixed up. Further a proper work place arrangement, which ensure that everything required is in the right place , in the right quantity, and at the right time, will of itself achieve an economy of labour and reduce running costs.

Equipment in CSSD

These are as follow -

- a. Ultrasonic cleaner - for hollow instruments
- b. Washer disinfected - for cleaning and dis infection
- c. Gloves processing unit
- d. Drying cabinet
- e. Ethylene oxide sterilization chamber (E T O Sterilizer) - Used for het sensitive article eg. Plastic and rubber goods, electricalappliances, cardiac catheter etc.
- f. Sealing machine - to seal the plastic wrapping for gas sterilization.
- g. Autoclaves
- h. Compressed air controlled pressure guns
- i. Needle sharpening machine
- j. Automist - for fumigation of sterile area
- k. Furniture, sink, cupboard, waste unit, folding table, papper bags, pressure sensitive tape bag and box marker, container, chairs etc.

Staffing pattern in CSSD

- Supervisor with training and experience in cssd.
- CSSD technician
- CSSD attendant
- Messengers forward ,OT delivery

- Boiler attendant
- Clerks
- Sweepers.

As arule of thumb a CSSD would require one CSSD workers per 30 beds plus one supervisor. A 200 -300 beds hospital would need 10 -15 persons of various categories as given above.

Conclusion

The CSSD is a necessity for hospital with bed strength of 100 or more. It reduces hospital acquired infection to a great extent. It reduces additional workload on nursing personnel, so they can give more time to patient care. It can decrease mortality and morbidity and significant reduces in the cost of expensive antibiotics. It can increase turnover of patient due to decrease length of stay in the hospital.

References

1. Central sterile service. Principles and Practice . Published for the Nuffield Provincial Hospitals Trust by the Oxford University Press, London.
2. Alden B. Mills , Functional planning of general hospitals. The American Association of Hospital Consultants. Mc Graw-Hill Book Company, 1969, London.
3. Modern Hospital international planning Practices, Irwin Pusep. Lloyd-Luke Ltd., 49 Newman Street London.
4. ISBN 978-93-81076-51-4, Patient care and Hospital support services , Unit 2 central sterile supply department of D.H.M Module By NIHFW, New Dehli.
5. https://en.wikipedia.org/wiki/Central_sterile_services_department.

Revised Rates for 2018 (Institutional)

Title	Frequency	Rate (Rs): India		Rate (\$):ROW	
Community and Public Health Nursing	3	5500	5000	430	391
Dermatology International	2	5500	5000	430	391
Gastroenterology International	2	6000	5500	469	430
Indian Journal of Agriculture Business	2	5500	5000	413	375
Indian Journal of Anatomy	4	8500	8000	664	625
Indian Journal of Ancient Medicine and Yoga	4	8000	7500	625	586
Indian Journal of Anesthesia and Analgesia	4	7500	7000	586	547
Indian Journal of Biology	2	5500	5000	430	391
Indian Journal of Cancer Education and Research	2	9000	8500	703	664
Indian Journal of Communicable Diseases	2	8500	8000	664	625
Indian Journal of Dental Education	4	5500	5000	430	391
Indian Journal of Forensic Medicine and Pathology	4	16000	15500	1250	1211
Indian Journal of Emergency Medicine	2	12500	12000	977	938
Indian Journal of Forensic Odontology	2	5500	5000	430	391
Indian Journal of Hospital Administration	2	7000	6500	547	508
Indian Journal of Hospital Infection	2	12500	12000	938	901
Indian Journal of Law and Human Behavior	2	6000	5500	469	430
Indian Journal of Library and Information Science	3	9500	9000	742	703
Indian Journal of Maternal-Fetal & Neonatal Medicine	2	9500	9000	742	703
Indian Journal of Medical & Health Sciences	2	7000	6500	547	508
Indian Journal of Obstetrics and Gynecology	4	9500	9000	742	703
Indian Journal of Pathology: Research and Practice	4	12000	11500	938	898
Indian Journal of Plant and Soil	2	65500	65000	5117	5078
Indian Journal of Preventive Medicine	2	7000	6500	547	508
Indian Journal of Research in Anthropology	2	12500	12000	977	938
Indian Journal of Surgical Nursing	3	5500	5000	430	391
Indian Journal of Trauma & Emergency Pediatrics	4	9500	9000	742	703
Indian Journal of Waste Management	2	9500	8500	742	664
International Journal of Food, Nutrition & Dietetics	3	5500	5000	430	391
International Journal of Neurology and Neurosurgery	2	10500	10000	820	781
International Journal of Pediatric Nursing	3	5500	5000	430	391
International Journal of Political Science	2	6000	5500	450	413
International Journal of Practical Nursing	3	5500	5000	430	391
International Physiology	2	7500	7000	586	547
Journal of Animal Feed Science and Technology	2	78500	78000	6133	6094
Journal of Cardiovascular Medicine and Surgery	2	10000	9500	781	742
Journal of Forensic Chemistry and Toxicology	2	9500	9000	742	703
Journal of Geriatric Nursing	2	5500	5000	430	391
Journal of Microbiology and Related Research	2	8500	8000	664	625
Journal of Nurse Midwifery and Maternal Health	3	5500	5000	430	391
Journal of Organ Transplantation	2	26400	25900	2063	2023
Journal of Orthopaedic Education	2	5500	5000	430	391
Journal of Pharmaceutical and Medicinal Chemistry	2	16500	16000	1289	1250
Journal of Practical Biochemistry and Biophysics	2	7000	6500	547	508
Journal of Psychiatric Nursing	3	5500	5000	430	391
Journal of Social Welfare and Management	3	7500	7000	586	547
New Indian Journal of Surgery	4	8000	7500	625	586
Ophthalmology and Allied Sciences	2	6000	5500	469	430
Otolaryngology International	2	5500	5000	430	391
Pediatric Education and Research	3	7500	7000	586	547
Physiotherapy and Occupational Therapy Journal	4	9000	8500	703	664
Psychiatry and Mental Health	2	8000	7500	625	586
Urology, Nephrology and Andrology International	2	7500	7000	586	547

Terms of Supply:

- Agency discount 10%. Issues will be sent directly to the end user, otherwise foreign rates will be charged.
- All back volumes of all journals are available at current rates.
- All Journals are available free online with print order within the subscription period.
- All legal disputes subject to Delhi jurisdiction.
- Cancellations are not accepted orders once processed.
- Demand draft / cheque should be issued in favour of "Red Flower Publication Pvt. Ltd." payable at Delhi
- Full pre-payment is required. It can be done through online (<http://rfppl.co.in/subscribe.php?mid=7>).
- No claims will be entertained if not reported within 6 months of the publishing date.
- Orders and payments are to be sent to our office address as given above.
- Postage & Handling is included in the subscription rates.
- Subscription period is accepted on calendar year basis (i.e. Jan to Dec). However orders may be placed any time throughout the year.

Order from

Red Flower Publication Pvt. Ltd., 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi - 110 091 (India), Tel: 91-11-22754205, 45796900, Fax: 91-11-22754205. E-mail: sales@rfppl.co.in, Website: www.rfppl.co.in