

Study of Quality Control in Central Sterile Supply Department of a Tertiary Care Teaching Hospital

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Abstract

Hospital acquired infection or “nosocomial infection” adversely affects both patients and hospitals. Impact of nosocomial infections ranges from increased length of hospital stay, emotional stress, disability, death of the patients as well as increased hospital cost for the patients and providers. Studies in India have reported nosocomial infection rates from 8% to 58 %. To combat these infections, hospital needs effective methods of disinfection and sterilization which has nowadays been centralized into a single department called Central Sterile Supply Department.

In our study Outcome was measures by two parameters:

- a) User Satisfaction
- b) Microbial count

It was found that in user satisfaction 70% of user end staff are satisfied with the services provided to them. In microbial count of different items sterilized showed that 89 % samples are sterile whereas 11% samples show growth of three different organisms e.g. Coagulase-negative staphylococci, Klebsilla and *Act. Baumanni*.

Keywords: Central sterile supplies; Sterilization; Hospital infections; Quality control

Abbreviations: CSSD: Central Sterile Supplies Department; IEC's: Institutional Ethical Committee

Introduction

Central Sterile Supplies Department (CSSD) is a service unit in a hospital that processes, issues, and controls the sterile stores supply to all departments of the hospital. It can be defined as that service, with in the hospital, catering for the sterile supplies to all departments, both to specialized units as well as general wards and OPDs. Ideally, CSSD is an independent department with facilities to receive, clean, pack, disinfect, sterilizes, store and distribute instruments as per well-delineated protocols. The essentials of this department are correct design, appropriate equipment's, skillful operators and proper workflow [1].

CSSD is established to make reliably sterilized articles available at the required time and place for any agreed purpose in the hospital as economically as possible. It works in collaboration with the Infection Control Committee and other hospital programmed to develop and monitor policies on cleaning and decontamination of reusable equipment, contaminated equipment including wrapping procedures, according to the type of sterilization and sterilization conditions (e.g., temperature, duration, pressure, humidity). Efficiency of the sterilization process totally depends on the results shown by the chemical and biological indicators incorporated during the process of sterilization [2].

In order that the hospital may properly discharge its duty of safeguarding human life that operative skills may be made as effective as possible, it is necessary that adequate

sterilization procedure be carried out. Infection is a health hazard of great exposure and significance affecting the final outcome of the treatment. The quality of life, both physical and psychological can be drastically altered, sometimes permanently by infection and associated 4D's that is delayed healing, discomfort, distress, dependency and dollars (rupees). It is perhaps the C Introduction Department of Hospital Administration 2 single most important factor that adversely affects the performance and image of the hospital [3]. The current study was conducted to study the physical structure practiced in Central Sterile Supply Department of SKIMS, (Jammu and Kashmir) as Central Sterile Supply Department has central role in reducing hospital acquired infection.

Objective

To Study Quality control in Central Sterile Supply Department.

Methodology

In order to study the quality of service provided by Central Sterile Supply Department, the following parameters will be studied: A. User satisfaction B. Microbial count.

User satisfaction

To study the user satisfaction with Central Sterile Supply Department a pre-designed questionnaire was administered to various staff working in the patient care area. The questionnaire was distributed to 100 staff personnel by simple random sampling. The categories of staff included doctors, nurses, theatre assistants, dresser and technician. The questionnaire was distributed by the researcher himself and collected them after completion. The questionnaire consists of ten questions covering all aspect of User satisfaction. Likert Scale was used to grade the responses.

Microbial count

The Swab Samples for culture of sterilized sets/materials processed in Autoclave and Plasma sterilizer were taken on weekly basis for a period of Three months w.e.f 1st January 2019 to 31st March 2019 and sent to microbiology department for investigation. The data regarding the sample and results were entered on pre-designed Proforma.

Ethical approval: The study was approved by Institutional Ethical Committee (IEC) SKIMS.

Data Analysis

The data was received from the answered questionnaires and was plotted on excel 2013. The data was analyzed statistically with the help of statistical software SPSS v19. All the continuous variables of the study were represented by the descriptive statistics and all the categorical variables in the term of frequency and percentage.

Result and Discussion

The Central Sterile Supply Department is the service responsible for receiving, storing, processing, distributing and controlling the professional supplies and equipment's (both sterile and non-sterile) for all user unit of hospital for the care and safety of patient under

strict quality control. Hospital acquired infection or "nosocomial infection" adversely affects both patients and hospitals. Impact of nosocomial infections ranges from increased length of hospital stay, emotional stress, disability, death of the patients as well as increased hospital cost for the patients and providers. Studies in India have reported nosocomial infection rates from 8% to 58%. To combat these infections, hospital needs effective methods of disinfection and sterilization which has nowadays been centralized into a single department called Central Sterile Supply Department.

In 1928, the American college of surgeons-initiated centralization of all surgical supplies and dressings in one unit for supply to all departments of the hospital. Thus, the concept of Central sterile supplies department began in the hospitals. During the Second World War, the British Army established a Central sterile supplies department in Cairo for supply of sterile items to mobile units. In India, one of the earliest Central sterile supplies departments was established by Safdarjung hospital, Delhi and Christian medical college, Vellore during 1957-1960. Central sterile supplies department in SKIMS is centralized service and was commissioned along with the 1st phase of the hospital in December 1982. Central sterile supplies department is located on the ground floor (in services core area of the hospital).

Quality

The ultimate end result of any service is to deliver the desired process in the shape of finished product or service. In order to study the quality service provided by Central sterile supply department of the following quality dimensions were studied.

User end satisfaction

The ultimate outcome of the services rendered in a hospital is judged by the level to which it satisfies its user. In our study 100 personnel working in various department of the hospital directly linked with the patient care were randomly selected and studied. The category of staff studied included doctors, nurses and other staff. In the study It was found that on an average 70% staff was satisfied with the services provided by Central Sterile Supplies Department of SKIMS. This is in accordance with the study conducted by Amel et al. [4].

Microbial count

In our study it was found that 89% of items are sterile whereas 11% samples shows growth of three different organisms. Study shows that out of unsterile items Dressing set 33% of sample were cultures positive for *Acinetobacter Baumannii*, 33% suture sets were positive for Coagulase negative Staphylococci, 33% of Y-connector were positive for *Klebsilla Pneumonia*, 33% of O2 mask were positive for Coagulase negative Staphylococci. A study carried out by Dara Singh et al. [5] on Utilization & quality control in linen and laundry services at a tertiary care hospital, SKIMS, Srinagar showed that frequency distribution of 87% culture reports of various samples from linen and laundry of tertiary care hospital were sterile. In another study done by Mufarrih et al. [6] in 2019 shows that all 14 preoperative samples did not culture any

microorganisms. Out of the 12 postoperative samples, four (33.3%) were contaminated. Those that were contaminated had a colony count between one and two colony-forming units. Coagulase-negative Staphylococcus was the only organism isolated.

Summary

In our study Outcome was measures by two parameters:

1. User Satisfaction
2. Microbial count It was found that in user satisfaction 70% of user end staff are satisfied with the services provided to them.

In microbial count of different items sterilized showed that 89 % samples are sterile whereas 11% samples show growth of three different organisms e.g., Coagulase-negative staphylococci, Klebsilla and Act. *Baumannii*.

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