

# Study of Physical Structure and Organization of 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.*

**Key words:** *Central sterile Supplies, Sterilisation, Hospital Infections*

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## **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 work flow (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 programmes 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 Physical Structure and Organization of Central Sterile Supply Department.

### **Methodology**

To study the physical facilities and organization of the central sterile supply department at SKIMS an observational study along with review of records which was supplemented by interview was carried out. Physical facilities of the central sterile supply department were observed by the researcher which included layout, design, space, equipment's, logistics etc. Central Sterile Supply Department Superintendent, Engineering Department and Material Management Officer were interviewed to know physical facilities in detail. A drawing of physical and architectural layout was obtained and later verified on spot by researcher. An Interview with the relevant functionaries was also conducted to obtain information of the various organizational aspects, which included hierarchy, span of control, jobs specification and job description, supervision in the central sterile supply department.

### **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 equipments (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 1957-60.

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).

## Physical facilities at Central Sterile Supplies Department

### Location

The location of the department provides easy access to user area i.e. emergency services, Operation Theater, Wards etc. Central sterile supplies department area has a separate entrance and exit with unidirectional flow which reduces chance of contamination. It is also in close proximity to other supportive service areas like linen and laundry, dietary services. The location of the central sterile supply services at SKIMS is in consonance the guidelines recommended by Mac Gibnoys. (4)

### Space requirements

Central sterile supplies Department is currently catering 1200 beds has a total space area 3800 sq.ft. for Central Sterile Supply Department, offices, storage area etc. DC Joshi (7) has recommended that the minimum area in square feet required for more than 300 beds is 7sq.feet /bed according to which our services have adequate area. According to WHO, there is no strict regulations or criteria regarding space measurements (5).

The space estimate might be based on some or all of the following:

- Size of the Institution.
- Average number and type of surgical procedures per day.
- Number of beds relying on the supply of Central sterile supplies department.

### Work flow

Central sterile supplies department of SKIMS has a rectangle shape and is strictly as per workflow in the department, the layout allows unidirectional flow of the product and staff with least chances of contamination.( 6).

The Central sterile supplies department is broadly divided into three basic areas:

1. Contaminated Area
2. Clean work area including area for sterilization.
3. Sterile storage Area

### Physical Structure

**Flooring:** It is smooth, non slippery, water impervious.(6)

**Walls:** They are smooth, washable surfaces and are free from unnecessary corners, edges and projections with glazed ceramic tiles fixed. (5)

**Ceiling:** is a smooth, washable surface and is high enough to allow installation and repair of all equipments.

**Doors:** are wide enough to shift heavy machinery and trolleys. Lightings: There is sufficient amount of daylight. Lighting is adequate as per the norms. All are functional and free from shadows. (7)

**Ventilation:** Air changes are about 10/hr. Exhaust and ceiling fans are provided in sufficient number to provide comfortable environment throughout the year to enhance personal comfort and efficiency of workers as per standards.(4)

**Temperature and Humidity:** Temperature of 20-30°C is maintained and relative humidity 35 to 50% for comfort and efficient working of Central Sterile Supply Department workers. These are all in accordance with standard engineering norms. (4)

### Organizational structure

Central sterile supply department service is having well-structured organization framework. The organizational chart clearly explains the hierarchical network of Central Sterile Supply Department services as well as the span of control exercised at various levels of supervision. There are also definite channels of communication, well defined job specification, job description and supervision. The organizational structure of SKIMS Central sterile supplies department of SKIMS meets the required guidelines of an effective organization. (6)

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