Summer Internship Report at

YASHODA HOSPITALS
Secunderabad

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A Report

By

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"Excellence in healthcare is not an act, but a habit of system-wide discipline."
— Dr. Tejal K. Gandhi

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"Don't be afraid, don't worry yourself. It's okay to rest."
"Future's gonna be okay." — Min Yoongi.

Table of Contents:

CHAPTER	CHAPTER TITLES	Pg.no.
1	INTRODUCTION :	1-13
	Profile of the yashoda hospitals	1-5
	Observational Findings	5-7
	Introduction to CSSD:	7-9
	Sterilization equipment and processes	9-10
	Sterilization Monitoring Indicators	10
	Theatre Sterile Supply Unit (TSSU): A dedicated OT hub	10
	Sterile supply management in wards: operational link with CSSD	11
	Regulatory framework and operational guidelines	11
2	METHODOLOGY:	14-18
	A study on sterile supplies management in a tertiary care hospital	
	1 Study Design	14
	2 Study Setting	14
	3 Sample size	15
	4 Observational Framework	16
	5 Study Method	17
	6 Development of support tools	18
4	RESULTS & DISCUSSIONS:	19-24
	Observations in CSSD:	19
	Observations in wards	20
	Audit-based evaluation of sterile items handling practices	21-23
	Discussions	24
5	RECOMMENDATIONS & CONCLUSIONS	25
6	REFERENCES	26-27

ACRONYMS/ABBREVIATIONS:

Acronym/Abbreviation	Full Form
AAMI	Association for the Advancement of Medical Instrumentation
AMC	Annual Maintenance Contract
AMCU	Adult Medical Care Unit
BI	Biological Indicator
CDC	Centers for Disease Control and Prevention
CDC (2024)	Centers for Disease Control (Guideline Year 2024)
CI	Chemical Indicator
CSSD	Central Sterile Supply Department
DNB	Diplomate of the National Board
EtO	Ethylene Oxide
FEFO	First Expired First Out
FIFO	First In First Out
HAI	Hospital-Acquired Infection
HPGP	Hydrogen Peroxide Gas Plasma
ICCU	Intensive Coronary Care Unit
ICU	Intensive Care Unit
ID	Identification
INCU	Infant/Intermediate Neonatal Care Unit
JCI	Joint Commission International
MICU	Medical Intensive Care Unit
NABH	National Accreditation Board for Hospitals and Healthcare Providers
NABL	National Accreditation Board for Testing and Calibration Laboratories
NHDU	Neonatal High Dependency Unit
NHSRC	National Health Systems Resource Centre
NICU	Neonatal Intensive Care Unit
OPD	Outpatient Department
OT	Operation Theatre
OT1	Operation Theatre 1
P/W	Post-Ward or Patient Ward
PCD	Process Challenge Device
PMID	PubMed Identifier
PPE	Personal Protective Equipment
PREM	Patient-Reported Experience Measures
QI	Quality Improvement
QMS	Quality Management System
S/D	Sterile/Decontaminated area
S/R	Suture Removal
SMS	Spunbond-Meltblown-Spunbond
SOP	Standard Operating Procedure
ST	Sterilization Technology
ST79	ANSI/AAMI Standard ST79
TIMS	Tracking Instrument Management System
TSSU	Theatre Sterile Supply Unit

PROFILE OF THE YASHODA HOSPITAL

Yashoda Hospitals

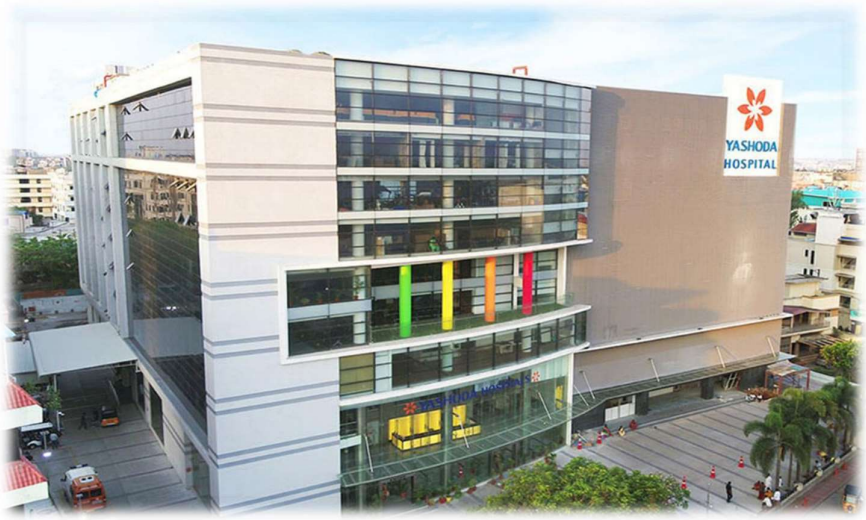
Established in 1989 as a single clinic in Hyderabad, Yashoda Hospitals has evolved into a leading multi-speciality healthcare provider in Telangana. With a capacity of over 2000 beds and a workforce comprising more than 700 doctors, 2000 nurses, and 4500 total staff, the institution has maintained its commitment to advanced medical care, ethical practice, and patient-centered service delivery.

The group currently operates three NABH- and NABL-accredited hospitals in **Secunderabad, Somajiguda, and Malakpet**, each supported by a nursing college. An upcoming facility in Hitec City is under development.

BRANCHES OF YASHODA HOSPITAL:



Yashoda Hospital, Secunderabad, Telangana.



The Secunderabad branch, established over three decades ago, serves as the flagship institution of the group. It is recognized for its clinical expertise, advanced infrastructure, and capacity for handling complex and critical cases.

Key features include:

- Full-scale super-speciality departments and subspecialties.
- Advanced surgical suites with minimally invasive and robotic systems.
- Level-1 trauma centre with integrated diagnostics.
- 360-degree intensive care unit (ICU) configuration for high-acuity monitoring.
- Specialised transplant units and rehabilitation services.
- Floor-wise outpatient departments ensuring streamlined care pathways.

The hospital functions as a referral centre for high-risk and specialised procedures and is known for consistent clinical outcomes, evidence-based practices, and structured continuity of care.

Vision and Mission

Vision:

To be the most trusted and preferred healthcare provider.

Mission:

To deliver world-class healthcare at an affordable cost, with emphasis on quality, service excellence, empathy, and respect for individuals.

Core Institutional Values (5Cs + Contribution)

- **Care:** Patient dignity and personalised attention.
- **Courtesy:** Respectful communication under all circumstances.
- **Capability:** Use of modern diagnostics and trained personnel.
- **Character:** Ethical consistency and procedural integrity.
- **Commitment:** Focused learning and continual improvement.
- **Contribution:** Social responsibility through education and outreach.

SPECIALITIES AND SERVICES

Yashoda Hospitals offers 62 medical and surgical specialities, including Cardiology, Neurology, Oncology, Gastroenterology, Pulmonology, Transplants, Orthopaedics, Urology, Nephrology, and Robotic Sciences. All branches provide comprehensive diagnostic, pharmacy, and rehabilitative services on-site.

AWARDS AND ACHIVEMENTS:

Award	Year	Category
National Board of Education (NBE) National Award	2018	Excellence in Medical Education
Heal Foundation's National Healthcare Foundation	2017	Excellence in Innovative Hospital Administration
National Organ and Tissue Transplant Organisation (NOTTO)	2017	Best Hospital for Organ Donation
Times Healthcare Achievers: Telugu States	2017	Best Hospital: Neurology and Neurosurgery
Times Healthcare Achievers: Telugu States	2017	Best Hospital: Oncology
The Week-Nielsen Best Hospital Survey	2015	Winner
The Week-Nielsen Best Hospital Survey	2014	Runner up
The Week-Nielsen Best Hospital Survey	2013	Second runner up

OUTPATIENT SERVICES (SECUNDERABAD)

Yashoda Hospitals received "hospital with the highest standard in patient care" at CIMS Medica Healthcare Excellence Awards 2020.

- Yashoda hospitals awarded “hospital with highest standard in patient care” at cims medica healthcare excellence awards 2020.
- Ahpi awards for excellence in healthcare.
- Govt. Of india ranks Yashoda hospitals as first in cadaveric organ transplantations.
- Yashoda group of hospitals bags national health care award.
- Yashoda hospitals bags national award for excellence in dnb programs.
- Yashoda hospitals ranks 1st multispeciality hospital in the times healthcare achievers.

The Secunderabad branch OPD is floor-wise and department-wise operated for free patient flow. The billing counters are colocated with the consultation points.

Patient types are:

- New / review patients (under a lifetime hospital ID)
- Emergency referred cases
- Walk-in appointment-based visits
- Recipient of CIMS Medica Award for Patient Care Excellence (2020)

- AHPI Awards for Healthcare Quality
- Top-ranked in cadaveric organ transplantation by the Government of India
- Academically acclaimed for DNB courses
- Highest rated hospital in Times Healthcare Achievers survey

Expansion Plans: Hitec City Branch



A 2000-bed hospital is under development at Hitec City, Hyderabad. Spread over 20 lakh sq. ft., the complex will have air ambulance connectivity, VIP suites, family rooms, and nature-integrated recovery spaces, designed to enhance healing through architectural wellness concepts.

SWOT ANALYSIS:

Strengths

- Integrated health care company.
- Best technology & resources to provide quality services.
- Largest private sector health provider in Telangana.

Weaknesses

- Limited presence in semi-urban markets
- Higher cost structure than smaller hospitals

Opportunities

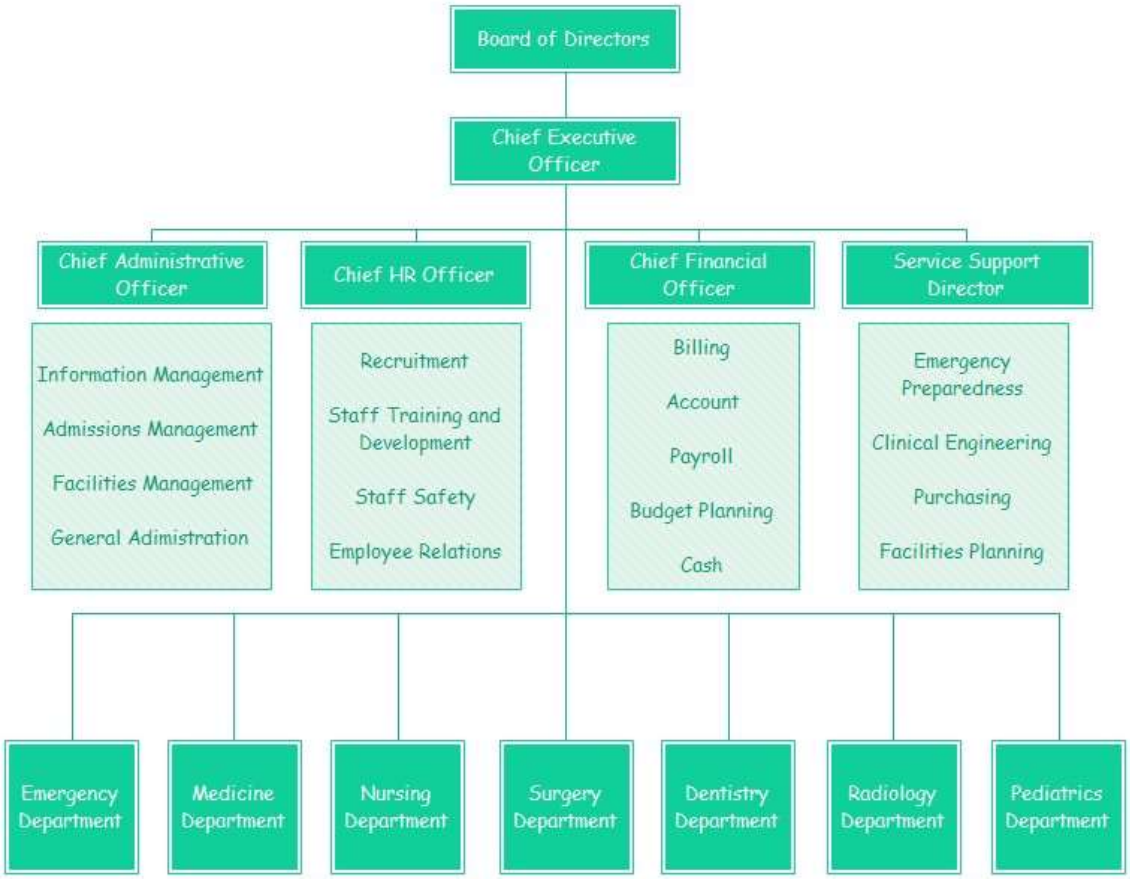
- Growth through periphery outreach and medical tourism
- Capacity to fill gaps in care among disadvantaged population.

Threats

- Competition appears to be stiff nowadays among current industry players.

- The price of the medical equipment takes 40% to 45% of the overall price in the hospitals. 3. New hospitals.
- Any technological change will render existing medical equipment outdated.

ORGANIZATIONAL CHART:



OBSERVATIONAL FINDINGS:

I. Departmental Exposure and Key Learnings

Central Sterile Supply Department (CSSD)

Monitoring of sterilization process in sequential order placed important milestones such as decontamination, packaging, use of indicators, and record-keeping under receiving and issuing registers. Interdepartmental practice comparison with NABH guidelines ensured compliance of operations and interdependencies with OT, ICU, and ward units identified coordinated sterile supply management needs in infection control.**Critical Care Units (ICU, NICU, MICU)**

In-depth chart review of patients reintubated in less than 48 hours from extubation offered exposure to intensive care documentation standards. A registry review was done for reviewing patient outcomes, time-sensitive assessments, and safety events reporting. Inconsistencies in registry completeness were monitored.

General Wards

Participation in routine rounds for safety assisted in the determination of gaps in maintenance and deployment of equipment issued by CSSD. Adherence highlighted the importance of following checklist protocols and reporting mechanisms in the context of ensuring ward-level compliance to hospital standards on safety.

Pharmacy and Endoscopy Audits

Involvement in audits provided a real-world experience to medication charting, inventory control and traceability systems in documents. Direct observation of routine dispensing and monitoring of endoscopic equipment defined significant interfaces between clinical practice and regulatory requirements.

Radiology Quality Improvement Initiative

Being a member of a departmental QI project on the cause identification of repeat investigations and reporting errors. Case log analysis enabled the identification of the relationship between documentation quality, interpretive accuracy, and diagnostic efficiency.

II. Training Undertaken: NABH 6th Edition (Three-Day Programme)

I have completed a well-structured 3-day training course on the National Accreditation Board for Hospitals (NABH) 6th Edition guidelines. While there was no certification involved, the training course provided sufficient exposure to what is to be followed in accreditation, quality indicators, documentation practices, and audit-readiness measures that can be applied across departments of hospitals.

.**III. Key Systemic Observations**

- Data inconsistencies: Registry entries varied significantly across ICU"s, wards, and CSSD limiting data reliability and audit preparedness.
- Inventory Gaps: Mismatches between recorded and actual equipment were observed along with inconsistently maintained logs.
- Documentation defects: Checklist usage and documentation protocols were not uniformly applied by the clinical staff.
- Delays in validation : PREM tool's validation was delayed because of departmental coordination issues.

IV. Core Learnings

My Internship exposed me to hospital-based quality systems, sterilization control procedures, and ICU documentation procedures. These exposed one to entering correct data, having properly organized procedures, and communication to ensure the quality of operations and safety of a patient.

V. Operating Restrictions

Completion of the entire validation cycle of the PREM instrument within the time frame provided was not possible due to scheduling and coordination issues. Physical access to audit data and patient-level data in certain departments was also restricted, and variable departmental participation led to disruption of continuity of observation and learning.

Recommendations:

- Structured Orientation for Interns-

  A preliminary grasp of the rationale behind the hospital operation and of the departmental processes could be served by a brief, logical summary.

- Appointment of Departmental Contact Point

  Having a single intern contact or a single mentor per department might be able to assist in offering advice and setting expectations.

- Attendance to Daily Team Briefings

  Requesting interns to attend suitable daily or weekly team meetings may be a consideration under membership and observation learning.

SPECIFIC FINDINGS (PROJECT)

A STUDY ON STERILE SUPPLIES MANAGEMENT IN A TERTIARY CARE HOSPITAL

INTRODUCTION TO CSSD

An Overview of CSSD One essential part of a hospital is the central sterile supply department. In order to prevent infections and guarantee patient safety, sterile, clean tools and equipment should be supplied to all hospital departments, including operating rooms, patient wards, operation clinics, emergency rooms, and intensive care units. The CSSD employees sterilize items in a centralized, well-organized, and controlled manner rather than using different boiling water or chemical methods in each department. According to Allison (1960) and the Ministry of Health & Family Welfare (2020), these earlier techniques were more dependable and lacked sufficient standards for quality checks [1,3].

Previously, various departments used different methods, like chemical cleaning, with varying results. Traditionally, departments have relied on chemical disinfection or unpredictable boiling methods.

In the past, departments have employed haphazard boiling techniques or chemical disinfection, with varying degrees of success. A contemporary CSSD, on the other hand, is designed to offer sterilisation cycles that are validated, replicable, and supported by traceable documentation. competent personnel, microbiological control This modification guarantees a reduction in hospital-acquired infections while also raising patient safety and healthcare standards. The following paragraph illustrates how the CSSD operates through four logical certificated zones to prevent cross-contamination and maintain a unidirectional workflow. The Central Sterile Supply Department (CSSD) is an essential part of a hospital's design. Patients are kept safe and infections are reduced when sterile, clean tools and equipment are supplied to all hospital departments, including operating rooms, patient wards, outpatient clinics, emergency rooms, and intensive care units.

To replace antiquated methods where each department used chemicals or boiling water independently, the CSSD uses a centralised, organised, and controlled method for sterilising items. These outdated techniques lacked appropriate standards and quality assurance, and they were inconsistent. In the past, disparate departments employed different techniques, such as chemical cleaning or boiling, which produced inconsistent results. Departments have historically used erratic boiling or chemical disinfection techniques, with varying degrees of success. Modern CSSDs, on the other hand, are made to provide repeatable, verified sterilisation cycles backed by traceable records, knowledgeable staff, and scientific microbiological control principles. According to Singh et al. (2019), this shift guarantees a decrease in hospital-acquired infections (HAIs) while improving patient safety and the standard of healthcare [2]. In order to avoid cross-contamination and preserve a unidirectional workflow, a functional CSSD functions through four logically divided zones: Receiving and Clean-up Room: Trolleys are used to transport all used instruments—aside from textiles—back from the wards and theatres. Disassembly, washing, ultrasonic cleaning, and drying are all performed on these items. Before the material is sent for drying and additional processing, it is rinsed with both plain and distilled water. The work room, also known as the preparation area, is furnished with stainless steel trolleys, cabinets, drawers, and benches. Sterile packs are assembled and wrapped here. Using colour-coded foil caps that act as sterility indicators, syringes are

lubricated, needles are sharpened, and equipment is packaged. Hot-air ovens and high-vacuum steam-pressure sterilisers are located in the autoclave room. Pressure gauges, temperature charts, and lighting are used to keep an eye on sterilisers, which run at 134°C and are tracked by lighting systems, temperature charts, and pressure gauges. After the cycle is finished, the items are transferred to cooling and storage after being loaded into sterilisers in baskets. The Sterile Store Sterilised packs are distributed in response to written requests and kept on movable shelves. The majority of items are eaten within 48 hours, guaranteeing sterility and freshness. Additionally, emergency packs are ready for use at night or in an emergency. Allison (1960) [1]. These main operations are supported by dedicated spaces for handling sterile linens, processing gloves, and preparing solutions. The NABH 6th Edition (Annexure 6) requires structural zoning, environmental controls, and air pressure differentials, with positive pressure in sterile zones and negative pressure in decontamination areas

STERILIZATION EQUIPMENT AND PROCESSES

Steam Sterilization (Autoclaving):

the most commonly Conventional cycles use saturated steam under pressure and run between 121 and 134 °C. The duration of exposure varies according to the type of load; for porous loads, 4 minutes at 132°C is advised. Metal trays, glassware, linens, and surgical instruments are all autoclaved using steam. Although flash sterilization needs careful validation, it can be used in an emergency (CDC, 2024). 4]. Using hot-air ovens for dry heat sterilization: They work well with glassware, powders, and metal instruments that could be harmed by moisture and can withstand prolonged use at 160–190 °C. Dry heat is bactericidal and sporicidal, despite its lower efficiency (CDC, 2024). 4]. Methods at Low Temperatures: For devices that are sensitive to heat and moisture, ethylene oxide (EtO) gas is utilized. requires aeration for up to 12 hours and processing for 1–6 hours because of harmful residues. especially appropriate for plastics, electronics, and catheters (CDC, 2024) [2]. b. HPGP, or hydrogen peroxide gas plasma, is quick, residue-free, and highly compatible with heat-sensitive equipment. HPGP is used by 84% of hospitals surveyed by the CDC, frequently in place of EtO (CDC, 2024; Europe PMC, 2015). [2–3]. c. Peracetic acid, also known as vaporised hydrogen peroxide, is used in endoscopes and other delicate instruments and is effective against a variety of microorganisms. doesn't leave harmful residues and offers quick cycle times (CDC, 2024; MedBox) [2,4]. Device design, material compatibility, infection control urgency, and thermal stability all

influence the sterilisation methods chosen. To maintain sterility after processing, proper loading procedures, drying techniques, and packaging materials (such as rigid containers, pouches, and SMS wraps) are also essential

STERILIZATION MONITORING INDICATORS

Three categories of indicators are used to verify and track sterilization procedures: Indices that are physical: These consist of integrated sterilizer monitors that record and show vital metrics like pressure, temperature, and time. For cycle validation, they act as permanent records and offer real-time verification (3M, 2017). 5]. CIs (chemical indicators): indicators that undergo color change in response to exposure to particular sterilization parameters. The highest accuracy for individual packs is provided by Types 5 (integrating) and 6 (emulating), which are the categories into which CIs are divided in accordance with AAMI ST79 standards (STERIS, 2020). [6]. Indicators of Biology (BIs): BIs are thought to be the most dependable because they contain extremely resilient bacterial spores, specifically Bacillus atrophaeus for EtO and Geobacillus stearothermophilus for steam and plasma. They're employed in a Process Challenge Device (PCD) and are advised for every implant load and daily monitoring (3M, 2017; STERIS, 2020). [5,7].

THEATRE STERILE SUPPLY UNIT (TSSU): A DEDICATED OT HUB

Many hospitals install a Theatre Sterile Supply Unit (TSSU) inside or next to the OT complex to accommodate the time-sensitive requirements of surgical departments. The TSSU guarantees a sterile supply for both scheduled and emergency procedures around-the-clock and speeds up instrument reprocessing (PMC, 2019). [2]. The workflow of CSSD is compactly replicated by TSSU operations: Decontamination Sterilization (usually with plasma or steam) sterile storage To maintain asepsis, the unit uses environmental zoning and unidirectional flow. At Singapore's TSSU, the application of Lean approaches resulted in a 29% decrease in surgical delays and a 5% improvement in instrument turnaround time. Traceability was further improved by barcode systems such as TIMS. decreased equipment damage and improved traceability even more (PubMed, 2019; PubMed, 2016). [4-5]. Additionally, in situations where an immediate instrument turnover is required, TSSUs facilitate intraoperative reprocessing. This helps with complicated surgeries that need several sets and prevents surgical delays. As part of a redesigned TSSU model in tertiary care, technicians were given packing and sterilization responsibilities, freeing up nurses To

concentrate on perioperative patient care. This increased staff productivity and operational efficiency (PMC, 2019). [2].

STERILE SUPPLY MANAGEMENT IN WARDS: OPERATIONAL LINK WITH CSSD

General wards require smooth interdepartmental coordination because, unlike OT settings, they receive their sterile supplies straight from CSSD. For infection control and patient outcomes, these supplies must be managed promptly and according to protocol.

Ward Workflow

Workflow for CSSD-Ward Reusable catheters, dressing sets, and steel bowls are among the used items that wards gather and place in return containers that are labelled and categorised according to contamination. Proper segregation avoids harm, contamination, and logistical bottlenecks, according to NHSRC (2021). After receiving it, CSSD does the following: Decontamination using mechanical or enzymatic cleaning Sterilisation according to the type of item Putting together and packing ward-specific kits Labelling with the integrity status, batch number, and expiration date The packaging integrity, dryness, and indicator colour change of sterile packs sent to wards must be examined. To guarantee traceability, infection control teams require usage logs, daily inspections, and storage in locked cabinets. Maintaining Security and Avoiding HAIs HAIs are at risk from any failure to handle or deliver sterile supplies. According to a 2023 SciELO study, facilities with properly regulated Stricter CSSD regulations were associated with 70% fewer HAI reports. Reducing deviations is aided by clear SOPs, appropriate training, and monitoring. Good sterile supply practices also boost nurse productivity by ensuring material readiness, reducing delays in patient care, and elevating public confidence in hospital safety protocols. Rules for Storage and Ward Use: Sterile packs are kept in specially designated dry cabinets. The pack must be checked for damage by nurses. Use the first-in, first-out (FIFO) method. Keep an eye on usage and report any abnormalities. Through compliance audits and training, these protocols are kept up to date.

REGULATORY FRAMEWORK AND OPERATIONAL GUIDELINES

There are various international and national standards that guide CSSD practice. As per the NABH standards, each CSSD is maintained to provide detailed documentation use validated indicators on all loads, and environment control.

The JCI guidelines supplement this by demanding proper storage of sterile supplies, audit trails, personnel PPE, item expiration and package integrity tracking [5,6]. Guidelines by CDC focus on the selection of the sterilization process by the device type and their validation through chemical, physical, biological monitoring,. The goal is to achieve total destruction of microbes, including bacterial and material compatibility. (CDC, 2024) [4]. Although there are standard procedures, the literature indicates the challenges of sterile supply management as the poor infrastructure, protocol violations, and skill infrastructure, skill deficiencies among the staff, all compromising infection control as well as operation efficacy (Singh et al., 2019; BMC Health Services Research, 2024; Crimson Publishers, 2022) [2,7,8]

RESEARCH QUESTION:

How do workflow & processes & inventory practices in CSSD & wards impact the safe delivery & use of sterile in a teritary care hospital setting?

AIM AND OBJECTIVES:

AIM:

To study and evaluate the management practices of the sterile supplies in a teritary care hospital with focus on storage, distribution, utilization, and record keeping processes to ensure patient safety and infection control.

OBJECTIVES:

PRIMARY OBJECTIVE:

To evaluate the end-to-end management of sterile supply within a tertiary care hospital specifically assessing how sterile items are managed between the CSSD and clinical area, to understand its effectiveness in supporting safe and infection free patient care

SECONDARY OBJECTIVE:

- To observe the management and flow of sterile supplies in CSSD and clinical areas, for improving operational efficiency and patient safety.
- To establish nursing personnel's knowledge, comprehension, and adherence to best practice in dealing with sterile CSSD materials.To identify gaps between ward level sterile supply practice and typical hospital practices, with particular reference to storage, use and recording.

- To recommend training, monitoring, and policy development areas for improvement based on findings and current practices.

RATIONALE:

The aim of this research is to examine the management of the sterile stores in CSSD and the hospital wards because they are vital in the provision of infection control as well as patient safety. Identifies safety issues, traceability, workflow and opportunities for improvement realized through trends at a given moment.**STUDY DESIGN:** Descriptive observational study

SAMPLING: Random sampling

DATA COLLECTION:

- **CSSD registers:** Reviewed for sterilization records, batch wise tracking and dispatch documentation.
- **Indent books:** Examined from both CSSD and clinical departments to validate requistion, supply and items traceability.
- **Ward and ICU storage area:** Assessed to verify storage conditions, pack intergrity, labelling accuracy and expiry compliance.
- **Direct observation of CSSd workflow:** Conducted across key stages including receiving, decontamination, packing, sterilization, storage and dispatch without interrupting routine operations.
- **Audit of sterile items** Carried out in selected areas like general wards (4B, 4C, 7C, 8F–J), ICUs, OTs, Endoscopy Suite, Emergency Room, and AMCU. Audited items comprised dressing sets, surgical instrument kits, Ambu bags, airway devices, gloves, gauze packs, and catheterization kits.

A STUDY ON STERILE SUPPLIES MANAGEMENT IN A TERTIARY CARE HOSPITAL

Study Design

This cross-sectional, descriptive study was performed to evaluate sterile supply handling practices in the Central Sterile Supply Department (CSSD) and in certain of the hospital complex's clinical areas. In four months, the study was to detect deviations from standard sterilization and storage procedures that would threaten patient safety.

The study design was divided into three consecutive phases:

- Mapping of related clinical procedures and CSSD
- Determination of differences in procedures among patient care units
- Monthly observation audits through quality and safety rounds.

Study Setting

The study involved CSSD and purposive sampled clinical departments in relation to sterile equipment dependence and previous audit findings. These comprised intensive and neonatal wards (ICCU, PICU, INCU), procedure suites (Endoscopy, Cathlab), operating rooms, wards (4B, 4C, 7C, 8F–J), emergency departments, and pharmacy-related departments.

Inclusion Criteria

- Clinical departments directly engaged in the use, storage, or handling of sterile items.
- CSSD-related inventory documentation offices throughout the study period.
- Observations performed while not interrupting patient care activities.

Exclusion Criteria

- Administrative or non-clinical departments.
- Situations beyond the project scope or timeline.
- Situations where observation can disrupt clinical investigations

Observational Coverage

A total of **43 structured observations** were recorded through two parallel audit streams:

- **Quality Compliance Observations (April–June)**:26 patient-preparation and high-dependency area admissions.
- **Safety Rounds (February–May)**: 17 submissions were made to imaging suites, procedure labs, and perioperative areas. Floor-by-floor, department-by-department, and month-by-month level observations were used to classify the observations to

identify frequency patterns and spatial aggregation. Operative and critical services, where the fourth and fifth floors are located, had the highest audit density.

Observational Framework:

There was a policy of passive, non-intrusive surveillance with no clinical intervention. Observation was carried out during work hours and no patient identifiers were utilized.

The following steps of the workflow were observed in CSSD:

- Packing and preparation
- Storage and sterilization
- Dispatch and documentation

Clinical sites were asked about:

- Conditions of storage (i.e., overstocking, incorrect segregation, expired products)
- Packaging integrity (e.g., rust, tears, broken seals, staining)
- Quality of records (label correctness, date of expiry, completeness of registers)

Key Deviations Observed:

- Backdated and misdated surgery sets
- Faulty packaging, rusted equipment, and unknown materials in OTs and wards
- Forceps, AMBU bag, and laryngoscope suction containers
- Lack of or incomplete documentation and tracking registers
- Emergency kit and disaster stockpile spares

Study Method

Phase I – Workflow Understanding and Process Mapping

The initial activity was direct observation of CSSD activity in real-time to record the end-to-end process of sterilization. This included:

- Receiving and Decontamination: Monitoring of handling contaminated instruments, pre-cleaning steps, and chemical disinfection processes.
- Preparation and Packing: Material selection assessment (wrappers, indicators), drying processes and separation procedures.
- Sterilization and Storage: Autoclave loading monitoring, cycle testing, storage conditions (temperature, humidity), and labeling requirements.
- Dispatch and Documentation: Dispatch log monitoring, destination tracking, and record retention through CSSD and receiving departments.

Safety protocols like donning of PPE, cleaning of equipment, workflow zoning,and maint enance of utilities were observed to measure compliance with acceptable safety levels

Phase II – Deviation Identification Across Clinical Units

At that point, equipment that had been sterilized was manually checked in a number of clinical departments for:

- Package integrity: Evidence of tampering, such as torn open packaging, rust stains, and compromised seals.
- Expiry compliance: To have expired product in use areas.
- Label accuracy: Mislabeling on packs, missing autoclave data, and partially labeled cycle indicators.
- Storage conformity: Mixing of sterilized and non-sterilized material, overstacking, and uncontrolled environment exposure.
- Inventory management: Review of FIFO (First In First Out) and FEFO (First Expiry First Out) application, and rotation processes in-house.

  These too were thoroughly cross-checked for completeness, like CSSD logs, the ward indent books, and traceability records. Frequencies and severities of deviations recorded were utilized for risk-labeling units.

Phase III – Monthly Structured Observations and Audit-Based Confirmation

43 systematic observations made as part of routine Quality Compliance Rounds (April–June) and Safety Rounds (February–May). All observations were systematically documented by department, floor, and nature of deviation. Audit checklists contained the following parameters:

- Sterility Indicators: Color change and presence of chemical indicator.
- Product expiry status: Sterility of the set at the time of opening.
- Label and Documentation: Uniformity of the labels on items, dates, batch numbers and autoclave numbers.
- Storage Practices: Physical state of the storage rooms, separation of materials, and visual clutter.
- Recall Readiness: Ability to identify and segregate the affected packs if necessary.

These were subsequently plotted by department floor, and month in order to enable visualization of trends of compliance and spatial patterns of non-conformities. This multi-dimensional approach enabled detection of systemic gaps and identification of corrective interventions.

Total Number of sterile supply observations in patient care areas:		
FLOOR	**PATIENT CARE AREA**	**No.of observations**
Ground	Emergency department	5
1st	ENT Procedure room	2
2nd	ICCU	6
	S/d ICCU	1
3rd	Pre – op ward	2
4th	Endoscopy	4
	Pre & Post Endoscopy	2
	4^{th} C	2
	4^{th} A	1
	INCU	3
5th	Pharmacy store	1
	Opposite of Pharmacy store	1
	OT 1&2	1
	OT	1
	OT 1	2
	PICU	1
	5TH A /PGW	1
	5^{th} c	1
6TH	Cone beam lab	3
	Cath lab	2
	OP No.-3	1

Month-wise total number of sterile supply observations: QUALITY COMPLIANCE		
MONTH	**DEPARTMENT**	**No. OF OBSERVATIONS**
JUNE	**Emergency department**	**4**
	Endoscopy	**3**
	Pre- OP ward	**1**
TOTAL		**8**
APRIL	**ICCU**	**3**
	5th A & PGW	**1**
	5th C	**1**
	Emergency department	**1**
	Pre & Post endoscopy	**2**
TOTAL		**8**
MAY	**4th C**	**2**
	ICCU	**3**
	INCU	**3**
	PICU	**1**
	S/D ICCU	**1**
TOTAL		**10**
		26

Month wise total number of sterile supply observations: SAFETY ROUNDS		
MONTH	**DEPARTMENT**	**No. OF OBSERVATIONS**
FEBRUARY	**X-ray room**	**1**
	ENT procedure room	**2**
	Ultrasound	**1**
TOTAL		**3**
MARCH	**Cathlab**	**2**
	Endoscopy	**1**
	4th A ward	**1**
TOTAL		**4**
APRIL	**OP No.- 3**	**1**
	Cone beam lab	**3**
TOTAL		**4**
MAY	**OT-1**	**2**
	OT	**1**
	OT-1&2	**1**
	Oppositie to pharmacy store	**1**
	Pharmacy store	**1**
TOTAL		**6**

RESULTS & DISCUSSIONS:

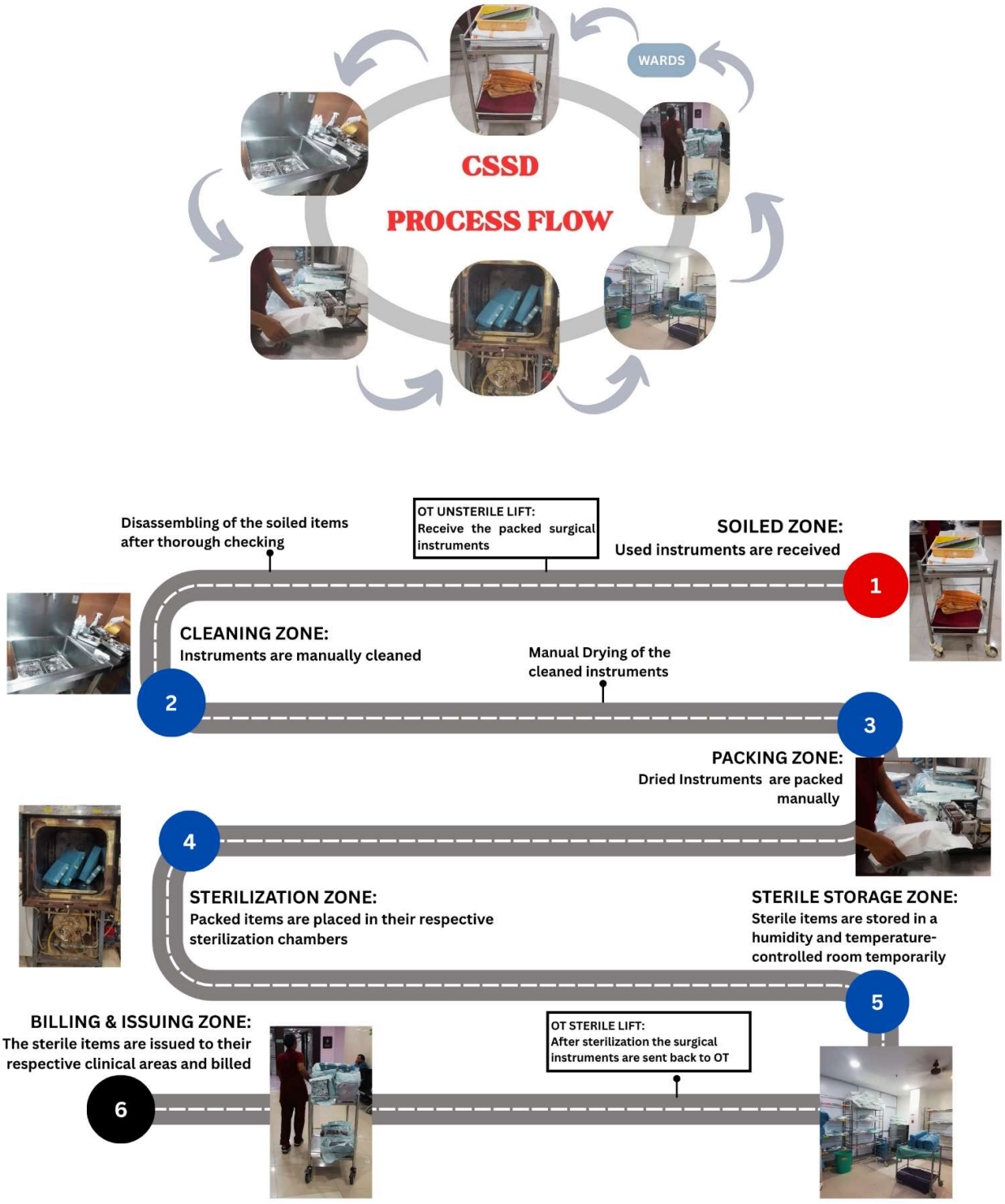


Fig. Detailed zones and their functions of CSSD

4.1 OBSERVATIONS IN CSSD:

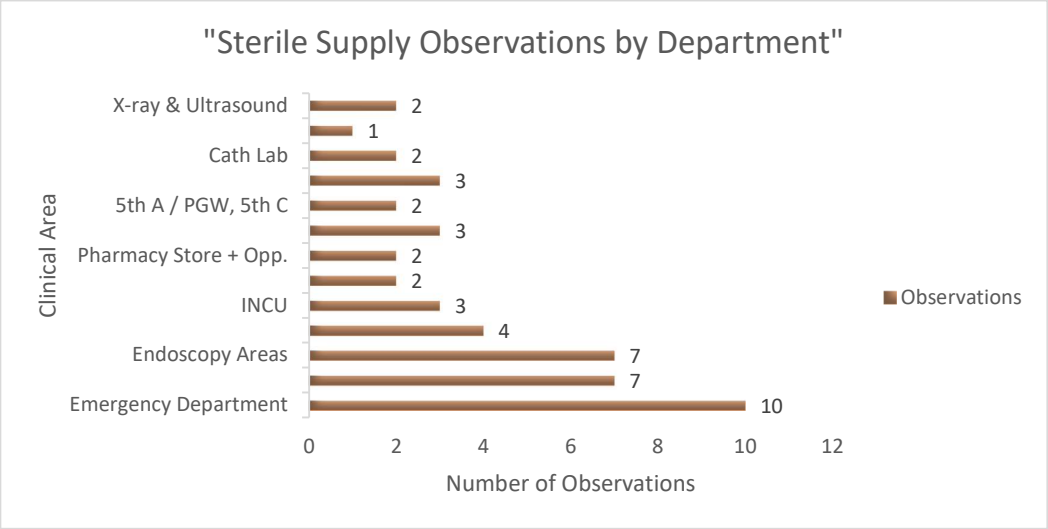
Observations in the Receiving Area: CSSD staff were observed checking items from the wards for stains, damage, and completeness. 1. The indent slip for the items being issued or received was found without signatures/ names. 2. Items were soaked for only 5 minutes in 3M solution, though the recommended soaking time is 10-15 minutes. 3. Found gauge pad being used for wiping the moisture on all items, even though it is wet. 4. Found CSSD staff were seen spitting into the wash basin used for cleaning received items, and it was not rinsed afterwards.
Observations in the Packing Area: Some of the packed items were placed on the floor around the packing table, obstructing staff movement and making it difficult to handle and transfer items to the sterilization area.
Observations in Sterile storage area: Overstacking was observed in the sterile storage area, restricting proper airflow. Found staff failed to record temperature daily, as no temperature monitoring was found on 24.05.2025 Found expired sets (Gynic cath set expiry date 28.02.2025, CVP set expiry date 09.05.2025), improperly sealed dressing sets. Found a surgical instrument labeled as set to expire on 15.02.2025, but on the same date was handwritten as 15.02.2024. Found a sterile Ambu bag, surgical instrument sets, gauze pieces, etc., openly in a sterile storage area. Found two surgical instrument sets with lot no 170634 & 70635, expired on 1.04.2025. Found gauze pieces sterile without any label in a sterile storage area. Found one recall detail in November month but it was not mentioned in the quality indicators.

4.2 OBSERVATIONS IN WARDS:

1. In units like 8F&G, 4B, CSSD, and biomedical items were stored in the same cabinet, though placed on different racks.
2. Staff of the 8th General ward, F, G, and ICCU have inadequate knowledge of inventory practices, such as FIFO and FEFO.
3. No documentation of the inventory of sterile items received and stored in the ward.
4. Units like 8H,I,J,F,G 7C, 7A, 4B, 4C, ICCU & NHDU lacked a structured tracking of inventory system

   Only one common register and an indent book were used, which lack patient ID, name, signatures 7C(01.05.25), 4B(01.03.25), 4C(08.04.25), BSU(23.05.25), ICCU(23.03.25).
5. A stained dressing set was found in 4C.
6. Found loose sterile packaged cover of gauze piece, Instruments in CSSD covers found to be rusty in the 5th C
7. Found guaze in open sterile cover (loosely packed) in 5th A & P/W
8. In the ICCU, improperly sealed (Bipap mask, dressing set) and expired CSSD items (S/R set, 17.05.2025, and Cath set, 05.12.2024) were found.
9. Found expired AMBU bag (27.04.2025), expired tissue forceps (23.04.2025), and a staple remover with no expiry sticker in INCU.
10. Found a face mask in a sterile pack protruding out in the ICCU S/D
11. Found CSSD sterilization validity date was wrongly printed, that is, 19.03.2020
12. Found a suction catheter that expired in March 2024 in the cone beam lab.
13. Found a CSSD sterile set without any label in the 5th Floor OT.
14. Found artery forceps in unsterile condition on the table with paper, 5th floor OT1
15. Found all items, Laryngoscope, forceps, etc, kept open opposite to the minor procedure room. Upon interviewing, it was found that it had been sent to ETO.
16. Found expired laryngeal airway (08.06.2025)
17. Found a sterile package of an oropharyngeal airway and an Ambu bag torn in Endoscopy.
18. Sterile cover on which the date of expiry was not printed, and a catheter without a date of expiry sticker.
19. Expired oxygen connector in sterile pack (dated: 15.04.2025) found in transport kit 1 in the Emergency department.
20. Found 7 expired sets in disaster stock (11.06.2025) in the emergency department.

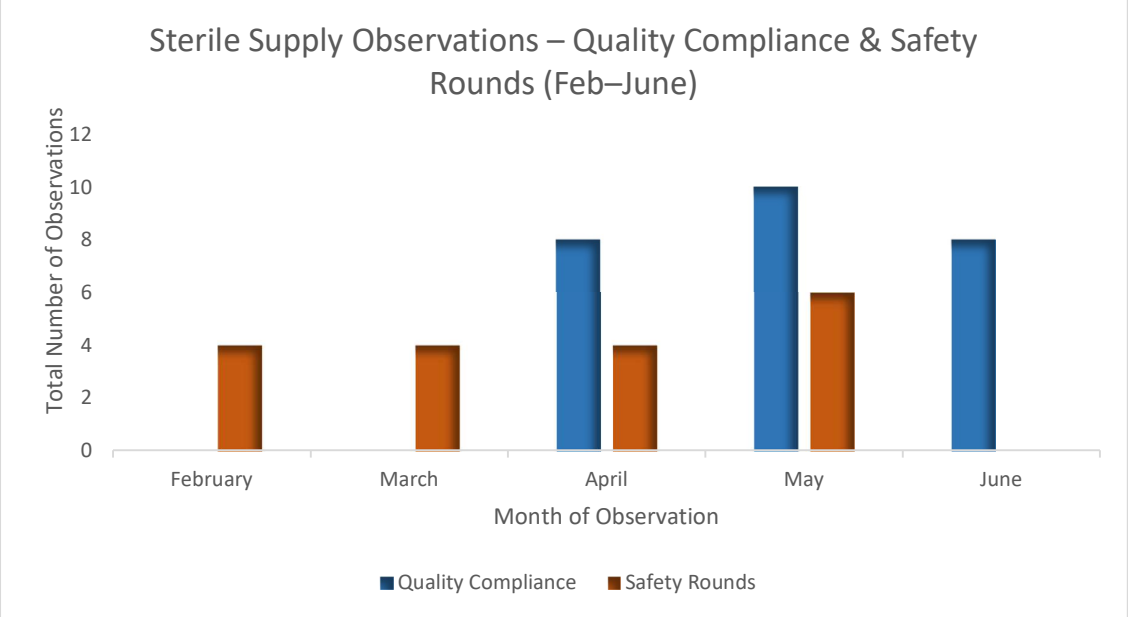
Department / Area	Observations
Emergency Department	10
ICCU + S/D ICCU	7
Endoscopy Areas	7
OT1, OT2, OT1&2	4
INCU	3
ENT Procedure Room	2
Pharmacy Store + Opp.	2
4th C, 4th A	3
5th A / PGW, 5th C	2
Cone Beam Lab	3
Cath Lab	2
OP No.-3	1
X-ray & Ultrasound	2



Interpretation:

High-risk wards were targeted for observation, i.e., ICCU (6) and Emergency Department (5) due to high-priority observation in high-risk wards. High observation in Endoscopy (4) and INCU (3) also indicates high priority being given to infection-susceptible areas. Low observations in general wards and pharmacy rooms indicate low instrument turnover or low scope of audits.

Month	Quality Compliance	Safety Rounds	Total Observations
February	0	4	4
March	0	4	4
April	8	4	12
May	**10**	**6**	**16**
June	**8**	0	**8**



Interpretation:

The highest sterile supply observations were occurred in May(10) and represent extra audit effort. April (8) and June (8) are the same and represent routine work. In safety rounds, a progressive rise from February (4) to May (6) represents growing institutional interest in procedure safety across different clinical areas.

DISCUSSIONS

The results in the wards and Central Sterile Supply Department (CSSD) indicate high non-compliance with the protocols. Results in CSSD indicated improper storage time, dirty habits, and high-density storage, with expired and mislabeled materials such as an expired gynecological set. Audits increased over time, reaching 10 sterile supply observations in May, but still the problems persisted in June.

There were stock control deficiencies in wards with staff being ignorant about FIFO and FEFO procedures and records incompletely maintained. ICU and emergency department had the highest observations (7 and 10, respectively), and priority is required for improvement. While there was an improvement in February (4) to May (6) the safety rounds and quality compliance rounds suggest the need for training, more compliance and rigorous tracking to ensure patient safety and functioning effectiveness.

RECOMMENDATIONS:

- Implementation of standardized and regular practice of CSSD register maintenance in all clinical departments.
- Development of a standard checklist to enable proper inventory management procedures.
- Creating a reference poster outlining sterilization routines in clinical practices.
- Organizing awareness sessions for the nursing staff to educate them and implement good stock handling & sterilization practices
- Perform bi-monthly mutual ward sterile set inspections to check integrity of seals, expiry, and storage.

CSSD IN WARD AND OUT WARD REGISTER								
SI.NO	**SENT DATE**	**PATIENT DETAILS (NAME & IP NO)**	**ITEM NAME & QUANTITY**	**SENT BY (Ward Staff)**	**ITEMS RECEIVED ON**	**RECEIVED BY (CSSD STAFF)**	**ITEMS RECEIVED BACK ON**	**RECEIVED AT WARD BY**

CONCLUSION

The research was conducted to evaluate sterility handling violations both in CSSD and in specific clinical departments. Even though CSSD was given in a specific layout and delivered 90% study violations of improper decontamination like wet gauze for drying, open storage lack of temperature records and labeling mistakes were observed. Registers have no records and open or stored items with incorrect or missing expiry dates indicated several post-sterilization gaps that should be filled at earliest.

In hospital settings, the maximum count of overall observations in ICCUs and ED wards were 7 and 10, respectively, out of which 26.66% were non-sterile, 30% inappropriately labeled, and 16.66% expired sets. The maximum counts of monthly audits in May (10 observations) were where the safety rounds increased from February (4) to May (6), but despite critical gaps such as expired, open, and inappropriately labeled items in wards, ICU's and OT's

The discrepancies noted are to be checked regularly in the form of standard registers, stock checklists, reference against sterilization protocol lists, routine staff training, and bi-monthly joint audits. Sterilization requires teamwork, caution every day, and staff accountability every step of the way from preparation to use.

Study once again assures that sterility maintenance is not the job of the sterilization process in CSSD. It should be maintained at each process from preparation to use, by team effort, daily practice, and staff responsibility.

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CERTIFICATE OF APPROVAL

The Summer Internship Project of titled **A STUDY ON STERILE SUPPLIES MANAGEMENT IN A TERTIARY CARE HOSPITAL** at **"YASHODA HOSPITALS, SECUNDERABAD** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the report only for the purpose it is submitted.

Dr. Divya Aggarwal
Associate Dean- Training and Associate Professor
IIHMR, Delhi

FEEDBACK FORM

(IIHMR MENTOR)

Name of the Student: Jagdeeshwari D.

Summer Internship Institution: Yashoda Hospital

Area of Summer Internship: Quality Assurance

Attendance: 97%

Objectives met: YES

Deliverables:
1. Regular update to mentor
2. Preparation of poster
3. Report Finalization

Strengths: Hardworking & Analytical

Suggestions for Improvement:

Signature of the Officer-in-Charge (Internship)

Date: July 15, 2025
Place: DELHI

YASHODA HOSPITALS

Date: 30th June 2025

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. D. Jagadeeshwari,** from **International Institute of Health Management Research, New Delhi,** has completed her Summer Internship programme in our hospital from 2nd May 2025 to 30th June 2025.

During this period she has successfully completed her project report entitled **"A Study on Sterile Supply Management in Tertiary Care Hospital"** and submitted in partial fulfillment of the requirement for the course, PGDM (Hospital & Health Management)

During the above period she was found to be sincere and hardworking.

We wish all the best in her future endeavours.

For Yashoda Hospitals

Archana Rao K
Assistant General Manager
Human Resources

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FEEDBACK FORM

(Organization Supervisor)

Name of the Student: Ms. D, Jagadeeshwari

Summer Internship Institution: Yashoda Hospitals, Secunderabad

Area of Summer Internship: Quality Assurance Dept.

Attendance: Punctual, From 02.05.25 to 30.06.25

Objectives met: Yes, She is punctual and worked on one Quality Improvement project and one Quality Initiate, data collection of two quality indicators.

Deliverables:

- Observation and Data collection for Quality Improvement Project
- Observation, data collection and PPT for Quality Initiative
- Audit and data collection of staff safety adherence indicator
- Audit and data collection of clinical quality indicator
- Coordination for Group level training program (NABH 6th Edition standards)

Strengths:

- Very quick learner
- Good in preparing visual aids and PPTs
- Enthusiastic and hardworking
- Good in onsite observation, data collection and data validation.

Suggestions for Improvement:

1. To improve knowledge on Quality Tools and improvement methodologies
2. To improve skills in report preparation
3. To be confident and assertive in communication
4. To develop presentation and leadership skills

YASHODA HOSPITAL QUALITY ASSURANCE DEPARTMENT SECUNDERABAD

Kiran

Signature of the Officer-in-Charge (Internship)

S. KIRAN KUMAR
AGM- QUALITY DEPT.

Date: 30.06.25
Place:Hyderabad

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Jagadeeshwari ST

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