
# JAY PRABHA MEDANTA SUPER SPECIALITY HOSPITAL, PATNA

## *"A Study on Infection Control Practices in the Operation Theatre".*

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# INTRODUCTION

- Infection control in the Operation Theatre (OT) is a critical aspect of patient safety and hospital quality standards.

- The OT is a high-risk area where breaches in aseptic technique can lead to serious surgical site infections (SSIs), prolonging hospital stay and increasing healthcare costs.

- This study aims to systematically assess current infection control practices in the OT, identify gaps, and propose practical solutions to strengthen patient safety and reduce hospital-acquired infections.

# OBJECTIVES

- TO ASSESS EXISTING INFECTION CONTROL PRACTICES IN THE OT.
- TO IDENTIFY GAPS IN ADHERENCE TO PROTOCOLS.
- TO SUGGEST FEASIBLE SOLUTIONS FOR BETTER COMPLIANCE.

## IMPORTANCE OF INFECTION CONTROL IN OT

- Reduces Surgical Site Infections (SSIs).
- Ensures patient and staff safety.
- Maintains hospital accreditation (e.g., NABH, JCI).
- Enhances surgical outcomes and patient trust

## Zones in Operation Theatre

- Protective Zone – Access control, changing room.
- Clean Zone – Pre-op holding, corridors.
- Sterile Zone – OT itself.
- Disposal Zone – Dirty utility area.

## Common Infection Control Practices

- Hand hygiene and PPE usage.
- Sterilization of instruments.
- Disinfection protocols.
- Air pressure maintenance (positive pressure).
- Traffic control in OT.

# METHODOLOGY

- **Study Design**: Descriptive Observational study.
- **Data Collection**: Direct observation, staff interviews, checklists
- **Sample**: [95 number of OTs surgeries observed]
- **Tools Used**: MEDANTA HOSPITAL SOPs, NABH audit checklist, WHO surgical safety checklist.
- **Duration**: 16th APRIL TO 31ST MAY 2025.(9AM TO 5PM)

# Cleaning procedures inside the OT


**Step 1** -BLOOD SOAKED OR INFECTED LINEN SHOULD BE SENT TO THE LAUNDRY AS PER PROTOCOL.

**Step 2-** DISPOSABLE WASTE SHOULD BE REMOVED FROM THE OT(ACCORDING TO COLOR CODED BINS)

**Step 3**-CLEAN THE EQUIPMENT

CLEAN THE OT LIGHTS

CLEAN THE OT TABLE

**STEP 4**-CLEAN THE FLOOR WITH THE HOSPITAL APPROVED DISINFECTANT

**STEP 5**-DUSTBIN COVER SHOULD BE CHANGED AFTER EACH CASE

# STEPS OF MAKING A SOLUTION FOR DEEP CLEANING OF OT

**Cleaning of the equipment, OT floor, OT lights, OT tables & all accessories in the OT by damp dusting & mopping with MEDANTA HOSPITAL-APPROVED disinfectant (SODIUM HYPOCHLORITE 1 % & TOTASEP).**

1. measuring cup (1 liter)

2. adding up water 4.5 liters for dilution

3. adding sodium hypochlorite 500ml

4. 1% sodium hypochlorite ready to use

1. 985ml of water in a measuring

2. 15 ml of totasep is taken in a measing cup

3. mixing up with dilution

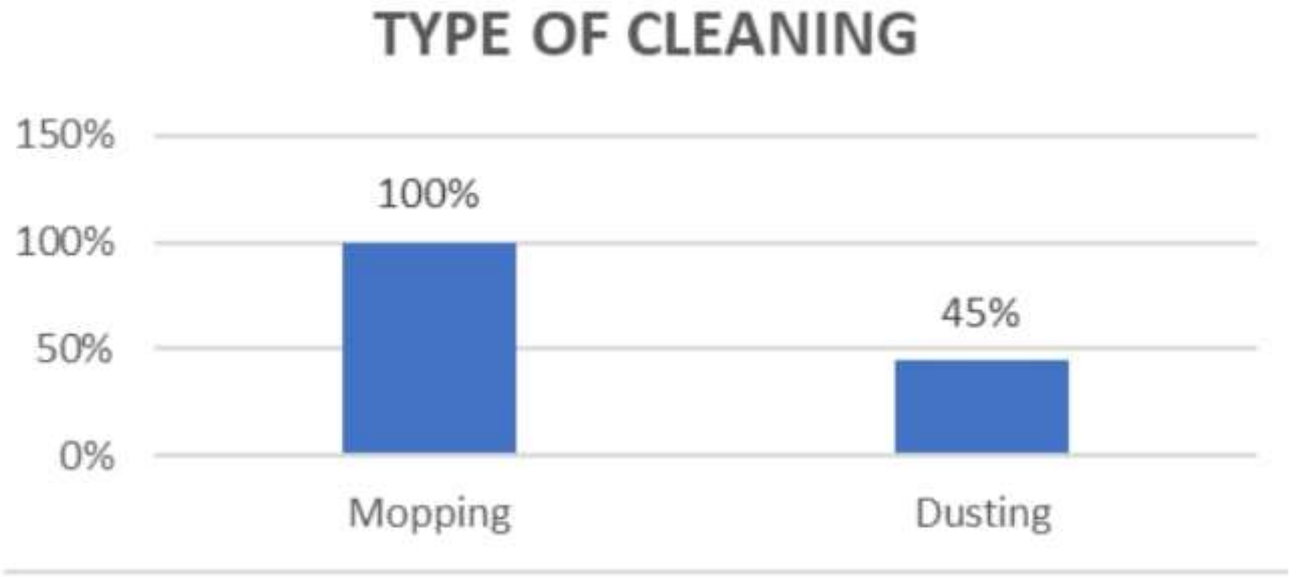

**4. ready for dump dusting**

# TYPES CLEANING PROCEDURES INSIDE THE OT

**MOPPING**(SODIUM HYPOCHLORITE 1%)

**DUSTING**(TOTASEP)

| TYPE OF CLEANING (16th april to 31st may) | | | |
|---|---|---|---|
| | YES | NO | PERCENTAGE |
| Mopping | 95 | 0 | 100% |
| Dusting | 43 | 52 | 45% |

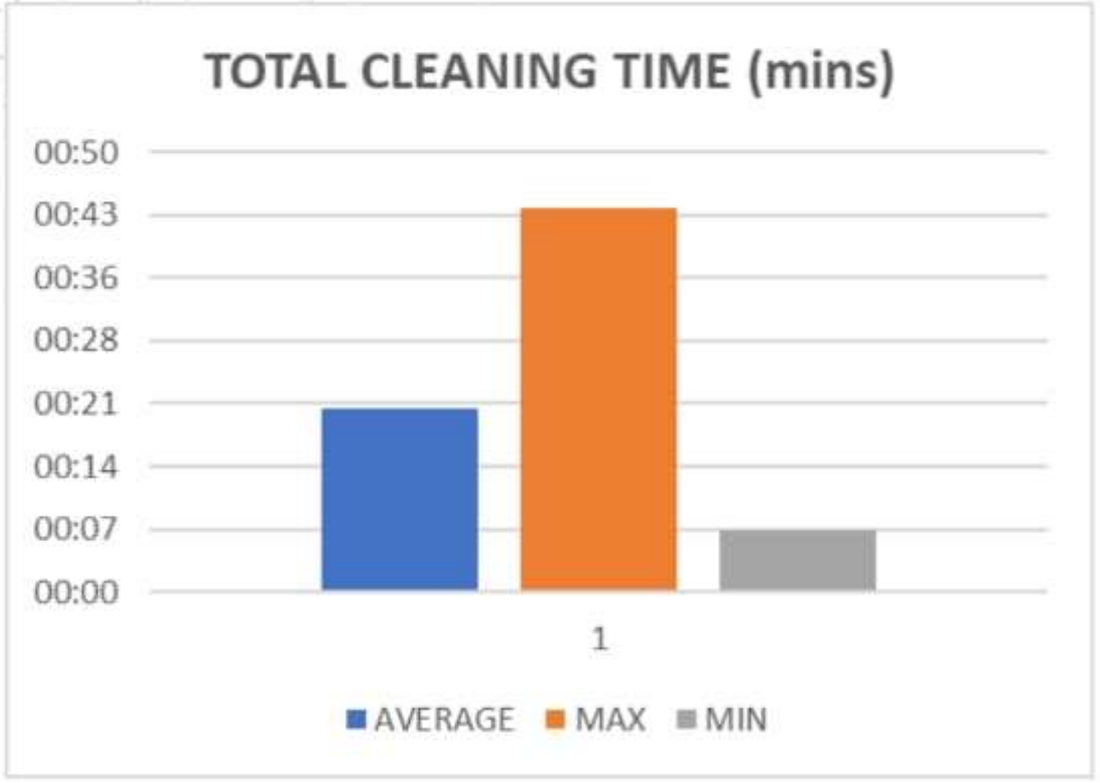



-Mopping was performed in 100% of observed instances. Dusting was performed in 45% of observed instances.

# TOTAL CLEANING TIME AFTER EACH SURGERY

***ACCORDING TO SOP GUIDELINE ,THERE SHOULD BE A GAP OF 20 TO 30 MINUTES IN BETWEEN EACH CASES.**

| TOTAL CLEANING TIME (mins) | |
|---|---|
| AVERAGE | 00:21 |
| MAX | 00:44 |
| MIN | 00:07 |




MAX- *(LAP ENDOMETRIC CYSTECTOMY)OT 14

MIN- *(AFTER DJ STENT REMOVAL CASE)UROLOGY OT 12&11

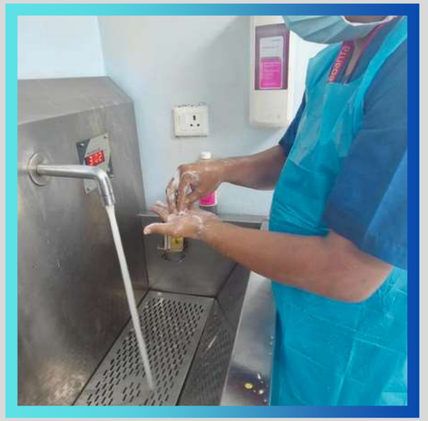
-The average total cleaning time observed was 21 minutes. The maximum cleaning time recorded was 44 minutes, and the minimum cleaning time was 7 minutes.

# Surgical hand hygiene Scrubbing with antiseptic soap solution in OT for 5 to 10 min as medanta per guidelines

1.Setting the 5 min timer for washing.

2. Wet your hands with water.

3. Take enough soap to cover all the surfaces of the hand.Rub your palms together



4. Place your right palm over the dorsum of your left palm with the fingers interlaced and rub them.

5. Rub the back of your fingers to the opposite palm while keeping your fingers interlaced.

6. Clasp the opposite thumb with the other hand and rub in a rotational direction.

7. scrub each side of arm from wrist to the elbow

8. Rinse off your hands under water.

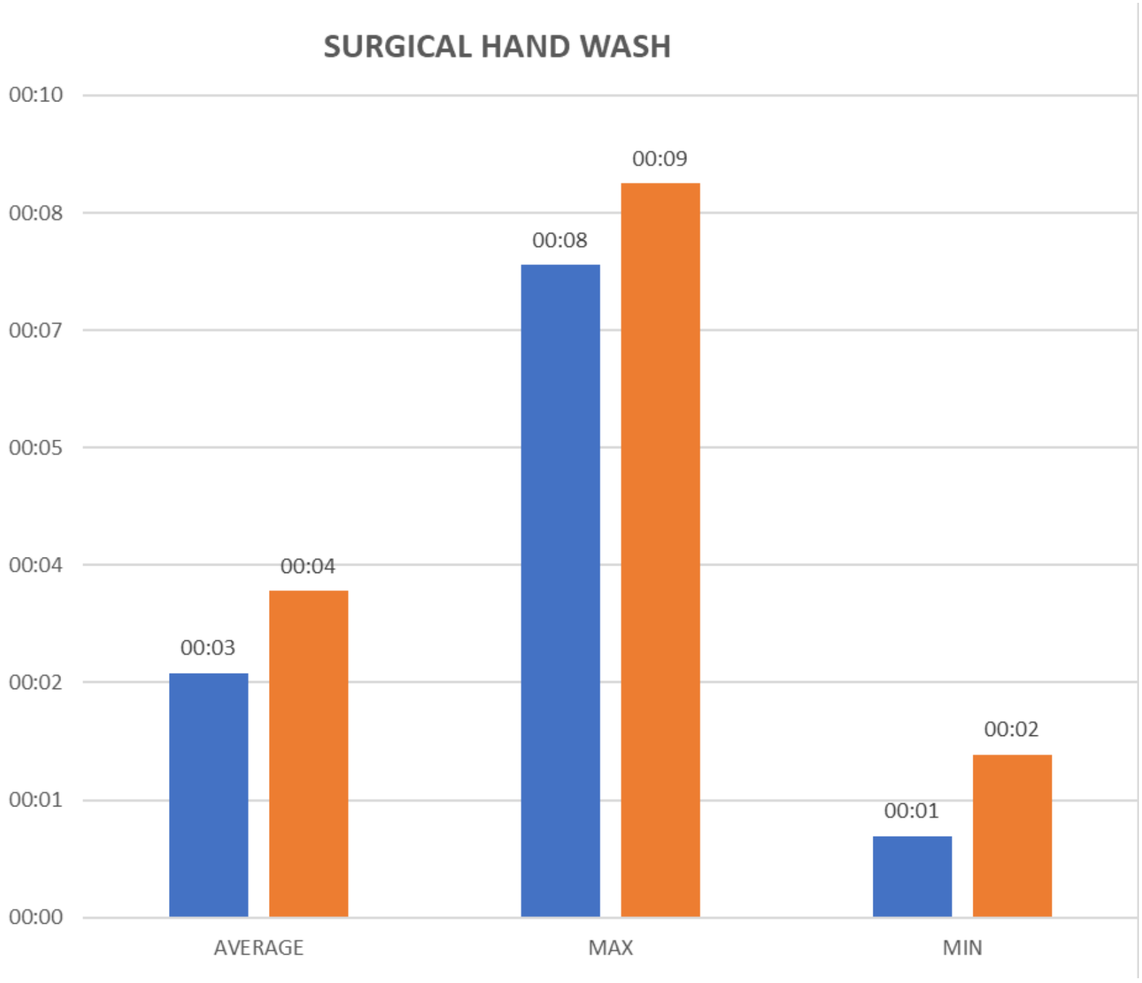
9. Rinse hands and arams by passing them through the water in one direction only, from fingers to elbow

10. opening of door with the foot opener.

# SURGICAL HAND WASHING

***The surgical scrub is a concentrated effort and is timed i.e. 5 to 10 minutes**

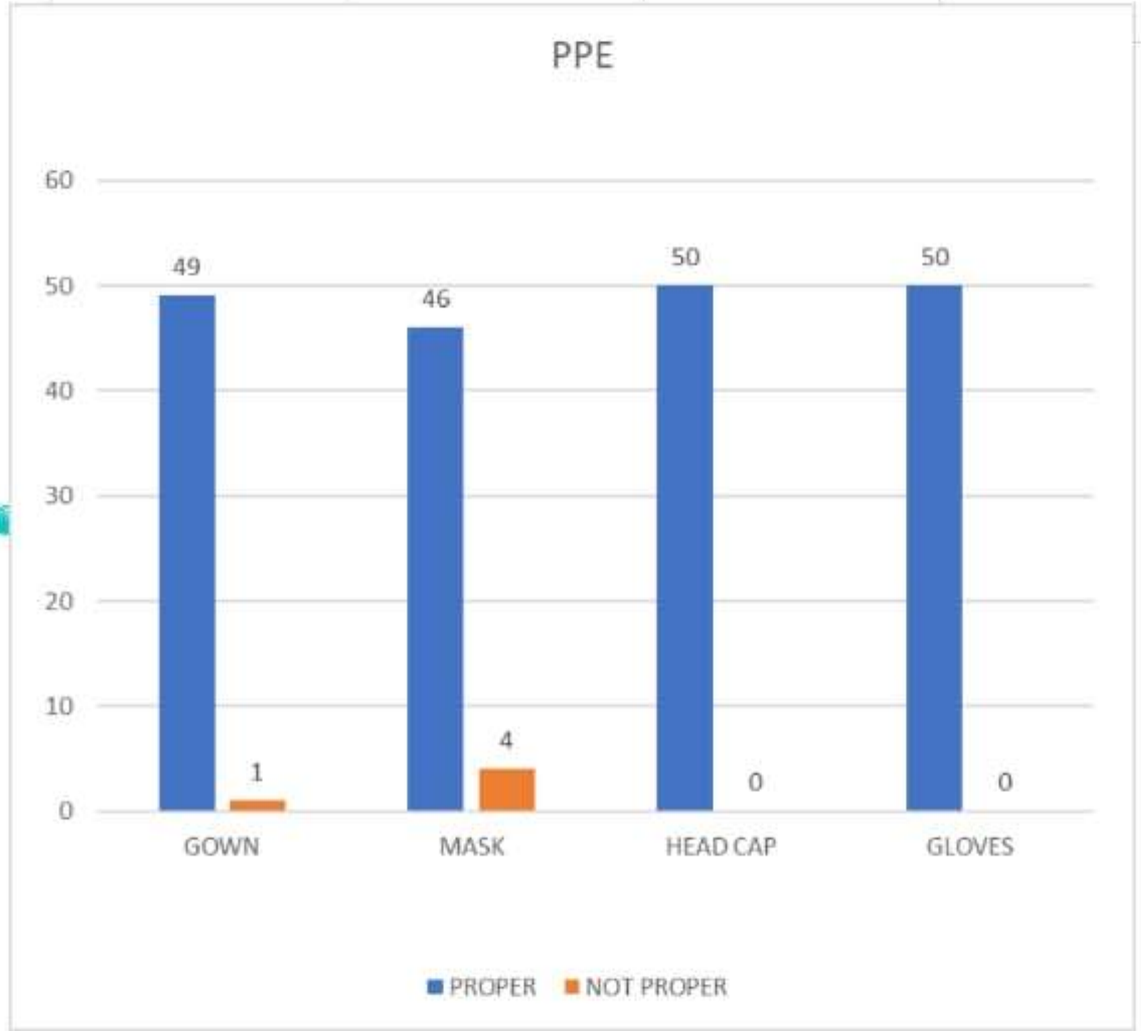
| | SURGEON | SCRUB NURSE |
|---|---|---|
| AVERAGE | 00:03 | 00:04 |
| MAX | 00:08 | 00:09 |
| MIN | 00:01 | 00:02 |




-For surgeons, the average hand wash time was 2 minutes. The maximum hand wash time for surgeons was 8 minutes, and the minimum was 1 minute.
-For scrub nurses, the average hand wash time was 4 minutes. The maximum hand wash time for scrub nurses was 9 minutes, and the minimum was 2 minutes.

# PPE

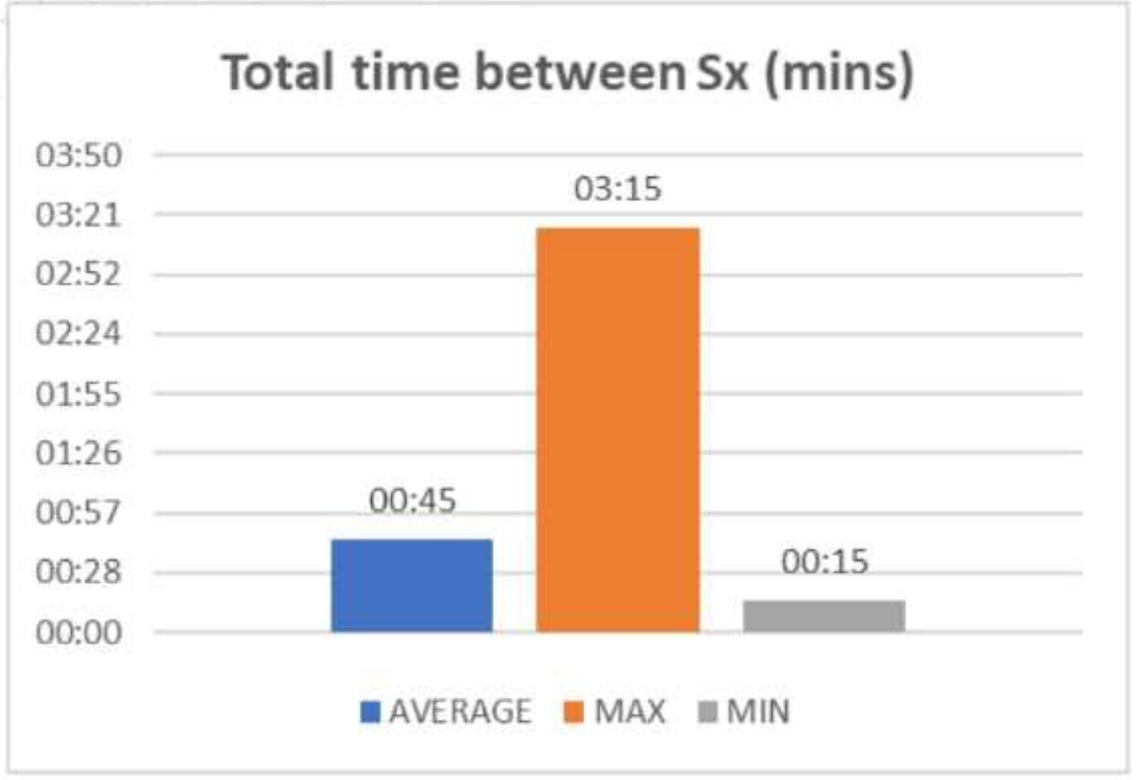
| | PPE (sample 50) of surgeons & scrub nurses | | | |
|---|---|---|---|---|
| | GOWN | MASK | HEAD CAP | GLOVES |
| PROPER | 49 | 46 | 50 | 50 |
| NOT PROPER | 1 | 4 | 0 | 0 |




-Gowns were worn properly in 49 out of 50 observations. Masks were worn properly in 46 out of 50 observations. Head caps and gloves were worn properly in all 50 observations.

# TOTAL TIME BETWEEN SURGERIES (30 MIN SHOULD BE AS PER SOP)

| Total time between Sx (mins) | |
|---|---|
| AVERAGE | 00:45 |
| MAX | 03:15 (NEURO OT 4) |
| MIN | 00:15 ( UROLOGY OT 12) |




*MAX FOR CASE- POSTERIOR FIXATION

*MIN FOR CASE- DJ STENT REMOVAL

-The average time between surgeries was 45 minutes. The maximum observed time between surgeries was 3 hours and 15 minutes, while the minimum time was 15 minutes.

# FINDINGS – CHALLENGES IN OT INFECTION CONTROL

## 1 Non-adherence to surgical Hand Hygiene Protocols

- Many staff skip proper surgical handwashing steps or use inadequate duration.
- hand hygiene is sometime neglected and only Alcohol-based hand rubs are utilized.

## 2 Challenge – Inadequate Cleaning after surgery

OT Not Properly Cleaned After Surgery

- cleaning is sometime in rushed or skipped entirely.
- Surfaces and equipment may remain visibly soiled or partially disinfected.
- No cleaning of air conditioning vents are done since 1 month.

## 3 No Use of Cleaning Checklist

- No checklist or documentation to confirm what was cleaned or missed.

## 4 Inadequate PPE Use by Staff

- OT Staff and surgeons sometimes neglect full PPE protocols.
- Masks, headcaps, or shoe covers are reused or worn incorrectly.
- No regular PPE audits or spot checks.
- No ppe kit was provided to housekeeping staff during positive cases cleaning.

## S

### STRENGTHS

- Trained Clinical Staff: Skilled surgeons, anesthetists, nurses, and technicians.
- Advanced Equipment: Use of modern surgical tools, monitors, and sterilizers.
- Zoning & Design: Segregated sterile and non-sterile areas for infection control.
- Standard Protocols: Availability of WHO/NABH SOPs for hygiene and safety.
- Emergency Preparedness: Well-equipped for handling critical cases quickly.

## W

### WEAKNESSES

- Poor Infection Control Practices: Irregular hand hygiene, improper use of PPE.
- Irregular Maintenance: equipment and cleaning.

## O

### OPPORTUNITIES

- Staff Education Programs: hands-on infection control workshops.
- Technological Integration: AI, robotics, and digital record systems for better efficiency.
- Accreditation Programs: Green OT, JCI accreditation for quality improvement.
- Patient-Centered Care: Enhancing patient trust through better infection control.

## T

### THREATS

- (SSI): Risk to patients and staff safety.
- Legal & Reputation Risks: Cases of post-op infection may lead to litigation and loss of reputation.

# SOLUTIONS AND RECOMMENDATIONS

## 1. Regular Training and Audits

- Conduct structured infection control training for all OT staff, including doctors, nurses, housekeeping, and technicians.
- Carry out internal audits and infection control rounds to monitor compliance.
- Provide individual feedback to promote accountability

## 2 Daily Monitoring and Feedback System

- Introduce a daily infection control checklist for OT supervisors.
- Maintain a logbook to track cleaning, PPE use, and hand hygiene compliance.
- Provide daily or weekly feedback through team huddles or notice boards.

## 3 Weekly or Periodic Deep Cleaning

- Carried out once a week or as per protocol.
- Includes:
  - Cleaning behind and under equipment.
  - High-level disinfection of entire OT area.
  - Ceiling, walls, lights, and less accessible areas cleaned.
  - Cleaning walls (up to 1.5 m), floors, doors, handles.
  - Air-conditioning vents cleaned.

# APPENDICE.....

## TOOL USED FOR DATA COLLECTION

Infection control SURGERY NAME- OT NO. - DATE-

| Check list | | | |
|---|---|---|---|
| Patient In | | Patient out | |
| Sign in | | Sign Out | |
| Antibiotic/incision time | | | |

| Hand Hygiene | | | |
|---|---|---|---|
| Doctor | | Scrub Nurse | |
| Gown | | | |
| Mask | | | |
| Head cap | | | |
| Gloves | | | |

| Cleaning of OT |
|---|

| |
|---|
| CLEANING TIME- |
| SURFACES- |
| OT TABLE- |
| OT LIGHT- |
| EQUIPMENTS- |
| TROLLY- |
| FLOOR- |
| DUSTBIN- |
| NEXT CASE- |
| REMARK- |


# THANK YOU