

Introduction to Perioperative Theater Safety

Introduction to Perioperative Theatre Safety Precautions

(Designed as a quick-reference guide for students, new staff, and multidisciplinary teams)

1. Why Safety Matters in the Operating Theatre

Aspect	Impact if Compromised
Patient	Surgical site infection, medication errors, intra-operative injury, delayed recovery
Staff	Needlestick injuries, exposure to anesthetic gases, musculoskeletal strain, psychological stress
Facility	Equipment damage, fire, regulatory non-compliance, financial loss
Legal/Ethical	Litigation, loss of accreditation, breach of duty of care

2. Core Safety Domains

- Environmental Safety** – layout, lighting, temperature, ventilation, fire protection.
- Equipment Safety** – checking, maintenance, alarms, compatibility.
- Medication Safety** – labeling, verification, storage, disposal.
- Infection Control** – asepsis, sterilisation, hand hygiene, antimicrobial stewardship.
- Personnel Safety** – ergonomics, personal protective equipment (PPE), radiation protection, sharps handling.
- Process Safety** – checklists, communication protocols, time-outs, emergency drills.

3. Pre-operative Checklist (Before Patient Enters)

Step	Action	Responsible
1. Theatre Preparation	Verify temperature (20-22°C) & humidity (30-60%). Confirm laminar flow (if applicable) and that lights are functional.	Theatre Manager

Introduction to Perioperative Theater Safety

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Precautions		
2. Equipment Check	- Perform "plug and play" test of monitors, cautery, suction, ventilator. - Verify battery status of backup devices. - Ensure alarms are set to appropriate limits.	Clinical Engineer / Scrub Nurse
3. Medication Verification	Cross-check drug labels with the anaesthetic chart; confirm expiry dates. Store controlled substances in locked cabinet.	Anaesthetist / Pharmacy
4. Sterility Confirmation	Inspect all instrument trays for intact packaging, correct count, and absence of visible damage.	Scrub Nurse
5. PPE & Barrier Protection	Check availability of sterile gowns, gloves, masks, eye protection, and, if needed, lead aprons.	All Team Members
6. Fire Safety	Ensure fire extinguishers are charged, fire blankets are in place, and oxygen sources are capped when not in use.	Theatre Supervisor
7. Patient Identification	Perform two-patient-identifier check (e.g., name + MRN) and confirm surgical site and procedure.	Whole Team (time-out)

4. Intra-operative Safety Practices

4.1. Environmental Controls

- **Airflow:** Maintain 15 air changes per hour; keep doors closed unless emergency egress required.
- **Noise:** Keep communication clear; limit unnecessary alarms.
- **Lighting:** Use adjustable, shadow-free illumination; avoid glare on monitors.

4.2. Equipment Use

Device	Key Precautions
Ventilator	Verify tidal volume, FiO ₂ , and alarm limits before induction.
Electrosurgical Unit	Use lowest effective power; inspect pads for integrity; keep conductive liquids away.

Introduction to Perioperative Theater Safety

Device

Key Precautions

Precautions

Infusion Pumps

Program drug libraries, double-check dosage calculations; use barcode scanning if available.

Imaging (C-arm, fluoroscopy)

Wear lead aprons, thyroid shields, and lead glasses; limit exposure time; use dose-saving protocols.

4.3. Medication