وزارة الصحـــــــة
Ministry of Health

Document Title:	**Optimizing Operating Theatre Utilization: Standard Operating Procedure**
Document Type:	**Standard operating Procedure**
Directorate/ Institution:	**DGHSP**
Targeted Group	**All surgical teams in Ministry of Health (MoH) hospitals**
Document Author:	**Operating Theatre SOPs Development Taskforce**
Designation:	**Operating Theatre SOPs Development Taskforce**
Document Reviewer:	**Operating Theatre SOPs Reviewer Taskforce**
Designation:	**Operating Theatre SOPs Reviewer Taskforce**
Release Date:	**May-2024**
Review Frequency:	**Every 3rd year**

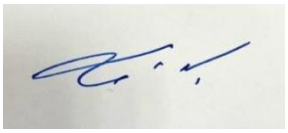
Validated by:		**Approved by:**	
Name:	Dr. Qamra Al Sariri	**Name:**	**Badriya AL Rashdi**
Designation:	Director General of Quality Assurance Center	**Designation:**	**Director General of Health Services & Programs**
Signature:		**Signature:**	
Date:	May /2024	**Date;**	**May / 2024**

Table of contents:

1. Acknowledgments:

Directorate General of Health Services & Programs (DGHSP) appreciates all those who have participated in developing and reviewing **Optimizing Operating Theatre Utilization: SOP**

Name	Designation	Institute
Operating Theatre SOPs Development Taskforce		
Debbie Rawcliffe	Senior Specialist Nurse	Sultan Qaboos Hospital
Manal Ibrahim AL Rahbi	General Nurse A	Oman Investment
Wafa Hamed AL Sadi	General Nurse A	Rustaq Hospital
Khalid Said AL Maiahi	General Nurse A	Rustaq Hospital
Ruqiya Abdullah AL Jardani	General Nurse A	Royal Hospital
Laila Wijdan	General Nurse A	National Heart Centre
Raya Mohammed AL Harthi	General Nurse C	Khoula Hospital
Faiza Hamood AL Thukhri	General Nurse A	Khoula Hospital
Farah Abdullah Hamed	General Nurse A	AL Nahdha Hospital
Nahid Ahmed Al Bulushi	General Nurse A	AL Nahdah Hospital
Raya Said AL Hajri	General Nurse A	Ibra Hospital
Safiya Musalm AL Mughairi	General Nurse A	Ibra Hospital
Taher Talib AL Housni	General Nurse A	Suhar Hospital
Alia Hassan AL Bulushi	General Nurse A	Suhar Hospital
Tofool Said Baqi	Nurse Specialist A	Sultan Qaboos Hospital
Othman Hamdan Al Harrasi	Nurse Specialist A	Nizwa Hospital
Rahma Ali AL Harasi	Nurse Specialist A	Nizwa Hospital
Operating Theatre SOPs Reviewer Taskforce		
Reviewer Team		
Jamal AL Khadhuri, PhD.	Nursing Consultant	Minister's Office
Haifa Mohammed AL Sadi	General Nurse A	DGHSP
Hiba Khamis AL Farsi	General Nurse A	DGHSP
Salma Ali AL Bulushi	Nurse Specialist	DGHSP
Taher Taleb AL Hoosni	General Nurse A	Suhar Hospital
Raya Mohammed AL Harthi	General Nurse C	Khoula Hospital
Khalid Said AL Maiahi	General Nurse A	Rustaq Hospital
Raya Sultan AL Harthy	Nurse Specialist	Roayl Hospital

2. Acronyms:

ASA	American Society of Anesthesiologists
GOT	Gynecology operation theatre
HOD	Head of the department
OBG	Obstetrics & Gynecology
OT	Operation theatre
SOP	Standard Operating Procedure

3. Definitions:

3.1 Operating Theatre (OT): Although briefly mentioned in the introduction, providing a concise definition of an OT and its primary function within a healthcare facility could enhance clarity for readers who may be unfamiliar with the term.

3.2 Elective Surgeries: Defining what constitutes an elective surgery, including examples, can help differentiate them from emergency surgeries and nonsurgical procedures mentioned in the introduction.

3.3 Emergency Surgeries: Similarly, defining emergency surgeries and highlighting their urgency and prioritization in the OT utilization process can aid in understanding their management.

3.4 Nonsurgical Procedures: Expanding on examples of nonsurgical procedures, such as endoscopy, and their scheduling considerations within the OT can provide context for readers.

3.5 OT Utilization: Providing a clear definition of OT utilization and its significance in optimizing resource allocation and patient care efficiency can be beneficial.

3.6 Buffer Time: Clarifying the concept of buffer time and its purpose in accommodating unexpected circumstances during surgical procedures can prevent confusion.

3.7 Key Performance Indicators (KPIs): Defining KPIs and their role in monitoring OT efficiency, including examples like surgery cancellations and anesthesia induction times, can help readers grasp their significance in quality improvement initiatives.

3.8 Root Cause Analysis: Explaining the process of root cause analysis and its role in identifying underlying factors contributing to OT underutilization can enhance understanding.

3.9 Incident Reporting: Detailing the procedures for incident reporting, including what constitutes an incident and the steps involved in reporting and follow-up, can ensure clarity on handling unexpected events in the OT.

3.10 Data Analytics: Providing a brief explanation of how data analytics are utilized in analyzing OT utilization data and informing evidence-based management decisions can aid comprehension.

4. Introduction:

The Operating Theatre (OT) stands as a pivotal and intricate domain within the healthcare infrastructure, demanding meticulous and streamlined management practices. It serves as the focal point for a spectrum of medical interventions, encompassing both elective and emergency surgeries, alongside select nonsurgical procedures like endoscopy, all within a meticulously controlled environment. The orchestration of these diverse procedures necessitates the deployment of proficient personnel and meticulous scheduling to ensure the judicious allocation of essential resources.

Efficient optimization strategies within the OT hold the promise of enhancing productivity and resource utilization, thereby maximizing operational efficacy. Given its critical role, the OT demands nothing short of optimal utilization of both time and resources to fulfill its mandate effectively. The assessment of OT utilization serves as a pivotal metric, enabling stakeholders to gauge the extent to which available capacity is leveraged for the conduct of elective or emergent surgical interventions.

In essence, the OT represents a cornerstone of healthcare delivery, requiring not only astute management but also a commitment to continual improvement to uphold the highest standards of patient

5. Scope:

This OT utilization SOP is applicable for all surgical teams in Ministry of Health (MoH) hospitals. Its primary aims are to optimize the use of available operating time for elective surgeries and to manage the workflow for emergency cases.

6. Purpose:

The following is the main purpose of Standard Operating Procedure:

6.1 Standardization: To implements a standardized process in the OT

6.2 Safety: To provide a safe working environment for both patients and surgical team.

6.3 Efficiency: To minimize surgery cancellations and improve the overall efficiency of the OT.

6.4 Emergency Case Management: To effectively guide the workflow of emergency cases during shift duty hours

7. Procedure:

The following comprehensive standards outline the key Procedures for the efficient management and utilization of OT.

7.1 Schedule Arrangement:

7.1.1 Priority Cases: To post Pediatric and high-risk cases (ASA3, ASA4) as first in the list.

7.1.2 Teamwork: Managing the flow of elective OT cases is a collaborative effort including all members of the surgical team.

7.1.3 Infection Control: infectious cases should be scheduled last on the elective list (to add example and to consult the Directorate General of infection control).

7.1.4 Allocation: Surgical teams should not schedule elective cases on days not allocated to them without prior communication with the designated team, the OT in-charge, anesthesia, and the head of the surgical department.

7.1.5 Documentation: The expected duration of each procedure must be documented on the OT list by the concerned surgeon.

7.2 Planned changes to start/finish times:

7.2.1 Specialty Elective Procedures: Theses should be scheduled to finish between 14:00 14:30 hours, in accordance with each hospital's duty hours.

7.2.2 **Cut-off Time:** Posting of elective cases should be completed by 17:00 hrs. the previous day. The list should be prioritized and timed by the surgeon.

7.2.3 **First Cases:** Should be received before 7:00 hours by the OT night shifts.

7.2.4 **Start Time:** All elective cases should commence by 07:30 hours, in accordance with each hospital's duty hours. Except on department meeting days (Hospital –specific Protocol).

7.2.5 **Staff Availability: All** surgical team members should be present in the OT by 07:00 hours. (to consult with the administration or legal affairs if it is possible to do so as the official duty is 07:30 hours.)

7.2.6 **Elective Major/Long Cases**: No such cases should be scheduled after 12:30 p.m. to avoid conflict with emergency cases.

7.2.7 **Buffer Time**: A buffer of 15 minutes should be scheduled between the cases to accommodate any unexpected circumstances and ensure proper sterilization protocols.

7.2.8 **End Time Protocols**: If surgery is anticipated to exceed the scheduled finishing time, the surgical team must inform the OT in-charge for proper resource allocation.

7.2.9 **Rescheduling Protocols:** In the event that surgery cannot proceed as scheduled, the surgical team should liaise with the designated rescheduling team to determine the next available slot.

7.3 Emergency Surgery:

7.3.1 Timing: The Emergency cases scheduling is open at anytime

7.3.2 Prohibition: Emergency hours should not be used for elective cases.

7.3.3 Specialty Utilization: Immediate emergency OBG cases should be handled according to each hospital's specific structure and guidelines.

7.3.4 Critical Cases: Life-saving or immediate limb-saving cases should be prioritized

7.3.5 Disaster Plan: If there are multiple lifesaving emergency cases (Disaster Plan) that should be taken at the same time, the OT shift in-charge with the help of OT in-charge/Nursing Supervisor, arrange available on-call staff with immediate perioperative nurses, who are staying nearby hospital to cover the crisis (based on disaster plan in each hospital practice).

7.3.6 Weekend and Off-days: An optimum number of team must be available to operate the OT effectively, in accordance with each hospital's requirement.

7.4 Surgery cancellations/Postponement

7.4.1 Notification: The patient's surgical team should inform the OT control room of any cancellations (can be done according to the hospital policy).

7.4.2 Coordination: The control room staff contact the designated rescheduling team to schedule operations.

7.4.3 Reporting: An incident report will be written by the OT In-charge using the Amman System.

7.5 Quality and Audit:

7.5.1 Key Performance Indicators: Monthly reporting of Key Performance Indicators (KPIs) will be conducted to monitor the efficiency of the operating theatre (OT) (See Appendix 1). These indicators focus on minimizing time waste and optimizing processes including but limited to:

7.5.1.1 Surgery Cancellations.

7.5.1.2 OT utilization

7.5.1.3 Anesthesia induction and finishing time.

7.5.1.4 Surgery starting and ending times.

7.6 Patient recovery and discharge times.

7.6.1 Audit Team: An internal audit team, which are members from the surgical, nursing, and anesthesia departments, should be established. This team is responsible for reviewing the collected data and ensuring compliance with the policy.

7.6.2 Continuous Improvement: Audit findings should be discussed in periodic review meetings, and an action plan should be developed to address any inefficiencies or discrepancies identified.

7.6.3 Incident Reporting: Any significant deviation from the planned schedule or procedures must be documented and reviewed. This included delays beyond a certain time limit, unexpected cancellations, or adverse events.

7.6.4 Transparency: The findings of the audit results and action plans should be reliable, valid, and available to all relevant staff, fostering an environment of continuous improvement and accountability.

7.6.5 Training: The training should be conducted based on the audit findings, developing targeted training sessions which address the identified gap in knowledge and skills.

8. Responsibilities:

8.1 Director/head of surgery

8.1.1 Overall OT Operation: Oversee the overall operation of the OT at the hospital level, ensuring optimal performance and safety protocols.

8.1.2 Quality Management: Assume an active role in theatre management to ensure the efficiency of OT.

8.1.3 Advocacy: Advocate and liaise with hospital administration to ensure that the service is adequately staffed and equipped to provide a safe, efficient, and effective working environment.

8.1.4 Root Cause Investigation: Conduct root cause analysis and ensure a corrective action plan for OT underutilization

8.2 OT In-charge:

8.2.1 Policy Compliance: Ensure that the OT Utilization Policy is understood, disseminated, and complied with, by all OT users.

8.2.2 Operational Management:

8.2.2.1 Manage patient flow in the OT and day-to-day operations.

8.2.2.2 Delegate tasks and responsibilities to appropriate team members to ensure effective use of resources.

8.2.3 Resource Allocation: Ensure the availability and readiness of essential resources, which include the medical supplies, equipment, and staff, for daily operations in the OT.

8.2.4 Stakeholders Communications: Maintain open communication and relationships with other key stakeholders in the hospital.

8.2.5 Incident Management: Completion and follow-up of any incident report, ensuring that all incidents are thoroughly investigated and that corrective measures are implemented.

8.2.6 Monthly Reporting: Review and deliberate on monthly OT utilization report, to identify area for improvement.

8.2.7 Data Analytics & utilization: Facilitate the data collection and analysis of OT utilization, to support the evidence-based management.

8.3 Director / Head of Anesthesia

8.3.1 Overall Management: Responsible for the overall management and safety of anesthesia workforce in the OT.

8.3.2 Quality Assurance: Implement and monitor quality assurance measures to ensure the delivery of the highest standard of anesthesia care.

8.3.3 Resource Allocation: Ensure that all necessary anesthesia equipment and drugs are adequately stocked, calibrated and in good working condition.

8.3.4 flow manager anesthesia consultant ensures that appropriate prioritization of cases accordingly.

9. Document History and Version Control

Version	Description	Review Date
1	Initial Release	**April/2024**

10. References:

Agency for Clinical Innovation. (2020.). Operating theatre efficiency guidelines. Retrieved December 1, 2022, from https://aci.health.nsw.gov.au/__data/assets/pdf_file/0004/252436/operating-theatre-efficiency-guidelines.pdf

New South Wales Health. (2009). Emergency surgery guidelines. Surgical Services Taskforce, NSW Department of Health, Australia. Retrieved from https://www1.health.nsw.gov.au/pds/pages/doc.aspx?dn=GL2009_009

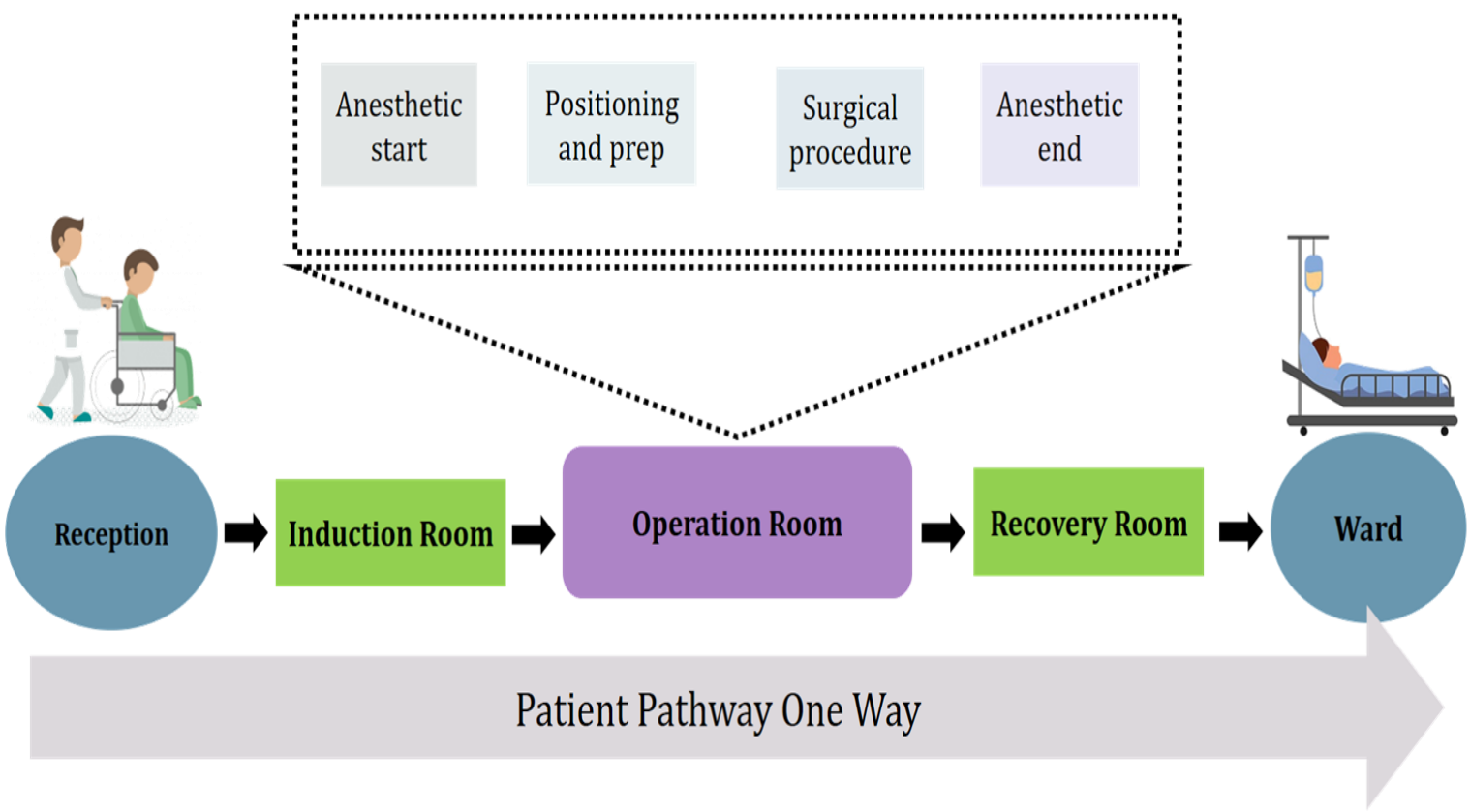
SUHAR Hospital. (n.d.). MOT, OT and GOT protocol.

11. Appendix 1: Emergency cases categorization:

Category	Definition
Immediate life-threatening (< 15 minutes	The patient is at immediate risk of loss of life, shocked or moribund, resuscitation not providing a positive physiological response.
Life-threatening (< 1 hour)	The patient has a life-threatening condition but is responding to resuscitative measures
Organ/limb threatening (< 4 hours)	The patient is physiologically stable, but there is an immediate risk of organ survival or systemic decompensation.

Non-critical, emergent (< 8 hours)	The patient is physiologically stable, but the surgical problem may undergo significant deterioration if left untreated.
Non-critical, non-emergent, urgent (< 24 hours)	The patient's condition is stable. No deterioration is expected
Semi-urgent, not stable for discharge (< 72 hours)	The patient's condition is stable. No deterioration is expected but the patient is not suitable to be discharged

11. Appendix 2: OT Utilization algorithm



11. Appendix 3: OT efficiency indicators

Appendix 1 Overview of operating room efficiency indicators.

Efficiency indicator:	Content and significance	Calculation formula	Collection method
Operation starts time delay rate	The first case start is measured by the differences between the **scheduled starting time** and the **actual time** the patient entered the OT.	Starting time - actual time Delay of Starting time delay rate(in minutes) = $\frac{\text{Total delay of operations in all operating theatres(in minutes)}}{\text{total working time(in minutes)}} \times 100$	Clinical statistics (review of case histories)
Turnover time (Time between cases).	Turnover time refers to the time between one patient leaving the operating theatre and the subsequent patient entering.	The turnover time rate of each surgery(in minutes) = $\frac{\text{Total operation turnover time in all operating theatres(in minutes)}}{\text{total working time(in minutes)}} \times 1$	Clinical statistics (review of case histories)
Total utilization rate	Utilization time is the sum of hours it takes to accomplish each surgical intervention divided by the total working hours, in which preparation, induction, surgical intervention, turnover, and overtime are included.	Total utilization rate = $\frac{\text{Total hours of cases performed per month}}{\text{The total hours allocated per month}} \times 100$	Clinical statistics (review of case histories)
Cancellation rate	The ratio between the number of cancelled cases and the total number of scheduled cases.	Cancellation rate in elective list = $\frac{\text{The number of cancelled cases per month}}{\text{Number of scheduled cases per month}} \times 100$	Clinical statistics (review of case histories)