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MSQH

EDUCATOR ENABLER EVALUATOR

6TH EDITION HOSPITAL ACCREDITATION STANDARDS

PERFORMANCE INDICATOR

2022

Internationally accredited by:

ISQua

IEEA International Society for Quality in Health Care External Evaluation Association
Accredited Organisation 2020-2024

IEEA International Society for Quality in Health Care External Evaluation Association
Accredited Surveyor Training Programme 2020-2024

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Ministry of Health Malaysia

STANDARDS MALAYSIA

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MSQH Hospital Accreditation Standards 6th Edition

The Performance Indicators

Demonstrating performance will be a major factor in buy-in and support from all stakeholders throughout the organization and the community. Thus, it is crucial to measure the performance of the hospital at all stages and to track, measure, and report on the performance of the healthcare services across all areas of its efforts, as well as specific key performance indicator within the organization itself. Nevertheless, the goals must be clearly defined so that the objectives are SMART with clarity. In clearly demonstrating success, we hope that this document will guide the growth of the hospital, since will be a major factor in buy-in and support from stakeholders throughout the organization and the community, particularly to the potential healthcare consumers.

Establishing repeated quality assurance and platform testing processes means the organisation can rest assured that production changes adhere to best practices. This allows the hospital team to find the ineffective and inefficient processes and make changes to them. Continuous Quality and Safety Improvements includes creating an iterative methodology to ensure that everything is being done the right way, at the right time, with the right people involved. Alongside this, there is a need to also set up retrospective processes for continuous learning. By establishing a comprehensive documentation and records, staff can check information and learn as they go. This will help accelerate improvements in quality.

Professor Dato Dr Hj Abdul Rahim Abdullah, CEO MSQH

11 April 2022

SERVICE STANDARD 01: GOVERNANCE, LEADERSHIP AND DIRECTION			
There is tracking and trending of the following specific performance indicators for the service:			
NO	**INDICATOR**	**TARGET**	**REPORTING FREQUENCY**
1.	Percentage of patients leaving hospital against medical advice relative to all patients hospitalised within a specified period	Downward Trends	Monthly
2.	Percentage of incidents/accidents during hospitalisation of patients as percentage of all admitted patients	Downward Trends	Monthly
3.	Hospital wide patient satisfaction survey (six monthly basis)	> 80% patient satisfaction level	6 Monthly
4.	In addition, healthcare facilities are required to monitor any other two (2) indicators with tracking and trending analysis to support its goals and objectives (**This is Hospital Management related performance**)		6 monthly

Indicator 01	**:**	**Percentage of patients leaving hospital against medical advice relative to all patients hospitalised within a specified period.**

Rationale :
This indicator was selected as a generic indicator of the quality of in-patient care because:

- Incidence of patients discharged At Own Risk (AOR) against medical advice is still prevalent in hospitals especially those without specialist services.
- AOR discharge occurring frequently is a proxy indication of lack of confidence of the patients in the care given at the facility.
- The occurrence of AOR discharge should be minimised to include mainly those seeking higher levels of care or facilities with better amenities.

Definition of Term :

Discharge against medical advice (AOR Discharge)
Patient discharges himself/herself from the hospital when he/she is deemed not fit medically despite being advised against it.

Inclusion Criteria	**:**	Patients discharged AOR but returned for re-admission
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Total number of patients discharged against medical advice during the month X 100%
Denominator	**:**	Total number of patients admitted during the month

Target	**:**	Downward Trend
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	**:**	**Percentage of incidents/accidents during hospitalisation of patients as percentage of all admitted patients**

Rationale :
This indicator was selected as a generic indicator of the delivery of safe patient care because:

- A key component of clinical governance framework is the responsibility of every health care leader to ensure that their organisation monitors and acts on incidents that can potentially compromise patient and staff safety in their organisations.
- Incident Reporting ensures sharing of lessons learnt from incidents, root cause analysis and best practices in patient safety.
- Incident Reporting facilitates patient and staff safety efforts including the reduction of risk to patients and staff.

Definition of Terms :

1. Incidents occurring during hospitalisation of patients:
Any deviation from usual medical care that causes an injury to the patient or poses risk of harm, that Include near misses, errors, preventable Adverse Events and hazards:

- Near Misses - *A* near miss in medicine is an event that might have resulted in harm but the problem did not reach the patient because of timely intervention by *healthcare* providers or the patient or family, or due to good fortune. *Near misses* may also be referred to as "close calls" or "good catches." (Ref: Institute of *Medicine*, USA)
- Adverse Event - An injury related to medical management rather then complications of disease. Medical management includes all aspects of care including diagnosis and treatment, failure to diagnose and treat and the systems and equipment used to deliver care. Adverse events maybe preventable or non- preventable.
- Errors are mishaps that have the potential to cause an adverse event.
- Hazard refers to any threat to safety e.g. unsafe practices, conduct, equipment, labels and names.

2. Incident Reporting *:*
An Incident Reporting System refers to the processes and technology involved in the standardization, formatting, communication, feedback, analysis, learning, response and dissemination of lessons learned from reported events; and analysing the incidents scientifically in a structured manner through Root Cause Analysis.

Inclusion Criteria	**:**	All accidents & incidents, near misses, adverse events
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of incidents and accidents experienced by all inpatients over a month X 100%
Denominator	**:**	Total number of admissions over the same month

Target	**:**	Downward Trend
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03	**:**	**Hospital wide patient satisfaction survey (six monthly basis)**

Rationale :
This indicator was selected:

- As proxy to measurement of patient- centred services and level of client satisfaction to meeting patient needs from registration for out-patient care to admission and hospital stay for care and treatment.
- Patient Satisfaction Survey is one of the tools that can be used in recognizing areas for improvement in the hospital services provided.

Definition of Terms :

Patient Satisfaction Survey
Patient satisfaction survey is a measure of the extent to which a patient is content with the care they received from their healthcare providers as well as the environment and amenities within the facility. Refers to the survey responses through a set of Survey Questionnaire.

Inclusion Criteria	**:**	Patients who participates in the patient satisfaction survey (out-patients and in- patients)
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of participating patients (out-patient & in- patients) who indicated they were 'satisfied' in the patient satisfaction survey with > 80% satisfaction level
Denominator	**:**	Total number of patients who participated in the Patient Satisfaction Survey
Target	**:**	> 80% patient satisfaction level
Data Collection	**:**	6 Monthly
Comments/Review	**:**	**–**

SERVICE STANDARD 02: ENVIRONMENTAL AND SAFETY SERVICES			
There is tracking and trending of specific performance indicators not limited to but at least two (2) of the following <u>including the mandatory indicator.</u>			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of issues identified during Environmental and Safety Audit are closed or followed through.	> 50%	3 Monthly
2.	Percentage of internal and external planned drills are carried out and documented including recommendations and followed through activities	100%	Yearly
3.	**<u>Mandatory</u>** Percentage of workplace hazards identified and risks managed	100%	Monthly

Indicator 01	:	**Percentage of issues identified during Environmental and Safety Audits are closed or followed through**

Rationale :
This indicator was selected because:

- Knowledge on Environmental, Safety and Health Policy and Programme is an important aspect of patient and staff safety for all health care personnel to acquire. It is an important element of continuing improvement of the environment and occupational safety and health to ensure staffs are aware of and work and provide care in a safe environment.

- The Hospital Safety and Health Committee must undertake intense surveillance of environmental and safety issues including incidences such as needle stick injury, patient falls among others which are proxy indicators of the effectiveness of the safety program and risk management in the hospital.

Definition of Terms :

Safety and Health Requirements: As per Environmental Quality Act 1974, Occupational Safety and Health Act 1994 & Private Healthcare Facilities and Services Act 1998, Regulations 2006

Inclusion Criteria	**:**	All hospital areas including onsite outsourced services areas
Exclusion Criteria	**:**	Offsite outsourced areas
Type of Indicator	**:**	Rate Based Process Indicator

Numerator	**:**	Total number of issues closed or followed through. X 100%
Denominator	**:**	Total number of issues identified during Environmental and Safety Audits

Target	**:**	> 50%
Data Collection	**:**	3 Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of internal and external planned drills are carried out and documented including recommendations and followed through activities.**

Rationale :
This indicator was selected as a generic indicator on staff awareness and practices on safety and health requirements because:

- Knowledge on Environmental, Safety and Health Policy and Programme is an important aspect of patient and staff safety for all health care personnel to acquire. It is an important element of continuing education on occupational safety and health to ensure staffs are aware of and work and provide care in a safe environment.

- The Hospital Safety and Health Committee must undertake intense surveillance of the compliance and effectiveness of hospital disaster management plan.

Definition of Terms :

1. Drills: *Drills can be actual and/or table-top where appropriate. Actual evacuation drill is mandatory annually.*

2. *Environmental, Safety and Health Requirements*: As per Environmental Quality Act 1974, Occupational Safety and Health Act 1994 & Private Healthcare Facilities and Services Act 1998, Regulations 2006

3. *Specific Aspects of Environmental, Safety & Health -* As per MSQH Standard No. 02, these include:
a) Occupational Safety and Health (b) Fire Safety (c) Disaster Management : External Disaster & Internal Disaster (d) Hazardous Material and Recyclable Waste Management (e) Security Services (f) Vector and Pest Control

Inclusion Criteria	**:**	All relevant staff and activities involved in the respective disaster management types (including on site out-sourced service providers)
Exclusion Criteria	**:**	Clinical Risk Management programme
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total number of drills conducted (internal and external disaster) with the issues closed or followed through X 100%
Denominator	**:**	Total number of disasters identified in the Internal and External Disaster Plans
Target	**:**	100%
Data Collection	**:**	Yearly
Comments/Review	**:**	-

Indicator 03 : **Percentage of workplace hazards identified and risks managed**

Rationale :
This indicator was selected as a generic indicator to:

- Reflect the implementation of Safety and Health activities in the Facility to provide a safe workplace for staff as well as safe environment for patients and visitors. Hazard Identification Risk Analysis and Control (HIRAC) Program including mitigation of risks at the work place and processes for the various activities and coordination and linkages with other Risk Management activities should be clearly defined and implemented to ensure a safe environment for patients, staff and visitors.

***Definition of Terms*:**

1. ***Workplace Health and Safety:***

Is a multidisciplinary field concerned with the safety, health, and welfare of people at work. The goals of occupational safety and health programs include ensuring a safe and healthy work environment. Occupational Safety and Health also protects co-workers, patients, family members, employers, customers and many others who might be affected by the workplace environment. All organizations have the duty to ensure that employees and any other persons who may be affected by the organization's activities remain safe at all times.

2. Workplace Hazards:

Workplace hazards can come from a wide range of sources. An occupational or workplace hazard is a thing or situation with the potential to harm a worker. Occupational hazards can be divided into two categories: safety hazards that cause accidents that physically injure workers, and health hazards which result in the development of disease. Hazards can also be rated according to the severity of the harm they cause - a significant hazard being one with the potential to cause a critical injury, acute and chronic diseases and/or death.

3. ***Categorization of Hazards/Risks*** **:**

a) ***Hazards/risks*** can be grouped under various categories as listed below:

- Bio-mechanical and Postural
- Physical Environment and Workplace Design
- Mechanical
- Radiation
- Electrical
- Chemicals and Toxicity
- Biological and Human
- Organizational and Procedural Arrangements eg sharps injury
- Psycho- Social Environment and Task Design
- Natural Environment

b) Levels of Risks **:** Risk Assessments are based on two(2) key factors:

- the severity of any injury/illness resulting from the hazard and
- the probability that the injury/illness will actually occur

Inclusion Criteria	:	All incidences of hazards occurring in the workplace related to employees (including on site out-sourced service providers), patients and visitors
Exclusion Criteria	:	Clinical Risks/adverse events
Type of Indicator	:	**Rate Based Process Indicator**
Numerator	:	Total number of workplace hazards occurring among staff, patients and visitors in all sectors of the facility **identified and risks managed** over a specific period X 100%
Denominator	:	Total number of workplace hazards occurring among staff, patients and visitors in all sectors of the Facility over a specific period
Target	:	100%
Data Collection	:	Three (3) Monthly
Comments/Review	:	-

SERVICE STANDARD 03: FACILITY AND BIOMEDICAL EQUIPMENT MANAGEMENT & SAFETY			
There is tracking and trending of specific performance indicators not limited to but at least three (3) of the following:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of Planned Preventive Maintenance being done on schedule	98%	Monthly
2.	Percentage of system/service uptime	92%	Monthly
3.	Response time to equipment failure	BEMS I. Critical care equipment – 15 minute II. Other equipment – 2 hours FEMS I. Emergency – 15 minute II. Non-emergency – 2 hours	Monthly
4.	Repair Time	7 working days	Monthly

Indicator 01	:	**Percentage of Planned Preventive Maintenance being done on schedule**

Rationale :
This indicator was selected as a generic indicator of the delivery of safe patient care in the hospital because:

- Planned preventive maintenance of facilities and equipment in a hospital is an important component of Facility Management to provide safe patient care.
- Without regular maintenance there will be likelihood of increasing demands for high-cost maintenance elements such as building services, re-roofing, or structural repairs. Therefore, it is financially advantageous, if not essential, to have a Planned Preventative Maintenance (PPM) schedule. A PPM schedule can ensure that routine maintenance and repair works are implemented to ease out peaks and troughs in the annual maintenance cost cycle of buildings and equipment and ensure safe patient care without interruptions to life saving procedures.
- Long-term benefits of preventive maintenance include:
  - Improved system reliability
  - Reduced replacement costs
  - Decreased system downtime
  - Better spares inventory management

Definition of Terms **:**

Planned Preventive Maintenance (PPM)
Planned Preventive Maintenance (PPM) is regular repetitive work done to keep facilities and equipment in good working order and to optimize its efficiency and accuracy. The dates and scope of tasks are defined as Time based maintenance plans or Performance based maintenance plans.

Inclusion Criteria	**:**	All types of facilities and equipment used in all services of the Facility/Organisation for out-patients and in- patients
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Numbers of asset undergone planned preventive maintenance for the month X 100%
Denominator	**:**	Numbers of asset scheduled for planned preventive maintenance for the month

Target	**:**	98%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02 : **Percentage of system/service uptime**

Rationale :
This indicator was selected as a generic indicator of the delivery of safe patient care in the hospital because:

- The cost and consequences of downtime are the reasons why uptime is essential. Even small periods of downtime of critical equipment/systems can be devastating for the patient's safety.
- The uptime for maintenance of facilities and equipment should be according to the existing type of systems/services in place in accordance to the contractual agreement without interruptions to life saving procedures.

Definition of Terms:

1. Uptime:
The term uptime is a measure of systems/services/equipment reliability to provide its function for the specific period expressed as the percentage of time it is working, available/operational to provide for its primary function. Reliability, availability, recovery and unavailability are related concepts. Uptime is the opposite of downtime.

2. Downtime
Downtime is used to refer to periods when a system/equipment is unavailable to perform its primary function. The unavailability is the time-span that a system is unavailable or offline. This is usually a result of the system failing to function because of an unplanned event, or because of routine maintenance (a planned event).

Inclusion Criteria	**:**	- All systems/service/equipment/assets in the healthcare facility used to provide patient care for the month - All assets used in the facility to enable staff to carry out their clinical and Administrative functions for the month
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	The uptime periods of each systems/equipment/assets in the facility that had provided its primary function for the month	X 100%
Denominator	**:**	Total numbers of each type of critical system/ equipment/asset used in the facility for the month **Note:** **This indicator is to be calculated by each critical system/ equipment used in the facility for the month as agreed by the Management in the contract.**	

Target	**:**	92%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03 : **Response time to equipment failure**

Rationale :
This indicator was selected as a generic indicator of the delivery of safe patient care in the hospital because:

- Prompt repairs of existing systems, facilities and equipment in a hospital is an important element of Facility Management to provide safe patient care.
- The response time for equipment failure should be prompt to the type of service areas e.g. critical care and others without interruptions to life saving procedures.

Definition of Terms:

Response Time to Equipment Failure:
The response time to equipment failure is the measure of the duration between the call received from the client to the Maintenance Department and when the technician arrives to the individual location site. The response time is dependent on the urgency of the equipment, the type of service area and impact on patient safety. Standards are usually set by the organization on the tolerance time. Example:

BEMS – Critical care equipment – 15 minutes, Other equipment – 2 hours
FEMS – Emergency – 15 minutes, Non-emergency – 2 hours

Inclusion Criteria	**:**	All calls received from individual service areas of the Facility on complaints of equipment failure and the corresponding response time for each event in the month
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Response time**

		<u>Critical Care</u>
Numerator	**:**	Total cumulative number of minutes taken for response time for all incidents of equipment failure from critical care areas of the Facility for the month
Denominator	**:**	Total numbers of calls received from critical care areas of the Facility on equipment failure for the month
		<u>Other Service Areas</u>
Numerator	**:**	Total cumulative number of minutes taken for response time for all incidents of equipment failure from other service areas of the Facility for the month
Denominator	**:**	Total numbers of calls received from other service areas of the Facility on equipment failure for the month

Target	**:**	BEMS Critical care equipment – 15 minutes Other equipment – 2 hours FEMS Emergency – 15 minutes Non-emergency – 2 hours
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 04	:	**Repair Time - Percentage of Repair /Work Orders completed within 7 working days)**

Rationale :
This indicator was selected as a generic indicator of the delivery of safe patient care in the hospital because:

- Maintenance and repair work is needed for existing systems and equipment already in place.
- Prompt maintenance of facilities and equipment in a hospital is an important element of Facility Management to provide safe patient care.
- Without regular preventive and corrective maintenance there will be likelihood of increasing demands for high-cost maintenance elements such structural and equipment repairs. Therefore, it is financially advantageous, if not essential, to have a Planned Preventative and repair works implemented to ease out peaks and troughs in the annual maintenance cost cycle of facilities and equipment and ensure safe patient care without interruptions to life saving procedures.

Definition of Terms:

1. ***Repair Time (Mean Time to repair) :***
   Mean Time to Repair is a measure of the maintainability of a repairable item which tells the average time required to repair a specific item or component and return it to working status. It is a basic measure of the maintainability of equipment and parts.

2. ***Work Order:***
   - A means of communication for maintenance, repair and installation needs from approved staff to the Maintenance Department.
   - A work order is a written request that a task or project need to be completed. The order can be sent from a customer to a contractor or vendor. It is also a written order from the customer providing specific or blanket authorization to the contractor to proceed with the performance of a contracted work/project.

3. ***Completed on Schedule:***
   Completed on time - The critical path of a work order may change from time to time as activities are completed ahead of or behind schedule. The series of activities that define the total time taken to complete the work order or repair work according to the agreed time/schedule.

Inclusion Criteria	**:**	All request for repairs for facilities and equipment received and the corresponding number of work orders issued by the maintenance department for each month
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Numbers of repair/work orders completed within 7 working days as scheduled for the month X 100%
Denominator	**:**	Numbers of repair/work orders issued for the month

Target	**:**	7 working days	
Data Collection	**:**	Monthly	
Comments/Review	**:**	-	

SERVICE STANDARD 04: NURSING SERVICES			
There is tracking and trending of specific performance indicators for improvement of the Nursing Services/patient care as follows:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of intravenous (I/V) line complications (needles out, redness of skin, infection sites, extravasation)	≤ 0.5%	Monthly

Indicator 01	:	**Percentage of intravenous (I/V) line complications (needles out, redness of skin, infection of sites, extravasation)**

Rationale :
This indicator was selected because:

- This indicator looks at patient safety and staff competency in the Nursing Service. It is a proxy indicator that reflects the quality of nursing care provided for in-patients.
- Intravenous line complications has a direct impact on patient safety as it can cause discomfort, pain and prolong inpatient stay that may lead to the patient suffering from economic consequences.

Definition of Terms:

1. ***Intravenous line complications*** include infection of site, extravasation and needles being out.

2. ***Infection of intravenous site*** is characterised by pain, tenderness, warmth, localised swelling and redness at or around the intravenous insertion site and causing reduced mobility of the extremities.

3. ***Extravasation*** is the accidental administration of intravenously (IV) infused medications into the extravascular space/tissue around infusion sites characterized by swelling and redness around the site.

Inclusion Criteria	**:**	All in-patients who have received intravenous therapy during his/her current hospital stay is observed until discharge.
Exclusion Criteria	**:**	1. Complication that has been counted in previous admission 2. Psychiatry patient 3. Neonates patient 4. Paediatric patient
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total number of incidences of (I/V) line site complications among in-patients during the study period X 100%
Denominator	**:**	Total number of intravenous (I/V) lines set up during the study period
Target	**:**	≤ 0.5%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 05: PREVENTION AND CONTROL OF INFECTION			
There is tracking and trending of specific performance indicators not limited to but at least two (2) of the following:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of staff trained in Prevention and Control of Infection Practices	100% new staff 85% existing staff	Monthly
2.	Percentage of Healthcare Associated Infections (HCAI)	< 5%	Monthly
3.	Number of Resistant Organisms to Antibiotics within a specified period of time	MRSA 0.3% ESBL- E.coli 0.2% ESBL-Klebsiellap pneumonia < 0.3% CRE < 0.1%	Monthly
For Antimicrobial stewardship, there is tracking and trending of specific performance indicators not limited to but at least three(3) of the following:			
1.	Percentage of appropriate and complete antimicrobial prescriptions		
2.	Percentage of prescriptions with indications that are in keeping with national or local antimicrobial guidelines		
3.	Percentage of empirical prescriptions that are reviewed by 72 hours		

Indicator 01	:	**Percentage of staff trained in Prevention and Control of Infection Practices**

Rationale :
This indicator was selected to reflect the delivery of safe patient care in hospitals because:

- Healthcare Associated Infection (HAI) is a significant problem in hospitals and has an impact on the safety of patient, staff and visitor.
- The Hospital Infection and Antibiotic Control Committee (HIACC) must undertake intense training of all staff including staff of contracted services to ensure the effectiveness of the hospital's Prevention and Control of Infection programme. It should be compulsory rather than optional training for all relevant staff.

Definition of Term:

Training in Infection Control:
Training on Infection Control can be defined as specific training on aspects of prevention and control of infection that includes in- house training, orientation programme, conference, seminar and formal training i.e. Asia Pacific Society for Infection Control (APSIC), post basic training (6 months) in Infection Control and post graduate training.

Inclusion Criteria	**:**	All staff including specialists, medical officers, house officers, nursing staff and students (undergraduate medical students, post graduate medical students, student nurses and allied health staff) and staff of the privatised services (housekeeping, linen service, Facility and Biomedical equipment maintenance services) should be given training on infection control based on their scope of services and job description
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Total number of existing staff in the facility (all categories including all on site outsourced service providers) who have been given training in prevention and control of infection	X 100%
Denominator	**:**	Total number of existing staff in the facility (all categories including all on site outsourced service providers) at a given point of time.	

Target	**:**	100% - Infection Control Nurse, 100% - new staff and 85% - existing staff (including re-training)
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of Healthcare Associated Infections (HCAI)**

Rationale :
This indicator was selected to reflect the delivery of safe patient care in hospitals because:

- Healthcare Associated Infections are preventable illnesses and the prevention of these infections continues to be top priority. Therefore, periodic surveillance is essential to assess the effectiveness of the infection control programme in the hospital setting.
- Healthcare Associated Infection (HAI) is a significant potential problem in hospitals and has an important impact on the safety of patient, staff and visitor.
- The Hospital Infection and Antibiotic Control Committee (HIACC) must undertake intense surveillance of the incidence of HAI including incidence of sentinel organisms such as MRSA, which is a proxy indicator on the effectiveness of the hospital's Prevention and Control of Infection programme.

Definition of Term:

Hospital Acquired Infection (HAI)
Healthcare Associated Infection: An infection occurring in a patient in a hospital or other healthcare facility in whom the infection was not present or incubating at the time of admission. This includes the infections acquired in the hospital, but appearing after discharge, and also occupational infections among staff of the facility.

(Ref: Technical Specifications (HPIA) Version 4.0, Ministry of Health, Malaysia)

The diagnosis of a nosocomial infection is based on a combination of clinical and laboratory findings.

Inclusion Criteria	**:**	All patients who were admitted to the ward before or at 8.00 am and were not yet discharged at time of the survey.
Exclusion Criteria	**:**	Cases admitted to the hospital with pre- admission HAI (infected during stay at another healthcare facility) and patients admitted in the Psychiatric ward, Emergency Department, Labour/Delivery ward, Out-
Type of Indicator	**:**	Patient Department and Day Care. **Rate Based Process Indicator**
Numerator	**:**	Number of patients with Healthcare Associate Infection (HCAI) in the hospital on the day of survey X 100%
Denominator	**:**	Number of hospitalised patients in the hospital on the day of survey
Target	**:**	< 5%
Data Collection	**:**	6 Monthly- Hospital wide cross sectional point prevalence survey, collected twice a year (one day in month of March & September)
Comments/Review	**:**	(Ref: Technical Specifications (HPIA) Version 4.0, Ministry of Health, Malaysia)

Indicator 03	:	**Number of Resistant Organisms to Antibiotics within a specified period of time**

Rationale :
This indicator was selected to reflect the delivery of safe patient care in hospitals because:

- One of the major issues in our health care today is that of controlling the increase in antimicrobial resistance. Although multiple factors play a role in this problem, the selective pressures of inappropriate and widespread use of antimicrobials are considered as major contributors.
- Monitoring antimicrobial use or antimicrobial surveillance will serve as a tool for:
  - Comparison in antimicrobial use by having national benchmark data (aggregated from all hospitals);
  - Identifying and developing strategies to improve antimicrobial control through multi-disciplinary efforts involving Infectious Disease Physicians/Clinicians, Clinical Microbiologist/ Microbiologist, Pharmacist and Infection Control Nurses.

(Source: Policies and Procedures on Infection Control, Ministry of Health Malaysia 2nd Edition 2010)

- The Hospital Infection and Antibiotic Control Committee must undertake studies on the presence of resistant organisms to antibiotics and develop a hospital specific policy on the Use of antibiotics.
- Monitoring the magnitude of the presence of resistant organisms to antibiotics is an indicator of the effectiveness of the hospital's policy on the use of antibiotics and the Prevention and Control of Infection Programme.

Definition of Term:

Drug-Resistant Organisms
Drug-Resistant Organisms (DROs) are bacteria and other organisms that have developed a resistance to certain drugs. In other words, a particular drug is no longer able to kill or control a specific bacteria or organism. Other terms used to describe this situation include antibiotic resistance, antibacterial resistance, and antimicrobial resistance. Examples of drug-resistant organisms include:

1. MRSA - methicillin/oxacillin-resistant Staphylococcus aureus
2. VRE - vanomycin-resistant enterococci
3. ESBLs - extended-spectrum beta lactamases (resistant to cephalosporins and monobactams)
4. PRSP - penicillin-resistant Streptococcus pneumoniae
5. GISA - glycopeptide-intermediate Staphylococcus aureus
6. VISA - vancomycin-intermediate Staphylococcus aureus
7. VSRA - vancomycin-resistant Staphylococcus aureus (not yet found in nature, but it is believed it will emerge or evolve from VISA), and
8. MDR-TB - multidrug-resistant tuberculosis.
9. CRE- Carbapenem - resistant Enterobacteriaceae

Inclusion Criteria : The number of patients admitted to the hospital and had developed resistance to antibiotics
Exclusion Criteria : Pre-existing infection prior to admission
Type of Indicator : Sentinel Event

Numerator	**:**	Number of patients developing resistance to antibiotics within a specified period of time
Denominator	**:**	
Target	**:**	MRSA 0.3%, ESBL-E.coli 0.2%, ESBL-Klebsiellap pneumonia <0.3%, CRE < 0.1%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 07: HEALTH INFORMATION MANAGEMENT SYSTEM			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of Medical Reports prepared within the stipulated period: Secondary and Tertiary Care (Public & Private) Facility: ≤ 4 weeks Primary Care Facility: ≤ 2 weeks Reference: HPIA version 7.3.1	90%	Monthly
2.	Percentage of medical records that were dispatched within 72 hours of discharge Reference: National Indicator Approach version 5.0	95%	Monthly

Indicator 01	:	**Percentage of Medical Reports prepared within the stipulated period**

Rationale:
This indicator was selected because:

- There is a need to hasten the preparation of medical reports in order to satisfy our customers especially for their insurance claims, police investigations, court proceedings etc.
- Timeliness of preparation of medical reports is an indication of the efficiency of the Health Information Management Services

Definition of Terms:

1. ***Medical Reports*:**
   Written report of the results of a medical examination of a patient describing the findings during hospitalization, diagnosis and treatment and any other information on the progress, and events that happened to the individual patient during hospitalization and subsequent follow up.

2. ***Stipulated Period:***
   The preparation of completed requests for medical report must meet the following norms:
   - Secondary and Tertiary Care (Public & Private) Hospitals: ≤ 4 weeks
   - Primary Care Facility: ≤ 2 weeks

   The period of preparing completed requests for medical reports is to be calculated exclusive of public holidays.

Inclusion Criteria	**:**	- Plain medical reports - Report for Insurance claims
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of Medical Reports completed within the stipulated period in the month
Denominator	**:**	Total number of requests for Medical Reports in the month X 100%
Target	**:**	1. Secondary and Tertiary Care (Public & Private) Hospitals: ≤ 4 weeks 2. Primary Care Facility: ≤ 2 weeks
Data Collection	**:**	Monthly
Comments/Review	**:**	**Reference: Technical Specifications of Hospital Performance Indicators for Accountability (HPIA) & Specific Indicators Version 7.3.1**

Indicator 02	:	**Percentage of Medical Records that were dispatched within 72 hours of discharge**

Rationale:
This indicator was selected because:

- There is a need to hasten the preparation of case summaries for continuity of care.
- Timeliness of preparation of case summaries and dispatch of patient's medical records to the medical records department is an indication of the timely access to records for continuity of care.

Definition of Terms:

1. Medical Records:
Medical Records refers to all records and/or documents relating to the treatment of a patient including but not limited to family histories, medical histories, report on clinical findings and diagnosis, laboratory test results, x-rays, reports of examination and/or evaluation and all outpatient/ hospital admission/discharge records.

2. Case Summary:
Patient Case Summary is a standardized set of basic medical data that includes the most important clinical facts required to ensure safe and secure healthcare. This summarized version of the patient's medical data gives health professionals the essential information they need to provide care in the case of an unexpected or unscheduled medical situation (e.g. emergency or accident). Though this data is mainly intended to aid health professionals in providing unscheduled care, it can also be used to provide planned medical care/continuity of care (e.g. in the case of citizen movements or cross-organizational care paths).

3. Dispatch
Dispatch is to send off in this case the patents medical records with speed to a destination (medical records department) within the specified time. The completion of case summaries and dispatch of patient's medical records must meet the following:

- Within 72 hours of discharge: ≥ 72 working hours after the patient is discharged.
- The period of completing case summaries is to be calculated exclusive of public holidays.

Inclusion Criteria	**:**	All cases discharged in a given month
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of case summaries completed within 72 working hours of discharge in a month X 100%
Denominator	**:**	Total number of patients discharged in a month

Target	**:**	95%
Data Collection	**:**	Monthly
Comments/Review	**:**	Reference: National Indicator Approach Version 5.0

SERVICE STANDARD 08: EMERGENCY SERVICES			
There is tracking and trending of specific performance indicators not limited to but at least two (2) of the following including the mandatory indicator:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	<u>Mandatory:</u> Percentage of inappropriate triaging (under triaging): Category Green patients who should have been triaged as Category Red.	(Target: ≤ 0.5%)	Monthly
2.	Waiting time relative to Triage Category: i) Malaysian Triage Category (MTC) Red seen immediately ii) Malaysian Triage Category (MTC) Yellow seen within 30 minutes iii) iii) Malaysian Triage Category (MTC) Green seen within 90 minutes	100% ≥ 85% > 70%	Monthly
3.	Unplanned return of patient seen at Emergency Department within 24 hours for similar complaint	Sentinel Event	Monthly

Indicator 01	:	**Percentage of inappropriate triaging (under triaging): Category Green patients who should have been triaged as Category Red**

Rationale:
This indicator was selected because:

- Triage is an essential function of the Emergency Departments (EDs), whereby many patients may present multiple ill conditions simultaneously. Triage aims to ensure that patients are treated in the order of their clinical urgency and that treatment is appropriate. Triage also allows for the allocation of the patient to the most appropriate access, assessment and treatment area.

- It is a scale for rating clinical urgency. The scale directly relates triage category with a range or outcome measures (inpatient length of stay, ICU admission, mortality rate) and resource consumption (staff time, cost).

- Studies have shown that the "under triaging" of critically ill patients can increase their morbidity and mortality due to delay in their resuscitation and the provision of definitive care. Urgency refers to the need for time- critical intervention.

- This indicator measures the accuracy and appropriateness of the Triaging System in the Emergency Department (ED) to ensure that critically ill patients are not missed and categorized as "non- critical".

(Ref: Technical Specifications (KPI) Clinical Services, Medical Programme Version 04, Ministry of Health Malaysia, 2016)

Definition of Terms:

Under- triaged:
Critically ill patient (MTC RED) who was triaged as non- critical patient (MTC GREEN)

Inclusion Criteria	**:**	All patients who were triaged under the Green Zone
Exclusion Criteria	**:**	Period of time when the hospital is unable to function as usual due to mass casualty/disaster/crisis
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of MTC GREEN patients who should have been triaged as MTC RED X 100%
Denominator	**:**	Total number of MTC GREEN patients
Target	**:**	≤ 0.5%
Data Collection	**:**	Monthly
Comments/Review	**:**	(Ref: Technical Specifications (KPI) Clinical Services, Medical Programme Version 4.0, Ministry of Health, Malaysia, 2016)

Indicator 02	:	**i) Waiting time relative to triage category: Malaysian Triage Category(MTC) Red seen immediately (100%)** **ii) Waiting time relative to triage category : Malaysian Triage Category (MTC) Yellow seen within 30 minutes (≥85%)** **iii) Waiting time relative to triage category: Malaysian Triage Category (MTC) Green seen within 90 minutes (> 70%)**

Rationale:
This indicator was selected because:

- Waiting time relative to triage category is the clinical performance indicator for the Emergency Department
- Triage is an essential function in the Emergency Department where many patients may present simultaneously.
- Triage aims to ensure that patients are treated in the order of their clinical urgency and that their treatment is appropriately timely. It also allows for allocation of the patient to the most appropriate assessment and treatment area.
- This indicator measures the time taken for the patient to be seen by the medical officer at the Emergency Department (from the time of his/her registration) based on the relevant waiting times of the Malaysian Triage Category (MTC).

Definition of Terms:

1. ***Patients in MTC Red seen Immediately:*** Initiation of assessment and/or treatment within 5 minutes as (defined in MTC)
   Exclusion Criteria:
   i. During Mass Casualty Incident as defined by local Disaster Action Plan
   ii. Patients retriaged from green/ yellow

2. ***Patients in MTC Yellow seen within 30 minutes*****:** Initiation of assessment and/or treatment within 30 minutes
   Exclusion Criteria:
   i. During Mass Casualty Incident as defined by local Disaster Action Plan
   ii. Patients retriaged from green/ yellow

3. ***Patients in Green seen within 90 minutes:*** Initiation of assessment and/or treatment within 90 minutes as defined in MTC.
   Exclusion Criteria**:**
   i. Non-emergency cases: G4 (OPD cold cases seen at Emergency Department as defined in MTC.
   ii. Klinik Rawatan Pesakit Selepas Waktu Pejabat (in Ministry of Health Hospitals)

4. ***Emergency Department (ED) staff*****:**
   i. Hospital with resident Emergency Physician, Medical officers/House officers, paramedics
   ii. Hospital without resident Emergency Physician: Medical officers, Paramedics

Inclusion Criteria :
Exclusion Criteria :
Type of Indicator : Waiting Time

Malaysian Triage Category (MTC) - RED

Numerator : The number of patients allocated MTC Red who are attended by ED staff IMMEDIATELY

X 100%

Denominator : The total number of patients attending ED who are triaged to MTC Red in the time period under study.

Target : 100%
Data Collection : Monthly
Comments/Review :

Malaysian Triage Category (MTC) - YELLOW

Numerator : The number of patients allocated MTC Yellow who are attended by ED Staff within 30 minutes

X 100%

Denominator : The total number of patients attending ED who are triaged to MTC Yellow in the time period under study.

Target : ≥ 85%
Data Collection : Monthly
Comments/Review :

Malaysian Triage Category (MTC) - GREEN

Numerator : The number of patients allocated MTC Green who are attended by ED Staff within ≥ 90 minutes

X100%

Denominator : The total number of patients attending ED who are triaged to MTC Green in the time period under study.

Target : > 70%
Data Collection : Monthly
Comments/Review : Ref:
1. Technical Specifications (KPI) Clinical Services, Medical Programme Version 4.0, Ministry of Health, Malaysia, 2016
2. Technical Specifications Performance Indicators for Medical Programme KPI & NIA, Ministry of Health Malaysia, 2012

Indicator 03	:	**Unplanned return of patients seen at Emergency Department within 24 hours for a similar complaint**

Rationale:
This indicator was selected because:

- It is a proxy indicator on safety and effectiveness of care in the Emergency Department.
- This indicator measures the quality of care provided to patient attending the Emergency Department, It acts as a check and balance to ensure that the patients attending the Emergency Department do not receive sub-optimal care.
- Patients who are well managed should not be subject to unplanned return this early within 24 hours for similar complaint.

Definition of Terms:

Unplanned return:
Return to the Emergency Department that was unplanned for similar complaint after the initial treatment.

Inclusion Criteria	**:**	All cases seen at the Emergency Department and returns within 24 hours for the same complaint
Exclusion Criteria	**:**	Planned return for follow up for the same complaint
Type of Indicator	**:**	**Sentinel Event**
Numerator	**:**	Number of unplanned return of patients seen at the Emergency Department within 24 hours for similar complaint in the month
Denominator	**:**	
Target	**:**	Sentinel Event
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 09: CLINICAL SERVICES (NON-SPECIALIST FACILITY)			
There tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**REPORTING FREQUENCY**
1.	Number of Mortality/Morbidity audits/meetings being conducted in the department with documentation of cases discussed		6 Monthly
2.	Percentage of unplanned re-admission within 72 hours of discharge		Monthly
3.	Case fatality rate for two diseases (Facility to decide based on local disease prevalence i.e. 2 top causes of admission within the service/discipline)		Monthly
4.	Notification of infectious diseases within the stipulated period	100%	Monthly

Indicator 01	:	**Number of Mortality and Morbidity audits/meetings being conducted in the department with documentation of cases discussed**

Rationale:
This indicator was selected because:

- The main purpose of the mortality and morbidity meetings is to improve patient management and quality of care. Regular mortality and morbidity meetings serve to look at the weakness and the shortfalls in the overall management of patients, hence it will be learnt and the same mistake could be prevented and would not be repeated in the future.

Definition of Terms:

Morbidity: A diseased state

Mortality: The quality or state of being mortal

Morbidity Audits/Meetings: Discussion of case management in regards to patient morbidity, incidence reporting, issue of patient safety, clinical audit (at the hospital level).

Mortality Meeting: Discussions related to the management of the case and cause of death of the patient. (eg: Clinical audit, POMR, MMR, Dengue Mortality, TB Mortality, Mortality under 5 years of age (MDG5), Perinatal Mortality Reviews(MDG4) Inquiries) at hospital level.

Documentation: Official minutes or notes taken during the meeting with attendance list(certified by the Hospital Director/ Person-In Charge (PIC)

Inclusion Criteria	**:**	All Morbidity and /or Mortality meetings being conducted at the hospital level.
Exclusion Criteria	**:**	Time period when the hospital was unable to function as usual due to mass casualty/disaster/crisis
Type of Indicator	**:**	**This is a Process Indicator**
Numerator	**:**	Number of documented mortality and morbidity meetings that were conducted in six (6) months
Denominator	**:**	
Target	**:**	
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of unplanned re-admission within 72 hours of discharge**

Rationale:
This indicator was selected because:

- Unplanned re- admissions is often considered to be the result suboptimal care in the previous admission leading to re- admission
- Patients receiving good quality clinical services should not be subjected to unplanned re-admissions within 72 hours of discharge.

Definition of Terms:

1. ***Unplanned re-admission****:*

Patient being re- admitted for the management of the same clinical condition he or she was discharged with and the admission was not scheduled. (The same patient readmitted in the same unit/hospital ≤ 72 hours of previous discharge)

2. ***Same condition:***

Same diagnosis as referred to the ICD 10

Comments:
Number of readmission of one patient is considered as one case. Those on home leave or transferred to other unit is not considered as discharge

Inclusion Criteria	**:**	Re- admission with similar conditions (primary diagnosis) within 72 hours of discharge
Exclusion Criteria	**:**	At Own Risk (AOR) discharge patients during first admission
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of patients with unplanned re-admission to the ward within 72 hours of discharge X 100%
Denominator	**:**	Total number of patients discharged during the same period of time the numerator data was collected
Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Notification of Infectious Diseases within the stipulated period of time.**

Rationale:
This indicator was selected because:

- Infectious Diseases are required to be notified by law to the relevant authority in Malaysia i.e. Ministry of Health within a stipulated period of time. This indicator is a measure of the outcome of care of patients with infectious diseases and control of the disease within the community.

- The outcome can be expected to be good with early diagnosis and compliance to standard protocols.

- This indicator measures the outcome of the management and prevention of transmission of infectious diseases within the community.

Definition of Terms:

1. ***Notification of Infectious Diseases***
   a) Reporting or notifying of infectious diseases is mandated by law in Malaysia under the Prevention and Control of Infectious Disease Act 1988. A Notification Regulation was subsequently gazette in 1993 whereby a total of 26 infectious diseases are required to be notified to the relevant Authority i.e. Ministry of Health Malaysia within a stipulated time. A further Enactment saw the Emergency Ordinance (Prevention and Control of Infectious Disease) Amendment 2021, Malaysia (National).

   b) An effective an efficient disease surveillance and notification system allows early detection of disease outbreaks that will prompt intervention for the reduction of mortality and morbidity that may result from the epidemic/pandemic of these infectious diseases. The notification of infectious diseases are mandated to be done within a stipulated period of time for specific diseases as per listing under the Prevention and Control of Infectious Disease Act e.g. Dengue (DF& DHF) within 24 hours.

2. Notifiable Diseases
There are 26 infectious diseases as listed under the Prevention and Control of Infectious Disease Act which upon detection and confirmation by laboratory findings are required to be reported to the Public Health Authorities within the specified period of time.

Inclusion Criteria	**:**	All cases of dengue fever admitted in the paediatric ward during the study period
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Total number of cases with infectious diseases admitted and notified within the stipulated time period during the month	X 100%
Denominator	**:**	Total number of cases with infectious diseases admitted and requiring notification within a stipulated period of time during the month	
Target	**:**	100%	
Data Collection	**:**	Monthly	
Comments/Review	**:**		

SERVICE STANDARD 09A: CLINICAL SERVICES (MEDICAL RELATED SERVICES)			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Number of Mortality/Morbidity audits/meetings being conducted in the department with documentation of cases discussed		6 Monthly
2.	Percentage of unplanned re-admission for the same condition within 72 hours of discharge		Monthly
3.	Dengue Case Fatality Rate		Monthly
4.	Percentage of patients who had blood culture taken prior to starting treatment with the carbapenem group of antibiotics.		Monthly
5.	Number of deaths occurring within 24 hrs of admission.		6 Monthly
6.	Percentage of identification of causative pathogen of community acquired pneumonia.		6 Monthly
7.	Number of healthcare worker infected with tuberculosis (or any other infectious diseases), the source of which is likely hospital-related.		Yearly

Indicator 01	:	**Number of mortality and morbidity audits/meetings being conducted in the department with documentation of cases discussed**

Rationale:
This indicator was selected because:

- The main purpose of the mortality and morbidity meetings is to improve patient management and quality of care. Regular mortality and morbidity meetings serve to look at the weakness and the shortfalls in the overall management of patients, hence it will be learnt and the same mistake could be prevented and would not be repeated in the future.

Definition of Terms:

Morbidity: A diseased state

Mortality: The quality or state of being mortal

Morbidity Audits/Meetings:
Discussion of case management in regards to patient morbidity, incidence reporting, issue of patient safety, clinical audit (at the hospital level).

Mortality Meeting:
Discussions related to the management of the case and cause of death of the patient. (eg: Clinical audit, POMR, MMR, Dengue Mortality, TB Mortality, Mortality under 5 years of age (MDG5), Perinatal Mortality Reviews (MDG4) Inquiries) at hospital level.

Documentation:
Official minutes or notes taken during the meeting with attendance list (certified by the Hospital Director/ Person-In Charge (PIC)

Inclusion Criteria	**:**	All Morbidity and /or Mortality meetings being conducted at the hospital level.
Exclusion Criteria	**:**	Time period when the hospital was unable to function as usual due to mass casualty/disaster/crisis
Type of Indicator	**:**	**This is a Process Indicator**
Numerator	**:**	Number of documented mortality and morbidity meetings that were conducted in six (6) months
Denominator	**:**	
Target	**:**	
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of unplanned re-admission for the same condition within 72 hours of discharge**

Rationale:
This indicator was selected because:

- Unplanned re- admissions is often considered to be the result suboptimal care in the previous admission leading to re- admission
- Patients receiving good quality clinical services should not be subjected to unplanned re-admissions within 72 hours of discharge.

Definition of Terms:

Unplanned re-admission*:*
Patient being re- admitted for the management of the same clinical condition he or she was discharged with and the admission was not scheduled. (The same patient readmitted in the same unit/hospital ≤ 72 hours of previous discharge)

Same condition:
Same diagnosis as referred to the ICD 10

Comments:
Number of readmission of one patient is considered as one case. Those on home leave or transferred to other unit is not considered as discharge

Inclusion Criteria	**:**	Re-admission with similar conditions (primary diagnosis) within 72 hours of discharge
Exclusion Criteria	**:**	At Own Risk (AOR) discharge patients during first admission
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of patients with unplanned re-admission to the ward within 72 hours of discharge X 100%
Denominator	**:**	Total number of patients discharged during the same period of time the numerator data was collected

Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03 : **Dengue Case Fatality Rate**

Rationale:
This indicator was selected because:

- Dengue fever has now become endemic in Malaysia and is a potentially fatal condition whose severity and frequency may be decreased by careful management planning. This indicator is a measure of the OUTCOME of care of patients with dengue.

- This indicator measures the clinical effectiveness of management of dengue fever (both haemorrhage and non-haemorrhage).

Definition of Terms:

Dengue*:* Dengue Fever (DF) and Dengue Hemorrhagic Fever (DHF)
This is a clinical diagnosis decided by the doctor based on clinical findings as well as the relevant investigations.

Remarks

(a) The 2nd Revision of the Malaysian CPG on the Management of Dengue Infection in Adults 2009 strongly recommends the monitoring of Dengue CFR and DHF Fatality rate

(b) According to the said CPG, all dengue deaths should be audited at individual hospital/state/ national level

Inclusion Criteria	**:**	All deaths caused by dengue fever
Exclusion Criteria	**:**	Deaths caused by other causes
Type of Indicator	**:**	**Rate Based Output Indicator**

Numerator	**:**	Number of cases admitted with DF & DHF/DSS and died from DF & DHF/DSS X100%
Denominator	**:**	Total number of (DF & DHF) CASES admitted

Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Percentage of patients who had blood culture taken prior to starting treatment with the carbapenem group of antibiotics.**

Rationale:
This indicator was selected because:

- The carbapenem group of antibiotics is currently being used widely, at times without any form of monitoring.
- This indicator will address the awareness of the appropriateness of the use of the carbapenem group of antibiotics among prescribers.

Definition of terms:

Carbapenem group of antibiotics: ertapenem, meropenem, imipenem etc

Inclusion Criteria	**:**	Patients prescribed with the carbapenem group of antibiotics
Exclusion Criteria	**:**	Patients prescribed with the antibiotics other than the carbapenem group of antibiotics
Type of Indicator	**:**	**Rate Based Output Indicator**
Numerator	**:**	Number of patients prescribed the carbapenem group of antibiotics and had blood culture taken prior to starting treatment. X100%
Denominator	**:**	Number of patients prescribed the carbapenem group of antibiotics.
Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 05 : **Number of deaths occurring within 24 hours of admission.**
Rationale: This indicator was selected because: ● To address the appropriateness and effectiveness of initial treatment of patients at presentation ● To address the timeliness of instituting care/treatment to patients at presentation **Definition of terms:** ***1. At presentation:*** Time of arrival at Emergency Department ***2. Within 24 hours of admission:*** Starting time is on arrival to emergency department **Inclusion Criteria** **:** All deaths within 24 hours of admission **Exclusion Criteria** **:** Patients surviving beyond 24 hours of admission **Type of Indicator** **:** **Output Indicator**
Numerator **:** Number of deaths within 24 hours of admission **Denominator** **:**
Target **:** **Data Collection** **:** 6 Monthly **Comments/Review** **:**

Indicator 06	:	**Percentage of identification of causative pathogen of community acquired pneumonia.**

Rationale:
This indicator was selected because:

- Community acquired pneumonia is a diagnosis widely made without much consideration of common local causative organism, and hence leading to possible inappropriate use of broad-spectrum antibiotics.
- The identification of common local causative organism may guide future use of antibiotics and reduce resistance rate.
- To pick up new unknown pathogen in the community.

Definition of Terms:

Community Acquired Pnuemonia
Community acquired pneumonia is defined as pneumonia that is acquired outside the hospital. In community acquired pneumonia (CAP) one gets infected in a community setting. It does not happen in a hospital, nursing home or other healthcare setting and involves the lower respiratory tract infection mostly caused by bacteria.

Inclusion Criteria	**:**	All patients admitted with the diagnosis of community acquired pneumonia.
Exclusion Criteria	**:**	All patients admitted with diagnosis other than community acquired Pneumonia
Type of Indicator	**:**	**Rate Based Output Indicator**

Numerator	**:**	Number of patients admitted with community acquired pneumonia and the causative organism is identified. X100%
Denominator	**:**	Total number of patients admitted with the diagnosis of community acquired pneumonia

Target	**:**	
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

Indicator 07	:	**Number of healthcare workers infected with tuberculosis (or any other infectious diseases), the source of which is likely hospital related.**

Rationale:
This indicator was selected because:

- Reflects safety for healthcare workers
- To identify areas for improvements in terms of hospital infection control policy

Definition of Terms:

1. Healthcare worker:
A healthcare worker is one who delivers care and services to the sick and ailing either directly as doctors and nurses including emergency medical personnel, dental professionals and students, medical and nursing students or indirectly as aides, laboratory scientists and technicians, pharmacists, hospital volunteers and administrative staff. Healthcare workers also include the support services staff i.e. housekeeping staff, medical waste handlers and others.

2. Hospital related Infection:
The Healthcare industry is one of the most hazardous environments to work in. Employees in this industry are constantly exposed to a complex variety of health and safety hazards in the course of their work. Hazards range from biological exposure to disease causing organisms such as tuberculosis and human immunodeficiency virus (HIV). Hospital related Infection refers to the source of acquiring infections in a hospital setting.

Inclusion Criteria	**:**	All healthcare worker diagnosed with tuberculosis (or any other infectious diseases), the source of which is likely hospital-related
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Output Indicator**
Numerator	**:**	Number of healthcare workers infected with tuberculosis (or any other infectious diseases)
		100%
Denominator	**:**	Total number of healthcare workers in the facility
Target	**:**	
Data Collection	**:**	Yearly
Comments/Review	**:**	

SERVICE STANDARD 09B: CLINICAL SERVICES (SURGICAL RELATED SERVICES)			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Number of Mortality/Morbidity audits/meetings being conducted in the department with documentation of cases discussed		6 Monthly
2.	Percentage of unplanned re-admission within 72 hours of discharge		Monthly
3.	Unplanned return to Operating Theatre within the same hospital admission following surgery		Monthly
4.	Percentage of patients with waiting time of more than seven (7) working days for fixation of long bone closed fracture		Monthly

Indicator 01	:	**Number of mortality and morbidity audits/meetings being conducted in the department with documentation of cases discussed**

Rationale:
This indicator was selected because:

- The main purpose of the mortality and morbidity meetings is to improve patient management and quality of care. Regular mortality and morbidity meetings serve to look at the weakness and the shortfalls in the overall management of patients, hence it will be learnt and the same mistake could be prevented and would not be repeated in the future.

Definition of Terms:

Morbidity: A diseased state

Mortality: The quality or state of being mortal

Morbidity Audits/Meetings:
Discussion of case management in regards to patient morbidity, incidence reporting, issue of patient safety, clinical audit (at the hospital level).

Mortality Meeting:
Discussions related to the management of the case and cause of death of the patient. (e.g. Clinical audit, POMR, MMR, Dengue Mortality, TB Mortality, Mortality under 5 years of age (MDG5), Perinatal Mortality Reviews (MDG4) Inquiries at hospital level.

Documentation:
Official minutes or notes taken during the meeting with attendance list (certified by the Hospital Director/ Person-In Charge (PIC).

Inclusion Criteria	**:**	All Morbidity and /or Mortality meetings being conducted at the hospital level.
Exclusion Criteria	**:**	Time period when the hospital was unable to function as usual due to mass casualty/disaster/crisis
Type of Indicator	**:**	**This is a Process Indicator**
Numerator	**:**	Number of documented mortality and morbidity meetings that were conducted in six (6) months
Denominator	**:**	
Target	**:**	
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of unplanned re-admission within 72 hours of discharge**

Rationale:
This indicator was selected because:

- Unplanned re-admission is often considered to be the result suboptimal care in the previous admission leading to re- admission
- Patients receiving good quality clinical services should not be subjected to unplanned re-admissions within 72 hours of discharge.

Definition of Terms:

Unplanned re-admission*:*
Patient being re-admitted for the management of the same clinical condition he or she was discharged with and the admission was not scheduled. (The same patient readmitted in the same unit/hospital ≤ 72 hours of previous discharge)

Same condition: Same diagnosis as referred to the ICD 10

Comments:
Number of readmission of one patient is considered as one case. Those on home leave or transferred to other unit is not considered as discharge.

Inclusion Criteria	**:**	Re-admission with similar conditions (primary diagnosis) within 72 hours of discharge
Exclusion Criteria	**:**	At Own Risk (AOR) discharge patients during first admission
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of patients with unplanned re-admission to the ward within 72 hours of discharge X 100%
Denominator	**:**	Total number of patients discharged during the same period of time the numerator data was collected
Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Rate of unplanned return to Operating Theatre within the same hospital admission following surgery**

Rationale:
This indicator was selected because:

- Any unplanned return to the operation theatre may indicate a quality care problem due to the occurrence of intra-operative problems that are serious enough to warrant intervention post-operatively. It refers to the need for an unexpected return to the operating theatre to address a previous complication of the original operation.

- This indicator measures the clinical effectiveness of care and patient safety.

Definition of Terms:

Unplanned return to the operating theatre:
Cases requiring unplanned return to the operating theatre for further intervention during the same admission after a surgical procedure (under GA)

Inclusion Criteria	**:**	All cases that had undergone surgery Inclusive of day of surgery admission
Exclusion Criteria	**:**	Endoscopy cases and day care cases
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of cases (of unplanned return to OT) after a surgical procedure under GA requiring further intervention during the same admission in the month X 100%
Denominator	**:**	Total number of cases undergone surgical procedure under GA in the month

Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Percentage of patients with waiting time of more than seven (7) working days for fixation of long bone closed fracture**

Rationale:
This indicator was selected because:

- The long waiting time for long bone closed fracture internal fixation varies from few days to weeks, thus reflecting on the workload, facilities available and planning besides increased intra-operative difficulties.
- Prolonged waiting time will lead to morbidity, extended hospital length of stay and increased health cost and also the fracture is technically more difficult to fix.
- It indicates Timely Access & Clinical Effectiveness

Definition of Terms:

Fractures: Defined as long bone closed fractures

Long bones*:* Humerus, Radius, Ulna, Femur, Tibia, Fibula

Internal Fixation*:* Any form of device used to hold the bone fragments internally, includes any form of plate, nail, screw and wire buried under the skin. Combination of internal and external fixation will be considered as internal fixation

Inclusion Criteria	**:**	All patients admitted for long bone closed fractures
Exclusion Criteria	**:**	i) Medically unfit patients ii) Difficulty in obtaining consent and/or implant iii) Patient with additional open fracture(s)
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of patients with long bone closed fracture fixations with waiting time of more than seven (7) working days
Denominator	**:**	Total number of patients with long bone closed fracture fixations done during the study period X 100%
Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 09C: CLINICAL SERVICES (OBSTETRICS & GYNAECOLOGY SERVICES)			
There is tracking and trending of specific performance indicators which include but not limited to at least two(2) of the following:			
NO	**INDICATOR**	**TARGET**	**REPORTING FREQUENCY**
	FACILITY WITH SPECIALITISTS		
1.	Emergency and Elective Caesarean Rates	< 30%	Monthly
2.	Percentage of Undiagnosed ureteric injury for benign gynaecological surgery/condition	≤ 1%	6 Monthly
3.	Maternal Mortality Ratio (sentinel event)	0	Monthly
4.	Incidence of 3rd and 4th degree perineal tear following vaginal delivery	≤ 10%	Monthly
DISTRICT FACILITY WITHOUT SPECIALITISTS (MATERNITY SERVICES)			
1.	Emergency and Elective Caesarean Rates		Monthly
2.	Maternal Mortality Ratio (sentinel event)	0	Monthly
3.	Incidence of 3rd and 4th degree perineal tear following vaginal delivery (Target: less than 5%)	< 5%	Monthly

Indicator 01 : **Emergency and Elective Caesarean Rates**

Rationale:
This indicator was selected because:

1. There is concern about whether high rates of caesarean section are justified because the procedure is not without risk. Women may experience complications after caesarean section such as haemorrhage, infection, and thrombosis, and they have an increased risk of complications in subsequent pregnancies.

2. Neonatal complications, although infrequent, include fetal respiratory distress syndrome, pulmonary hypertension, iatrogenic prematurity, and difficulty with bonding and breast feeding.

3. Adding to these concerns is the considerable variation in rates of caesarean section between the public and private healthcare facilities.

4. It is also known that an elective planned caesarean section is safer than an emergency surgery. It is good practice to track and trend the rates of elective and emergency caesarean sections.

Definition of Terms:

Caesarean Section (CS)
CS is surgery done for the delivery of the fetus via an abdominal and uterine incision.

Emergency Caesarean Section (CS):
CS done after admission for a clinical reason without prior plan during antenatal care is termed an emergency caesarean section.

Elective caesarean section
CS is done on planned basis during antenatal care. An elective caesarean section carries lesser risks to the mother and fetus compared to an emergency CS.

Inclusion Criteria	**:**	All cases of caesarean sections conducted during a specific period
Exclusion Criteria	**:**	All modes of deliveries other than Caesarean sections
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	
Denominator	**:**	
Target	**:**	Facility with Specialists: < 30%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of undiagnosed ureteric injury for benign gynaecological surgery/condition**

Rationale:
This indicator was selected because:

- Patient safety is the important emphasis in delivering medical care. However, complications during surgery do occur but failure to recognize the complication is not acceptable.
- In gynaecological surgery, ureteric injury is a recognized complication but it is the responsibility of the surgeon to recognize it during surgery when primary repair can be arranged.
- The incidence of undiagnosed ureteric injury is a debilitating injury to the patient with possible long term complications. The use of this indicator would be reflective of the prompt diagnosis and speed of instituting care that would prevent the patient from enduring prolonged discomfort, excuriating pain and infection.
- To ensure competency and adherence to safety in performing hysterectomy for benign gynaecological conditions.

Definition of Terms:

1. Ureteric injury – Any type of ureteric injury
Ureteric injuries can occur during "simple" routine pelvic surgeries, such as hysterectomies, and the risk increases in the presence of comorbidities i.e., pelvic inflammatory diseases and is associated with significant morbidity. The anatomic proximity of the ureters to the genital tract places them at risk of injury during pelvic surgery i.e., gynaecological procedures.

2. Benign Gynaecological Surgery – Hysterectomy for benign gynaecological condition.

3. Undiagnosed ureteric injury – Failure to recognise ureteric injury during surgery

Inclusion Criteria	**:**	All cases of unrecognised intraoperative ureteric injury who had
Exclusion Criteria	**:**	undergone obstetric & gynaecological surgery including LSCS
Type of Indicator	**:**	NA **Rate Based Outcome Indicator**
Numerator	**:**	Number of patients with undiagnosed intraoperative ureteric injury X 100%
Denominator	**:**	Total numbers of hysterectomy done for benign gynaecological condition
Target	**:**	≤ 1% (facilities with specialists)
Data Collection	**:**	
Comments/Review	**:**	

Indicator 03	:	**Maternal Mortality Rate (MMR)**

Rationale:
This indicator was selected because:

- This indicator reflects maternal health and enables safety considerations in reducing maternal mortality.
- Most maternal deaths are avoidable, as the health-care solutions to prevent or manage complications are well known. All women need is access to antenatal care in pregnancy, skilled care during childbirth, and care and support in the weeks after childbirth. It is particularly important that all births are attended by trained and skilled health professionals, as timely management and treatment can make the difference between life and death. To improve maternal health, barriers that limit access to quality maternal health services must be identified and addressed at all levels of the health system.

Definition of Terms:

Maternal Death
According to the World Health Organization (WHO), maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Generally, there is a distinction between a direct maternal death resulting from complications arising during pregnancy, labour or during the post-partum period. Deaths may result from interventions, omissions, incorrect treatment or from a chain of events resulting from any of the above. The indirect obstetric deaths may result from previous existing disease or diseases, which are aggravated by the pregnancy resulting in her death. An example would be heart disease. Fortuitous deaths are those deaths that occur in a pregnant woman which are unrelated to her pregnancy and may have caused her death even if she were not pregnant.

Inclusion Criteria	**:**	All direct and indirect maternal deaths
Exclusion Criteria	**:**	Fatalities during but unrelated to a pregnancy are termed fortuitous maternal deaths.
Type of Indicator	**:**	**Sentinel Event**

Numerator	**:**	Total number of Maternal Deaths X 1000
Denominator	**:**	Total number of Live Births *Remarks: Maternal Mortality Rate is expressed as per 100,000 live births.*

Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Incidence of 3rd and 4th degree perineal tear following vaginal delivery**

Rationale:
This indicator was selected because:

- Obstetric Trauma is a debilitating injury to the patient. The injury of third and fourth degree perineal tears during vaginal delivery extends to the perineal muscles, anal sphincter and bowel wall, and these require surgical treatment post- delivery. Possible long-term complications include continued perineal pain and anal incontinence. These types of tears can be prevented/reduced by employing appropriate labour management and care standards.

Definition of Terms:

3rd and 4th degree perineal tear – refers to incidence of Perineal Laceration /tear following vaginal delivery.

Inclusion Criteria	**:**	Patients who underwent vaginal deliveries in the hospital: ● Without instrumentation ● Sustained third (3rd) degree and fourth (4th) degree perineal laceration/tear
Exclusion Criteria	**:**	Patients who delivered outside of the hospital
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of patients with 3rd and 4th degree tear following vaginal delivery without instrumentation in the hospital X 100
Denominator	**:**	Total number of vaginal deliveries without instrumentation in the hospital

Target	**:**	● District Facility without specialist: ≤ 5 ● Facility with specialists: ≤ 10%
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 09D: CLINICAL SERVICES (PAEDIATRIC SERVICES)			
There is tracking and trending of specific performance indicators which include but not limited to at least three (3) of the following:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Number of Mortality/Morbidity audits/meetings being conducted in the department with documentation of cases discussed		6 monthly
2.	Percentage of paediatric patients with unplanned re-admission for the same condition within 48 hours of discharge	≤ 2%	Monthly
3.	Community acquired pneumonia death rate in previously healthy children aged between one (1) month and five (5) years.	≤1%	Monthly
4.	Percentage of patients with waiting time of ≤ 90 minutes to see doctor at Paediatric Specialist Clinic.	≥ 90%	Monthly
5.	Percentage of survival of inborn very low birth weight infants between 1000 – 1499 g birth weight.	≥ 90%	

Indicator 01	:	**Number of mortality and morbidity audits/meetings being conducted in the department with documentation of cases discussed**

Rationale:
This indicator was selected because:

- The main purpose of the mortality and morbidity meetings is to improve patient management and quality of care. Regular mortality and morbidity meetings serve to look at the weakness and the shortfalls in the overall management of patients, hence it will be learnt and the same mistake could be prevented and would not be repeated in the future.

- Majority of children die below the age of 5 years. Review of all deaths among children will enable healthcare providers to rectify and improve services to children.

Definition of Terms:

Morbidity Audits/Meetings:
Discussion of case management in regards to patient morbidity, incidence reporting, issue of patient safety, clinical audit (at the department/hospital level).

Mortality Meeting:
Discussions related to the management of the case and cause of death of the patient. (e.g.: Clinical audit, POMR, Dengue Mortality, TB Mortality, Mortality under 5 years of age (MDG5), Perinatal Mortality Reviews (MDG4) Inquiries at hospital level.

Documentation:
Official minutes or notes taken during the meeting with attendance list (certified by the Hospital Director/ Person-In Charge (PIC)

Inclusion Criteria	**:**	All Morbidity and /or Mortality meetings being conducted at the hospital level.
Exclusion Criteria	**:**	Time period when the hospital was unable to function as usual due to mass casualty/disaster/crisis
Type of Indicator	**:**	**Process Indicator**
Numerator	**:**	Number of documented mortality and morbidity meetings that were conducted in six (6) months
Denominator	**:**	
Target	**:**	
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of paediatric patients with unplanned re-admission for the same condition within 48 hours of discharge**

Rationale:
This indicator was selected because:

- Unplanned re-admission is often considered to be the result of suboptimal care in the previous admission leading to re-admission.
- This indicator measures Clinical Effectiveness & Patient Centered care

Definition of Terms:

1. Unplanned re-admission:
Patient being re-admitted for the management of the same clinical condition he or she was discharged with and the admission was not scheduled. Return to hospital that was not planned for during initial admission

2. Within 48 hours:
≤ 48 hours (2 days)

3. Readmission*:*
The same patient readmitted in the same unit/hospital ≤ 48 hours of previous discharge for the same condition (regardless of the number of times being admitted that is multiple readmission within 48 hours is considered as one admission)

4. *Discharge:*
Patients name has been removed from ward register.

Comments: Number of readmission of one patient is considered as one case. Those on home leave or transferred to other unit is not considered as discharge

Inclusion Criteria	**:**	Re-admission to hospital for the same or related problem within 48 hours of discharge
Exclusion Criteria	**:**	i) Neonates and patients of > 12 years of age ii) AOR (at own risk) discharge patients during first admission iii) Patients re- admitted to other/different hospital iv) Patients with chronic illnesses v) Re- admission requested by next of kin or other team
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of paediatric patients with unplanned readmission to the paediatric ward/hospital within 48 hours of discharge
Denominator	**:**	Total number of paediatric patients discharged during the same period of time the numerator data was collected X 100%
Target	**:**	≤ 2%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Community acquired pneumonia death rate in previously healthy children aged between one (1) month and five (5) years.**

Rationale:
This indicator was selected because:

- Pneumonia is a common childhood infection where mortality can be reduced by careful management.

Definition of Terms:

1. Community Acquired Pneumonia (CAP):
Pneumonia acquired from normal social contact as opposed to being acquired during hospitalization and confirmed by radiological or laboratory investigations

2. Previously healthy children:
Paediatric patients who are not known to have any serious medical illness before (e.g.) Chronic childhood asthma, severe malnutrition, etc)

Inclusion Criteria	**:**	Previously healthy children aged between one month and five (5) years
Exclusion Criteria	**:**	i) Patients younger than one month and older than five(5) years ii) Hospital acquired pneumonia iii) Children with co-morbid conditions e.g. cardiac, chronic lung disease, severe neurological conditions causing restrictive lung disease etc. iv) Epidemics of CAP
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of deaths due to community acquired pneumonia among previously healthy children aged between 1 month and 5 years X 100%
Denominator	**:**	Total number of cases admitted for community acquired pneumonia among previously healthy children aged between 1 month and 5 years
Target	**:**	≥ 1 %
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Percentage of Patients with waiting time of ≤ 90 minutes to see doctor at Paediatric Specialist Clinic.**

Rationale:
This indicator was selected because:

1. MOH aims for waiting time to see the doctor at outpatient services, to be less than 90 minutes, in line with patient-centred services. Waiting time is time patient first registers in the hospital till the time patient is seen by doctor.

2. The waiting time is based on patient's experience from the time the patient first registers at the first counter in the hospital till seen by doctor. In view of many counters being involved in some hospitals some clinical departments have opted for monitoring of registration from department counter, as any process prior to that appears out of the clinical department's control.

3. For hospitals to eliminate or reduce waiting time, it is important to balance between the demand for appointments and the supply of appointments. One needs to identify opportunities for improvement by strengthening the policy of outpatient services in hospital, apply Queuing Theory and having contingency plans.

(Ref: MOH Technical Specifications Key Performance Indicators (KPI) Clinical Services, Medical programme, version 7.0 2021)

Definition of Terms:

***Waiting time**:*
Time of registration counter at department counter or time of appointment given to patient (whichever is later) till the time the patient is first seen by the doctor, which is the beginning of a consultation.

Inclusion Criteria	**:**	All outpatients of Paediatric Outpatient Clinic
Exclusion Criteria	**:**	v) Patients who come without an appointment ("walk in patients") vi) Patients that need to do procedures on the same day before seeing the doctors (e.g., blood taking or imaging). vii) Patients who state their preference to see only a specific doctor at the clinic.
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of sampled patients with waiting time of ≤ 90 minutes to see the doctor at the Paediatric Outpatient Clinic in the month X 100%
Denominator	**:**	Total sample of patients seen by doctor at the Paediatric Outpatient Clinic in a month
Target	**:**	≥ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	**Sampling:** Using an average of total patients seen in a month, 30% of the patients in each month needs to be sampled for this indicator. Randomised sampling to ensure each clinic day of the week to ensure proper representation of data.

Indicator 05	:	**Percentage of survival of inborn livebirths with birthweight between 1000-1499g**

Rationale:
This indicator was selected because:

- This group of infants comprises a significant proportion of patients who utilize NICU and special care nursery resources.
- Their survival impacts significantly on the under 5 survival target.

Definition of Terms:

1. ***Livebirth***: Born alive
2. **Inborn**: Born in the same hospital.

Inclusion Criteria	**:**	All inborn livebirth infants of birthweight between 1000-1499 g.
Exclusion Criteria	**:**	Babies born with major/ lethal congenital anomalies (LCM)
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of survival of inborn livebirths with birthweight between 1000 – 1499 g X 100%
Denominator	**:**	Total number of inborn livebirths of birthweight between 1000 – 1499 g
Target	**:**	≥ 90 %
Data Collection	**:**	
Comments/Review	**:**	

SERVICE STANDARD 09E: CLINICAL SERVICES (CARDIOLOGY)			
There is tracking and trending of the following specific performance indicators where appropriate:			
No.	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Electrocardiogram taken within 10 minutes after triaging as possible Acute Coronary Syndrome patients	100%	Monthly
2.	Mortality and morbidity review of patients with acute myocardial infarction. (Morbidity discussion based on the department's discretion)	100%	Monthly
3.	Thrombolytic Therapy within 30 minutes after hospital arrival in patient with acute myocardial infarction "Door to Needle" Time.	90%	Monthly
4.	Percentage of patient who received Thrombolytic Therapy (TT) in patients admitted for acute myocardial infarction.	90%	Monthly
5.	Percentage of "Normal" Diagnostic Angiogram	<5%	Monthly
6.	Major complication rate during Diagnostic Coronary Angiogram (Death, acute myocardial infarction, stroke)	<1%	Monthly
7.	Major complication rate during Percutaneous Coronary Intervention (Death, acute myocardial infarction, stroke)	<1%	Monthly
8.	Percutaneous Coronary Intervention (PCI) within 90 minutes after hospital arrival "Door to Balloon" Time	90%	Monthly

No.	INDICATOR	TARGET	Reporting Frequency
9.	Percentage of high risk Acute Coronary Syndrome (ACS) cases undergoing Cardiac Catheterisation during the index admission.	≥ 90%	Monthly
10.	Percentage of Heart Failure Mortality Rate during index hospitalization	≤ 10%	Monthly
11.	Percentage of Heart Failure Readmission Rate at 1-month	≤ 15%	Monthly

Indicator 01	:	**Electrocardiogram taken within 10 minutes after triaging as possible Acute Coronary Syndrome patients**

Rationale:
This indicator was selected because:

- Acute Myocardial Infarction is a frequent cause of hospital death nationally.
- Patients with acute coronary syndrome (ACS) should have an electrocardiogram taken immediately upon arrival at the hospital.
- This indicator measures quality of care and adherence to practice guidelines.

Definition of Terms:

1. Acute Coronary Syndrome:
Includes patients with unstable angina, non- ST elevation myocardial infarction (NSTEMI) and ST elevation myocardial infarction (STEMI). Acute coronary syndrome (ACS) Diagnosis of STEMI is in accordance with the Clinical Practice Guidelines- Management Of Acute ST Segment Elevation Myocardial Infarction (STEMI) 2014 - (3rd edition)

2. Electrocardiogram
Electrocardiography is a commonly used, noninvasive procedure for recording electrical changes in the heart. The record, which is called an electrocardiogram (ECG or EKG), shows the series of waves that relate to the electrical impulses which occur during each beat of the heart. Output usually appears on a long scroll of paper that displays a printed graph of activity.

Inclusion Criteria	**:**	All cases with complaints of Chest pain and suspected Acute Myocardial Infarction.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of patients triaged as possible Acute Coronary Syndrome and electrocardiogram done within 10 minutes X100%
Denominator	**:**	Total number of patients triaged as possible Acute Coronary Syndrome and electrocardiogram done
Target	**:**	100%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Mortality and morbidity review of patients with acute myocardial infarction.**

Rationale:
This indicator was selected because:

- Acute Myocardial Infarction is a frequent cause of hospital death nationally.
- The main purpose of the mortality and morbidity meetings is to improve patient management and quality of care. Regular mortality and morbidity meetings serve to look at the weakness and the shortfalls in the overall management of patients with acute myocardial infarction, hence lessons will be learnt and the same mistake could be prevented and would not be repeated in the future.

Definition of Terms:

1. Morbidity Meetings:
Discussion of case management in regards to patient morbidity, incident reporting, issue of patient safety, clinical audit (at the department/hospital level).

2. Mortality Meeting:
Discussions related to the management of the case and cause of death of the patient (i.e. Clinical Audit, PMOR, Enquiries, deaths of patients with Acute Myocardial Infarction) conducted at department/hospital level.

Inclusion Criteria	**:**	All Morbidity and /or Mortality meetings on patients with Acute Myocardial Infarction being conducted at the department/hospital level.
Exclusion Criteria	**:**	Time period when the department/hospital was unable to function as usual due to disaster/crisis
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of patients (admitted with Acute Myocardial Infarction) that had mortality and morbidity reviews conducted on each case X 100 %
Denominator	**:**	Total number of cases (admitted with Acute Myocardial Infarction) scheduled for mortality and morbidity reviews
Target	**:**	100%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Thrombolytic Therapy (TT) within 30 minutes after hospital arrival "Door to Needle" Time**

Rationale:
This indicator was selected because:

- Acute Myocardial Infarction is a frequent cause of hospital death nationally.
- It is important to measure the quality of care and adherence to practice guidelines.

Definition of Terms:

Thrombolytic Therapy:
Thrombolytic Therapy is widely used to treat Acute Myocardial Infarction to open up an acutely occluded artery. Thrombolytic Therapy should be instituted within 30 minutes after the arrival of patient and diagnosis is made at the hospital's Emergency Department.

Inclusion Criteria	**:**	All cases with Acute Myocardial Infarction with indications for Thrombolytic Therapy.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of Acute Myocardial Infarction patients who had Thrombolytic Therapy done within 30 minutes after hospital arrival and diagnosis is made X 100%
Denominator	**:**	Total number of Acute Myocardial Infarction patients admitted and who received Thrombolytic Therapy.
Target	**:**	90%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Percentage of patient who received thrombolytic therapy (TT) in patients admitted for Acute Myocardial Infarction**

Rationale:
This indicator was selected because:

- Acute Myocardial Infarction is a frequent cause of hospital death nationally.
- It is important to measure the quality of care and adherence to practice guidelines.

Definition of Terms:

Thrombolytic Therapy:
Thrombolytic Therapy (TT) is widely used to treat Acute Myocardial Infarction (AMI) to open up an acutely occluded artery. Thrombolytic Therapy should be instituted in all patients with AMI presenting within 12 hours of chest pain with no contraindication for receiving TT.

Inclusion Criteria	**:**	All cases with Acute Myocardial Infarction with indications for Thrombolytic Therapy.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of AMI patients who were admitted and received Thrombolytic Therapy X 100%
Denominator	**:**	Total number of AMI patients who were admitted with no contraindications for TT
Target	**:**	90%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 05	:	**Rate of "Normal" Diagnostic Coronary Angiogram**

Rationale:
This indicator was selected because:

- Coronary Angiogram is a frequent investigation to diagnose Coronary Artery Disease
- This indicator measures clinical effectiveness.

Definition of Terms:

1. Coronary Angiogram:
Coronary Angiogram is used to diagnose and/or treat various heart conditions. Doctors may recommend this procedure for a number of different reasons. The most common reason is to evaluate chest pain. Chest pain can be a symptom of coronary artery disease (CAD), and coronary angiogram can show whether plaque is narrowing or blocking the heart's arteries.

2. "Normal" Coronary Angiogram
"Normal" findings from a coronary angiogram will indicate mild (<30%) or no stenosis of the coronary arteries.

Inclusion Criteria	**:**	All patients who had undergone coronary angiogram.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of patients who had coronary angiogram done and found 'normal'	x100%
Denominator	**:**	Total number of patients who had coronary angiogram done	

Target	**:**	< 5%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 06	:	**Major Complication Rate during Diagnostic Coronary Angiogram**

Rationale:
This indicator was selected because:

- Chest pain can be a symptom of coronary artery disease (CAD), and coronary angiogram can show any stenosis or occlusion of coronary arteries.
- Coronary angiogram test does involve some risks. This indicator measures the clinical effectiveness of care and competency of the healthcare professional.

Definition of Terms:

1. Diagnostic Cardiac Catheterization:
Diagnostic Cardiac Catheterization is used to diagnose and/or treat various heart conditions. Doctors may recommend this procedure for a number of different reasons. The most common reason is to evaluate chest pain. Chest pain can be a symptom of coronary artery disease (CAD), and cardiac catheterization can show whether plaque is narrowing or blocking the heart's arteries.

2. Complications from diagnostic cardiac catheterization:
Similar to all surgical procedures, the cardiac catheterization test does involve some risks. Major complications that may occur during the procedure include:

- Death
- Acute Myocardial Infarction
- Stroke

Inclusion Criteria	**:**	All patients who had cardiac catheterization done
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Output Indicator**

Numerator	**:**	Number of patients who had major complications during / and within 24 hours after diagnostic coronary angiogram.	X100%
Denominator	**:**	Total number of patients who had diagnostic coronary angiogram done	

Target	**:**	< 1%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 07 : **Major Complication Rates during Percutaneous Coronary**

Rationale:
This indicator was selected because:

- Percutaneous Coronary Intervention is frequently used to treat significant lesions in patient with Coronary Artery Disease.
- This indicator measures the clinical effectiveness of care and competency of the healthcare professional.

Definition of Terms:

1. Percutaneous Coronary Intervention;
Percutaneous Coronary Intervention is used to treat significant Coronary Artery Disease. These specialized catheters include balloon catheters and devices that can open up narrowed arteries which include stents, rotablator, etc

2. Major Complications from Percutaneous Coronary Intervention include:
- Death
- Acute Myocardial Infarction
- Stroke

Inclusion Criteria	**:**	All patients who had Percutaneous Coronary Intervention done
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Output Indicator**

Numerator	**:**	Number of patients who had major complications during / and within 24 hours after Percutaneous Coronary Intervention X100%
Denominator	**:**	Total number of patients who had Percutaneous Coronary Intervention done

Target	**:**	< 1%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 08	:	**Percutaneous Coronary Intervention (PCI) within 90 minutes after hospital arrival " Door to Balloon" Time**

Rationale:
This indicator was selected because:

- Acute Myocardial Infarction is a frequent cause of hospital death nationally.
- This indicator measures clinical effectiveness

Definition of Terms:

1. Primary Percutaneous Coronary Intervention (PCI):
Commonly known as coronary angioplasty or simply angioplasty, is a non-surgical procedure used to treat the stenotic (narrowed) coronary arteries of the heart found in coronary heart disease. PCI is usually performed by an interventional cardiologist.

2. Percutaneous Coronary Intervention (PCI):
Percutaneous Coronary Intervention is a specific term for opening up totally occluded arteries in Acute Myocardial Infarction. Primary PCI is performed within 90 minutes after the arrival of the patient at the hospital's emergency department

Inclusion Criteria	**:**	All cases with Acute Myocardial Infarction with indications for Primary
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of Acute Myocardial Infarction patients who had primary PCI done within 90 minutes after hospital arrival	X 100%
Denominator	**:**	Total number of Acute Myocardial Infarction patients admitted and had primary PCI done	

Target	**:**	90%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 09	:	**Percentage of high risk Acute Coronary Syndrome (ACS) cases undergoing Cardiac Catheterisation during the index admission**

Rationale :
This indicator was selected because:

- Acute Coronary Syndrome (ACS) is a frequent cause of hospital death nationally.
- This indicator measures clinical effectiveness

Definition of Terms:

1. High risk Acute Coronary Syndrome (ACS)

For STEMI – TIMI Risk Score ≥ 6
For NSTEMI – TIMI Risk Score ≥ 5

Inclusion Criteria	**:**	All cases of high risk acute coronary syndrome (ACS)
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of high risk acute coronary syndrome (ACS) X 100%
Denominator	**:**	Total number of patients of high risk acute coronary syndrome (ACS) admitted and undergoing coronary angiogram during index admission
Target	**:**	≥ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 10	:	**Percentage of Heart Failure Mortality Rate during index hospitalisation**

Rationale :
This indicator was selected because:

- Heart failure is a debilitating and deadly condition with high re-hospitalisation rates and dismal survival rates comparable to most cancers. In Asian countries, heart failure is the commonest cardiac cause of hospitalization (representing ~ 24% of all cardiac admissions), and the 5-year survival rate in patients with heart failure is only 32%. The 1-year mortality rate for South-East Asia is 13%.

- This indicator measures clinical effectiveness.

Definition of Terms:

1. ICD 10 – Code for heart failure 150 which include:

150.0 Congestive Heart Failure (CHF)
150.1 Left Ventricular Failure (LVF)
150.9 Heart Failure, Unspecified

Inclusion Criteria	**:**	All cases of heart failure
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of mortality cases due to heart failure during index hospitalisation X 100%
Denominator	**:**	Total number of hospitalised heart failure patients

Target	**:**	≤ 10%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 11 : **Percentage of Heart Failure Readmission Rate at 1-month**

Rationale :
This indicator was selected because:

- Heart failure is a debilitating and deadly condition with high re- hospitalisation rates and dismal survival rates comparable to most cancers. 30-day readmission rate ranges from 2.5 - 25% globally with Malaysian 30-day readmission rate of 17.8%.

- In Asian countries, heart failure is the commonest cardiac cause of hospitalization (representing ~24% of all cardiac admissions), and the 5-year survival rate in patients with heart failure is only 32%. The 30-day readmission rate (RR) for heart failure (HF) was chosen as the indicator because it is one of the quality representations of inpatient and outpatient care and potential cost reduction by preventing readmission. The United States national rate of readmission for HF is 23%.

- This indicator measures clinical effectiveness

Definition of Terms:

1. ICD 10 – Code for heart failure 150 which include:

150.0 Congestive Heart Failure (CHF)
150.1 Left Ventricular Failure (LVF)
150.9 Heart Failure, Unspecified

Inclusion Criteria	**:**	All cases of heart failure
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of heart failure patients readmitted within one month after discharge of the index admission	X 100%
Denominator	**:**	Total number of hospitalised heart failure patients in one Year	

Target	**:**	≤ 15%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 09F: CLINICAL SERVICES (ONCOLOGY)			
There is tracking and trending of specific performance indicators which include but not limited to at least three (3) of the following:			
No.	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Number of mortality/morbidity audits/meetings being conducted in the department with documentation of cases discussed		6 Monthly
2.	Percentage of patients developed extravasation during chemotherapy treatment	< 5%	6 Monthly
3.	Percentage of oncology therapy prescription errors (from prescription to administration)		Monthly

Indicator 01	:	**Number of mortality and morbidity audits/meetings being conducted in the department with documentation of cases discussed**

Rationale :
This indicator was selected because:

- The main purpose of the mortality and morbidity meetings is to improve patient management and quality of care. Regular mortality and morbidity meetings serve to look at the weakness and the shortfalls in the overall management of patients, hence it will be learnt and the same mistake could be prevented and would not be repeated in the future.

Definition of Terms:

1. Morbidity Audits/Meetings:
Discussion of case management in regards to patient morbidity, incidence reporting, issue of patient safety, clinical audit (at the department/hospital level).

2. Mortality Meeting:
Discussions related to the management of the case and cause of death of the patient at department/hospital level.

3. Documentation:
Official minutes or notes taken during the meeting with attendance list(certified by the Hospital Director/ Person-In Charge (PIC)

Inclusion Criteria	**:**	All Morbidity and /or Mortality meetings being conducted at the hospital level.
Exclusion Criteria	**:**	Time period when the hospital was unable to function as usual due to mass casualty/disaster/crisis
Type of Indicator	**:**	**Process Indicator**
Numerator	**:**	Number of documented mortality and morbidity meetings that were conducted in six (6) months
Denominator	**:**	
Target	**:**	-
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of patients developed extravasation during chemotherapy treatment**

Rationale :
This indicator was selected because:

- Extravasation is a grave complication of chemotherapy miss-delivery and can lead to devastating effects on the patient.
- The aim of this indicator is to ascertain that chemotherapy delivery is being monitored by the specialists through continuing medical education and dissemination of knowledge about chemotherapy delivery to all stakeholders involved with the patient.
- It is an indirect measurement of adherence to stipulated chemotherapy delivery guidelines essential to ensure safe practice, provide evidence based care and increase awareness amongst healthcare givers.

Definition of Terms:

1. Chemotherapy Treatment:
All types of intravenous administration of chemotherapeutic agents.

2. Extravasation:
Inadvertent infiltration of chemotherapy preparations and fluids into the subcutaneous or subdermal tissues surrounding the intravenous administration site. The accidental leakage of cytostatic/vesicant agents into the perivascular tissues may have devastating short-term and long-term consequences for patients. In recent years, the increased focus on chemotherapy extravasation has led to the development of international guidelines that have proven useful tools in daily clinical practice.

Inclusion Criteria	**:**	1. Only hospitals with resident oncologists are included. 2. All patients that were given intravenous chemotherapy including patients with chemoport access 3. Grade 3 or 4 of extravasation at any point during the Chemotherapy treatment
Exclusion Criteria	**:**	Patients whose chemotherapy is given in hospitals where there is only a visiting oncologist
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Numbers or frequency of extravasation during chemotherapy treatment X 100%
Denominator	**:**	Total number of chemotherapy infusions (including via Chemoport)
Target	**:**	< 5%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 03	:	**Percentage of oncology therapy prescription errors (from prescription to administration)**

Rationale :
This indicator was selected because:

- The occurrence of oncology therapy prescription error/misadventure in the delivery of chemotherapy is a potentially preventable serious adverse event where there is much pain and suffering or temporary/permanent disability or even death.

- The occurrence of error in oncology therapy prescription can lead to devastating effects on the patient. The large amount of medications used for infusion as well as the availability of new and potent chemotherapy requires further enhancement on the awareness on medication safety.

Definition of Terms:

Oncology Therapy Prescription Error (from prescription to administration) :
Any preventable event that may cause or lead to inappropriate use or patient harm while the chemotherapy drug is in the control of the healthcare provider from prescription to administration. Such events may be related to errors in professional practice, healthcare products, procedures, and systems, including order communication; product labeling, packaging, prescribing; reconstitution; dispensing; administration; monitoring and use.

Inclusion Criteria	**:**	All patients on chemotherapy drugs (oral & infusion)
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Sentinel Event**

Numerator	**:**	Numbers of Oncology Therapy Prescription Errors made in the process of prescribing, ordering, dispensing, reconstitution and administration of cytotoxic drug in the month	X 100%
Denominator	**:**	Total number of Oncology Therapy Prescriptions (from prescription to administration) in the month	

Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 09G: CLINICAL SERVICES (OPHTHALMOLOGY)			
There is tracking and trending of specific performance as follows:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of patients developed infectious endophthalmitis following cataract surgery.	< 0.2 % 2 cases per 1000 operations	6 Monthly
2.	Percentage of patients without pre-existing ocular co-morbidity obtained visual acuity of 6/12 or better within (<) 3 months following cataract surgery.	≥ 90%	6 Monthly

Indicator 01	:	**Percentage of patients developed infectious endophthalmiti following cataract surgery**

Rationale :
This indicator was selected because:

- Infectious Endophthalmitis is a rare but devastating complication after cataract surgery which may lead to permanent blindness. Morbidity associated with post-operative Infectious Endophthalmitis can be substantial and is related not only to acute process but also to late sequelae.
- The causes can be multifactorial from patient to surgical environmental factors (contamination of sterilized instruments, disposable supplies, theatre environment, etc.
- Monitoring of this KPI is mandatory to ensure safety of the service.

Definition of Terms:

Infectious Endophthalmitis*:*
Infection involving both the anterior and posterior segments of the eye after cataract surgery. A patient post cataract can develop Infectious Endophthalmitis any time after the cataract surgery.

Inclusion Criteria	**:**	All elective cataract surgeries
Exclusion Criteria	**:**	All emergency and semi-emergency cataract surgeries.
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of patients developed Infectious Endophthalmitis following cataract surgery during the specified period X 100%
Denominator	**:**	Total number of patients underwent cataract surgery during the specified period
Target	**:**	< 0.2 % (2 cases per 1000 operations)
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of patients without pre-existing ocular co- obtained visual acuity of 6/12 or better within (<) 3 months following cataract surgery**

Rationale :
This indicator was selected because:

- Cataract is a preventable blindness.
- Cataract surgery is indicated to improve the quality of life. Therefore, by measuring this indicator, we can monitor the quality of service given.

Definition of Terms:

Pre-existing ocular comorbidities:

- *Diabetic Maculopathy.*
- *Advanced Diabetic Eye Disease.*
- *Macula Scar from any cause.*
- *Amblyopia.*
- *Optic neuropathy from any cause.*
- *Cornea opacities from any cause.*

Inclusion Criteria	**:**	All elective cataract surgeries
Exclusion Criteria	**:**	1. Patients with pre-existing ocular co-morbidity that will affect visual outcome. 2. All emergency and semi-emergency cataract surgeries.'
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of patients without pre-existing ocular co-morbidity obtained visual acuity 6/12 or better within (≤) 3 months following cataract surgery X 100%
Denominator	**:**	Total number of patients without pre-existing ocular co-morbidity underwent cataract surgery

Target	**:**	≥ 90%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

SERVICE STANDARD 09H: CLINICAL SERVICES (OTORHINOLARYNGOLOGY)			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	**Percentage of patients with waiting time of ≤ 90 minutes to see the doctor at the Otorhinolaryngology(ORL) Outpatient Clinic**	**≥ 90%**	**Monthly**
2.	**Percentage of ears with hearing improvement 3 months post myringoplasty**	**≥ 70%**	**Monthly**
3.	**Incidence rate of primary post-tonsillectomy haemorrhage**	**≤ 3%**	**Monthly**

Indicator 01	:	**Percentage of patients with waiting time of ≤ 90 minutes to see the doctor at the Otorhinolaryngology (ORL) Outpatient Clinic**

Rationale :
This indicator was selected because:

- MOH aims for waiting time to see the doctor at outpatient services, to be less than 90 minutes, in line with patient-centred services. Waiting time is time patient first registers in the hospital till the time patient is seen by doctor.

- The waiting time is based on patient's experience from the time the patient first registers at the first counter in the hospital until seen by doctor. In view of many counters being involved in some hospitals, some clinical departments have opted for monitoring of registration from department counter, as any process prior to that appears out of the clinical department's control.

- For hospitals to eliminate or reduce waiting time, it is important to balance between the demand for appointments and the supply of appointments. One needs to identify opportunities for improvement by strengthening the policy of outpatient services in hospital.

Definition of Terms:

Waiting time*:*
Time of registration at department counter or time of appointment given to patient (whichever is later) till the time the patient is first seen by the doctor, which is beginning of a consultation.

Inclusion Criteria	**:**	All outpatients of the Otorhinolaryngology Outpatient Clinic.
Exclusion Criteria	**:**	1. Patients who come without an appointment ("walk-in" patients). 2. Patients that need to do procedures on the same day before seeing the doctors (e.g. blood taking or imaging).
Type of Indicator	**:**	**Rate Based Process Indicator** **Sampling**: Using an average of total patients seen in a month, 30% of the patients in each month needs to be sampled for this indicator. Hospital/ department to ensure randomised sampling of data by ensuring each clinic day of the week is included to ensure proper representation of data.

Numerator	**:**	Number of sampled patients with waiting time of ≤ 90 minutes to see the doctor at Otorhinolaryngology Outpatient Clinic	X100%
Denominator	**:**	Total sample of patients seen by the doctor at the Otorhinolaryngology Outpatient Clinic	

Target	**:**	≥ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of ears with hearing improvement 3 months post myringoplasty**

Rationale :
This indicator was selected because:

- Myringoplasty is not a complicated surgery, can be done by general ORL surgeons. It is a procedure that is performed in all ORL centres which allows comparison of services between different centres.

- Outcome which is hearing improvement post-myringoplasty can be measured objectively by pure tone audiometry.

Definition of Terms:

Improvement of hearing:
It is the improvement 3 months post myringoplasty by a minimum of 5 dB at least one frequency by pure tone audiometry. Patient should be seen in ORL clinic within 3 to 6 months post myringoplasty to assess on hearing improvement. The number used in this indicator is based on number of ears with myringoplasty done and not the number of patients.

Inclusion Criteria	**:**	Patients of ≥ 18 years of age
Exclusion Criteria	**:**	1. Patients of < 18 years of age 2. Revision surgery 3. Total perforation 4. Combine procedure (e.g. combined with mastoidectomy)
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of ears with hearing improvement 3 months post Myringoplasty X 100%
Denominator	**:**	Total number of ears with myringoplasty done

Target	**:**	≥ 70%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03 : **Incidence rate of primary post-tonsillectomy haemorrhage**

Rationale :
This indicator was selected because:

- Tonsillectomy is one of the commonest otorhinolaryngology surgical procedures and can be conducted by the specialist as well as trained medical officers. It can potentially cause significant morbidity and mortality.

- Internationally, the standard for primary post-tonsillectomy haemorrhage is less than 3%.

Definition of Terms:

Primary haemorrhage:
1. Haemorrhage which occurs within 24 hours of surgery.
2. The haemorrhage shall be objectively identified clinically (e.g. active bleeding on the tonsillar bed).

Inclusion Criteria	**:**	All tonsillectomies performed.
Exclusion Criteria	**:**	1. Tonsillectomy done as part of other procedures (e.g. sleep apnoea surgery). 2. Bleeding due to patient's premorbid (e.g. bleeding disorder). 3. Secondary haemorrhage: bleeding after 24 hours of surgery.
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of primary post-tonsillectomy haemorrhages X 100%
Denominator	**:**	Total number of tonsillectomies performed
Target	**:**	≤ 3%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 09 I: CLINICAL SERVICES (PSYCHIATRY AND MENTAL HEALTH)			
There is tracking and trending of specific performance indicators not limited to but at least two (2) of the following:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Number of Mortality/Morbidity audits/meetings being conducted in the department with documentation of cases discussed		6 Monthly
2.	Percentage of unplanned re-admission within 72 hours of discharge		Monthly
3.	Dengue Case Fatality Rate	0%	Monthly
4.	Subspecialties units in the Psychiatry Services, e.g. Respiratory Medicine, Gastroenterology, Nephrology, Rheumatology, etc. shall monitor any other two (2) indicators to support its goals and objectives.		

Indicator 01	:	**Number of mortality and morbidity audits/meetings being conducted in the department with documentation of cases discussed**

Rationale :
This indicator was selected because:

- The main purpose of the mortality and morbidity meetings is to improve patient management and quality of care. Regular mortality and morbidity meetings serve to look at the weakness and the shortfalls in the overall management of patients, hence it will be learnt and the same mistake could be prevented and would not be repeated in the future.

Definition of Terms:

Morbidity: A diseased state

Mortality: The quality or state of being mortal

Morbidity Audits/Meetings:
Discussion of case management in regards to patient morbidity, incidence reporting, issue of patient safety, clinical audit (at the hospital level).

Mortality Meeting:
Discussions related to the management of the case and cause of death of the patient. (eg: Clinical audit, POMR, MMR, Dengue Mortality, TB Mortality, Mortality under 5 years of age (MDG5), Perinatal Mortality Reviews(MDG4) Inquiries) at hospital level.

Documentation:
Official minutes or notes taken during the meeting with attendance list(certified by the Hospital Director/ Person-In Charge (PIC)

Inclusion Criteria	**:**	All Morbidity and /or Mortality meetings being conducted at the hospital level.
Exclusion Criteria	**:**	Time period when the hospital was unable to function as usual due to mass casualty/disaster/crisis
Type of Indicator	**:**	**Process Indicator**
Numerator	**:**	Number of documented mortality and morbidity meetings that were conducted in six (6) months
Denominator	**:**	
Target	**:**	-
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of unplanned re-admission within 72 hours of discharge**

Rationale :
This indicator was selected because:

- Unplanned re- admissions is often considered to be the result suboptimal care in the previous admission leading to re- admission
- Patients receiving good quality clinical services should not be subjected to unplanned re-admissions within 72 hours of discharge.

Definition of Terms:

Unplanned re-admission*:*
Patient being re- admitted for the management of the same clinical condition he or she was discharged with and the admission was not scheduled. (The same patient readmitted in the same unit/hospital ≤ 72 hours of previous discharge)

Same condition:
Same diagnosis as referred to the ICD 10

Comments:
Number of readmission of one patient is considered as one case. Those on home leave or transferred to other unit is not considered as discharge

Inclusion Criteria	**:**	Re- admission with similar conditions (primary diagnosis) within 72 hours of discharge
Exclusion Criteria	**:**	At Own Risk (AOR) discharge patients during first admission
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of patients with unplanned re-admission to the ward within 72 hours of discharge X 100%
Denominator	**:**	Total number of patients discharged during the same period of time the numerator data was collected

Target	**:**	-
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03 : **Dengue Case Fatality Rate**

Rationale :
This indicator was selected because:

- Dengue fever has now become endemic in Malaysia and is a potentially fatal condition whose severity and frequency may be decreased by careful management planning. This indicator is a measure of the OUTCOME of care of patients with dengue.

- This indicator measures the clinical effectiveness of management of dengue fever (both haemorrhage and non- haemorrhage).

Definition of Terms:

Dengue*:* Dengue Fever (DF) and Dengue Hemorrhagic Fever (DHF)
This is a clinical diagnosis decided by the doctor based on clinical findings as well as the relevant investigations.

Remarks

(a) The 2nd Revision of the Malaysian CPG on the Management of Dengue Infection in Adults 2009 strongly recommends the monitoring of Dengue CFR and DHF Fatality rate

(b) According to the said CPG, all dengue deaths should be audited at individual hospital/state/ national level

Inclusion Criteria	**:**	All deaths caused by dengue fever
Exclusion Criteria	**:**	Deaths caused by other causes
Type of Indicator	**:**	**Rate Based Output Indicator**

Numerator	**:**	Number of cases admitted with DF & DHF/DSS and died from DF & DHF/DSS X 100%
Denominator	**:**	Total number of (DF & DHF) CASES admitted

Target	**:**	0%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 10: ANAESTHETIC SERVICES			
There is tracking and trending of specific performance indicators not limited to but at least two (2) of the following and this shall include monitoring of pain score upon discharge and one other performance indicator:			
No.	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Mandatory indicator: Pain score on discharge from recovery room should be less than four (4)	100%	Monthly
2.	Number of adverse events following regional anaesthesia, e.g. prolonged motor blockade, inadvertent dural puncture, Local Anaesthetic (LA) toxicity	Downward Trend	Monthly
3.	Number of patients having prolonged stay in recovery room for more than two (2) hours (sentinel event)	0	Monthly
4.	Patient satisfaction survey with acute pain service and anaesthetic clinic	Upward Trend	6 Monthly
5.	Percentage of cancellation of elective cases after being passed in the anaesthetic clinic	10%	Monthly
6.	Subspecialties units in the Anaesthetic Services, e.g. Obstetrics and Gynaecology Services, cardiac anaesthesia, etc shall monitor any other two (2) indicators to support its goals and objectives of their subspecialty.		

Indicator 01	:	**Pain score on discharge from recovery room should be less than four (4)**

Rationale :
This indicator was selected because:

- Post- operative patients should be monitored closely and the pain score should be less than four (4) on discharge from the recovery room as sometimes they may not have adequate pain relief despite being managed by the acute pain team in the wards.

Definition of Terms:

Pain Score :
Measures the patients' pain intensity using the MOH Pain Scale (zero to ten)

Inclusion Criteria	**:**	All patients who had undergone surgery under general anaesthesia and are resting in the recovery room of the operating theatre
Exclusion Criteria	**:**	Cases operated under sedation or local anaesthesia administered by surgeons
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of patients with pain score less than four (4) on discharge from the OT Recovery Room for the month X 100%
Denominator	**:**	Total number of patients observed and monitored in the OT Recovery Room for the month
Target	**:**	100%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	:	**Number of adverse events following regional anaesthesia, e.g. prolonged motor blockade, inadvertent dural puncture, Local Anaesthetic (LA) toxicity**

Rationale :
This indicator was selected because:

- The occurrence of adverse events leading to anaesthetic complications of regional a naesthesia may indicate less than optimal anesthetic care. Patients should receive adequate and effective regional anaesthesia and analgesia for certain types of surgery.
- Epidural anaesthesia is one of the techniques used for instillation of local anaesthetic into the epidural space to provide anaesthesia.
- This indicator measures the clinical effectiveness of care and safety.

Definition of Terms:

Complications of anaesthesia:
Refers to patients experiencing adverse events following regional anaesthesia both intra and post- operative during or after elective surgery. The types of adverse events may vary but the following to be considered:

i)Prolonged motor blockade following Regional Anaesthesia :
Refers to unexpected prolonged motor and sensory block and delayed recovery beyond the expected duration of the local anaesthetic following regional anaesthesia. Peripheral nerve blocks enjoy great importance in anaesthesia practice; they can provide safe and effective anaesthesia with long-lasting analgesia.

(ii) Inadvertent dural puncture:
Process whereby epidural needle or catheter accidently punctures the dura at the level of the injection site

iii) Local Anaesthetic (LA) toxicity:
While generally safe, local anesthetic agents can be toxic if administered inappropriately, and in some cases may cause unintended reactions even when properly administered. The toxicity of local and infiltration anesthetics can be local or systemic. Systemic toxicity of anesthetics most often involves the central nervous system (CNS) or the cardiovascular system.

Inclusion Criteria	**:**	Epidural anaesthesia , Epidural analgesia, Obstetric Analgesia Service, Combine Spinal Epidural (CSE), Spinal anaesthesia, Peripheral Nerve Block, inclusive of day surgery cases
Exclusion Criteria	**:**	All general anaesthetic (GA) cases
Type of Indicator	**:**	**Rate Based Process Indicator**

Prolonged Motor Blockade

Numerator : Number of patients who develop prolonged motor blockade

X 100%

Denominator : Total number of patients operated under regional anaesthesia

Inadvertent Dural Puncture

Numerator : Number of cases of inadvertent dural puncture

X 100%

Denominator : Total number of cases received epidural anaesthesia/ analgesia and CSE

Local anaesthesia (LA) toxicity

Numerator : Number of patients who developed Local Anaesthetic toxicity inadvertent dural puncture

X 100%

Denominator : Total number of patients who received local anaesthetics operated for regional anaesthesia

Target : Downward Trend
Data Collection : Monthly
Comments/Review : -

Indicator 03	:	**Number of patients having prolonged stay in recovery room for than two (2) hours (sentinel event)**

Rationale :
This indicator was selected because:

- The occurrence of prolonged stay in the recovery room leading to operative complications of anaesthesia may indicate less than optimal care.
- This indicator measures the clinical effectiveness of care and safety.

Definition of Terms:

Prolonged stay in Recovery Room:
The occurrence of prolonged stay in the recovery room for more than two (2) hours may be multi-factorial. Patients after surgeries are often kept in the recovery room until their condition is stabilized before shifting them to their designated wards. Patients undergoing extensive surgery will require *extended* recovery. A prolonged patient stay in the recovery room is a crucial issue as it creates bottlenecks that may result in the slowing down of the surgical schedule, leading to dissatisfaction for surgeons, nurses, patients, and their families. A medically appropriate length of *stay* in the *recovery room* needs to be defined. The reasons for the prolonged stay in the recovery room for more than two (2) hours need to be categorized under surgical or anaesthesia causes.

Ref: Prolonged-stay patients in the Post Anaesthesia Care Unit (PACU): A review of the literature. Lalani SB[1], Ali F, Kanji Z.

Inclusion Criteria	**:**	Patients under regional anaesthesia of general anaesthesia
Exclusion Criteria	**:**	Patients operated under sedation or local anaesthesia administered by surgeons
Type of Indicator	**:**	**Sentinel Event**
Numerator	**:**	Number of patients having prolonged stay in recovery room (> 2 hrs) hours
Denominator	**:**	
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 04	:	**Patient satisfaction survey with acute pain service and anaesthetic clinic**

Rationale :
This indicator was selected:

- As proxy to measurement of patient- centred services and level of client satisfaction to meeting patient needs for acute pain service and anaesthetic assessment clinic

Definition of Terms :

1. Patient Satisfaction Survey on acute pain service:
Patient satisfaction survey on acute pain service is a measure of a patient's need for the pain service being met by the health care provider/service.

2. Patient satisfaction survey of the anaesthetic clinic:
Is a measure of a patient's need for the anaesthetic services being met by the health care provider/service.

Inclusion Criteria	**:**	All out-patients and in- patients managed by the Pain Management Team and the Anaesthetic Clinic staff
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Patient Satisfaction Survey**

Numerator	**:**	Numbers of patient satisfaction survey feedback with ≥80% satisfaction level X 100 %
Denominator	**:**	Total numbers of patient satisfaction survey feedback received

Target	**:**	Number of patient satisfaction survey feedback with ≥ 80% satisfaction level done every six months (Upward trend)
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 05	:	**Percentage of cancellation of elective cases after being passed in the anaesthetic clinic**

Rationale :
This indicator was selected because:

- The effectiveness of the anaesthetic clinic service should reflect in the reduced rate of cancellation for elective surgeries.

Definition of Terms:

Elective Cases
Is defined as planned surgery; patients have been admitted and have been reviewed by the Anaesthetic Team and put on the operating list.

Inclusion Criteria	**:**	1. Cancellation by Anaesthetic Team 2. Cancellation due to anaesthetic and/or medical reasons such as uncontrolled diabetes, hypertension, heart disease etc.
Exclusion Criteria	**:**	1. Lack of ICU bed 2. URTI 3. Lack of OT time 4. Mechanical and electrical problem 5. Operation is cancelled by surgeon
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of elective surgical cancellations after assessment performed in Anaesthetic Clinic X 100 %
Denominator	**:**	Total number of pre- operative assessment performed in the Anaesthetic Clinic
Target	**:**	10%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 11: OPERATING SUITE SERVICES			
There is tracking and trending of specific performance indicators not limited to but at least five (5) of the following indicators:			
No.	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Mandatory indicator Rate of compliance to Safe Surgery Saves Lives (SSSL) practice		Monthly
2.	Percentage of Elective Operation Cancellation Rate	<10%	Monthly
3.	Percentage of patients awaiting emergency surgery for more than 24 hours due to lack of OT time	<1%	Monthly
4.	Number of patients returning to surgery within 24 hours	sentinel event	Monthly
5.	Time taken for lower segment caesarean section (LSCS) for fetal distress within 30 minutes of informing operating theatre	sentinel event	Monthly
6.	Number of unnecessary delay in starting surgery after induction of anaesthesia due to lack of personnel or equipment	sentinel event	Monthly
7.	Number of incidents reported in the operating room	0	Monthly
8.	Number of peri-operative mortality and morbidity review		6 Monthly
9.	Percentage of cases done as day care or Day Of Surgery Admission (DOSA)	30% of all surgeries	Monthly

No.	INDICATOR	TARGET	Reporting Frequency
10.	Number of adverse events following positioning (sentinel event)	Sentinel Event	Monthly

Indicator 01	:	**Rate of compliance to Safe Surgery Saves Lives (SSSL) practice**

Rationale :
This indicator was selected because:

- The 2nd Global Patient Safety Challenge was the safety of surgical care. The goal of the WHO Patient Safety Safe Surgery Saves Lives Challenge is to improve the safety of surgical care around the world by defining a core set of safety standards that can be applied in all countries and settings

- While surgical procedures are intended to save lives, unsafe surgical care can cause substantial harm. To assist operating teams in reducing the number of adverse events, WHO Patient Safety has identified ten essential objectives for safe surgery. These were compiled into the WHO Surgical Safety Checklist.

- Using the WHO Patient Safety surgical safety checklist ensures that steps to promote safe surgery are accomplished in a systematic and timely fashion.

Definition of Terms:

1. Safe Surgery Saves Lives (SSSL):
The Safe Surgery Saves Lives programme was established by WHO Patient Safety as part of the World Health Organization's efforts to reduce the number of surgical deaths across the globe. To assist operating teams in reducing the number of these events, WHO Patient Safety—in consultation with surgeons, anaesthetists, nurses, patient safety experts and patients around the world—has identified ten essential objectives for safe surgery. These were compiled into the WHO Surgical Safety Checklist. The aim of this Checklist (available at www.who.int/safesurgery) is to reinforce accepted safety practices and foster better communication and teamwork between clinical disciplines. The Checklist is intended as a tool for use by clinicians in improving the safety of their operations and reducing unnecessary surgical deaths and complications. Its use has been demonstrably associated with significant reductions in complication and death rates in diverse hospitals and settings, and with improvements in compliance to basic standards of care.

Reference; WHO Guidelines for Safe Surgery 2009- Save Surgery Saves Lives

2. Compliance to Safe Surgery Saves Lives (SSSL) practice:
Adherence to the use of WHO Surgical Safety Checklist for all patients undergoing surgery by the operating team.

Inclusion Criteria	**:**	All cases sent to operating theatre and scheduled for surgery
Exclusion Criteria	**:**	There should be no exclusion criteria
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of cases where WHO Surgical Checklist was used for each patient that had undergone surgery (evidence of copy of the checklist) X 100 %
Denominator	**:**	Total number of cases operated under General/Regional Anaesthesia in a month

Target	**:**	100%	
Data Collection	**:**	Monthly	
Comments/Review	**:**	-	

Indicator 02	:	**Percentage of Elective Operation Cancellation Rate**

Rationale :
This indicator was selected because:

- Surgical procedure executed as planned reflects on customer satisfaction. Cancellation may lead to patient's disappointment and may jeopardise surgeon- patient rapport.

- This indicator reflects the quality of planning for elective operations in surgical based disciplines.

Definition of Terms:

1. Elective Surgery:
Surgery is planned for the patient by a surgeon

2. Operation Cancellation:
The surgery is cancelled in spite of already in the list for the operating day. Cancellations maybe due to:

- Patients not turning up for surgery
- Inadequate OT time caused by over-listing/interruptions by emergencies
- Surgeon not available, blood not available, elective operations are common. The rates vary depending on how the elective list is prepared.
- No consent, instrument failure and other reasons

Inclusion Criteria	**:**	All elective surgeries scheduled
Exclusion Criteria	**:**	Cancellation due to acute medical problems rendering patient unfit for surgery or anaesthesia
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of elective surgery cancelled in the corresponding period X 100%
Denominator	**:**	Total number of elective surgery scheduled in the corresponding period

Target	**:**	< 10%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03	:	**Percentage of patients awaiting emergency surgery for more than 24 hours due to lack of OT time**

Rationale :
This indicator was selected because:

- Emergency surgery has to be performed as early as possible in order to reduce patient morbidity and mortality as well as potential public complaints.
- This indicator also reflects the timely access and patient centeredness.

Definition of Terms:

Waiting time:
From the time the patient is ready for emergency surgery to the time the operation takes place.

Inclusion Criteria	**:**	Cases with the only reason for delay in Emergency Surgery of more than (>) 24 hours is due to lack of OT Time.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total number of patients who waited more than (>)24 hours for emergency operation under general anaesthesia/regional anaesthesia/monitored sedation/LA due to lack of OT time X 100%
Denominator	**:**	Total number of emergency surgeries done under general anaesthesia/regional anaesthesia/monitored sedation/LA
Target	**:**	< 1%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Time patient is ready needs to be clearly defined/stated as ready alone can be interpreted in many ways that can lead to marked data variation. Hence the following aspects need to be fulfilled when patient is booked for OT:

1. Fasting – appropriate fasting time according to guideline
2. Consent has been taken and ready
3. Medical condition appropriately optimised, if permissible
4. All relevant investigations, if required has been taken and results ready

Indicator 04 : **Number of patients returning to surgery within 24 hours**

Rationale :
This indicator was selected because:

- Any return of patients within 24 hours to the theatre may indicate a quality problem due to occurrence of intra- operative problems that are serious enough to warrant intervention post-operatively.

Definition of Terms:

Returning to surgery within 24 hours:
Unexpected return to the operating theatre within 24 hours of surgery to address a complication of the original operation/surgery.

Inclusion Criteria	**:**	Elective surgical procedure performed under general anaesthesia/ regional anaesthesia/monitored sedation/LA
Exclusion Criteria	**:**	1. Endoscopy cases 2. Day Care cases
Type of Indicator	**:**	**Sentinel Event**
Numerator	**:**	Number of patients returning to OT/surgery within 24 hours following an elective surgical procedure
Denominator	**:**	
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 05	:	**Time taken for Lower Section Caesarean Section for Grade 1 Level of Urgency (i.e. immediate danger to mother or fetus) within 30 minutes of Informing operating theatre**

Rationale :
This indicator was selected because:

- Good communication is central to timely delivery of the fetus, while avoiding unnecessary risk to the mother. All members of the multidisciplinary team must be informed of the need (or likely need) for caesarean delivery as early as possible, as well as specific instructions on the degree of urgency.

- A target decision-to-delivery interval (DDI) for caesarean section for 'fetal compromise' of 30 minutes is an audit tool that allows testing of the efficiency of the whole delivery team and has become accepted practice; however certain clinical situations will require a much quicker DDI than 30 minutes and units should work towards improving their efficiency.

- Once a decision to deliver has been made, therefore, delivery should be carried out with an urgency appropriate to the risk to the baby and the safety of the mother

Ref: Royal College of Obstetricians & Gynaecologists; Royal College of Anaesthetists: Good Practice No: 11; April 2010.

Definition of Terms:

1. *Lower Section Caesarean Section for Grade 1 Level of Urgency*
Emergency caesarean section (CS) should be undertaken where the health professional concerned suspects maternal or fetal compromise. Guidelines on electronic fetal monitoring recommend that delivery should occur as soon as possible, ideally within 30 minutes taking into account fetal heart rate and maternal factors. Grades:
GRADE 1: Immediate threat to the life of the mother or fetus. Needs to be done within 30 minutes from decision. Paediatrician should be present in all cases. Examples:

- Prolonged fetal bradycardia,
- Cord prolapse
- Uterine rupture
- APH/abruption
- Cord PH <7.20
- Pathological CTG

2. *Fetal Distress*
Fetal distress occurs when the baby's oxygen supply is compromised in utero, usually during labor but occasionally in the third trimester of pregnancy. Oxygen deprivation can result in decreased fetal heart
rate and can be serious for the baby. The standard of within 30 minutes for fetal distress on informing the operating theatre for a C- Section has become the criterion by which good and bad practice is being defined both professionally and medico-legally. The implication is that caesarean section for fetal distress that takes longer than 30 minutes represents suboptimal or even negligent care.

Inclusion Criteria	**:**	All cases of emergency caesarean sections for fetal distress
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Sentinel Event**
Numerator	**:**	Number of emergency Caesarean Sections done for fetal distress within 30 minutes of informing the operating theatre (OT) in proportion to the number of emergency caesarean sections done that exceeded the standards.
Denominator	**:**	**The number of Emergency Caesarean Sections done for fetal distress within 30 minutes of informing OT over the total number of Emergency Caesarean Sections for fetal distress.**
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 06	:	**Number of unnecessary delay in starting surgery after induction of anaesthesia due to lack or personnel or equipment**

Rationale :
This indicator was selected because:

- The occurrence of unnecessary delay in starting surgery after induction of anaesthesia indicates less than optimal care.
- This indicator also reflects timeliness of care and patient centeredness.

Definition of Terms:

1. Delay in starting Surgery
Start time delays in the operating room have a negative effect on its efficiency and the working environment and are signs of an imperfect system. Starting late means considerable wait time for staff, patients and waste of resources.

2. Induction of Anaesthesia

i. The administration of a drug or combination of drugs at the beginning of an anesthetic that results in a state of general anesthesia.

ii. The process of causing general anesthesia by the administration of pharmaceutics.

iii. For regional anaesthesia or peripheral nerve block, completion of administration of block is equivalent to the phase of induction of Anaesthesia in general anaesthesia.

Ref: Medical-dictionary.thefreedictionary.com/induction of anesthesia

Inclusion Criteria	**:**	All cases listed for surgery under anaesthesia (general or regional)
Exclusion Criteria	**:**	All cases undergoing surgery under local anaesthesia administered by the surgeon
Type of Indicator	**:**	**Sentinel Event**
Numerator	**:**	Number of cases with delay in starting surgery after induction of anaesthesia
Denominator	**:**	
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 07 : **Number of incidents reported in the operating room**

Rationale :
This indicator was selected as a generic indicator of the delivery of safe patient care because:

- A key component of clinical governance is the responsibility of the head of the operating theatre (OT) to ensure that the service monitors and acts on incidents that can potentially compromise patient safety.
- Incident Reporting ensures sharing of lessons learnt from incidents, root cause analysis and best practices in patient safety.
- Incident Reporting facilitates patient safety efforts including the reduction of risk to patients

Definition of Terms:

1. *Incidents occurring in the operating theatre*
Any deviation from the usual clinical care that causes an injury to the patient or poses risk of harm, that include near misses, errors, preventable Adverse Events and hazards:

- Near Misses - A '*near miss'* is an event that might have resulted in harm but the problem did not reach the patient because of timely intervention by *healthcare* providers or the patient or family, or due to good fortune. *Near misses* may also be referred to as "close calls" or "good catches." (Ref: Institute of *Medicine*, USA)
- Adverse Event - An injury related to medical management rather than complications of disease. Medical management in the operating theatre includes all aspects of care including surgical procedure, wrong patient, wrong surgical site, failure of equipment and the systems used to deliver care. Examples of adverse events include: Respiratory Distress leading to intubation, Cardiac Arrest in the Recovery Room, A stay of > 2 hours in the Recovery Room etc. Adverse events maybe preventable or non- preventable.
- Errors are mishaps that have the potential to cause an adverse event.
- Hazard refers to any threat to safety e.g. unsafe practices, staff conduct, equipment, labels and names.

2. *Incident Reporting:*
An Incident Reporting System refers to the processes and technology involved in the standardization, formatting, communication, feedback, analysis, learning, response and dissemination of lessons learned from reported events; and analysing the incidents scientifically in a structured manner through Root Cause Analysis.

Inclusion Criteria	**:**	All types of incidents, near misses, adverse events
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Sentinel Event**
Numerator	**:**	Number of incidents (clinical) reported in the operating theatre over a month
Denominator	**:**	
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 08 : **Number of peri-operative mortality and morbidity review**

Rationale :
This indicator was selected because:

- The main purpose of the peri- operative mortality and morbidity review is to improve patient management and quality of care.
- Regular peri- operative mortality and morbidity reviews serve to examine the weakness and shortfalls in the clinical care of the patients. These reviews are not punitive and serve to improve management of the patients; hence the same mistakes could be prevented and would not be repeated in the future.

Definition of Terms:

***1. Perioperative Mortality*:**
Is death in relation to surgery. An important consideration in the decision to perform any surgical procedure is to weigh the benefits against the risks. Anesthesiologists and surgeons employ various methods in assessing whether a patient is in optimal condition from a medical standpoint prior to undertaking surgery.

2. Peri-Operative Mortality Review:
Review of all deaths occurring within total length of hospital stay following a surgical or gynaecological procedure performed under general or regional anaesthesia. Also included are deaths in operation theatre before induction of anaesthesia.

***3.* Length of Hospital Stay:**
Is defined as "a hospital admission during the course of which surgery was performed FOR WHATEVER REASON". Death during this period is considered a `POMR death' regardless of the period of death from the time of surgery provided it occurs WITHIN THE SAME ADMISSION.

Ref: Peri-Operative Mortality Review Ministry of Health, Malaysia.

Inclusion Criteria **:** All deaths occurring within total length of hospital stay following a surgical or gynaecological procedure performed under general or regional anaesthesia. Also included are deaths in the operation theatre before induction of anaesthesia.

Exclusion Criteria **:**
1. Surgery performed elsewhere/during previous admission but patient was admitted and died during the present admission WITHOUT SURGICAL INTERVENTION.
2. Diagnostic and/ or therapeutic procedures carried out by physician and other non- surgeons.
3. Radiological procedures performed solely by the Radiologist without a surgeon's involvement
4. Endoscopy(eg.OGDS/Colonoscopy/ERCP) performed under sedation or/and LA
5. Surgery performed outside OT complex. E.g. Procedure room
6. Obstetric deaths (Pregnancy > 28 weeks). Ectopic pregnancy (< 28 Weeks gestation are included)

Type of Indicator **:** **This is a Process Indicator**

Numerator	**:**	Number of peri- operative mortality and morbidity reviews in six (6) months
Denominator	**:**	
Target	**:**	
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 09	:	**Percentage of cases done as day care or day of surgery admission (DOSA)**

Rationale :
This indicator was selected because:

- This indicator measures the use of appropriate resources in the hospital for surgery

Definition of Terms:

Day Care/ Day of surgery admission (DOSA)
Day surgery or Day of surgery admission (DOSA) describes the process whereby patients are admitted to hospital and have surgery, and discharged home on the same day. Hospital management has embraced the concept of DOSA. If the DOSA policy is to continue it is imperative that an adequate preoperative assessment clinic is established to prevent negative outcomes for our patients.

Inclusion Criteria	**:**	All surgeries done (day care cases & inpatients)
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total number of surgeries done as day care/ DOSA in the month
Denominator	**:**	Total number of surgeries (inpatients & DOSA) done in a month X 100%
Target	**:**	30% of all surgeries
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 10	:	**Number of adverse events following positioning (sentinel event)**

Rationale:
This indicator was selected because:

- The occurrence of peripheral nerve injuries following positioning during anaesthesia (surgery) is a reflection of poor patient care. These injuries may produce lasting disability; hence recognition of risks and prevention is essential.

- This indicator measures the clinical effectiveness of care and patient safety. Positioning is the joint responsibility of the surgeon and anesthesiologist.

- Failure to follow professional standards and guidelines may result in positioning injuries and liability.

Definition of Terms:

1. ***Surgical Positioning (Recommended to be monitored under Surgical Services)***
   All positioning has 3 goals:
   - Maximum exposure to the surgical area while maintaining homeostasis and preventing injury
   - Position must provide the Anesthetist with adequate access to the patient for airway management, ventilation, medications, and monitoring
   - Promote the enhancement of a satisfactory surgical result

2. ***Lithotomy Position***
   Lithotomy position is used for variety of procedures including gynaecological and urological surgery.
   With the patient in the supine position, the hips are flexed from the torso so that legs are parallel to it and legs are abducted by 30 -45 degrees to expose the perineal region. The patient's buttocks are even with the lower back in the OR bed (to prevent lumbosacral strain). The legs and feet are placed in stirrups that support the lower extremities. The perineum should be in line with the longitudinal axis of the OR bed.

3. ***Peroneal Injury***
   Perioperative peripheral neuropathy refers to postoperative signs and symptoms related to peripheral nerve injury and have been associated with use of the lithotomy position; resulting in peroneal injury with foot drop noted within 24 hours post-operatively.
   - Caused by direct pressure on the nerve with the legs in lithotomy position.
   - Nerve compressed against neck of fibula
   - anesthetists should monitor and assess patient positioning and protective measures at frequent intervals.
   - Prevented by adequate padding of lithotomy poles.

Inclusion Criteria	**:**	All patients undergoing surgery in Lithotomy position under General Anaesthesia
Exclusion Criteria	**:**	Pre-existing foot drop prior to surgery
Type of Indicator	**:**	**Sentinel Event**

Numerator	**:**	Number of cases that developed adverse events following positioning e.g. foot drop within 24 hours post-surgery
Denominator	**:**	
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 12: AMBULATORY CARE SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following:			
No.	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Unplanned admissions of Ambulatory Care patients as inpatient.	<5%	Every 3 Monthly
2.	Cancellation rate of Ambulatory Care cases	<15%	Every 3 Monthly

Indicator 01	:	**Unplanned admissions of Ambulatory Care patients as inpatient.**

Rationale :
This indicator was selected because:

- Ambulatory Care patients are usually more stable and can be treated on an out- patient basis. Proper screening and selection of the patient with set criteria should be a prerequisite to select patients for Ambulatory Care Services.
- This indicator can be used to assess the quality of Ambulatory Care Services by the number of unplanned admissions as inpatients.
- Generally, patients receiving safe clinical services as per protocol unless due to patient factor should not be subjected to unplanned admissions.

Definition of Terms:

1. Ambulatory Care*:*

Ambulatory Care is defined as Clinical services, scheduled, and completed in the same day (same calendar day) and does not require the patient to stay overnight in the hospital. The services should include 4 criteria:

(a) The patient are scheduled / elective) to undergo treatment.
(b) The scheduled Procedures have been done
(c) Procedures carried out require a short recovery period together with the complete documentation and the progress of the patient during the observation period.
(d) Patients are discharged from the observation ward in the same calendar day.

2. Unplanned Admission:
Admission of Ambulatory Care cases as in- patients that was not planned for during initial screening. Admitted to any clinical discipline/ward regardless of length of stay and diagnosis that was unplanned.

Inclusion Criteria	**:**	All types of Ambulatory Care registered patients within the Ambulatory Care unit.
Exclusion Criteria	**:**	Patients who request for admission for varying reasons e.g. for purpose of insurance claims.
Type of Indicator	**:**	**Quality of Care Indicator**
Numerator	**:**	Number of unplanned admissions of Ambulatory Care patient as inpatients.
Denominator	**:**	
Target	**:**	< 5%
Data Collection	**:**	3 Monthly
Comments/Review	**:**	-

Indicator 02 : **Cancellation rate of Ambulatory Care cases**

Rationale :
This indicator was selected because:

- This indicator reflects the quality of planning for Ambulatory Care Services.
- The cancellation of cases listed for elective procedures is common. The rates vary depending on how the list and patients have been prepared.
- Proper screening and selection of the patient with set criteria should be a prerequisite to select patients for Ambulatory Care Services.

Definition of Terms:

Case Cancellation:
Cases listed on the Ambulatory Care list but the procedure is not done on that particular schedule. Cancellations maybe due to:

- Patients not turning up for the procedure.
- Patients found unfit for procedure on the scheduled day of the Ambulatory Care service
- Clinician not available, no consent, instrument failure and other less common reasons

Inclusion Criteria	**:**	All types of Ambulatory Care cases registered patients within the Ambulatory Care Unit.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of Ambulatory Care patients scheduled for procedures and cancelled during the study period X 100%
Denominator	**:**	Total Number of Ambulatory Care patients registered and scheduled for procedures during the study period

Target	**:**	< 15%
Data Collection	**:**	3 Monthly
Comments/Review	**:**	-

SERVICE STANDARD 12A : AMBULATORY CARE SERVICES – ENDOSCOPY SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following:			
No.	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Cancellation Rate of Ambulatory Endoscopy cases.	< 15%	Monthly
2.	Percentage of 'No Show' of Ambulatory Endoscopy cases	< 2%	3 Monthly

Indicator 01 : **Cancellation Rate of Ambulatory Endoscopy cases**

Rationale :
This indicator was selected because:

- This indicator reflects the quality of planning for Ambulatory Endoscopy Services.
- The cancellation of endoscopy cases listed for elective procedures is common. The rates vary depending on how the list and patients have been prepared.
- Proper screening and selection of the patient with set criteria should be a prerequisite to select patients for Ambulatory Endoscopy Services.

Definition of Terms:

Case Cancellation:
Cases listed on the Ambulatory Endoscopy list but the procedure is not done on that particular schedule. Cancellations maybe due to:

- Patients not turning up for the Endoscopy procedure.
- Patients found unfit for the procedure on the day of appointment.
- Inadequate time for the endoscopy procedure caused by over-listing, interruptions by emergencies or inefficiency related
- Surgeon/Gastroenterologist not available, no consent, instrument failure and other less common reasons

Inclusion Criteria	**:**	All ambulatory patients registered for endoscopy procedure within the Ambulatory Care Unit.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of ambulatory patients scheduled for endoscopy procedure and cancelled for the specified period	X 100%
Denominator	**:**	Total number of ambulatory patients scheduled for Endoscopy procedure for the specified period	

Target	**:**	< 15%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02 : **Percentage of 'No Show' of Ambulatory Endoscopy cases**

Rationale :
This indicator was selected because:

- This indicator reflects the quality of planning for Ambulatory Endoscopy services and measures the use of appropriate resources in the hospital for Ambulatory Procedures.
- Cases for Ambulatory Endoscopy needs to be carefully selected and counselled on keeping their appointments as provided; for optimal use of resources and facilities that needs to be optimized so that needing cases are attended to in a timely manner.
- Proper screening and selection of the patients with set criteria should be a prerequisite to select patients for Ambulatory Endoscopy services.

Definition of Terms:

'No Show' for Ambulatory endoscopy Services
'No Show' for Ambulatory endoscopy Services refers to patients not turning up for the Endoscopy procedure appointment although already being listed for any given time and date for the procedure without any prior notification.

Inclusion Criteria	**:**	All Ambulatory Endoscopy cases registered and scheduled for the procedure on the specific day within the Ambulatory Care Unit for the study period
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of Ambulatory Endoscopy cases registered and scheduled for Endoscopic procedure but did not turn up ('No Show') without notification for the procedure during the study period	X 100%
Denominator	**:**	Total Number of Ambulatory Endoscopy cases registered and scheduled for endoscopy procedures during the study period	

Target	**:**	< 2%
Data Collection	**:**	3 Monthly
Comments/Review	**:**	-

SERVICE STANDARD 12B: AMBULATORY CARE SERVICES (OPHTHALMOLOGY)			
There is tracking and trending of specific performance as follows:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of patients developed infectious endophthalmitis following cataract surgery.	< 0.2 % 2 cases per 1000 operations	6 Monthly
2.	Percentage of patients with post - operative visual acuity of 6/12 or better within 3 months following cataract surgery and refractive procedure in patients without pre-existing ocular co-morbidity	< 85 %	6 Monthly

Indicator 01	:	**Percentage of patients developed infectious endophthalmitis following cataract surgery**

Rationale :
This indicator was selected because:

- Infectious Endophthalmitis is a rare but devastating complication after cataract surgery which may lead to permanent blindness. Morbidity associated with post-operative Infectious Endophthalmitis can be substantial and is related not only to acute process but also to late sequelae.
- The causes can be multifactorial from patient to surgical environmental factors (contamination of sterilized instruments, disposable supplies, theatre environment, etc.
- Monitoring of this KPI is mandatory to ensure safety of the service.

Definition of Terms:

Infectious Endophthalmitis*:*
Infection involving both the anterior and posterior segments of the eye after cataract surgery. A patient post cataract can develop Infectious Endophthalmitis any time after the cataract surgery.

Inclusion Criteria	**:**	All elective cataract surgeries
Exclusion Criteria	**:**	All emergency and semi-emergency cataract surgeries.
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of patients developed Infectious Endophthalmitis following cataract surgery during the specified period	X 100%
Denominator	**:**	Total number of patients underwent cataract surgery during the specified period	

Target	**:**	< 0.2 % (2 cases per 1000 operations)
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of patients with post - operative visual acuity of 6/12 or better within 3 months following cataract surgery and refractive procedure in patients without pre-existing ocular co-morbidity**

Rationale :
This indicator was selected because:

- Cataract is a preventable blindness.
- Cataract surgery is indicated to improve the quality of life. Therefore, by measuring this indicator, we can monitor the quality of service given.

Definition of Terms:

Pre-existing ocular comorbidities:

- *Diabetic Maculopathy.*
- *Advanced Diabetic Eye Disease.*
- *Macula Scar from any cause.*
- *Amblyopia.*
- *Optic neuropathy from any cause.*
- *Cornea opacities from any cause.*

Inclusion Criteria	**:**	All elective cataract surgeries
Exclusion Criteria	**:**	1. Patients with pre-existing ocular co-morbidity that will affect visual outcome. 2. All emergency and semi-emergency cataract surgeries.
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of patients without pre-existing ocular co-morbidity obtained visual acuity 6/12 or better within 3 months following cataract surgery X 100%
Denominator	**:**	Total number of patients without pre-existing ocular co-morbidity underwent cataract surgery

Target	**:**	< 85 %
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

SERVICE STANDARD 13: CRITICAL CARE (ICU/CCU/CICU/CRW/HDU/BURNS CARE UNIT)			
There is tracking and trending of specific performance indicators which include but not limited to at least three (5) of the following:			
No.	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Rate of pressure ulcers	< 3%	Monthly
2.	Rate of unplanned extubation	< 5%	Monthly
3.	Rate of Ventilator Associated Pneumonia (VAP)	< 10 per 1000 ventilator days	Monthly
4.	Rate of Catheter Related Blood Stream Infection	< 5 per 1000 catheter days	Monthly
5.	Compliance rate to hand hygiene	> 75%	Monthly
6.	For Level 2 & 3 Care, standardized mortality ratio and benchmarking with other Units		Yearly

Indicator 01	:	**Rate of Pressure Ulcers**	
Rationale : This indicators was selected because: ● Pressure ulcers/sores result in patient discomfort, increased length of stay, morbidity and mortality ● This indicator looks at patient safety and measures the quality of nursing care. **Definition of Terms:** ***Pressure Ulcer/Sore:*** Pressure ulcer/sore is defined as a localized injury to the skin and/or underlying tissue usually over the bony prominence as a result of pressure or pressure in combination with shear and/or friction. It is a circumscribed area in which cutaneous tissue has been destroyed and there is progressive destruction of underlying tissue caused by interference with circulation and nutrition to the area. Signs include blister or broken skin or sore formation over pressure areas (redness is excluded).			
Inclusion Criteria	**:**	All patients who develop new pressure ulcers during their stay in the critical care unit (including those with pre-admission pressure sores which have worsened during the stay in critical care unit)	
Exclusion Criteria	**:**	All patients with pre- admission pressure sores which have become better	
Type of Indicator	**:**	**Rate Based Process Indicator**	
Numerator	**:**	Number of patients who developed new pressure ulcers (including those with pre-admission pressure sores which have worsened) during their stay in the critical care unit in the month	X 100%
Denominator	**:**	Total number of patients admitted to the critical care unit during the month	
Target	**:**	< 3 %	
Data Collection	**:**	Monthly	
Comments/Review	**:**	-	

Indicator 02	:	**Rate of unplanned extubation**

Rationale :
This indicator was selected because:

- Unplanned extubation in the critical care unit is associated with increased risk of re-intubation, aspiration pneumonia and ventilator associated pneumonia.
- This indicator measures patient safety and quality of care.

Definition of Terms:

Unplanned Extubation: *(UEX)*
Unplanned extubation refers to unintended or accidental dislodgement or removal of endotracheal or tracheostomy tube from the trachea by the patient or staff. Simple measures should be adopted to minimize the incidence of UEX and its related complications: more vigilance during procedures at patients' bedsides, appropriate management of agitated patients, strong fixation of the tracheal tube, attention to the oral endotracheal tube in terms of anchorage and level of tube, and daily assessment of the possibility of weaning from the ventilator.

Inclusion Criteria	**:**	All patients who are on invasive ventilator
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of unplanned extubation in the Critical Care Unit
Denominator	**:**	Total number of patients invasively ventilated in the Critical Care Unit X 100%
Target	**:**	< 5 %
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03 : **Rate of Ventilator Associated Pneumonia**

Rationale :
This indicator was selected because:

- Ventilator-associated pneumonia (VAP) is a complication in invasively ventilated patients which carries high morbidity and mortality. Ventilator Care Bundle (VCB) is a set of 4 evidence-based interventions to reduce the incidence of VAP. The 4 interventions are:
  - Head of bed elevation> 30 degrees
  - Use of stress ulcer prophylaxis
  - Use of deep vein thrombosis prophylaxis
  - Daily sedation vacation

- This indicator measures patient safety and quality of care.

Definition of Terms:

Ventilator-associated pneumonia
Ventilator-associated pneumonia is defined as pneumonia occurring more than 48 hours of invasive mechanical ventilation. Patients who have been ventilated before admission should be determined if they have ventilator-associated pneumonia. Those patients who have ventilator-associated pneumonia on admission to a critical care unit are excluded.

Inclusion Criteria	**:**	All invasively ventilated patients who developed ventilator-associated pneumonia after 48 hours of ventilation
Exclusion Criteria	**:**	All patients who have been ventilated before ICU admission and are diagnosed to have developed ventilator-associated pneumonia on admission to the critical care unit
Type of Indicator	**:**	**Rate Based Output Indicator**
Numerator	**:**	Number of patients who developed ventilator associated pneumonia in the Critical Care Unit in the month X 100%
Denominator	**:**	Total number of patient ventilated days in the month
Target	**:**	< 10 per 1000 ventilator days
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 04 : **Rate of Catheter Related Blood Stream Infection**

Rationale :
This indicator was selected because:

- Catheter-related bloodstream infection (CRBSI) represents a serious complication in a critical care unit and is potentially lethal. Central venous catheter care bundle consists of 5 evidence-based interventions as having the greatest effect on the rate of CRBSI and the lowest barrier to implementation. The 5 interventions are:
  - Hand hygiene
  - Maximal barrier precautions upon insertion
  - Chlorhexidine skin antisepsis
  - Optimal catheter site selection, with subclavian vein as the preferred site of non-tunneled catheters
  - Daily review of line necessity with prompt removal of unnecessary lines
- This indicator measures patient safety and quality of care.

Definition of Terms:

Catheter Related Blood Stream Infection (CRBSI):
Catheter Related Blood Stream Infection (CRBSI) is defined as bacteremia/fungemia in a patient with a central catheter for more than 48 hours. The following criteria must be met before the diagnosis of CRBSI is made:

1. The catheter must be in use for more than 48 hours
2. Patients have clinical signs of sepsis
3. Blood culture taken from the catheter and a peripheral vein grow the same organsims
4. There is no apparent source for the bloodstream infection except the catheter

Inclusion Criteria	**:**	All patients with central venous catheter/s in the critical care unit
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Output Indicator**
Numerator	**:**	Number of patients who developed catheter-related blood stream infection X 100%
Denominator	**:**	Total number of patients - days with central venous catheter/s in the critical care unit
Target	**:**	< 5 per 1000 catheter days
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 05 : **Compliance rate to hand hygiene**

Rationale :
This indicator was selected because:

- Healthcare Associated Infection (HAI) is a significant problem in hospitals and has an impact on the safety of patient, staff and visitor.
- The Hospital Infection and Antibiotic Control Committee (HIACC) must undertake intense surveillance of all staff including staff of contracted services to ensure the effectiveness of the hospital's Prevention and Control of Infection programme as well as the implementation of WHO Patient Safety Solution on 'Improved Hand Hygiene to Prevent Healthcare Associated Infections'
- Compliance to Hand Hygiene should be compulsory rather than optional for all relevant staff to avoid transmission of harmful germs and prevent healthcare associated infections.

Definition of Terms:

1. Hand Hygiene:
Any action of hygienic hand antisepsis in order to reduce transient microbial flora (generally performed either by hand rubbing with an alcohol-based formulation or handwashing with plain or antimicrobial soap and water).

2. Compliance to Hand Hygiene:
Hand hygiene (HH) is the single most important factor in the prevention of healthcare associated infections. The 3 most frequently reported methods of measuring HH compliance are: (1) direct observation, (2) self-reporting by health care workers (HCWs), and indirect calculation based on HH product usage. A compliance audit is a comprehensive review of staff adherence to regulatory guidelines/ protocols/directives/initiatives etc.

3. The Opportunity:
Is an accounting unit for action; it determines the need to perform hand hygiene action, whether the reason (the indication that leads to the action) be single or multiple.

Inclusion Criteria	**:**	All staff including specialists, medical officers, house officers, nursing staff, allied health staff and students (undergraduate and post graduate medical students, student nurses and students of allied health) and staff of the privatised services (housekeeping, linen service, Facility and Biomedical equipment maintenance services) involved in direct or indirect patient care.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of hand hygiene actions performed	
Denominator	**:**	Number of opportunities observed	X 100%

Target	**:**	> 75%
Data Collection	**:**	Monthly
Comments/Review	**:**	Ref: 1. Hand Hygiene Performance " My 5 moments for Hand Hygiene" 2. Technical Specification: Performance Indicators For Medical Programme 2012, Medical Development Division Ministry of Health

Indicator 06	:	**For Level 2 & 3 Care, standardized mortality ratio and benchmarking with other Units**

Rationale :
This indicator was selected because:

- Standardized mortality ratio (SMR) takes into account varying case-mix of different Critical care units and is a useful performance indicator for different units over time.
- SMR also allows benchmarking with other units so as to improve product and service quality

Definition of Terms:

Standardized Mortality Ratio (SMR):
SMR is the ratio of observed deaths in the study group to expected deaths in the general population. This ratio can be expressed as a percentage simply by multiplying by 100. The expected deaths are calculated by a formula which utilizes severity scoring systems e.g Simplified Acute Physiology Score (SAPS II) or Acute Physiology And Chronic Health Evaluation (APACHE II). All patients must be scored within 24 hours of admission using SAPS or APACHE to obtain the expected deaths.

The SMR may be quoted as either a ratio or a percentage. If the SMR is quoted as a ratio and is equal to 1.0, then this means the number of observed deaths equals that of expected deaths. If higher than 1.0, then there is a higher number of deaths than is expected.

Inclusion Criteria	**:**	The SMR for all Level 2 & 3 Critical Care Units
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Process Based Indicator**
Numerator	**:**	
Denominator	**:**	
Target	**:**	
Data Collection	**:**	Yearly
Comments/Review	**:**	

SERVICE STANDARD 13A: CRITICAL CARE (SCN/NICU/PICU/PHDW)			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following:			
No.	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Rate of central line associated blood stream infection (CLABSI) (Refer to Central Venous Catheter Care Bundle Manual A quality initiative for the prevention of Central Venous Catheter-Related Blood Stream Infection (CVC-BSI) April 2008)	< 5% per 1000 catheter days	Monthly
2.	Rate of Ventilator Associated Pneumonia (VAP)	< 15% per 1000 ventilator days	Monthly
3.	Percentage of survival of inborn very low birth weight infants between 1000 – 1499g birthweight (Refer Technical Specifications for Key performance indicators (KPI) Clinical Services Medical Programme 2021)	90%	Monthly
4.	Report of mortality/morbidity audits/meetings being conducted in the unit with documentation of cases discussed		6 Monthly

Indicator 01	:	**Rate of central line associated blood stream infection (CLABSI)**

Rationale :
This indicator was selected because:

- Catheter-related bloodstream infection (CRBSI) represents a serious complication in a critical care unit and is potentially lethal. Central venous catheter care bundle consists of 5 evidence-based interventions as having the greatest effect on the rate of CRBSI and the lowest barrier to implementation. The 5 interventions are:
  - Hand hygiene
  - Maximal barrier precautions upon insertion
  - Chlorhexidine skin antisepsis
  - Optimal catheter site selection, with subclavian vein as the preferred site of non-tunneled catheters
  - Daily review of line necessity with prompt removal of unnecessary
  - lines

- This indicator measures patient safety and quality of care.

Definition of Terms:

Catheter Related Blood Stream Infection (CRBSI):
CRBSI is defined as bacteremia/fungemia in a patient with a central catheter for more than 48 hours. The following criteria must be met before the diagnosis of CRBSI is made:

1. The catheter must be in use for more than 48 hours
2. Patients have clinical signs of sepsis
3. Blood culture taken from the catheter and a peripheral vein grow the same organsims
4. There is no apparent source for the bloodstream infection except the catheter.

Method of calculating CRBSI :

$$\frac{\text{No of episodes CRBSI}}{\text{No of catheter days}} \text{ X 1000 catheter days = \%}$$

Inclusion Criteria	**:**	All patients with central venous catheter/s in the critical care unit (SCN/NICU/PICU/PHDW)
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Output Indicator**
Numerator	**:**	Number of paediatric patients that developed catheter - related blood stream infection X 100%
Denominator	**:**	Total number of paediatric patients with central venous catheter/s in the NICU/PICU
Target	**:**	< 5% per 1000 catheter days
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Rate of Ventilator Associated Pneumonia**

Rationale :
This indicator was selected because:

- Ventilator-associated pneumonia (VAP) is a complication in invasively ventilated patients
  which carries high morbidity and mortality. Ventilator Care Bundle (VCB) is a set of 4 evidence - based interventions to reduce the incidence of VAP.

- This indicator measures patient safety and quality of care.

Definition of Terms:

Ventilator-associated pneumonia
Ventilator-associated pneumonia is defined as pneumonia occurring more than 48 hours of invasive mechanical ventilation. Patients who have been ventilated before admission should be determined if they have ventilator-associated pneumonia. Those patients who have ventilator associated pneumonia on admission to a critical care unit are excluded.

Method of calculating VAP :

$$\frac{\text{Total patient with VAP}}{\text{No of ventilator days}} \text{ X 1000 ventilator days = \%}$$

Inclusion Criteria	**:**	All invasively ventilated patients who developed ventilator-associated pneumonia after 48 hours of ventilation
Exclusion Criteria	**:**	All patients who have been ventilated before ICU admission and are diagnosed to have developed ventilator-associated pneumonia on admission to the critical care unit
Type of Indicator	**:**	**Rate Based Output Indicator**
Numerator	**:**	Number of patients who developed ventilator associated pneumonia in the Critical Care Unit (SCN/NICU/PICU/PHDW) in the month X 100%
Denominator	**:**	Total number of patient ventilated days in the critical care unit (SCN/NICU/PICU/PHDW) in the month
Target	**:**	< 15% per 1000 ventilator days
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03 : **Percentage of survival of inborn very low birth weight infants between 1000 – 1499 gm birthweight**		
Rationale : This indicator was selected because: ● This group of infants comprises a significant proportion of patients who utilize NICU and special care nursery resources. ● The survival of these infants impacts significantly on the under 5 survival target. **Definition of Terms:** 1. ***Very Low Birth (VLBW):*** Birth weight below 1500 gm ***2. Live Birth:*** Born alive 3. ***Inborn:*** Born in the same hospital		
Inclusion Criteria	**:**	1. Inborn infants of birth weight between 1000- 1499 gm 2. Livebirths
Exclusion Criteria	**:**	Babies born with major/lethal congenital anomalies (LCM)
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of inborn livebirths of birthweight between 1000 – 1499 gm, without lethal congenital malformations, who survive to discharge X 100%
Denominator	**:**	Total number of inborn livebirths of birthweight between 1000-1499 gm without lethal congenital malformations
Target	**:**	90%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Number of mortality and morbidity audits/meetings being conducted in the department with documentation of cases discussed**

Rationale :
This indicator was selected because:

- Regular mortality and morbidity meetings among department staff examine weaknesses and shortfalls in the overall management of patients. These meetings are not punitive and serve to improve management of patients.
- Majority of children die below the age of 5 years. Review of all deaths among children will enable healthcare providers to rectify and improve services to children.
- This indicator measures Clinical Effectiveness and Safety in reducing mortality and morbidity.

Definition of Terms:

1. Mortality and morbidity audits/meetings:
Discussion of case management in regards to patient morbidity, incidence reporting, issue of patient safety, clinical audit (at the department/hospital level).

2. Mortality Review:
Discussions related to the management of the case and cause of death of the patient [e.g. Clinical Audit, PMOR, Dengue Mortality, Mortality under 5 years of age (MDG5), Perinatal Mortality Reviews (MDG4), Inquiries] at department/hospital level.

Inclusion Criteria	**:**	Number of mortality & morbidity meetings conducted at department/hospital Level
Exclusion Criteria	**:**	Time period when the hospital was unable to function as usual due to mass casualty/disaster/crisis Babies born with major/lethal congenital anomalies (LCM)
Type of Indicator	**:**	**Process Indicator**
Numerator	**:**	Number of mortality and morbidity meetings in 6 months period
Denominator	**:**	
Target	**:**	
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

SERVICE STANDARD 13B: CRITICAL CARE SERVICES (LABOUR DELIVERY SERVICES)			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of massive Primary Post-Partum Haemorrhage (PPH) incidence in cases delivered in the hospital (exclusion criteria : placenta previa and adherence placenta) (Ref: Technical Specifications Key Performance Indicators (KPI) Clinical Services, Medical Programme, MOH version 7.0, 2021)	< 0.5%	Monthly
2.	Complication rate from instrumental/vaginal deliveries: incidence of 3rd and 4th degree tears	< 10%	Monthly
3.	Maternal Mortality	Sentinel Event	Monthly
4.	Perinatal Mortality		Monthly

Indicator 01	:	**Percentage of massive Primary Post-Partum Haemorrhage (PPH) incidence in cases delivered in the hospital (exclusion criteria : placenta previa and adherence placenta)**

Rationale :
This is an indicator of the quality of obstetric care because:

- The incidence of massive obstetric haemorrhage is reflective of the effectiveness of the management of haemorrhage at delivery. Post-partum haemorrhage (PPH) occurs in 3-5% of pregnant mothers and is still the leading cause of maternal death in Malaysia.
- The use of this indicator would be reflective of prompt diagnosis and speed of instituting multidisciplinary care.

Definition of Terms:

Massive Post- Partum Haemorrhage (PPH):
Total amount of blood loss of more than (>) 1.5 litres within (≤) 24 hours of delivery. Delivery includes both the vaginal and abdominal routes

Inclusion Criteria	**:**	All deliveries within the facility - Both vaginal and abdominal routes.
Exclusion Criteria	**:**	1. Adherent Placenta (e.g. Accreta/ Increta/ Percreta). 2. Placenta Previa. 3. Abruption Placenta. 4. Patients delivered outside of the facility.
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of patients with massive Primary Post-Partum Haemorrhage (PPH) in the hospital X 100%
Denominator	**:**	Total number of deliveries (all modes of delivery) in the hospital

Target	**:**	< 0.5 %
Data Collection	**:**	Monthly
Comments/Review	**:**	As PPH remains the leading cause of Maternal mortality, an indicator measuring the effectiveness and efficiency of care in this condition should be measured in all hospitals

Indicator 02	:	**Complication rate from instrumental/vaginal deliveries: Incidence of 3rd and 4th degree tears**

Rationale :
This indicator was selected because:

- This indicator was selected to ensure good care to the mother and baby during delivery. With effective obstetric care, most of the complications during instrumental delivery can be anticipated and reduced or avoided.
- Obstetric Trauma is a debilitating injury to the patient. The injury of third and fourth degree perineal tears during vaginal delivery may lead to possible long term complications. These types of tears can be prevented/reduced by employing appropriate labour management and care standards

Definition of Terms:

1. ***An instrumental delivery****,* or also called-assisted birth or operative vaginal birth: Is one where a pair of forceps or ventouse is used when the baby needs help to be born.
2. ***3rd and 4th degree perineal tear****:* Refers to incidence of Perineal Laceration /tear following vaginal delivery.

3. ***Complications of instrumental deliveries:***
   a) ***Ventouse (Vacuum):***
   Maternal: Vaginal laceration due to entrapment of vaginal mucosa between suction cup and foetal head
   Foetal Complications: scalp injuries, cephalohaematoma, intracranial haemorrhage, subgaleal haemorrhage, birth asphyxia, retina haemorrhage neonatal jaundice

   b) ***Forceps:***
   Maternal: Trauma to soft tissue, bleeding from laceration ,trauma to urethra and bladder-fistula, pain
   Foetal: Bruising and laceration to the face, injury to the foetal scalp, cephalohaematoma, retina haemorrhage, skull fracture, permanent nerve damage. The risk of shoulder dystocia is increased following instrumental deliveries.

Inclusion Criteria	**:**	Patients who underwent vaginal deliveries in the hospital: ● With instrumentation/without instrumentation ● Sustained third(3rd) degree and fourth (4th) degree perineal laceration/tear ● Complications from instrumental delivery i.e. cephalohaematoma, intracranial haemorrhage etc
Exclusion Criteria	**:**	Patients who delivered outside of the hospital
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Total number of patients with complications from instrumental /vaginal deliveries X 100%
Denominator	**:**	Total number of instrumental/vaginal deliveries

Target	**:**	< 10%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03 : **Maternal Mortality**

Rationale :
This indicator was selected because:

- This indicator reflects maternal health and enables safety considerations in reducing maternal mortality.
- Most maternal deaths are avoidable, as the health-care solutions to prevent or manage complications are well known. All women need is access to antenatal care in pregnancy, skilled care during childbirth, and care and support in the weeks after childbirth. It is particularly important that all births are attended by trained and skilled health professionals, as timely management and treatment can make the difference between life and death. To improve maternal health, barriers that limit access to quality maternal health services must be identified and addressed at all levels of the health system.

Definition of Terms:

Maternal Death
According to the World Health Organization (WHO), **maternal death** is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Generally, there is a distinction between a direct maternal death resulting from complications arising during pregnancy, labour or during the post-partum period. Deaths may result from interventions, omissions, incorrect treatment or from a chain of events resulting from any of the above. The indirect obstetric deaths may result from previous existing disease or diseases, which are aggravated by the pregnancy resulting in her death. An example would be heart disease. Fortuitous deaths are those deaths that occur in a pregnant woman which are unrelated to her pregnancy and may have caused her death even if she were not pregnant.

Inclusion Criteria	**:**	All direct and indirect maternal deaths
Exclusion Criteria	**:**	Patients who delivered outside of the Fatalities during but unrelated to a pregnancy are termed fortuitous maternal deaths.
Type of Indicator	**:**	**Sentinel Event**
Numerator	**:**	Total number of Maternal Deaths X 1000
Denominator	**:**	Total number of Live Births *Remarks: Maternal Mortality Rate is expressed as per 100, 000 live births.*
Target	**:**	Sentinel Event
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Perinatal Mortality**

Rationale :
This indicator was selected because:

- This indicator reflects maternal health and perinatal care of mothers and enables safety considerations in reducing perinatal mortality.
- This indicator was selected to ensure good care to the mother and baby during delivery.
- Pre-term births and multiple pregnancies, and birth defects are the most common causes of perinatal mortality besides respiratory distress syndrome, birth defects and toxaemia in pregnancy. Hence safe prenatal care and monitoring of pregnant mothers as well as skilled and trained medical staff including midwives, paediatricians and the availability of facilities for managing complicated cases are important factors in reducing perinatal mortality.

Definition of Terms:

Perinatal Mortality:
Perinatal mortality is defined as the number of fetal deaths pass 22 or 28 completed weeks of pregnancy plus the number of deaths among live born babies up to 7 completed days of life, per 1000 total births (live births and still births).

Inclusion Criteria	**:**	All perinatal deaths occurring among foetus/livebirths who had been delivered in the hospital
Exclusion Criteria	**:**	All perinatal deaths occurring among births occurring outside the hospital
Type of Indicator	**:**	**Quality Indicator**
Numerator	**:**	Total number of foetal deaths pass 22 weeks-28 completed weeks of pregnancy plus deaths among live births up to 7 completed days of life.
Denominator	**:**	
Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 14: RADIOLOGY/DIAGNOSTIC IMAGING SERVICES (Facility with Radiologist)			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	**FACILITY WITH RADIOLOGIST** Percentage of Plain Films/Images Reported by Radiologists	< 5%	Monthly
2.	Percentage of reject / retake of mammogram images	< 3%	Monthly
3.	Percentage of Radiological Examination Errors i.e. wrong marker, use of primary markers, wrong site X-rayed, wrong patient X-rayed		Monthly
4.	Complication rate for Post-Interventional Procedures		Monthly
5.	Perfect, Good, Moderate, Inadequate (PGMI) audits for mammography	≥ 97% for Perfect, Good & Moderate	Monthly
6.	Percentage of patients with significant pneumothorax/haemorrhage requiring intervention following percutaneous interventional procedures in the thorax, abdomen and pelvis	≤10%	Monthly
7.	Percentage of patients with waiting time of ≤60 minutes for commencement of ultrasound examination	≥ 90%	Monthly
8.	Turnaround time of ≤ 2 working days for final report of special radiological examination done on inpatients	≥ 97%	Monthly
9.	Turnaround time of ≤ 14 days for final report of special radiological examination done on outpatients	≥ 90%	Monthly

No	INDICATOR	TARGET	Reporting Frequency
10.	Percentage of patients developed significant contrast media extravasation following CT examination with intravenous (IV) contrast media	< 1%	Monthly

Indicator 01	:	**Percentage of plain films/images reported by Radiologists**

Rationale :
This indicator was selected because:

- For radiological examination to have an impact on patient management, the films/images should be reported by radiologists and in a timely manner.

Definition of Terms:

A Radiological Report *:*
Is a clinical and source document that provides interpretation and describes any radiology procedure conducted by a Radiologist. The only person who is privileged to prepare and document a radiology report is a qualified physician (radiologist) who has been granted specific clinical privileges in that hospital or clinical settings. It is an official medical document that provides description and interpretation for any officially requested radiological exam.

Inclusion Criteria	**:**	All inpatients and out patients undergoing radiological examinations
Exclusion Criteria	**:**	Cases done when the resident radiologist is not available in the Hospital.
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total number of radiological examinations (plain images and special examination) reported by Radiologist X 100 %
Denominator	**:**	Total number of patients undergoing radiological examinations (plain images and special examination)
Target	**:**	< 5%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of reject/retake mammogram images**

Rationale :
This indicator was selected because:

- This indicator is a reflection of many of the processes carried out in an imaging department.
- This indicator has great relevance as it reflects on almost all the processes in the department namely radiographic techniques, performance of X-ray machines, film/ image processing and storage of films.
- Internationally, the percentage of reject-retake images is quoted to be around 4-11% in average. This indicator was selected as an indicator to assess the appropriate use of special equipment and conduct of radiological examinations such as mammogram as they have an impact on the cost of radiographic techniques and time spent when there are rejects retakes.

Definition of Terms:

1. ***Mammogram:***
   Mammograms are used as a screening tool to detect early breast cancer in women experiencing no symptoms. They can also be used to detect and diagnose breast disease in women experiencing symptoms such as a lump, pain, skin dimpling or nipple discharge

2. ***Radiographic images****:* Images acquired using digital (DR/ CR) system.

3. ***Rejected images:***
   Any radiographs or images acquired during radiographic examinations/ radiological procedures that has no diagnostic value and has to be repeated/ retake. This refers to radiographs or images of patients that are assessed by the radiographer or the requesting clinician/ radiologist to be clinically unacceptable.

4. ***Image retake****:* Repeat exposure to the patient due to earlier non-diagnostic image or rejected by the radiologists and clinicians.

Inclusion Criteria	**:**	1. All mammogram images done in the facility 2. All mammogram images rejected by radiographers, radiologist and clinicians.
Exclusion Criteria	**:**	1. Images discarded due to testing purposes. 2. Images used for quality assurance procedures
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Total number of number of rejected mammogram images X 100%
Denominator	**:**	Total number of mammogram images made in the same period

Target	**:**	< 3%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Percentage of Radiological Examination Errors i.e. wrong marker, use of primary markers, wrong site x-rayed, wrong patient x-rayed**

Rationale :
This indicator was selected because:

- There is a need for adequate quality control in performing Radiological examinations to ensure the effectiveness of the Radiological Services.
- This indicator is a reflection of the many processes carried out in an imaging department. In a conventional imaging department this indicator has great relevance as it reflects on all the processes namely radiographic techniques, performance of x- ray machines, film processing and storage of films. It also takes into account instances when the radiological examination was not performed according to what was requested by the referring doctor.

Definition of Terms:

Radiological Examination Errors:
Errors in performing Radiological Examinations that include a repeat of plain x-rays and all contrast examinations, CT, MRI, and ultrasound due to wrong marker or use of primary marker, wrong part or wrong view, wrong site or wrong patient.

Inclusion Criteria	**:**	All radiological examinations that had to be repeated due to the Wrong Part or Wrong View being taken by the radiographer/radiologist.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Output Indicator**

Numerator	**:**	Total number of radiological examinations that had to be repeated due to wrong part, wrong view, wrong site or wrong patient X-rayed	X 100 %
Denominator	**:**	Total number of radiological examinations/imaging done in the same period	

Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04 : **Complication rate for post interventional procedures**

Rationale :
This indicator was selected because:

- Commonly performed interventional radiological procedures may be associated with morbidity such as pneumothorax and haemorrhage. Thus the morbidity arising from these procedures should be kept to an absolute minimum.

- This indicator addresses the safety of the process of diagnostic procedures in patient management.

Definition of Terms:

1. Radiological Interventional Procedure:
Radiological Interventional Procedures include the performance of biopsy of lung, mediastinum or abdominal organs under image guidance. The first post- procedural chest imaging is defined as occurring from 0-4 hours after the procedure.

2. Post interventional procedural complications:
This refers to unexpected complications of interventional radiological procedures, typically met in the monitoring of patients during and after interventional procedures. Examples are pneumothorax or haemorrhage following percutaneous interventional procedures of the thorax/abdomen/pelvis.

Inclusion Criteria	**:**	All patients undergoing interventional radiological procedures
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of patients with post procedural complications following interventional radiological procedures X 100 %
Denominator	**:**	Total number of patients underwent interventional radiological procedures

Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 05	:	**Perfect, Good, Moderate, Inadequate (PGMI) audits for mammography**

Rationale :
This indicator was selected because:

- Breast cancer is one of the most frequent cancers among women in both developed and developing countries. In Malaysia breast cancer is the most commonly diagnosed cancer among women of all ethnic groups.
- Mammography remains the most effective screening tool in comparison to clinical breast examination and breast self-examination.
- Radiology and allied professionals in the field of mammography needs to carry out appropriate radiologic practice that is as effective as possible and safe for the patient. Mammography, as in other fields of radiologic practice requires specific training, skills and techniques.
- Image classification in relation to PGMI system maximizes high quality of images and minimizes technical repeats.

Definition of Terms:

1. Mammogram
Mammograms are used as a screening tool to detect early breast cancer in women experiencing no symptoms. They can also be used to detect and diagnose breast disease in women experiencing symptoms such as a lump, pain, skin dimpling or nipple discharge.

2. Perfect, Good, Moderate, Inadequate (PGMI)
PGMI is a method of evaluation of clinical image quality in mammography developed by the United Kingdom Mammography Trainers Group with the support of the Royal College of Radiographers, aimed to ensure the maintenance of a high standard of mammography in Breast Screening and to facilitate a method of external audit.

Inclusion Criteria	**:**	All mammogram images for breast screening taken in the month
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Audit on Quality of Mammogram images**
Numerator	**:**	Number of mammogram images with PGM results X 100 %
Denominator	**:**	Total number of mammogram images taken in the month
Target	**:**	≥ 97% for Perfect, Good & Moderate
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 06	:	**Percentage of patients with significant pneumothorax / haemorrhage requiring intervention following percutaneous interventional procedures in the thorax, abdomen and pelvis**

Rationale :
This indicator was selected because:

- Commonly performed interventional radiological procedures may be associated with morbidity such as pneumothorax and haemorrhage. Thus the morbidity arising from these procedures should be kept to an absolute minimum.
- This indicator addresses the safety of the process of diagnostic procedures in patient management.

Definition of Terms:

1. Pneumothorax:
Defined as the presence of air in FIRST post-procedural chest imaging. The first post-procedural chest imaging is defined as occurring from 0-4 hours after the procedure.

2. Significant pneumothorax:
One that requires chest tube insertion.

3. Significant Haemorrhage:
Defined as bleeding requiring fluid resuscitation within (≤) 24 hours of the procedure.

4. Percutaneous Interventional Procedures*:*
Include the performance of biopsy of lung, mediastinum, pelvis or abdominal organs under image guidance.

Inclusion Criteria	**:**	All percutaneous interventional procedures performed on organs within the thorax/abdomen/pelvis.
Exclusion Criteria	**:**	Procedures performed on breasts, superficial lesions and for vascular access.
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of patients with significant pneumothorax/haemorrhage requiring intervention following percutaneous interventional procedures in the thorax, abdomen and pelvis	X 100 %
Denominator	**:**	Total number of patients underwent percutaneous interventional procedures in the thorax, abdomen and pelvis	

Target	**:**	≤ 10%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 07	:	**Percentage of patients with waiting time of ≤60 minutes for commencement of ultrasound examination**

Rationale :
This indicator was selected because:

- Waiting time for patient to undergo an ultrasound examination should be kept to a minimum.
- This indicator measures Patient Satisfaction.

Definition of Terms:

Waiting Time:
Time of appointment/registration (whichever is later) to the time the ultrasound examination is performed

Inclusion Criteria	**:**	All patients with scheduled appointments
Exclusion Criteria	**:**	1. Patients without prior appointments/unscheduled 2. Unprepared cases
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of patients with waiting time of ≤ 60 minutes for commencement of ultrasound examination X 100%
Denominator	**:**	Total number of patients commenced ultrasound examination
Target	**:**	≥ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 08	:	**Turnaround time of ≤ 2 working days for final report of special radiological examination done on inpatients**

Rationale :
This indicator was selected because:

- For a radiological examination to have any impact on patient management, it should be available to the clinician in a timely manner.

Definition of Terms:

1. Turnaround time*:*
The time taken between completion of the examination to the availability of report (not including public holidays and weekend).

2. Final Report*:*
Reports that have been verified by a radiologist.

3. Special Radiological Examinations*:*
All contrast examinations, CT, MRI, Ultrasound, Mammograms and Angiograms

Inclusion Criteria	**:**	All special radiological examinations performed on inpatients
Exclusion Criteria	**:**	Cases done when the resident radiologist is not available in the hospital
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of special radiological examinations performed on inpatients reported within (≤) 2 working days X 100 %
Denominator	**:**	Total number of special radiological examinations performed on inpatients
Target	**:**	≤ 97%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 09	:	**Turnaround time of ≤ 14 days for final report of special radiological examination done on outpatients**

Rationale :
This indicator was selected because:

- For a radiological examination to have any impact on patient management, it should be available to the clinician in a timely manner.

Definition of Terms:

1. ***Turnaround time****:*
The time taken between completion of the examination to the availability of report (not including public holidays and weekend).

2. ***Final Report****:*
Reports that have been verified by a radiologist.

3. ***Special Radiological Examinations****:*
All contrast examinations, CT, MRI, Ultrasound, Mammograms and Angiograms

Inclusion Criteria	**:**	All special radiological examinations performed on out patients.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of special radiological examinations performed on inpatients reported within (≤) 14 working days X 100 %
Denominator	**:**	Total number of special radiological examinations performed on outpatients

Target	**:**	≤ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 10	:	**Percentage of patients developed significant contrast media extravasation following CT examination with intravenous (IV) contrast media**

Rationale :
This indicator was selected because:

- CT with intravenous (IV) contrast media is a commonly performed procedure in the Department of Radiology.
- Contrast extravasation is a known complication which occurs more frequently with power injection. It may also occur with hand injections.
- Large volumes (usually > 50 mls) of contrast media are known to induce significant tissue damage. However smaller volumes may also have adverse outcomes especially in paediatric patients.
- Contrast media are known to induce significant tissue damage such as:
  a) Skin ulceration
  b) Soft tissue necrosis
  c) Compartment syndrome
- The incidence of contrast media extravasation should be kept to the minimum.

Definition of Terms:

1. Contrast media extravasation:
Contrast leaks into the tissue around the vein where the intravenous needle is inserted.

2. Significant contrast media extravasation:
Volume of > 50mls which necessitate referral to the primary team or volumes not more than 50mls but requiring referral to the primary team.

Inclusion Criteria	**:**	All CT examinations performed involving intravenous (IV) contrast media.
Exclusion Criteria	**:**	1. Patients with comorbidity that prone to have extravasation 2. History of receiving chemotherapy/Radiotherapy 3. Intravenous Drugs Users (IVDU) 4. Age > 60 years old 5. Emaciated patients 6. Oedematous patients
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of patients developed significant contrast media extravasation following CT examination with intravenous (IV) contrast media X 100%
Denominator	**:**	Total number of patients undergo CT examination with intravenous (IV) contrast media
Target	**:**	< 1%
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 14: RADIOLOGY/DIAGNOSTIC IMAGING SERVICES (Facility without Radiologist)			
1.	Percentage of accurate interpretation of x-rays films by medical officers as reported by radiologist [in reference to indicator (i)]		Monthly
2.	Percentage of radiographic errors, i.e. wrong marker, use of primary markers, wrong site x-rayed, wrong patient x-rayed	< 5 %	Monthly

Indicator 01	:	**Percentage of accurate interpretation of x-rays films by medical officers as reported by radiologist [in reference to indicator (i)]**

Rationale :
This indicator was selected because:

- In hospitals without a resident radiologist, this indicator reflects the accuracy of the interpretation of the x-ray films by medical officers with reference to the films reported by radiologist.
- For radiological examination to have an impact on patient management, the films/images should be accurately interpreted.

Definition of Terms:

A Radiological Report:

A Radiological Report Is a clinical document that provides interpretation to any radiological films/images by a radiologist. The only person who is privileged to prepare and document a radiology report is a qualified physician (radiologist) who has been granted specific clinical privileges in that hospital or clinical settings. It is an official medical document that provides description and interpretation for any officially requested radiological exam.

Inclusion Criteria	**:**	All x-rays films sent to the radiologist for reporting
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of radiological reports (for X- rays films sent for reporting) from the Radiologist that corresponds to the Medial Officers findings	X 100 %
Denominator	**:**	Total number of X-ray films sent to the Radiologist for reporting	

Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of radiographic errors, i.e. wrong marker, use of primary markers, wrong site x-rayed, wrong patient x-rayed**

Rationale :
This indicator was selected because:

- There is a need for adequate quality control in performing Radiological examinations to ensure the effectiveness of the Radiological Services.
- This indicator is a reflection of the many processes carried out in an imaging department. In a conventional imaging department this indicator has great relevance as it reflects on all the processes namely radiographic techniques, performance of x- ray machines, film processing and storage of films. It also takes into account instances when the radiological examination was not performed according to what was requested by the referring doctor.

Definition of Terms:

Radiological Examination Errors:

Errors in performing Radiological Examinations that include a repeat of plain x-rays and all contrast examinations and ultrasound due to wrong marker or use of primary marker, wrong part or wrong view, wrong site or wrong patient.

Inclusion Criteria	**:**	All radiological examinations that had to be repeated due to the Wrong Part or Wrong View being taken by the radiographer
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of radiological examinations/ imaging that had to be repeated due to wrong part, wrong view, wrong site or wrong patient X-rayed	X 100 %
Denominator	**:**	Total number of radiological examinations/imaging done in the same period	

Target	**:**	< 5%
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 15: PATHOLOGY SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Timeliness of urgent requests		Monthly
2.	Rejection Rate of specimens	<1%	
3.	Notification of critical results.		Monthly

Indicator 01	:	**Timeliness of results of urgent requests**

Rationale :
This indicator was selected because:

- One of the objectives of a medical laboratory is to provide timely laboratory results for the management of medical emergency to ensure timeliness of urgent requests.
- Timeliness of the services is the capability of the laboratory providing fast results.
- A fast laboratory turnaround time (LTAT) is desirable and is one of the indicators of efficient laboratory services
- This indicator measures the clinical effectiveness of care and is expected to reflect the time taken for urgent and normal request for tests and the corresponding results to institute the appropriate care.

Definition of Terms:

1. Laboratory Turnaround Time (LTAT):
Refers to the time the specimen is received in the laboratory to the time the test results is validated and dispatched or available in the system. This should be within the agreed target time and quality objective of the service for urgent requests.

2. Urgent Request:
Refers to urgent requests for laboratory tests made for immediate management of patients or emergency cases

Inclusion Criteria	**:**	All requests made for laboratory tests and samples sent that are labelled as urgent.
Exclusion Criteria	**:**	1. Request for non- urgent laboratory tests 2. Request not for immediate management of patients 3. Laborayory tests done at POCT site
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of urgent requests made for laboratory tests and complied to the timeliness of results for the corresponding period X 100 %
Denominator	**:**	Total number of urgent requests made for laboratory tests for the corresponding period
Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Rejection Rate of Specimens**

Rationale :
This indicator was selected because:

- There is a need for validity and reliability in performing laboratory testing of specimens to ensure appropriate patient care and effectiveness of the Pathology Services.
- This indicator and has great relevance as it reflects on the processes of collection of specimens and transportation, techniques of testing, performance of machines and processing to obtain accurate and reliable results to provide effective patient care. It also takes into account instances when the specimen was not obtained as per technical instruction for the specific specimen.

Definition of Terms:

Specimens rejected by the laboratory and testing needing to be repeated.

Inclusion Criteria	**:**	All testing done for in-patients and the testing is done within the same admission.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Total number of specimens rejected X 100 %
Denominator	**:**	Total number of specimens sent for testing in the same period

Target	**:**	< 1%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Notification of critical laboratory tests results**

Rationale :
This indicator was selected because:

- Active communication of critical results is part of overall responsibilities of patient care in clinical pathology service. Requestor has a responsibility to ensure contact details are clear. Individual laboratory must define their pathway for critical result reporting and define a failsafe system

- This is in line with the Malaysian Patient Safety Goal No. 8 which requires critical result to be notified within 30 minutes when is ready to be reported. Failure of timely communication and follow up of critical laboratory values (results) can lead to errors and increased morbidity and mortality.

- It is important to ensure timely critical result communication between the laboratory and the clinician for safe patient care.

Reference: Technical Specifications Key Performance indicators (KPIs) Clinical Services, Medical Programme Version 4.0 2016.

Definition of Terms:

1. ***Critical Result*:** Test result or value that falls outside the critical limits or the presence of any unexpected abnormal findings which may cause imminent danger to the patient and/or require immediate medical attention.

2. ***Critical Limit:*** Boundaries of low and high laboratory test results beyond which may cause imminent danger to the patient and /or require immediate medical attention.

3. ***Result Verification:*** Means results analysed, confirmed and ready to be reported.

4. ***Notification:*** Any mode of communication e.g. telephone, SMS. All communication must be documented. The notification is timely as agreed/stated in the service objectives of the laboratory.

Inclusion Criteria	**:**	All notification of critical results of laboratory tests done as per stated Reference Standards for the corresponding period including Point of Care Testing (POCT)
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of timely notification of critical results for all laboratory tests done in the Facility including POCT results for the corresponding period	X 100 %
Denominator	**:**	Total number of laboratory tests done in the Facility including POCT for the corresponding period	

Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 16: BLOOD TRANSFUSION SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Cross- Match Transfusion Ratio	≤ 2.0	Monthly
2.	Expiry rates of different blood components -red cell: ≤ 2.5% -platelet concentrates: ≤ 15% -apheresis (platelet or plasma): 0%	red cell: ≤ 5% platelet concentrates: ≤ 15% apheresis (platelet or plasma): 0%	Monthly
3.	Number of adverse events in donors (adverse donor reactions and seroconversion)	0	Monthly
4.	Number of Adverse Events in patients [near misses, transfusion errors (incorrect blood component transfused), transfusion reactions, transfusion transmitted infections)	0	Monthly

Indicator 01	:	**Cross- Match Transfusion Ratio**

Rationale:
This indicator was selected because:

- Cross-match transfusion ratio is an indicator of appropriateness of blood ordering. A ratio of more than 2.5 reflects excessive ordering of blood cross matching tests, thus imposing inventory problems for blood banks, an increase in workload, cost and wastage.
- This indicator is intended to assist in the enhancement of the cost efficiency of cross-matching process, avoid unnecessary additional workload on laboratory personnel and results in better management of blood stocks.
- This indicator has great relevance on the judicial use of blood and blood products which carries high risks when not administered appropriately as well as assesses the performance of the Blood Transfusion Services.

Definition of Terms:

1. Cross- Match:
A compatibility test carried out on patient's serum with donor red blood cells before blood is transfused.

2. Transfusion:
The infusion of crossed- matched whole blood or red blood cell concentrates to the patient.

3. Cross - match transfusion ratio:
A ratio of the number of red blood cell units crossed matched to the number of red blood cell units transfused.

Inclusion Criteria	**:**	All units of packed red blood cells that are cross-matched in the blood bank for potential transfusion.
Exclusion Criteria	**:**	Safe Group O blood given without cross match in an emergency situation.
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of red cell units cross - matched X 100%
Denominator	**:**	Number of red cell units transfused
		Remarks: CT Ratio is Total number of units cross matched : Total number of units transfused

Target	**:**	≤ 2.0%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02 : **Expiry rates of different blood components:**
- **red cell: ≤ 5%**
- **platelet concentrates: ≤ 15%**
- **apheresis (platelet or plasma): 0%**

Rationale:
This indicator was selected because:
- Utilization of donated blood can be fully optimized by preparing blood components from the collected whole blood.
- This indicator reflects safety precautions and standards on the use of blood and blood products which can be life threatening when not administered appropriately.
- This indicator reflects the increasing expectations of safety standards in the blood transfusion services

Definition of Terms:

Blood Components:
Therapeutic components of blood (red cell, white cell, platelets, plasma) that can be prepared by centrifugation, filtration and freezing using conventional blood bank methodology.

Inclusion Criteria : All units of blood components prepared/kept in the blood bank
Exclusion Criteria : NA
Type of Indicator : **Rate Based Process Indicator**

1. **Red cell blood component**

Numerator : Number of expired units of red cell blood component
Denominator : Total number of units of red cell blood component prepared/available
X 100%

2. **Platelet concentrates**

Numerator : Number of expired units of platelet concentrates blood component
Denominator : Total number of units of platelet blood component prepared/available
X 100%

3. **Apheresis (platelet or plasma)**

Numerator : Number of expired units of Apheresis (platelet or plasma)
Denominator : Total number of units of Apheresis (platelet or plasma) prepared/available
X 100%

Target	**:**	Red cell: ≤ 5% Platelet concentrates: ≤ 15% Apheresis (platelet or plasma): 0%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03	:	**Number of adverse events in donors (adverse donor reactions and seroconversion)**

Rationale:
This indicator was selected because:

- Regular voluntary non- remunerated blood donors are safer source of blood for transfusion as they have lower risk of carrying any agents of blood borne infection.
- Donor safety is of paramount importance during blood donation sessions and is assured, in so far as it can be, by donor selection guidelines, SOPs, adequately trained staff and appropriate facilities. Despite these measures, various adverse events and reactions can and do occur during and after blood donation. These complications can be a negative experience for donors. Hence Blood Centres have a duty of care to minimise the risks to donors.
- This indicator reflects the effectiveness of care of blood donors and the increasing expectations of safety standards and cost.

Definition of Terms:

1. ***Regular Blood Donors****:*
Qualified blood donors who have donated their blood at a minimum frequency of 2 times within two years in the same blood centre.

2. Adverse Events/Adverse reactions in Donors:
Refers to any unintended response in donor from complications related to blood donation. The complications are grouped into two main categories: those with predominantly local symptoms and those with predominantly generalized symptoms. The most common systemic adverse events were fatigue, vasovagal symptoms and nausea and vomiting. The most common arm findings were bruise arm soreness and haematoma. The more serious complications are specific to aphaeresis donations, e.g. citrate reactions, haemolysis, air emboli, allergic reactions to ethylene oxide used in the sterilization of the harness, and thrombocytopenia and protein deficiency from excessive platelet or plasma donations respectively .

Ref: Manual on Adverse events and reactions during blood donation- EU definition.

A surveillance program on blood donor reactions needs to be established especially on seroconversion.

Inclusion Criteria	**:**	All types of blood donors (e.g. new, regular, relapsed)
Exclusion Criteria	**:**	Deferred donor due to temporary and permanent deferral.
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of cases of adverse events in donors reported in a given period of time
Denominator	**:**	
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 04	:	**Number of Adverse Events in patients [near misses, transfusion errors (incorrect blood component transfused), transfusion reactions, transfuse transmitted infections)**

Rationale:
This indicator was selected because:

- Blood transfusion is a complex process which involves several personnel in the blood bank and clinical departments. Transfusion error can occur at any phase of the transfusion chain. It can be divided into 3 phases:
    i. Incidence of sampling and labelling error (clinical departments)
    ii. Incidence of laboratory error
    iii. Incidence of administrative error

- Adverse events related to blood transfusion reflects safety precautions on the use of blood and blood products which can be life threatening and contribute to patient morbidity and mortality when not administered appropriately. Incidences of adverse events related to blood transfusion i.e. near misses, transfusion errors (incorrect blood component transfused), transfusion reactions, transfuse transmitted infections) must be monitored for the purpose of implementing corrective and preventive measures.

- This indicator reflects the clinical effectiveness of care and increasing expectations of safety standards and cost. Patients and family members have high expectations of safety and quality of blood.

Definition of Terms:

Adverse Events related to Blood Transfusion

i. Any untoward occurrence associated with the collection, testing, processing, storage and distribution, of blood and blood components that might lead to death or life-threatening, disabling or incapacitating conditions for patients or which results in, or prolong hospitalization or morbidity.

ii. Outcomes that are not intended or desired to occur as a result of transfusion of blood and blood products that include transfusion errors, transfusion reactions and transfusion transmitted infections. Transfusion errors can arise from mislabeling sample tubes, mislabeling blood packs, donor grouping, patient ABO typing compatibility testing and transcription errors.

Ref: Manual on Adverse events and reactions during blood donation- EU definition.

Inclusion Criteria **:** All patients transfused with blood and blood products
Exclusion Criteria **:** NA
Type of Indicator **:** **Sentinel Event**

Numerator	**:**	Number of incidences of blood transfusion related adverse events in patients for the corresponding period
Denominator	**:**	
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 17: REHABILITATION MEDICINE SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of patients with waiting time of 60 minutes to see the doctor at the Rehabilitation Medicine Outpatient Clinic (Two or more registration areas involved)	≤ 90%	Monthly
2.	Percentage of patients with waiting time of 90 minutes to see the doctor at the Rehabilitation Medicine Outpatient Clinic (Only one registration area involved)	≤ 90%	Monthly
3.	Percentage of patients with established interdisciplinary rehabilitation plan within ≤ 5 working days of admission	≤ 90%	Monthly
4.	Percentage of falls and near-falls in Rehabilitation Medicine Outpatient Clinic	≤ 2% of monthly attendance	Monthly
5.	Percentage of inpatients with functional measure assessment upon admission and prior to cessation of patient rehabilitation programme	≥ 90%	Monthly

Indicator 01	:	**Percentage of patients with waiting time of 60 minutes to see the doctor at the Rehabilitation Medicine Outpatient Clinic (Two or more registration areas involved)**

Rationale:
This indicator was selected because:

- MOH aims for waiting time to see the doctor at outpatient services, to be less than 90 minutes, in line with patient-centred services. Waiting time is time patient first registers in the hospital till the time patient is seen by doctor.

- The waiting time is based on patient's experience from the time the patient first registers at the first counter in the hospital till seen by doctor. In view of many counters being involved in some hospitals/ departments, some clinical departments have opted for monitoring of registration from department counter, as any process prior to that appears out of the clinical department's control. Thus, due to involvement of 2 or more counters within the hospital, for monitoring of clinical services KPI, the target of waiting time is for less than 60 minutes within the department. This is applicable only if patient is being registered at another counter within the same hospital (e.g. at hospital's main outpatient/ ACC complex registration counter) prior to the clinical department counter.

- For hospitals to eliminate or reduce waiting time, it is important to balance between the demand for appointments and the supply of appointments. One needs to identify opportunities for improvement by strengthening the policy of outpatient services in hospital, apply Queuing Theory and having contingency plans.

Definition of Terms:

1. ***Two or more registration areas involved****:*
If registration of patient is first done at hospital's main outpatient/ ACC complex registration counter with payment collection, following which the patient needs to re-register at the respective clinical department counter.

2. ***Waiting time****:*
Time of registration counter at department counter or time of appointment given to patient (whichever is later) till the time the patient is first seen by the doctor, which is beginning of a consultation.

Inclusion Criteria	**:**	All outpatients of Rehabilitation Medicine Outpatient Clinic.
Exclusion Criteria	**:**	1. Patients who come without an appointment ("walk-in" patients). 2. Patients that need to do procedures on the same day before seeing the doctors (e.g. blood taking or imaging.
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of sampled patients with waiting time of ≤ 60 minutes to see the doctor at the Rehabilitation Medicine Outpatient Clinic X 100%
Denominator	**:**	Total sample of patients seen by the doctor at the Rehabilitation Medicine Outpatient Clinic

Target	**:**	≤ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of patients with waiting time of ≤ 90 minutes to see the doctor at the Rehabilitation Medicine Outpatient Clinic (Only one registration area involved)**

Rationale:
This indicator was selected because:

- MOH aims for waiting time to see the doctor at outpatient services, to be less than 90 minutes, in line with patient-centred services. Waiting time is time patient first registers in the hospital till the time patient is seen by doctor.

- The waiting time is based on patient's experience from the time the patient first registers at the first counter in the hospital till seen by doctor. In view of many counters being involved in some hospitals/ departments, some clinical departments have opted for monitoring of registration from department counter, as any process prior to that appears out of the clinical department's control. Thus, due to involvement of 2 or more counters within the hospital, for monitoring of clinical services KPI, the target of waiting time is for less than 60 minutes within the department. This is applicable only if patient is being registered at another counter within the same hospital (e.g. at hospital's main outpatient/ ACC complex registration counter) prior to the clinical department counter.

- For hospitals to eliminate or reduce waiting time, it is important to balance between the demand for appointments and the supply of appointments. One needs to identify opportunities for improvement by strengthening the policy of outpatient services in hospital, apply Queuing Theory and having contingency plans.

Definition of Terms:

***Waiting time**:*
Time of registration counter at department counter or time of appointment given to patient (whichever is later) till the time the patient is first seen by the doctor, which is beginning of a consultation.

Inclusion Criteria	**:**	All outpatients of Rehabilitation Medicine Outpatient Clinic.
Exclusion Criteria	**:**	1. Patients who come without an appointment ("walk-in" patients). 2. Patients that need to do procedures on the same day before seeing the doctors (e.g. blood taking or imaging).
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of sampled patients with waiting time of ≤ 90 minutes to see the doctor at the Rehabilitation Medicine Outpatient Clinic X 100%
Denominator	**:**	Total sample of patients seen by the doctor at the Rehabilitation Medicine Outpatient Clinic
Target	**:**	≤ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03	:	**Percentage of patients with established interdisciplinary Rehabilitation Plan within ≤ 5 working days of admission**

Rationale:
This indicator was selected because:

- In Rehabilitation Medicine, the Rehabilitation Plan for inpatient care requires a documented and agreed plan that specifies goals, interventions and time frame established via interdisciplinary consultation.

- This indicator reflects Timely Access of Care and Patient Centeredness

Definition of Terms:

1. Rehabilitation Medicine:
May be defined as the multi- and interdisciplinary management of a person's functioning and health. Rehabilitation medicine defines itself with respect to concepts of functioning, disability and health. Assessment and intervention management rely on these concepts may use the WHO International Classification of Functioning, Disability, and Health (ICF) Model of Functioning and Disability and therefore facilitates multidisciplinary responsibility and coordination of interventions.

2. Rehabilitation Plan:
Documented evidence of consultation, communication between the disciplines involved in the rehabilitation plan.

Inclusion Criteria	**:**	All referral/admission for inpatient rehabilitation care.
Exclusion Criteria	**:**	All inpatients for rehabilitation care with length of stay of less than Seven working days of admission.
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of in-patients established interdisciplinary rehabilitation plan within ≤ 5 working days of admission	X 100%
Denominator	**:**	Total number of patients admitted/ referred for in-patient rehabilitation care during the specified period of time	

Target	**:**	≤ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 04	:	**Percentage of falls and near-falls in Rehabilitation Medicine Outpatient Clinic**

Rationale:
This indicator was selected because:

- To ensure patients' safety starting from the registration in clinic until completion of the clinic session as falls/ near-falls are preventable and has multifactorial cause which includes intrinsic and modifiable extrinsic factor.

Definition of Terms:

A fall is defined as:
An event that result in a person coming to rest in advertently on the ground or floor or other lower level, with or without injury

A near-fall is defined as*:*
A slip, trip, stumble or loss of balance such that the individual starts to fall but either able to recover (witnessed or unwitnessed) and remains upright because their balance recovery mechanisms were activated and/or caught by staff/other persons, or they were eased to the ground or floor or other lower level, by staff/other persons (e.g. could not stop or prevent falling to the ground, floor or lower surface).

Inclusion Criteria	**:**	Patient who experience fall and near-fall in the Rehabilitation Medicine Specialist Clinic area from the time of registration at the clinic untill completion of the clinic session
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of falls and near-falls in the Rehabilitation Medicine Specialist Clinic area X 100%
Denominator	**:**	Number of patients attending Rehabilitation Medicine Specialist Clinic in a month.
Target	**:**	≤ 2 % of monthly attendance
Data Collection	**:**	Monthly
Comments/Review	**:**	***Ref: Technical Specifications Key Performance Indicators (KPI) Clinical Services, Medical Programme MOH, 2019***

Indicator 05	:	**Percentage of inpatients with functional measure assessment upon admission and prior to cessation of patient rehabilitation programme**

Rationale:
This indicator was selected because:

- Rehabilitation Medicine prioritizes function as the objective of service delivery.
- The use of objective measure of function enables assessment of this and subsequent audit of clinical effectiveness o service delivery in adequate discharge planning and minimization of risk of readmission.

Definition of Terms:

Functional Measure Assessment:
Documented evidence of assessment including functional scales e.g. Modified Barthel Index (BMI), Spinal Cord Independence Measure (SCIM), Functional Independence Measure (FIM), Modified Rankin Scale (MRS), Functional Capacity etc.

Inclusion Criteria	**:**	All inpatients referral/admission for inpatient rehabilitation care.
Exclusion Criteria	**:**	*1*. Patients who have an unplanned cessation of in- patient rehabilitation care. 2. All inpatients for rehabilitation care with length of stay of less than 7 days of admission
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of inpatients with functional measure assessment prior to cessation of inpatient rehabilitation care X 100%
Denominator	**:**	Total number of inpatients who ceased an inpatient rehabilitation care during the specified period
Target	**:**	≥ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 17A: PHYSIOTHERAPY SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Burns Incidence incurred with the administration of Electrotherapeutic Modalities or Thermal Agents	Sentinel Event	Monthly
2.	Patient with musculoskeletal condition reported a reduction in pain scale (VAS) in each physiotherapy session (minimum of 3 sessions) within 2 months	80%	Monthly
3.	Percentage of inpatient referrals seen by the physiotherapist within 24 hours	90%	Monthly
4.	Rate of positive outcomes from cases referred for chest physiotherapy by Intensive Care Unit	75%	Monthly
5.	Improvement in Modified Rivermead Mobility Index (MRMI) score within 6 months of physiotherapy intervention for newly referred Stroke patient	80%	Monthly

Indicator 01	:	**Incidence of Burns sustained during delivery of electrotherapeutic modalities or thermal agents (sentinel event)**

Rationale:
This indicator was selected because:

- Burns should not occur if a model of good care is followed. The emphasis is on prevention because safety of patients is of utmost importance during the delivery of heat therapy.
- This indicator reflects Safety and Clinical Effectiveness.

Definition of Terms:

1. Burns:
Tissue damage following the application of electro- therapeutic modalities and thermal agents resulting in excessive/latent redness and pain or blistering of skin over the area treated

2. Electro-therapeutic Modalities:
Short wave Diathermy, Microwave Diathermy, Infra-Red Ray

3. Thermal Agents*:*
Hot packs, Paraffin wax baths

Inclusion Criteria	**:**	All patient undergoing treatment with the use of electro therapeutic modalities or thermal agents
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	Sentinel Event
Numerator	**:**	Number of incidences of burns sustained during delivery of electrotherapeutic modalities or thermal agents
Denominator	**:**	
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Patient with musculoskeletal condition reported a reduction in pain scale (VAS) in each physiotherapy session (minimum of 3 sessions) within 2 months**

Rationale:
This indicator was selected because of clinical effectiveness:

- To enhance the effectiveness of physiotherapy treatment management.
- To provide prompt and efficient physiotherapy service and prevent complications

Definition of Terms:

Musculoskeletal condition: Condition related to hard tissue and soft tissue such as bone, muscle, ligaments and tendon.

Visual Analogue Scale (VAS): pain measurement scale

Reduction in Pain Scale: Patient experienced a reduction in pain based on VAS pain scale (at least 1 numeric number) after receiving physiotherapy treatment. Comparison between pre and post treatment.

Physiotherapy session: All physiotherapy treatment that's related to pain management.

Inclusion Criteria	**:**	1. All newly referred musculoskeletal outpatient. 2. Patients that comply to the first three appointments given.
Exclusion Criteria	**:**	1. Patient didn't suffer for pain, VAS = 0 during the first assessment. 2. Defaulter patient, patient fail to attend physiotherapy session.
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of patients showed a reduction in pain scale for 3 sessions of physiotherapy treatment X 100%
Denominator	**:**	Total number of musculoskeletal patients suffered for pain that's referred to Physiotherapy
Target	**:**	80%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Percentage of inpatient referrals seen on time (≤ 24 hours) by the physiotherapist**

Rationale:
This indicator was selected:

- To enhance the effectiveness of physiotherapy treatment management.
- To improve patients and clients satisfaction.
- To prevent complications.

Definition of Terms:

1. In-patients:
Patients who are admitted in the ward.

2. Working Days:
Physiotherapy services are available on weekdays i.e. Mondays to Friday or Sunday to Thursday (according to individual states)

Inclusion Criteria	**:**	All in- patients referred during working days
Exclusion Criteria	**:**	All in- patients referred during weekends and public holidays
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of in- patients receiving intervention by physiotherapist within 24 working hours X 100%
Denominator	**:**	Total number of in- patients referred for Physiotherapy Services

Target	**:**	90%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Rate of positive outcomes from cases referred for chest physiotherapy by Intensive Care Unit**

Rationale:
This indicator was selected:

- To enhance the effectiveness of physiotherapy treatment management.
- To provide prompt and efficient physiotherapy service and prevent complications

Definition of Terms:

1. Chest Physiotherapy

Chest physiotherapy is the term for a group of designed treatments to improve respiratory efficiency, promote expansion of the lungs, strengthen respiratory muscles and eliminate secretions from the chest. The chest physiotherapy treatments are generally performed by physiotherapists. The purpose of *chest physiotherapy* is to help patients breathe more freely and to get more oxygen into the body. *Chest* physiotherapy includes postural drainage, *chest* percussion, *chest* vibration, positioning, breathing exercises, coughing and suctioning is necessary.

2. Positive Outcome for chest physiotherapy

Clearance of secretions and improved respiratory efficiency is the goal of chest physiotherapy. Positive Outcome of cases refers to an improvement in respiratory function and cough ability. The patient is considered to be responding positively to chest physiotherapy if some, but not necessarily all of these changes occur:

- decreased volume of secretions
- changes in breath sounds
- improved vital signs
- increased oxygen in the blood as measured by arterial blood gas values
- patient reports of eased breathing

Reference: The Free Dictionary By Farlex

Inclusion Criteria **:** All adult patients admitted to ICU and referred for chest physiotherapy

Exclusion Criteria **:**

1. Myocardial instability:
   a. Sytolic BP (≤90mmHg)
   b. Heart Rate (>140/min)
   c. Evidence of acute myocardiac ischemic last 24 hours
   d. Dysrhythmia requiring new anti-dysrhythmic agents last 24 hours
2. Increased ICP >20mmHg
3. Aneurysm
4. Un-stabilized head injury
5. Recent spinal injury/surgery (less than 24 hours)
6. Acute haemorrhage ie APO (Acute Pulmonary Oedema)
7. Pulmonary Embolism before anti - coagulant drugs
8. Active Pulmonary Tuberculosis before anti Tuberculosis drug

Type of Indicator **:** **Rate Based Outcome Indicator**

Numerator	**:**	Number of patients achieve positive outcomes from physiotherapy intervention X 100%
Denominator	**:**	Total number of patients in ICU referred for Chest Physiotherapy
Target	**:**	75%
Data Collection	**:**	Monthly
Comments/Review	**:**	*References:* *1. Chelsea Critical Care Physical Assessment Tool (CPax) 2010* *2. MOH Early Mobility Programme 2013* *3. KKM Care Protocol Critically Ill Adults 2003* *4. Physiotherapy for Respiratory and Cardiac Problem 1995*

Indicator 05	:	**Improvement in Modified Rivermead Mobility Index (MRMI) score within 6 months of physiotherapy intervention for newly referred Stroke patient**

Rationale:
This indicator was selected because:

- To enhance the effectiveness of physiotherapy treatment management.
- To provide prompt and efficient physiotherapy service and prevent complications

Definition of Terms:

Newly referred Stroke patient: Newly referred stroke patient with current attack of Cerebral Vascular accident within 6 months

Improvement in Modified Rivermead Mobility Index: An improvement in functional ability of a stroke patient based on Modified Rivermead Mobility Index after 6 months of physiotherapy interventions.

Inclusion Criteria	**:**	All newly referred adult stroke patient
Exclusion Criteria	**:**	i. Defaulter ii. Cognitive impairment iii. Lack of family support iv. Patient suffered for progressive neurological disease
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of patients showed an improvement of at least 1 score (11.7%) in Modified Rivermead Mobility Index after 6 months of physiotherapy interventions. X 100%
Denominator	**:**	Total number of newly referred adult stroke patients
Target	**:**	80%
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 17B: OCCUPATIONAL THERAPY SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of stroke patients with improvement of activities of daily living (ADL) independence after 3 months of Occupational Therapy interventions	≥ 75%	3 Monthly
2	Percentage of patients with hand and upper limb injury who have attained a full score in prehension patterns within 3 months of Occupational Therapy interventions	≥ 85%	3 Monthly
3	Percentage of patients with developmental disabilities who improve in at least one component of development after 6 months of Occupational Therapy interventions	> 80%	6 Monthly

Indicator 01	:	**Percentage of stroke patients with improvement of activities of daily living (ADL) independence after 3 months of Occupational Therapy interventions**

Rationale :
This indicator was selected because:

- The rate at which independence level is achieved varies between hospitals. The rate needs to be standardized
- There is strong evidence to show that there is significant improvement after ADL intervention among the stroke patients

Definition of Terms:

1. Stroke*:*
Stroke or cerebro-vascular accident (CVA) is the sudden onset of neurological deficit brought about by vascular injury to the brain. The most typical manifestation of CVA is hemi paresis or hemiplegia (mild weakness or complete paralysis respectively) of the body OPPOSITE to the side of CVA

2. Activities of Daily Living (ADL)*:*
Activities related to grooming, bathing, toilet, dressing, feeding, transfer/wheelchair, bowel control, urinary control, walking and climbing stairs.

3. ***Modified Barthel ADL Index****:*
The Modified Barthel ADL Index (MBI) is an international assessment instrument for ADL that is designed to record what a patient does; not what he could achieve and is aimed at recording the degree of independence. (Shah, S 1989).

Modified Barthel ADL Index is an assessment of Personal hygiene, bathing self, feeding, toileting, climbing stairs, dressing, bowel control, bladder control, ambulation, wheelchair and transfer from chair/ bed.

Score of MBI from: The International standard of dependency level is shown as follow:
0 - 24 indicates total dependence on others in ADL.
25 - 49 indicates severe dependency
50 - 74 indicates moderate dependency
75 - 90 indicates mild dependency
91 - 99 indicate minimal dependency.

(Shah, S. and Cooper B. 1995)

Cohort Period: data for this indicator is collected for a period of 3 months upon referral.

Treatment session can be delivered in the ward, in the Occupational Therapy Department or in the patient's home/place of stay.

Inclusion Criteria	:	1. All stroke patients referred for Occupational Therapy. 2. Age 18 years old and above.
Exclusion Criteria	:	1. Stroke patients with MBI score of 91 and above. 2. Stroke occurring after brain injury or brain tumour 3. Recurrent stroke during cohort period. 4. Patient who did not turn up for three consecutive appointments. 5. Patient without good social support
Type of Indicator	:	**Rate Based Outcome Indicator**
Numerator	:	The total number of STROKE patients who have improved a minimum of one level of dependency in MBI within 3 months of intervention. X 100%
Denominator	:	The total number of STROKE patients referred to Occupational Therapy (fulfill inclusion criteria)
Target	:	≥ 75%
Data Collection	:	3 Monthly
Comments/Review	:	-

Indicator 02	:	**Percentage of patients with hand and upper limb injury who have attained a full score in prehension patterns within 3 months of Occupational Therapy interventions**

Rationale :
This indicator was selected because:

- This indicator measures the effectiveness of occupational therapy treatment for cases of hand and upper limb injuries treated in hospital through the measurement of hand prehension scores. There is strong evidence to show that there is significant improvement in hand function after Occupational Therapy interventions among the patients with hand injuries.

Definition of Terms:

Hand prehension is defined as the ability of the hand to hold an object between two surfaces of the hand through 7 forms as follows:

1. **Hook**: such as holding a handbag holder or bucket handle
2. **Lateral**: like holding a key
3. **Tip Pinch** (Tip to Tip): like holding a needle
4. **Pad Pinch**: like holding a 20-cent coin
5. **Tripod Pinch**: like holding a pencil or pen
6. **Cylindrica**l: such as holding a cylindrical object such as a can of drinking water
7. **Spherical**: holding a spherical object such as a tennis ball

(Edward, Buckland, McCoy-Powlen, 2002)

Hand prehension ability means a full score against a score of 7/7 for all hand prehension abilities. In cases where injuries occur to both hands, scores are taken on the hand that gets the highest score only.

Hand injuries mean all injuries that occur to the area located from shoulder level to the fingertips including burn injuries.

Inclusion Criteria	**:**	1. New diagnosis of hand and upper limb injuries. 2. Patients who scored a hand prehension ability score of less than 7/7 during the initial assessment. 3. Patients aged 4 years and above.
Exclusion Criteria	**:**	1. Patients with complete brachial plexus nerve injury. 2. Patients with amputation of the entire thumb (from the level of the *Metacarpophalangeal* (MCP) joint) and amputation of 3 fingers (from the level of the MCP joint and below). 3. Hand injury due to excessive or repetitive or degenerative movements such as Carpal Tunnel Syndrome, Trigger Finger, De Quarvain's Tenosynovitis, and others. 4. Patients who absent for 3 consecutive treatment sessions.
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	The total number of patients who achieved a full score of hand prehension ability within 3 months of interventions X 100%
Denominator	**:**	The total number of patients with hand injuries referred to Occupational Therapy (fulfill inclusion criteria)

Target	**:**	≥ 85%
Data Collection	**:**	3 Monthly
Comments/Review	**:**	-

Indicator 03	:	Percentage of patients with developmental disabilities who improve in at least one component of development after 6 months of Occupational Therapy interventions

Rationale :
This indicator was selected because:

- Children with development disabilities is commonly seen in occupational therapy setting.
- The rate of developmental improvements among children with developmental disabilities is vary between facilities. Thus, rate needs to be standardized. There is strong evidence in improvement of development component among children with developmental disabilities after occupational therapy intervention.
- This indicator reflects Clinical Effectiveness and Efficiency.

Definition of Terms:

1. ***Developmental disabilities:*** any of various conditions (such as autism spectrum disorder, cerebral palsy, intellectual disability, blindness, or fragile X syndrome) that usually become apparent during infancy or childhood and are marked by delayed development or functional limitations especially in learning, language, communication, cognition, behaviour, socialization, or mobility.
2. ***Denver Development Screening Test II (Denver II):*** Is a screening tools that measure 4 component of children development
   i. Personal-social
   ii. Fine motor-adaptive
   iii. Language
   iv. Gross motor

Inclusion Criteria	**:**	All patients with developmental delay below 5 years old.
Exclusion Criteria	**:**	Children with severe epilepsy.
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Total number of patients with developmental disabilities who improve in at least one component of development after 6 months of Occupational Therapy interventions	X 100%
Denominator	**:**	Total number of patients referred with developmental disabilities	

Target	**:**	> 80%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

SERVICE STANDARD 17C: DIETETIC SERVICES			
There tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of in-patient referrals seen on time (24 hours) by the Dietician	≥ 85%	Monthly
2.	Percentage of out-patient referrals seen by the Dietician within the stipulated time by the Dietetic Services and approved by the Facility	≥ 85%	Monthly
3.	Energy intake at least 70% of recommendation within 5 days of enteral nutrition initiation among patients in the ward	≥ 80%	Monthly

Indicator 01	:	**Percentage of in-patient referrals seen on time (24 hours) by the Dietician**

Rationale:
This indicator was selected because:

- Dietary consultation and nutrition support services are an integral part of total patient care. The high rate of referrals and limited manpower pose a challenge to the dietician in striving to deliver the services within acceptable time frame; to ensure the provision of appropriate nutrition intervention.

- This indicator reflects Timely Access and Patient Centeredness

Definition of Terms:

Seen on Time/Timely Response*:*
In- patient referrals should be seen within the same day of receiving of referral cases on working days, and for cases referred after 1.00 pm, the patient should be seen before 1.00 pm the following working day.

Inclusion Criteria **:** Patient requiring nutritional intervention:
i. Tube feeding
ii. Combination of tube feeding and parenteral
iii. Oral liquid Diet only
iv. Combination of oral and parenteral nutrition
v. Patient with poor oral intake (intake less than half of food served)

Exclusion Criteria **:**
i. Patient referred for dietician consultation only
ii. Patient referred but discharged without being seen by dietician
iii. Patient referred but passed away before being seen by dietician

Type of Indicator **:** **Rate Based Process Indicator**

Numerator	**:**	Number of in-patients requiring intervention and seen by dietician within 24 hours of referral X 100%
Denominator	**:**	Total number of in-patients requiring intervention and seen by dietician

Target	**:**	≥ 85%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of out-patient referrals seen by the Dietician within the stipulated time by the Dietetic Services and approved by the Facility**

Rationale:
This indicator was selected because:

- Dietary consultation and nutrition support services are an integral part of total patient care. The high rate of referrals and limited manpower pose a challenge to the dietician in striving to deliver the services within acceptable time frame; to ensure the provision of appropriate nutrition intervention.

- This indicator reflects Timely Access and Patient Centeredness

Definition of Terms:

1. Seen within the stipulated Time:
Out-patient cases referred for intervention by Dietician should be seen within the stipulated time upon receiving of referrals on working days.

2. Stipulated time:
Refers to the agreed time/duration as specified by the Facility within which appointments are given for out-patient referrals to the dietician.

Inclusion Criteria	**:**	All patients requiring dietary consultation
Exclusion Criteria	**:**	i. Patient referred for urgent dietary intervention ii. Patient referred but discharged without being seen by dietician iii. Patient referred but passed away before being seen by dietician
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of out- patient referrals seen by the Dietician within the stipulated time X 100%
Denominator	**:**	Total number of out-patients referred to the dietician

Target	**:**	≥ 85%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Energy intake at least 70% of recommendation within 5 days of enteral nutrition initiation among patients in the ward**

Rationale:
This indicator was selected because:

- Nutritional support is an integral part of total patient care. Patients requiring enteral nutrition are ill patients who are unable to take oral feedings due to their health status or provided as a temporary measure in post- surgery to ensure the provision of appropriate nutritional intervention.

- This indicator reflects Clinical Efficiency and Patient Centeredness.

Definition of Terms:

1. Enteral Nutrition:
Enteral nutrition is provided where a patient is fed via an enteral tube. There are several different methods of enteral tube feeding, but most short term tube fed enteral nutrition should be given via a nasogastric tube. Patients for enteral feeding include those with swallowing disorders, such as motor neurone disease, multiple sclerosis, those with physical obstruction to swallowing, such as oesophageal tumours, those unable to ingest food, such as head injury or stroke patients among others.

2. Energy Intake:
Energy intake is the total number of calories taken in daily whether ingested or by parenteral routes. Energy is provided by food and drink. It comes from the fat, carbohydrate and protein the diet contains. Energy requirements vary from one individual to the next, depending on factors such as age, sex, body composition and physical activity level.

Inclusion Criteria	**:**	All patients in the Facility /Hospital requiring parental nutrition
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of patients receiving parental nutrition having achieved 70% of the recommended energy intake within 5 days of initiation	X 100%
Denominator	**:**	Total number of patients on parental nutrition during the specified period	

Target	**:**	≥ 80%
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 17D: SPEECH-LANGUAGE THERAPY SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of new cases outpatient referrals given appointment within 90 days (waiting time between the date patient presents to request for appointment and the initial appointment given within 90 days)	≥ 85%	Monthly
2.	Percentage of inpatient referrals of swallowing and feeding difficulties responded within 3 working days.	≥ 85%	Monthly
3.	Percentage of patient satisfaction towards patient education in therapy	≥ 80%	6 Monthly

Indicator 01	:	**Percentage of new cases outpatient referrals given appointment within 90 days**

Rationale:
This indicator was selected because:

- Speech- Language Pathology Services consultation and support services are an integral part of total rehabilitative care. The provision of appropriate intervention should be within the acceptable time frame.

- Patient–centred services must give priority to prompt attention to patient needs by reducing the waiting times for consultation. This indicator reflects Timely Access and Patient Centredness.

Definition of Terms:

Waiting Time for new appointment:
Waiting time between the date patient presents to request for appointment and the initial appointment given within 90 days of referral. Time of receiving referral documentation to time of initial appointment given on working days.

Inclusion Criteria	**:**	All new outpatients referred to Speech Pathologist for consultation or management
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of new outpatient cases given appointment to the Speech – Language Therapist within 90 days of referral	X 100%
Denominator	**:**	Total number of new outpatient referrals received by Speech-Language Therapist for initial appointment	

Target	**:**	≥ 85%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of inpatient referrals of swallowing and feeding difficulties responded within 3 working days**

Rationale:
This indicator was selected because:

- Speech- Language Therapy Services consultation and support services are an integral part of total rehabilitative care and the treatment plan is usually a long term process. The provision of appropriate intervention should be within the acceptable time frame.
- Patients with swallowing and feeding difficulties must be given priority to prompt attention to meet patient's nutritional needs and general wellbeing.
- This indicator reflects Timely Access and Patient Centredness.

Definition of Terms:

1. Swallowing and Feeding Difficulties:
Eating and swallowing problems, known as dysphagia, occur in many medical conditions and can occur both in adults and children. The main risks associated with swallowing problems are:

- **Choking or asphyxiation:** When food blocks the airway, preventing breathing. Also when food or liquid enter the airway below the level of the vocal cords.
- **Aspiration pneumonia**: If food or liquid enter the lungs it can cause a lung infection.
- **Dehydration**: Not drinking enough fluids is bad for health and can lead to problems such as constipation.
- **Malnutrition**: Lack of nourishment leads to poor health and harms the body's ability to fight infection.

Feeding disorders in children include problems gathering food and getting ready to suck, chew, or swallow it. For example, a child who cannot pick up food and get it to her mouth or cannot completely close her lips to keep food from falling out of her mouth may have a feeding disorder.

2. Waiting Time for Speech Therapist Response:
Time between the date the inpatient is referred to the Speech Language Therapist to initial contact/examination within 3 working days.

Inclusion Criteria	**:**	All in-patients referred to Speech – Language Therapist for management of swallowing and feeding difficulties.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of in-patients referred and responded within 3 days by Speech Therapist for swallowing & feeding difficulties X 100%
Denominator	**:**	Total number of in-patients referred to Speech Therapist for swallowing & feeding difficulties
Target	**:**	≥ 85%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Percentage of patient satisfaction towards patient education in therapy**

Rationale:
This indicator was selected because:

- Speech- Language Pathology Services consultation and support services are an integral part of total rehabilitative care.
- As proxy to measurement of patient- centred services and level of client satisfaction to meeting patient needs from registration for out-patient care to care and treatment.

Definition of Terms:

1. Patient Satisfaction Survey:
Patient satisfaction is a measure of the extent to which a patient is content with the health care which they received from their health care provider.

2. Patient Education Therapy:
Patient education is an individualized, systematic, structured process to assess and impart knowledge or develop a skill in order to effect a change in behavior. The goal is to increase comprehension and participation in the self-management of health care needs. The patient/family/significant others play an active part in the process. Patient education is an important component of care in both inpatient and ambulatory settings**.** Patient/family education is an interdisciplinary and collaborative process designed to meet the needs of the individual patient throughout the continuum of care.

Ref: UTMB Handbook of Operating Procedures : Policy 9.3.4 Patient/Family Education

Inclusion Criteria	**:**	All out-patients attending patient education therapy
Exclusion Criteria	**:**	In- patient satisfaction survey
Type of Indicator	**:**	**Patient Satisfaction Survey**
Numerator	**:**	Number of outpatients given patient education therapy with ≥ 80% satisfaction level X 100%
Denominator	**:**	Total number of outpatients given patient education therapy
Target	**:**	≥ 80% patient satisfaction level
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

SERVICE STANDARD 17E: AUDIOLOGY SERVICES			
There is tracking and trending of specific performance indicators which include but are not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of new cases given an appointment in audiology clinic following a referral within 45 days	≥ 85%	6 Monthly
2.	Percentage of patients received hearing aid provision following diagnosis of hearing loss within 8 weeks.	≥ 90%	6 Monthly
3.	Percentage of patients showing improved hearing ability within 3 months after hearing aid fitting.	≥ 85%	6 Monthly

Indicator 01	:	**Percentage of new cases given an appointment in audiology clinic following a referral within 45 days**

Rationale:
This indicator was selected because:

- Audiology services are an integral part of total rehabilitative care. The high rate of referrals poses a challenge to an audiologist to deliver the appropriate intervention within an acceptable time frame.

- Patient-centered services must give prioritize patient needs by reducing the waiting times for consultation. This indicator reflects Timely Access and Patient Centredness.

Definition of Terms:

Waiting Time for a new appointment:

1. **New case**- cases of seeking assessment/ treatment for the first time
2. **Referral**- cases referred either through phone call or at clinic counter
3. **Within 45 days**- the difference between the date of receiving the referral and the date of appointment given is not more than 45 days (including weekends and public holidays).

Inclusion Criteria	**:**	All new cases are referred to the audiologist for assessment or intervention.
Exclusion Criteria	**:**	1. Patients request an appointment date of more than 45 days due to specific reasons (e.g: health problems, financial constraints, logistic issues) 2. Patients unstable to undergo a hearing assessment or intervention within 45 days 3. Neonates/ infants referred from a neonatal hearing screening program in the same hospital
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of new cases given an appointment within 45 days of referral X 100%
Denominator	**:**	Total number of new cases given audiology appointment

Target	**:**	≥ 85%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of patients who received hearing aid provision following diagnosis of hearing loss within 8 weeks.**

Rationale:
This indicator was selected because:

- Patients with hearing loss should start early intervention. The time interval between diagnosis of hearing loss until the patients received hearing aid (HA) provision reflects on patients focused care
- A delay in HA trial would delay the time of HA prescription and HA fitting which may lead to the deterioration of patients quality of life
- Patient-centered care must align with patient-centered goals in a timely manner (the right care is provided at the right time).

Definition of Terms:

Waiting time for hearing aid provision:

1. A hearing aid- is a battery-powered electronic device designed to amplify sound and to improve hearing. A hearing aid includes air conduction (ACHA) and/ or BCHA (bone conduction)
2. Hearing aid provision- a process involving HA trial and HA prescription (for an adult) and hearing aid prescription only (for pediatric)
3. Diagnosis of hearing loss- confirmed the presence of hearing loss (peripheral and central).

Inclusion Criteria	**:**	All new patients required a hearing aid
Exclusion Criteria	**:**	1. Patient not keen on hearing aid 2. Patients request an appointment date of more than 8 weeks due to specific reasons (e.g: health problems, financial constraints, logistic issues) 3. Patient covered by PERKESO & MAKNA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of patients received hearing aid provision within 8 weeks X 100%
Denominator	**:**	Total number of patients received hearing aid provision
Target	**:**	≥ 90%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

Indicator 03	:	**Percentage of patients showing improved hearing ability within 3 months after hearing aid fitting.**

Rationale:
This indicator was selected because:

- Audiologists provide aural rehabilitation (AR) services to help the patient meet maximum success in listening and communication after hearing aid fitting. There are several domains of hearing aid outcome that can be measured, including benefit, satisfaction, residual activity and participation
  restrictions, and quality of life.
- This indicator, named the Client Oriented Scale of Improvement (COSI) aims to measure the benefit of hearing aid usage.
- COSI is recommended as the most useful clinical measure of rehabilitation outcomes as its focus on patients' individual needs in specific situations.

Definition of Terms:

1. Degree of change- obtaining BETTER or MUCH BETTER outcome after hearing aid fitting. Only first ranked needs are considered for this indicator assessment.
2. Hearing aid fitting- involved all the processes from hearing aid orientation to counselling of hearing aid usage

Inclusion Criteria	**:**	1. All outpatients aged 19 yo and above 2. New and experienced hearing aid user 3. Using a hearing aid in one or both ears. 4. Cases with hearing loss only 5. Cases with air conduction and bone conduction hearing aid
Exclusion Criteria	**:**	1. COSI assessment is done after 3 months from fitting's date. 2. Patient with chronic middle ear problems 3. Patients with cognitive impairment, unable to understand speech, or using sign language
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of patients obtaining BETTER or MUCH BETTER outcome within 3 months after hearing aid fitting X 100%
Denominator	**:**	Number of patients using hearing aids
Target	**:**	≥ 85%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

SERVICE STANDARD 17F: OPTOMETRY SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of keratoconus cases with increased levels of contact lens complications within 4 months of RGP contact lens delivery.	≤ 20%	6 monthly
2.	Optometrist involvement at least 2 outreach programmes in current year.	100%	yearly
3.	New cases achieving best corrected visual acuity 6/6 after refraction.	≥ 85%	6 monthly
4.	Percentage of new patients that were given appointment for refraction procedure within ≤ 6 weeks in Optometry Clinic without Ophthalmologist.	≥ 80%	6 monthly
5.	Percentage of new patients that were given appointment for diabetic retinopathy screening within ≤ 6 weeks in Optometry Clinic at Klinik Kesihatan.	≥ 80%	6 monthly
6.	Waiting time to see optometrist ≤ 60 minutes	≥ 80%	6 monthly

Indicator 01	:	**Percentage of keratoconus cases with increased levels of contact lens complications within 4 months of RGP contact lens delivery.**

Rationale:
This indicator was selected because:

1. RGP contact lens wear could preserve optimal vision for keratoconus patients. However patients need to comply with contact lens care and ensure eye safety.
2. To reduce visual morbidity among RGP contact lens wearers.
3. A reflection of the clinical process in management of keratoconus patients.

Definition of Terms:

1. ***Keratoconus:*** Ocular disorder characterized by progressive thinning and changes in the shape of the corneas which can cause blurry or distorted vision, sensitivity to light (photophobia), and other visual problems.

2. ***Time 4 months:*** Is calculated from the date of contact lens delivery to the patient (± 2 weeks).

3. ***RGP contact lenses:*** All types of RGP contact lenses such as Rose K2, Rose K XL, Rose K NC, Igel K, Rose K2 PG, As LUNA (SEED) etc.

4. Increased level of complications (from normal/mild to moderate or worse) within 4 months after RGP contact lenses delivery.

5. Complications of RGP contact lenses wear *(Reference: Efron Grading Scales For Contact Lens Complication)*:
    a) Conjunctival redness
    b) Limbal redness
    c) Corneal neovascularization
    d) Epithelial microcysts
    e) Corneal edema
    f) Corneal staining
    g) Conjunctival staining
    h) Papillary conjunctivitis
    i) Blepharitis
    j) Meibomian gland dysfunction
    k) Superior limbic keratoconjunctivitis
    l) Corneal infiltrates
    m) Corneal ulcer
    n) Endothelial polymegathism
    o) Endothelial blebs
    p) Corneal distortion

6. Those patients referred to other hospitals for follow - up, the respective hospital has to report the aftercare outcome. (The patient is a denominator for the hospital who conducted the contact lens delivery).

Inclusion Criteria	**:**	All keratoconus patients who received RGP during contact lens delivery.
Exclusion Criteria	**:**	Patients default aftercare appointment within 4 months + 2 weeks from the date of contact lens delivery.
Type of Indicator	**:**	***Rate Based Outcome Indicator***
Numerator	**:**	Number of keratoconus cases with increased levels of contact lens complications within 4 months of RGP contact lens delivery
Denominator	**:**	Total number of RGP contact lens delivery for keratoconus cases
Target	**:**	≤ 20%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 02	:	**Optometrist involvement at least 2 outreach programmes in current year.**

Rationale:
This indicator was selected because:

1. To provide eye care for the community.
2. To facilitate patient access to Optometry services.
3. To promote eye care awareness.
4. To ensure all Optometrist participates in outreach programmes.

Definition of Terms:

Outreach services: All outreach activities conducted outside of the place of duty (clinic) and must get approval from the Hospital Director/Head of Department.

Inclusion Criteria	**:**	All outreach activities involving the Ophthalmology Department or Optometry Unit.
Exclusion Criteria	**:**	1. Optometrist who is on leave for more than 6 months in a current year. 2. Optometrist who has medical problems with medical consent.
Type of Indicator	**:**	**Customer Centeredness**
Numerator	**:**	Number of Optometrist who involved in at least 2 outreach programmes in a current year X 100%
Denominator	**:**	Number of Optometrist who involved in outreach programmes
Target	**:**	100%
Data Collection	**:**	Yearly
Comments/Review	**:**	-

Indicator 03	:	**New cases achieving best corrected visual acuity 6/6 after refraction.**

Rationale:
This indicator was selected because:

1. Refraction is a procedure to determine the refractive error status. (*Pemeriksaan Optometri Asas* in the Standard Operating Procedures).
2. This indicator is implemented to measure the quality of the procedure which is performed by the Optometrist to ensure that patients with refractive errors achieved 6/6 best corrected visual acuity with appropriate prescription.
3. 6/6 vision means normal vision for optimum quality of life. However, there are several factors that contribute 6/6 vision not achieved after refraction such as ocular diseases that can only be detected by conducting a full eye examination.

Definition of Terms:

1. ***New cases:*** Patients who are referred for the first-time refraction.
2. ***6/6:*** The ability to see clearly 5 minutes of arc sized letters at a distance of 6 meters.
3. Refractive assessment includes objective and subjective refraction.

Inclusion Criteria	**:**	1. New case referred for refraction. 2. Habitual vision before refraction was ≤ 6/10. 3. Vision is measured using a Snellen chart or equivalent (Smart chart or projector chart). 4. Vision with a pinhole improved at least ≥ 6/10.
Exclusion Criteria	**:**	1. Patients who are unable to respond subjectively. 2. Patients aged <7 years in the current year. 3. Medico-legal patients. 4. Suspected of having amblyopia. 5. Patients with ocular diseases.
Type of Indicator	**:**	**Outcome Based Process Indicator**
Numerator	**:**	Number of new cases achieving 6/6 visual acuity after refraction for each eye.
Denominator	**:**	Number of new cases achieving vision ≥ 6/10 with a pinhole.
Target	**:**	≥ 85%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 04	:	**Percentage of new patients that were given appointment for refraction procedure within ≤ 6 weeks in Optometry Clinic without Ophthalmologist.**

Rationale:
This indicator was selected because:
Patient care should be given priority by reducing the waiting time to get an appointment for refraction in line with patient centred services (Reference Circular of the Director General of Health Malaysia No. 6/2004).

Definition of Terms:

New patient: New referral for refraction.

Within ≤ 6 weeks: Time taken from the date of getting an appointment until the appointment date for refraction.

Inclusion Criteria	**:**	All new cases who get a refraction appointment date.
Exclusion Criteria	**:**	1. Patients request a later appointment date. 2. Defaulted patient.
Type of Indicator	**:**	**Outcome Based Process Indicator**
Numerator	**:**	Number of new cases given the refraction appointment ≤ 6 weeks at the Optometry Clinic.
Denominator	**:**	Number of new cases get an appointment for refraction at the Optometry Clinic.
Target	**:**	≥ 80%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 05	:	**Percentage of new patients that were given appointment for diabetic retinopathy screening within ≤ 6 weeks in Optometry Clinic at *Klinik Kesihatan*.**

Rationale:
This indicator was selected because:

1. Prevention of blindness at the early stages due to complications of diabetes mellitus can reduce the cost of a patient's treatment.
2. Patient's care should be given priority by reducing waiting time to get an appointment for diabetic retinopathy screening.

Definition of Terms:

New patient: New referral for diabetic retinopathy screening.

Within ≤ 6 weeks: Time taken from the date of getting an appointment to the date of the appointment of diabetic retinopathy screening is given to patients.

Inclusion Criteria	**:**	1. New cases referred for diabetic retinopathy screening. 2. Patient's visual acuity must be 6/12 or better.
Exclusion Criteria	**:**	1. Patients request a later appointment date. 2. Defaulted patients.
Type of Indicator	**:**	**Outcome Based Process Indicator**

Numerator	**:**	Number of new cases given appointment for diabetic retinopathy screening ≤ 6 weeks at the Optometry Clinic at *Klinik Kesihatan*. X 100
Denominator	**:**	Number of new cases referred for diabetic retinopathy screening at the Optometry Clinic at *Klinik Kesihatan*.

Target	**:**	≥ 80%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 06	:	**Waiting time to see Optometrist within 60 minutes.**

Rationale:
This indicator was selected because:

To ensure the waiting time to get Optometry services is in line with the General Circular Director of Health Malaysia No. 6/2004.

Definition of Terms:

Waiting time ≤ 60 minutes: The time calculated from the patient's file/card arrives at the optometrist's room until the patient is called for refraction.

Inclusion Criteria	**:**	All patients were referred for refraction.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Outcome Based Process Indicator**

Numerator	**:**	Number of patients seen by Optometrist for refraction with waiting time ≤ 60 minutes X100
Denominator	**:**	Number of patients seen by an Optometrist for refraction

Target	**:**	≥ 80%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

SERVICE STANDARD 17G: HEALTH EDUCATION SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Number of patients received behavioural needs assessment (cognitive, affective & psychomotor) prior to health education intervention		Monthly
2.	Percentage of successful quit smoking after 6 months from setting Quit Date	35%	6 Monthly
3.	Percentage of patient referrals seen within two (2) weeks	80%	Monthly
4.	Percentage of successful clients to reduce bodyweight (weight management program)	10%	Yearly

Indicator 01	:	**Number of patients received behavioural needs assessment (cognitive, affective & psychomotor) prior to health education intervention.**

Rationale:
This indicator was selected because:

- Behavioural needs assessment prior to Health Education Intervention should be conducted to assess the change in the cognitive, affective and psychomotor behaviour of the clients after Health Education intervention which also measures the effectiveness of Health Education.
- Health Education is aimed to educate and encourage patients and community to comply with the treatment regime and maintaining their wellbeing.

- Including weight management, quit smoking, organ donation and others

Definition of Terms:

1. Behavioural Needs Assessment
The practice of health education involves three major program-planning activities: needs assessment, program development, and evaluation. Behavioral needs assessment is a method used in the field of psychology to observe, describe, explain, predict and sometimes correct behavior. Behavioral needs assessment can be useful in clinical, educational and corporate settings. Clients receiving behavioral health education are assessed on their knowledge, attitude and practices.

2. Health Education Intervention:
Various techniques/activities aimed at change in the cognitive, affective and psychomotor behaviour of the clients/patients.

Inclusion Criteria	**:**	Patients receiving health education intervention
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of patients received behavioural needs assessment prior to Health Education Intervention
Denominator	**:**	
Target	**:**	
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of successful quit smoking after 6 months from setting Quit Date**

Rationale:
This indicator was selected because:

- Smoking has been shown to be hazardous to health and is a risk for many diseases such as cancers and cardiovascular diseases. In the *National Health and Morbidity Survey (NHMS)* conducted in 2006, it was found that 22.5% of Malaysians aged 18 and over were smokers. Therefore, the Ministry of Health has taken the initiative to continue the Say No to Smoking Campaign that was held on a large scale nationally, initiated in 2004.

- This is in line with the commitments that have been affirmed by the Ministry of Health Malaysia in the 64th World Health Assembly in May 2011 that is by targeting 60% of patients with cardiovascular disease or at high risk of developing the disease to quit smoking within 6 months of enrolling in a Quit Smoking Clinic organized by the Ministry of Health.

Definition of Terms:

***1. Quit Smoking* intervention**:
Patients admitted to Ministry of Health Hospitals that have Quit Smoking Clinic Service and have enrolled in the Quit Smoking Program.

2. Post Intervention:
Patients enrolled in the Quit Smoking Program and have ceased smoking.

Inclusion Criteria	**:**	Patients enrolled in the Quit Smoking Program in Ministry of Health Hospitals that have Quit Smoking Clinic Service.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of persons who quit smoking within 6 months of enrolling in the Quit Smoking Clinic X 100%
Denominator	**:**	Total number of persons who smoke who attended the Quit Smoking Clinic

Target	**:**	35%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 03	:	**Percentage of patient referrals seen within two (2) weeks**

Rationale:
This indicator was selected because:

- Patient Centered services must give priority to prompt attention to patient needs by reducing waiting times for consultation.
- This indicator reflects the effectiveness of the service.

Definition of Terms:

***Patient Referrals*:**
Time taken from the date of referral received to the date seen by the Health Education Officer within two (2) weeks.

Inclusion Criteria	**:**	All patients referred to the Health Education Officer for consultation/health education
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of patients seen by the Health Education Officer within 2 weeks of referral X 100%
Denominator	**:**	Total number of patients referred to the Health Officer

Target	**:**	80%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 04	:	**Percentage of successful clients to reduce bodyweight (weight management program)**

Rationale:
This indicator was selected because:

- This indicator reflects the effectiveness of the service.

Definition of Terms:

At least 10% of the participants managed to lose weight.

Inclusion Criteria	**:**	1. Participants aged 18 years and above and have a BMI> 25kg - 34.9kg 2. Agree and are interested in participating in the intervention 3. Do not have chronic health problems such as heart disease, diabetes, hypertension and others
Exclusion Criteria	**:**	1. Have high risk factors for CAD, pulmonary artery coronary artery disease and metabolic syndrome 2. Pregnancy 3. Has a permanent disability that can interfere with movement
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	At least 10% of the participants managed to lose weight X 100%
Denominator	**:**	The total number of participants remained until the end of the intervention

Target	**:**	10%
Data Collection	**:**	Yearly
Comments/Review	**:**	-

SERVICE STANDARD 17H: MEDICAL SOCIAL SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of early response time taken within two (2) working days from the date of referral	95%	3 Monthly
2.	Percentage of cases referred to the referral agencies within seven (7) working days after social intervention complete	80%	3 Monthly

Indicator 01	:	**Percentage of early response time taken within two (2) working days from the date of reference**

Rationale:
This indicator was selected because:

1. Patient-centered services must give priority to prompt attention to patient needs. It is the aim of the MOH to reduce the waiting times to a minimum in line with the Circular of the Director-General of Health Malaysia No. 6/2004-Steps to reduce The Waiting Time in MOH Facilities

Definition of Terms:

Patient referred for Medical Social services received intervention within 2 working days

Inclusion Criteria	**:**	1. Malaysian citizen 2. All patients who referred to JKSP 3. Non Malaysian citizen which is involving social legislation and disaster cases only for support therapy assistance only
Exclusion Criteria	**:**	1. Non Malaysian citizen 2. weekend or on public holidays not included
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total no of patients who received Medical Social Worker's initial intervention within 2 working days X 100%
Denominator	**:**	Total no patients referred for Medical Social Worker's intervention
Target	**:**	95%
Data Collection	**:**	Once in three months
Comments/Review	**:**	-

Indicator 02	:	**Percentage of cases referred to the referral agencies within seven (7) working days after social intervention complete**

Rationale:
This indicator was selected because:

- To enable patient to going through the treatment and rehabilitation process accordingly in order to enhance their quality of life and help them to restore their social functioning in community in line to limitation caused by the disease.

- This indicator reflects the effectiveness of the service and poses a challenge to the Social Medical Worker to deliver the services within the acceptable time frame.

Definition of Terms:

1. ***Reference agencies include government or non-government agencies.***

   a) Ministry of Health Malaysia (Tabung Bantuan Perubatan)
   b) Department of Social Welfare
   c) Royal Malaysian Police
   d) Islamic Religious Department/ Islamic Religious Council / Zakat Board
   e) Legal Aid Department
   f) State Education Department
   g) Embassy
   h) National Registration Department
   i) Immigration Department
   j) Jabatan Kemajuan Orang Asli (JAKOA)
   k) National Cancer Council (MAKNA)
   l) Tabung Kebajikan Perubatan Malaysia (TKPM)
   m) National Welfare Foundation (YKN)
   n) And other reference agencies

2. ***Social intervention:*** A method used to provide assistance to the community (individuals, group, communities) that used in the practice of social work to improve the functionality of individuals either through investigation/ home visits/ supporting documents/ inter-agency discussions.

3. ***Seven (7) working days excluding weekend and public holidays.***

4. ***Practical assistance intervention:*** Involving the aspects of financial assistance (purchasing medical equipment and medicines, funding treatment costs or general assistance), institutional placement and tracing patient's family. These practical assistances are also provided for acute and chronic illness patients.

5. ***The support therapy intervention:*** Involving a consultation, emotional support and crisis interventions including domestic violence cases, unmarried mothers, child abuse and neglect, sexual crimes and other related cases including acute and chronic illness patients.

Inclusion Criteria	:	1. All patients who qualify and meet the criteria should be referred to the relevant agency 2. Inpatient and outpatient 3. Malaysia citizen 4. Non-citizen involved in social legislation and disaster cases for support therapy assistance cases only 5. High-risk neglected baby cases for non-citizen
Exclusion Criteria	:	1. Patients who are not eligible and do not meet criteria related agency 2. Non Malaysian citizen
Type of Indicator	:	**Rate Based Process Indicator**
Numerator	:	Number of patients referred to the agencies within seven (7) days after the social intervention had completed X 100%
Denominator	:	The number of patients who need to be referred to agencies after the social intervention had completed
Target	:	80%
Data Collection	:	Once in three months
Comments/Review	:	-

STANDARD 17I: PSYCHOLOGY COUNSELLING SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of new case given counselling psychology services within 3 working days	70%	Monthly
2.	Percentage of clients achieved their counselling goal	70%	Monthly

Indicator 01	:	**Percentage of new case given counselling psychology services within 3 working days**

Rationale:
This indicator was selected because:

- This indicator reflects access to Psychology Counseling Services and being effectively discharged from the programme, which poses a challenge to the Psychology Counsellor to deliver the services effectively.

Definition of Terms:

1. ***Counseling Psychology:*** is general practice and health service provider specialty in professional psychology. It focuses on how people function both personally and in their relationships at all ages. Counseling psychology addresses the emotional, social, school, work and physical health concern people may have at difference stages in their lives, focusing on typical life stresses and issues in which people may struggle as individual and as a part of family, group and organization.

2. ***Counseling Psychology Services:*** help people with physical, emotional and mental health to improve their sense of well-being and alleviate feelings of distress. The scope of counseling psychology practice shall be provided by Psychology Officer (Counseling) appointed by Government of Malaysia

There are 2 types of Psychology Officers (Counseling) appointed by government of Malaysia:
1. Psychology Officer (Counselling) who registered with the Malaysian Board of Counselor (Act 580)
2. Psychology Officer (Counselling) who are not registered with the Malaysian Board of Counselor (Act 580)

Inclusion Criteria	**:**	All clients registered for Counseling Psychology services.
Exclusion Criteria	**:**	1. Clients whom unable to communicate verbal and nonverbal. 2. Clients with severe cognitive impairment. 3. Clients whom are not cooperative. 4. Unreacheable clients after 3 times attempts. 5. Clients who refuse counseling psychology services.
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of new case given counseling psychology services
Denominator	**:**	Total number of cases registered for counseling psychology services during the study period X 100%

Target	**:**	70% of new case given counseling psychology services within 3 working days
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of clients achieved their counseling goal**

Rationale:
This indicator was selected because:

- This indicator reflects access to care for further management and effectiveness of the service which poses a challenge to the Psychology Counsellor to make prompt and timely referrals.

Definition of Terms:

1. Psychology Services:
Psychology Services help people with physical, emotional and mental health to improve their sense of well-being and alleviate feelings of distress. The scope of counseling psychology practice shall be provided by Psychology Officer (Counseling) appointed by Government of Malaysia.

6. ***Counseling Goal:***
Clients who achieved at least score 2 in SMARTGOAL tool.

Inclusion Criteria	**:**	All clients registered for Counseling Psychology services.
Exclusion Criteria	**:**	1. Clients whom unable to communicate verbal and nonverbal. 2. Clients with severe cognitive impairment. 3. Clients whom are not cooperative. 4. Unreacheable clients after 3 times attempts. 5. Clients who refuse counseling psychology services.
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total clients who achieved counseling goal at least score 2 X 100%
Denominator	**:**	Total number of cases registered for counseling psychology services during the study period
Target	**:**	70% of total clients to achieve at least score 2 in SMARTGOAL
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 17J: CLINICAL PSYCHOLOGY SERVICES			
There is safety tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of Relapse Cases	Sentinel event	6 Monthly
2.	Percentage of Psychological Assessment Completed within 30 working days	85%	6 Monthly
3.	Percentage of new patient referred for psychotherapy session receiving first session within 60 working days	80%	6 Monthly

Indicator 01	:	**Percentage of Relapse Cases**

Rationale:
This indicator was selected because:

- The Clinical Psychology Services shall be provided only by trained and qualified Clinical Psychologists to outpatients, inpatients in an efficient and effective and caring manner and shall be coordinated with other relevant clinical services in accordance with accepted standards of practice.

- This indicator reflects clinical effectiveness and poses a challenge to the Clinical Psychologist in striving to deliver the services effectively.

Definition of Terms:

1. Clinical Psychology Services*:*
Clinical Psychology Services offer psychotherapy to reduce psychological distress (mental illness), augment and promote psychological well-being and quality of life. The services are part of a multidisciplinary team for psychological readjustment and restoration to psychological fitness.

2. Relapse of Case*:*
Clinical Psychology Services require extended case monitoring of the status of clients, providing support, and accelerating re-entry into treatment in the event of impending or actual relapse. This is accomplished through the efforts with contacts with the client and significant other members of the family and health care providers.

Inclusion Criteria	**:**	All patients successfully discharged from the Clinical Psychology Services having achieved restoration of psychological fitness.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Sentinel Event**

Numerator	**:**	Number of patients having acquired psychological fitness and successfully discharged from the Clinical Psychology Services and relapsed	X 100%
Denominator	**:**	Total number of patients having acquired psychological fitness and successfully discharged from the Clinical Psychology Services	

Target	**:**	0
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of Psychological Assessment Completed within 30 working days**

Rationale:
This indicator was selected because:

- Psychological Assessment is the basis for clinical psychology service delivery.
- The use of psychological assessment requires a documented plan for subsequent audit of clinical effectiveness of service delivery.

Definition of Terms:

1. Psychological Assessment:
Psychological assessment is a process of testing that uses a combination of techniques to help arrive at some hypotheses about a person and their behavior, personality and capabilities. Psychological assessment is the extensive purview of psychologists who use assessment tools to better understand what may be causing behavioral, emotional, or cognitive symptoms. Simply by observing a person's behavior during various structured and unstructured tasks, having them and those who know them answer questions on psychological tests, and/or meeting with the person directly, a psychologist can help identify underlying causes and develop a plan for assisting them.

2. Psychological Assessment Completed within 30 working days:
Time taken from the date of referral to the Clinical Psychologist for consultation and treatment to the date of completion of the psychological assessment of the same patient. The waiting time refers to time between the dates the patient is seen by the Clinical Psychologist to the date of completion of the psychological assessment within 30 working days.

Inclusion Criteria	**:**	All patients referred to the Clinical Psychologist for consultation and treatment.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of patients who had Psychological Assessment completed within 30 working days X 100%
Denominator	**:**	Total number of patients referred to the Clinical Psychologist for consultation
Target	**:**	85%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	

Indicator 03	:	**Percentage of new patient referred for psychotherapy session receiving first session within 60 working days**

Rationale:
This indicator was selected because:

- Psychotherapy is another main service in clinical psychology field.
- Clinical psychology clinic receives a significant amount of referrals for psychotherapy cases.

Definition of Terms:

1. Psychotherapy session:
Psychological intervention session for psychiatric disorders, administered as part of treatment plan in managing psychiatric illnesses. It is usually administered in a form of talk therapy, as a way to help patients in managing their symptoms, restoring functions, and increasing their well-being.

2. New patient referred for psychotherapy session receives first session within 60 working days:
New patient is defined as a new case referred to Clinical Psychology Clinic. Patient will receive his / her first appointment for psychotherapy session within 60 working days, from the date of the referral received at clinic.

Inclusion Criteria	:	● All cases referred to Clinical Psychology Clinic for psychotherapy session. ● The Clinical Psychology Clinic offers psychotherapy service.
Exclusion Criteria	:	● Patient defaults / refuses to attend first session of psychotherapy. ● Clinical Psychology Clinic rejects a referral for psychotherapy for a specific reason. ● Patient is not reachable via clinic's communication platform, hence he / she is not informed with psychotherapy first appointment date. ● Patient requests a specific date for first appointment, which exceeding 60 working days.
Type of Indicator	:	**Rate Based Process Indicator**

Numerator	:	Number of patients who have attended first psychotherapy session within 60 working days. X 100%
Denominator	:	Number of patients who have attended first psychotherapy session in a specific month.

Target	:	80%
Data Collection	:	6 Monthly
Comments/Review	:	

SERVICE STANDARD 18: PHARMACY SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of Prescription Error	0	Monthly
2.	Percentage of Dispensing Error	0	Monthly
3.	Average time for a prescription to be dispensed from time received at counter to time medication given to patient	≥ 95% prescription dispensed within 30 minutes	Monthly
4.	Number and value of expired drugs at end of month over a specified period	0	Monthly

Indicator 01 : **Percentage of Prescription Error**

Rationale:
This indicator was selected because:

- Medication Error is a significant problem in hospitals and has an impact on the safety of patients. The large amount of medications used as well as the availability of new and potent medicines requires further enhancement on the awareness on medication safety. It is a serious adverse event where there is much pain and suffering or temporary/permanent disability.
- It is an indicator of the delivery of safe patient care in the hospital.

Definition of Terms:

1. Medication Error:
A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient or consumer. Such an event may be related to professional practices, healthcare products, procedures and systems including prescribing, order communication, product labelling, packaging and nomenclature, compounding, dispensing, distribution, administration, education, monitoring and use. Medication errors may be committed by both inexperienced and experienced personnel like doctors, pharmacists, dentists and other healthcare provider, patients, manufacturers, caregivers and others.

2. Prescribing Error:
Incorrect drug product selection (based on indications, contraindications, known allergies, existing drug therapy, and other factors), dose, dosage form, quantity, route of administration, concentration, rate of administration, or instructions for use of a drug product ordered or authorized by physician (or other legitimate prescriber); illegible prescriptions or medication orders that lead to errors.

(Reference: Guideline on Medication Error Reporting Ministry of Health Malaysia)

Inclusion Criteria	**:**	All prescriptions made out for patients (in-Patient and Out- Patients)
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of prescription errors (out-patients and in-patients)
Denominator	**:**	Total number of prescriptions (outpatients and Inpatients) written by doctors X 100%
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of Dispensing Error**

Rationale:
This indicator was selected because:

- Medication Error is a significant problem in hospitals and has an impact on the safety of patients. The large amount of medications used as well as the availability of new and potent medicines requires further enhancement on the awareness on medication safety. It is a serious adverse event where there is much pain and suffering or temporary/permanent disability.
- It is an indicator of the delivery of safe patient care in the hospital.

Definition of Terms:

1. Medication Error:
A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient or consumer. Such an event may be related to professional practices, healthcare products, procedures and systems including prescribing, order communication, product labelling, packaging and nomenclature, compounding, dispensing, distribution, administration, education, monitoring and use. Medication errors may be committed by both inexperienced and experienced personnel like doctors, pharmacists, dentists and other healthcare provider, patients, manufacturers, caregivers and others.

2. Dispensing Error:
- Dispensing or administration to the patient of medication not authorised by a legitimate prescriber.
- Dispensing or administration to the patient of a dose that is greater than or less than the amount ordered by the prescriber or administration of multiple doses to the patient, i.e. one or more dosage units in addition to those that were ordered.
- Dispensing or administration to the patient of a drug product in a different dosage form than that ordered by the prescriber.
- Dispensing or administration of a drug that has expired or for which the physical or chemical dosage-form integrity has been compromised.

(Reference: Guideline on Medication Error Reporting Ministry of Health Malaysia)

Inclusion Criteria	**:**	All prescriptions made out for patients (in-Patient and Out- Patients)
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of dispensing errors (out-patients and in-patients) X 100%
Denominator	**:**	Total number of prescriptions dispensed (outpatients and Inpatients)
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Average time for a prescription to be dispensed from time received at counter to time medication given to patient**

Rationale:
This indicator was selected because:

- Promptness of service is one criteria of quality care. Patient centred service must give priority to reducing waiting time for dispensing. This indicator reflects access and patient centeredness.
- Long waiting time can adversely affect patient satisfaction

Definition of Term:

1. Waiting Time:
Time when a prescription is received at the pharmacy counter to the time the medication (s) is dispensed to the patient.

2. Dispense:
Process of delivering medication to the patient

Inclusion Criteria	**:**	All prescriptions received from the Outpatient Pharmacy Department /Specialist Clinic/Follow up Clinic
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total cumulative time taken to dispense all prescriptions received for the day from the time of receiving the first prescription to the time of the last dispensing
Denominator	**:**	Total number of prescriptions (outpatients) received for the day
Target	**:**	≥ 95% prescription dispensed within 30 minutes
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 04	:	**Number and value of expired drugs at end of month over a specified period**

Rationale:
This indicator was selected:

- To ensure good quality and safe medicines are available and accessible in a system that uses resources effectively for enhancement of the pharmaceutical services with better use of medicines and reduced wastage.
- To reflect the efficiency of the pharmaceutical services.

Definition of Term:

Value of Expired Drugs:
The cost of the drugs at the time of purchase.

Inclusion Criteria	**:**	All expired drugs in stock at the end of the month over a specified period.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Number and Value (cost)**
Numerator	**:**	Total number and value (cost) of expired drugs (all types of medications- oral, parental etc.) at the end of each month over a specified period.
Denominator	**:**	
Target	**:**	0
Data Collection	**:**	Monthly
Comments/Review	**:**	

SERVICE STANDARD 19: CENTRAL STERILE SUPPLY SERVICES (CSSS)			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of sterile instrument sets rejected	< 5%	Monthly
2.	Percentage of incidents reported monthly that have had Root Cause Analysis (RCA) done and action taken to prevent recurrence	100%	Monthly
3.	Internal Customer feedback	> 80%	6 monthly
4.	Leak testing for rigid container system to ensure sterility	100%	Quarterly

Indicator 01	:	**Percentage of sterile instrument sets rejected**

Rationale:
This indicator was selected because:

- The Central Sterile Supply Services responsibility is to provide centralized sterilizing services and sterile supplies for all areas within the Facility that use sterile instruments, dressings, linen and other items to effectively prevent and control the incidence of Healthcare Acquired Infection (HAI).

- This indicator reflects the efficiency of the Central Sterile Supply Services.

Definition of Term:

Reject of sterile instruments:
The major role of the CSSS is disinfection, sterilization and reprocessing service and thermal decontamination for products not able to be sterilized. Occasions of reject sterile instruments sets could cause disruptions in surgical procedures and cost for the facility due to:

- Breech in the integrity of sterility
- Incomplete sets
- Use of poor packaging material
- etc.

Inclusion Criteria	**:**	Reject instrument sets per batch from all areas (OT, wards, clinics) of the facility at the end of the day over a specified period.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Output Indicator**
Numerator	**:**	Total number of reject sterile instrument sets in a month X 100%
Denominator	**:**	Total number of instrument sets sterilized in a month
Target	**:**	< 5%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Percentage of incidents reported monthly that have had Root Cause Analysis (RCA) done and action taken to prevent recurrence.**

Rationale:
This indicator was selected because:

- The Central Sterile Supply Services responsibility is to provide centralized sterilizing services and sterile supplies for all areas within the Facility that use sterile instruments, dressings, linen and other items to effectively prevent and control the incidence of Healthcare Acquired Infection (HAI).

- Knowledge of how to prevent harm to patients and staff during care is the most important knowledge in the field of patient safety. One of the best practices for patient safety is to establish a "No Blame, Reporting Culture by initiating an Incident Reporting and Learning System.

Definition of Terms:

1. Incidents:
Mishaps, near misses and hazards that have a likely hood of recurring if risk management strategies are not institutionalised. Example: incomplete sets, breach of sterility, staff injury, mechanical failure/malfunction of autoclaves etc.

2. Root Cause Analysis (RCA)
Root Cause Analysis is a structured investigation that aims to identify the true cause of a problem and the actions necessary to eliminate it.

(Bjorn Andersen and Tom Fagerhaug. Root Cause Analysis: Simplified Tools and Techniques. McGraw- Hill, 2000)

Inclusion Criteria	**:**	All types of incidents needing RCA reported and documented
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**
Numerator	**:**	Number of incidents reported and where Root Cause Analysis is done and actions taken in the month X 100%
Denominator	**:**	Total number of incidents reported in the month
Target	**:**	100%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 03	:	**Internal Customer feedback**

Rationale:
This indicator was selected because:

- The Central Sterile Supply Services responsibility is to provide centralized sterilizing services and sterile supplies for all areas within the Facility that use sterile instruments, dressings, linen and other items to effectively prevent and control the incidence of Healthcare Acquired Infection (HAI).

- This indicator reflects the efficiency of the Central Sterile Supply Services

Definition of Terms:

- Customer satisfaction survey is a measure of providing exemplary service requires the consistent delivery of safe, high-quality products and services.
- To obtain feedback from the end-user pertaining to the services of CSS provided to help the department to improve their services.

Inclusion Criteria	**:**	Customer who participate in customer satisfaction survey
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of participating customers who indicated they were satisfied in the customer survey within > 80% satisfaction level	X 100%
Denominator	**:**	Total number of customers who participate in the customer satisfaction survey	

Target	**:**	> 80% customer satisfaction level
Data Collection	**:**	6 monthly
Comments/Review	**:**	

Indicator 04	:	**Leak testing for rigid container system to ensure sterility**

Rationale:
This indicator was selected because:

- The Central Sterile Supply Services responsibility is to provide centralized sterilizing services and sterile supplies for all areas within the Facility that use sterile instruments, dressings, linen and other items to effectively prevent and control the incidence of Healthcare Acquired Infection.
- This indicator reflects sterilization achieved post all instruments set that has been sterilized in a container for OT use.
- Check the condition of containers used for sterilization that is effective to maintain sterility of product post sterilisation

Definition of Terms:

Leak testing is the process of checking the containers used for leaks (a defect). Leak testing can be achieved using various leak detection methods and is employed to test for defects in the container casing seal which if it is broken or eroded will compromise the sterilisation of the instruments.

Inclusion Criteria	**:**	All containers used for instruments sterilisation
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Number of containers found with leak X 100%
Denominator	**:**	Number of containers tested

Target	**:**	100%
Data Collection	**:**	Quarterly
Comments/Review	**:**	

SERVICE STANDARD 20: HOUSEKEEPING SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Trend of performance score during in-house inspection/joint inspection	80% with minimum score of 3	Monthly
2.	Customer satisfaction feedback survey	80% satisfaction	6 Monthly

Indicator 01	:	**Trend of performance score during in-house inspection/joint inspection**

Rationale:
This indicator was selected because:

- The Housekeeping Services are an integral part of the hospital support services to ensure a clean environment in the hospital and is crucial in the prevention and control of Healthcare Acquired Infection (HAI).

- This indicator measures the quality of the performance of Housekeeping Services. Regular trending of the performance of the service examines the weakness and shortfalls in the overall improvement of the Housekeeping Services.

Definition of Terms:

1. Trending of Performance Score*:*

During the periodic in-house/joint inspection of the performance of the house keeping services, staff of the hospital/outsourced services contractor conducts an objective assessment using set criteria and scoring on the performance of the cleansing service for each area of the facility. These scores are to be trended as per achievement for each area of the facility for a specific period.

2. Performance Score:

1 = Poor
2 = Fair
3 = Good
4 = Excellent
5 = Non-Applicable

(Source: Technical Requirements Performance Indicators, Ministry of Health Hospital Support Services)

Inclusion Criteria	**:**	All the areas in the facility to be included i.e. wards, critical care areas, operating theatre, Emergency Department etc.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Process Based Indicator**
Numerator	**:**	Performance trend showing 80% with minimum score of 3 for cleansing service in all areas of the Facility
Denominator	**:**	
Target	**:**	80% with minimum score of 3
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	:	**Customer satisfaction feedback survey**

Rationale:
This indicator was selected:

- The Housekeeping Services are an integral part of the hospital support services to ensure a clean environment in the hospital and is crucial in the prevention and control of Healthcare Acquired Infection (HAI) and mishaps may occur in the cleansing service
- As proxy to measurement of patient- centred services and level of client satisfaction to meeting patient needs on cleanliness of the environment and comfort of the patient.

Definition of Terms:

Patient Satisfaction Survey
Patient satisfaction survey is a measure of the extent to which a patient (inpatient and outpatient) is content with the cleanliness of the environment/facilities of the Healthcare Facility and the level of patient comfort.

Inclusion Criteria	**:**	All out-patients and in- patients
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Patient Satisfaction Survey**
Numerator	**:**	Number of patient satisfaction surveys done every six (6) months with 80% satisfaction level
Denominator	**:**	
Target	**:**	80% satisfaction level
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

SERVICE STANDARD 21: LINEN SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of Linen Shortfall	2 %	Monthly
2.	Linen Rejection Rate	< 2 %	Monthly
3.	Percentage of incidents reported monthly that have had Root Cause Analysis (RCA) done and action taken to prevent recurrence	100%	Monthly
4.	Internal customer satisfaction survey	80% satisfaction	6 monthly

Indicator 01	:	**Percentage of Linen Shortfall**

Rationale:
This indicator was selected because:

- A reliable laundry service is of utmost importance to healthcare facilities. In healthcare facilities, patients expect linen to be changed daily. An adequate supply of clean linen that is sufficient for the comfort and safety of the patient thus becomes essential.
- The Linen Service is an integral part of the hospital support services to ensure clean Linen and Laundry Services in hospitals and is crucial in the prevention and control of Healthcare Acquired Infection (HAI).
- Laundry and linen service plays a very important role in maintaining and safeguarding the health and hygiene of both the inpatient and medical staff.

Definition of Terms:

1. Hospital Linen

The term 'hospital linen' includes all textiles used in the hospital including mattress, pillow covers, blankets, bed sheets, towels, screens, curtains, doctors/staff coats, theatre cloth etc. The hospital uses these materials in different areas like Operation Theatre, wards, outpatient departments and office areas.

2. Linen Services

Linen Services include the supply and delivery of clean linen and the collection and washing of dirty and soiled linen which may be provided from within the Facility or outsourced where linen shortfalls are likely to occur.

3. Shortfall in Linen Services:

Target per bed weight (e.g., 5.34 kg) versus Actual Received (4.85 kg/Bed) or par level as is the current practice in hospitals.

Inclusion Criteria	**:**	All types of linen used in the Healthcare Facility i.e., patient's linen, bed covers, linen for drapes and procedures etc.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Outcome Indicator**

Numerator	**:**	Total quantity of Linen by types (bed sheet, patients pyjamas, bedcovers etc) and par levels actually supplied to the Facility in a month	X 100%
Denominator	**:**	Total quantity of Linen by types (bed sheet, patients pyjamas, bedcovers, etc.) and par levels agreed to be supplied to the Facility in a month	

Target	**:**	2%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	:	**Linen Rejection Rate**

Rationale:
This indicator was selected because:

- A reliable laundry service is of utmost importance to healthcare facilities. In healthcare facilities, patients expect linen to be changed daily. An adequate supply of clean linen that is sufficient for the comfort and safety of the patient thus becomes essential.
- The Linen Service is an integral part of the hospital support services to ensure clean Linen and Laundry Services in hospitals and is crucial in the prevention and control of Healthcare Acquired Infection (HAI).
- Laundry and linen service plays a very important role in maintaining and safeguarding the health and hygiene of both the patients and medical staff.

Definition of Terms:

1. Hospital Linen:
The term 'hospital linen' includes all textiles used in the hospital including mattress, pillow covers, blankets, bed sheets, towels, screens, curtains, doctors/staff coats, theatre cloth etc. The hospital uses these materials in different areas like Operation Theatre, wards, outpatient departments and office areas.

2. Linen Rejection:
Washed linen upon delivery maybe rejected by the facility for various reasons i.e., odour, torn, stained, torn etc.

Inclusion Criteria	**:**	All types of washed hospital linen upon delivery that does not comply with the set standards of clean linen
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Output Indicator**

Numerator	**:**	Total quantity of Linen by weight and types (bed sheet, patients pyjamas, bed covers etc.) rejected by the Facility in a month	X 100%
Denominator	**:**	Total quantity of Linen by weight and types (bed sheet, patients pyjamas, bedcovers etc.) supplied to the Facility in a month	

Target	**:**	< 2%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03	:	**Percentage of incidents reported monthly that have had Root Cause Analysis (RCA) done and action taken to prevent recurrence.**

Rationale:
This indicator was selected because:

- Knowledge of how to prevent harm to patients and staff during care is the most important knowledge in the field of patient safety. One of the best practices for patient safety is to establish a "No Blame, Reporting Culture by initiating an Incident Reporting and Learning System.

- The Linen Service is an integral part of the hospital support services to ensure clean linen and laundry services in hospitals and is crucial in the prevention and control of Healthcare Acquired Infection (HAI).

Definition of Terms:

1. Linen Services:
Linen Services include the supply and delivery of clean linen and the collection and washing of dirty and soiled linen which may be provided from within the Facility or outsourced where incidents of mishaps i.e., injury, linen shortfalls etc are likely to occur.

2. Incidents:
Mishaps, near misses and hazards i.e., injury due to unclear Standard Operating Procedures that have a likely hood of recurring if risk management strategies are not institutionalised.

3. Root Cause Analysis (RCA):
Root Cause Analysis is a structured investigation that aims to identify the true cause of a problem and the actions necessary to eliminate it?

(Bjorn Andersen and Tom Fagerhaug. Root Cause Analysis: Simplified Tools and Techniques. McGraw- Hill, 2000)

Inclusion Criteria	**:**	All types of incidents needing RCA reported and documented within a specified period
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total number of incidents reported for which Root Causes Analysis is done and actions taken in a month. X 100%
Denominator	**:**	Total number of incidents reported in a month
Target	**:**	100%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 04	:	**Internal Customer satisfaction survey**

Rationale:
This indicator was selected:

- The Linen Service is an integral part of the hospital support services to ensure clean linen and laundry services in hospitals and is crucial in the prevention and control of Healthcare Acquired Infection (HAI).
- Customer satisfaction survey is one of the tools that can be used in recognizing areas for improvement in the linen services provided.

Definition of Terms:

1. Facility's Internal Customer:
Internal Customer refers to the Facility's staff involved in the handling of Linen and Laundry Services including representatives of the Facility's Management i.e., liaison staff, ward staff etc.

2. Satisfaction Survey:
Internal customer satisfaction survey is a measure of the extent to which the Facility's management/ staff is satisfied with the Linen and Laundry Services in particular the cleanliness and adequacy of patients' garments, linen used for beddings, towels etc. The survey is referring to a Customer Satisfaction Survey Questionnaire.

Inclusion Criteria	**:**	All staff/clients handling the Facility's Linen and Laundry Services and participates in the Internal Customer Satisfaction Survey
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of participating Internal Customers indicating they were "satisfied" in the customer satisfaction survey X 100%
Denominator	**:**	Total number of Internal Customers who participated in the Customer Satisfaction Survey
Target	**:**	80% satisfaction level
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

SERVICE STANDARD 22: FOOD SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of ready to serve food tested negative for pathogenic microorganism as per schedule	100%	3 Monthly
2.	Occurrence of physical contamination of food served to patients	Sentinel Event	Monthly
3.	Client Food Satisfaction survey	> 85% satisfaction	6 Monthly

Indicator 01	:	**Percentage of ready to serve food tested negative for pathogenic microorganism as per schedule**

Rationale:
This indicator was selected because:

- This indicator reflects the safety of the Healthcare Facility's Food Services for in-patients' consumption.
- There should be no occurrences of samples of ready to serve food being tested positive for pathogenic micro-organism if high quality food preparation, handling and transport are implemented or adhered to.

Definition of Terms:

1. Ready to serve food:
Ready to eat/serve food means food (cooked and freshly cut) that is in a form that is edible without additional preparation to achieve food safety. Foods which are ready to be taken for sampling under strict sanitary and food quality standards and tested for pathogenic micro- organism.

2. Food testing for microorganism:
Microbiology testing is a crucial requirement across many food industries worldwide where products, processes and human health are at risk of being negatively affected by the presence and breeding of micro-organisms such as specific pathogens, bacteria, yeast and moulds. Food testing for microorganism is important to determine the safety and quality of food.

3. As per schedule:
Samples (6-10) of ready to be served food (cooked and freshly cut) for in-Patients taken for testing for microorganism over every three (3) months

Inclusion Criteria	**:**	Samples (6-10) of ready to be served food (cooked and freshly cut) for In-Patient Food Services (that include outsourced or in-house kitchen) are taken for sampling every three (3) months
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of samples of ready to serve food (cooked and freshly cut) for in-patients tested negative for pathogenic micro-organism
Denominator	**:**	Total number of samples (6-10) of ready to serve food (cooked and freshly cut) for in-patients tested for pathogenic micro-organism
Target	**:**	100%
Data Collection	**:**	3 monthly
Comments/Review	**:**	-

Indicator 02	:	**Occurrence of physical contamination of food served to patients**

Rationale:
This indicator was selected because:

- This indicator reflects the safety of the Food and Dietary Services for patient's consumption.
- There should be no occurrences of food contamination if high quality food preparation, handling and transport are implemented or adhered to.

Definition of Terms:

Contaminated Food:
Presence of materials that are not normally found in food served/prepared for inpatients (that include outsourced and in-house kitchen)

Inclusion Criteria	**:**	Food prepared for all inpatients/on call staff
Exclusion Criteria	**:**	Micro-organisms and toxic chemicals.
Type of Indicator	**:**	**Sentinel Event**
Numerator	**:**	Number of Occurrences of Physical Contamination of Food during the study period
Denominator	**:**	
Target	**:**	**Sentinel Event**
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03	:	**Client Food Satisfaction survey**

Rationale:
This indicator was selected because:

- It is the hospital's responsibility to provide high quality food services for the patients to support in the treatment and recovery of the patient's health during admission at the hospital. Hence standards of food quality should be implemented and adhered to.
- This survey is a proxy measurement of Patient- Centred Services and Client Satisfaction level on the Food Services.
- Client satisfaction survey is one of the tools that can be used in recognizing areas for improvement in the Food Services.

Definition of Terms:

1. Hospital Client:
Refers to all in- patients provided Food Services during their course of admission in the Hospital

2. Food Satisfaction Survey
Client food satisfaction survey is a measure of the extent to which an in-patient is content with the Food Services in particular in meeting the patient's nutritional requirements and dietary needs. The survey is referring to a Customer Satisfaction Survey Questionnaire.

Inclusion Criteria	**:**	All in- patients in all wards/ units of the Facility
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Numbers of Client Food Satisfaction Survey Feedback with 80% satisfaction level X 100 %
Denominator	**:**	Total number of clients that participated in the Client Food Satisfaction Survey

Target	**:**	> 85% satisfaction level
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

SERVICE STANDARD 23: FORENSIC MEDICINE SERVICES			
There are including tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Turnaround time of ≤ 3 hours for releasing bodies (non-police cases) to the next of kin/claimant after body registration.	≥ 80%	Monthly
2.	Percentage of bodies released to the right next of kin/claimant	≥ 99% (sentinel event needs to be investigated immediately)	Monthly
3.	Percentage of completion of post-mortem report for non-complicated cases from the date of post-mortem within twelve (12) weeks	≥ 80%	Monthly

Note:
Non-complicated cases refer to accidents, suicides and natural deaths which are routine police cases subjected to forensic post-mortem examination.

Indicator 01	:	**Turnaround time of ≤ 3 hours for releasing bodies (non-police cases) to the next of kin/claimant after body registration.**

Rationale:
This indicator was selected because:

- This indicator reflects the timeliness for the release of bodies for non- medico-legal cases and client centeredness of care in the Mortuary Service. There is a need to hasten the release of bodies of non - medico- legal cases for cultural and religious reasons.

Definition of Terms:

Non- Medico-legal cases:
There is no issue of Polis 61 order for post-mortem.

Inclusion Criteria	**:**	Bodies of all cases requiring no post-mortem
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of bodies released (non-medico-legal cases) to next of kin/claimant within 3 hours from the time bodies were received in the mortuary	
Denominator	**:**	Total number of bodies received (non-medico-legal cases) in the mortuary during the month	X 100 %

Target	**:**	≥ 80%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of bodies released to the right next of kin/claimant**

Rationale:
This indicator was selected because:

- This indicator reflects the efficiency of the Mortuary Service. The release of wrong bodies to the next of kin/claimant can turn out to be traumatic for the family as well as a medico-legal issue and an embarrassment to the facility.

Definition of Term:

Release of Correct Bodies:
Refers to the release of correct bodies (correct identity of the deceased) or to the correct party

Inclusion Criteria	**:**	All bodies received at the mortuary
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of bodies released to the right next of kin/claimant X 100 %
Denominator	**:**	Total number of bodies received in the mortuary during the month

Target	**:**	≥ 99% (sentinel event needs to be investigated immediately)
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03	:	**Percentage of completion of post-mortem report for non-complicated cases from the date of post-mortem within twelve (12) weeks**

Rationale:
This indicator was selected because:

- This indicator reflects the efficiency of the Forensic Services and timeliness for post-mortem reports for non-complicated cases.

Definition of Terms:

1. Post-mortem Report:
A detailed clinical report of a postmortem examination of a cadaver. An autopsy also known as a post-mortem examination is a highly specialized surgical procedure that consists of a thorough examination of a corpse by dissection to determine the cause and manner of death and to evaluate any disease or injury that may be present.

2. Non-Complicated Cases:
Non-complicated cases refer to accidents, suicides and natural deaths which are routine police cases subjected to forensic post-mortem examination.

Inclusion Criteria	**:**	All non- complicated cases requiring post-mortem
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of post-mortem reports completed within twelve (12) weeks from date of post-mortem for non- complicated cases	X 100 %
Denominator	**:**	Total number of post-mortems performed for non – complicated cases within the month	

Target	**:**	≥ 80%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 23A: MORTUARY SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Turnaround time of ≤ 3 hours for releasing bodies (non-police cases) to the next of kin/claimant after body registration.	≥ 80%	Monthly
2.	Percentage of correct bodies released to the right next of kin/claimant	≥ 99% (sentinel event needs to be investigated immediately)	Monthly
3.	Percentage of completion of post-mortem report for non-complicated cases from the date of post-mortem within twelve (12) weeks	≥ 99% (sentinel event needs to be investigated immediately)	Monthly

Note:
Non-complicated cases refer to accidents, suicides and natural deaths which are routine police cases subjected to forensic post-mortem examination

Indicator 01	:	**Turnaround time of ≤ 3 hours for releasing bodies (non-police cases) to the next of kin/claimant after body registration.**

Rationale:
This indicator was selected because:

- This indicator reflects the timeliness for the release of bodies for non- medico-legal cases and client centeredness of care in the Mortuary Service. There is a need to hasten the release of bodies of non - medico- legal cases for cultural and religious reasons.

Definition of Terms:

Non- Medico-legal cases:
There is no issue of Polis 61 order for post-mortem.

Inclusion Criteria	**:**	Bodies of all cases requiring no post-mortem
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of bodies released (non-medico-legal cases) to next of kin/claimant within 3 hours from the time bodies were received in the mortuary	X 100 %
Denominator	**:**	Total number of bodies received (non-medico-legal cases) in the mortuary during the month	

Target	**:**	≥ 80%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 02	:	**Percentage of bodies released to the right next of kin/claimant**

Rationale:
This indicator was selected because:

- This indicator reflects the efficiency of the Mortuary Service. The release of wrong bodies to the next of kin/claimant can turn out to be traumatic for the family as well as a medico-legal issue and an embarrassment to the facility.

Definition of Term:

Release of Correct Bodies:
Refers to the release of correct bodies (correct identity of the deceased) or to the correct party

Inclusion Criteria	**:**	All bodies received at the mortuary
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of bodies released to the next of kin/claimant X 100 %
Denominator	**:**	Total number of bodies received in the mortuary during the month

Target	**:**	≥ 99% (sentinel event needs to be investigated immediately)
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03	:	**Percentage of completion of post-mortem report for non-complicated cases from the date of post-mortem within twelve (12) weeks**

Rationale:
This indicator was selected because:

- This indicator reflects the efficiency of the Forensic Services and timeliness for post-mortem reports for non-complicated cases.

Definition of Terms:

1. Post –mortem Report:
A detailed clinical report of a postmortem examination of a cadaver. An autopsy also known as a post-mortem examination is a highly specialized surgical procedure that consists of a thorough examination of a corpse by dissection to determine the cause and manner of death and to evaluate any disease or injury that may be present.

2. Non-Complicated Cases:
Non-complicated cases refer to accidents, suicides and natural deaths which are routine police cases subjected to forensic post-mortem examination.

Inclusion Criteria	**:**	All non-complicated cases requiring post-mortem
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Number of post-mortem reports completed within twelve (12) weeks from date of post-mortem for non- complicated cases	X 100 %
Denominator	**:**	Total number of post-mortems performed for non-complicated cases within the month	

Target	**:**	≥ 99% (sentinel event needs to be investigated immediately)
Data Collection	**:**	Monthly
Comments/Review	**:**	-

SERVICE STANDARD 25: MEDICAL ASSISTANT SERVICES			
There is tracking and trending of the following specific performance indicators for the service:			
NO	**INDICATOR**	**TARGET**	**REPORTING FREQUENCY**
1.	Number of fire drill that has been carried out by the hospital in the corresponding year: a. Fire Drill at hospital level: Once a year b. Tabletop Exercise at hospital level: Twice a year (Once in 6 month)	a) Once a year b) Once in 6 months	Annually 6 monthly
2.	Dispatch and Ambulance Preparedness of Primary Responses	≥90%	
3.	Percentage of Medical Assistants in Emergency Services trained in Advanced Life Support (ALS)	Non-specialist hospital: ≥30% Specialist hospital: ≥50%)	
4.	Percentage of Medical Assistants with post basic qualification and advance training in relevant disciplines.	≥ 40% (for staff with at least 3 years working experience)	
5.	Peak Flow Rate (PEFR) Implementation for Asthma Patients in Asthma Bay by Medical Assistant (AMO)	>80% number of all asthma patients with Pre and Post PEFR treated in Asthma Bay	

Indicator 01	:	**Number of Fire Drills that have been carried out by the hospital in the corresponding year:** **a. Fire Drill at hospital level: Once a year** **b. Tabletop Exercise at hospital level: Twice a year (Once in 6 months)**

Rationale:
Fire drills are essential in any workplace or public building for practicing what to do in the event of a fire (Terry Penney, 2016). Not only do they ensure that all staff, customers and visitors in the premise understand what they need to do in case of fire, but they also help to test how effective the fire evacuation plan is and to improve certain aspects of the fire provisions.

Definition of Terms:

Fire Drill: A practice of the emergency procedures to be used in case of fire. Fire Drill with multiple Agencies: Fire Drill that involves Fire & Rescue Department or/and other agencies (e.g., St John Ambulance/ Red Crescent) with the hospital staff/ personnel.

Tabletop exercise: A meeting to discuss a simulated emergency situation. Members of the team/ hospital review and discuss the actions they would take in a particular emergency, testing their emergency plan in an informal, low stress environment. Tabletop exercises are used to clarify roles and responsibilities and to identify additional campus mitigation and preparedness needs. The exercise should result in action plans for continued improvement of the emergency plans.

Inclusion Criteria	**:**	All hospital building.
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	1. Number of Fire Drill that has been carried out in the corresponding year. 2. Number of Tabletop Exercise that has been carried out in the corresponding year. X 100 %
Denominator	**:**	1. Total number of Fire Drill that has been planned in the corresponding year 2. Total number of Tabletop Exercise that has been planned in the corresponding year.

Target	**:**	100%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 02	:	**Dispatch and Ambulance Preparedness for Primary Responses within 5 minutes. (Target: ≥90%)**

Rationale:
1. Delay in ambulance turnout time may contribute to increased morbidity and mortality.
2. The aim is to reduce the ambulance turnout time and ensuring an appropriate ambulance response in order to improve pre-hospital care.

Definition of Terms:

Ambulance preparedness: Appropriate ambulance that is capable of providing basic emergency medical and trauma care.

Ambulance dispatch: The mobilization of ambulance to the designated destination after the activation call is terminated.

Primary response*:* Initial response and care by emergency medical services (by an ambulance services).

Within (≤) 5 minutes: Time taken from the ambulance call was terminated/ completed to the dispatch of the ambulance from the hospital to the scene.

Inclusion Criteria	**:**	NA
Exclusion Criteria	**:**	1. Request for inter-hospital transfer. 2. Patient transportation. 3. Secondary response. 4. Mass casualty incident. 5. Non-emergency cases. 6. Diverted calls to other agencies.
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of ambulance preparedness and dispatch for primary response within (≤) 5 minutes X 100 %
Denominator	**:**	Total number of ambulance calls
Target	**:**	≥ 90%
Data Collection	**:**	Monthly
Comments/Review	**:**	-

Indicator 03	:	**Percentage of Medical Assistants in Emergency Services trained in Advanced Life Support (ALS) (Target: Non-specialist hospital: ≥30% Specialist hospital: ≥50%)**

Rationale:
Advanced Trauma and Life Support (ALS) skills (as stipulated in the Malaysian Trauma Life Support and Advanced Trauma Life Support (MTLS/ALS/PALS) training programmes) is an important skill for all health personnel to possess and is an important element of Continuing Professional Development, which is a vital aspect of professionalism for Medical Assistants in the Emergency and Trauma Services to provide resuscitation for patients presenting life threatening conditions, hence improving the quality and safety of care provided. The use of defibrillator and other devices to resuscitate a patient who has collapsed is permissible only to those who are trained in MTLS/ALS/PALS.

Definition of Terms:

Advanced Life Support: Advanced Life Support (**ALS**) is a set of life-saving protocols and skills that extend Basic Life Support to further support the circulation and provide an open airway and adequate ventilation (breathing).

Advanced Life Support Training: ALS Training is a standardized national/international ***course*** teaching evidence-based resuscitation guidelines and skills to healthcare professionals. ALS includes procedures and skills that extend Basic Life Support (BLS) to further stabilize the patient.

Life Threatening Condition: The **four conditions** considered immediately **life threatening** in an emergency situation are: Unconsciousness. No breathing or difficulty breathing. No pulse. The following are signs and symptoms of **life-threatening emergencies**: Respiratory distress or cessation of breathing. Severe chest pains. Shock. Uncontrolled bleeding.

Inclusion Criteria	**:**	Medical Assistants who is working in the Emergency and Trauma Services for more than 24 months.
Exclusion Criteria	**:**	1. Medical Assistants who are transferred- in to the Emergency and Trauma Services for less than 24 months. 2. Medical Assistants who are currently working in the Emergency and Trauma Services for less than 24 months.
Type of Indicator	**:**	**Rate Based Structural Indicator**
Numerator	**:**	Number of eligible Medical Assistants in the Emergency and Trauma Services trained in Advanced Life Support (ALS) X 100 %
Denominator	**:**	Total Number of eligible Medical Assistants in the Emergency and Trauma Services
Target	**:**	Non-specialist hospital: ≥30% Specialist hospital: ≥50%
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 04	:	**Percentage of Medical Assistants with post basic qualification and advance training in relevant disciplines.** **Target: ≥ 50% (for staff with at least 3 years working experience)**

Rationale:
Post basic qualification is an important element of Continuous Professional Development which is a formal education. Therefore, continuous updating of the Medical Assistants in the respective disciplines/fields will ensure the current/latest management of patient care is being practiced.

Definition of Terms:

Post Basic Qualification*:* This **qualification/certification** usually signifies that one has attained a **basic** level of higher education knowledge and competence in a particular field or occupation and are capable of applying such knowledge and competence in an occupation or role in the workplace. Post basic qualification may be obtained at baccalaureate level or as an extension of the diploma holder in specific disciplines of health care/other fields.

Inclusion Criteria	**:**	All Medical Assistants with at least 3 years working experience and working in any discipline in the hospital/facility.
Exclusion Criteria	**:**	All Medical Assistants with less than 3 years working experience and employed in the hospital/facility.
Type of Indicator	**:**	**Rate Based Structural Indicator**

Numerator	**:**	Number of eligible Medical Assistants with post basic qualification and advance training in relevant disciplines. X 100 %
Denominator	**:**	Total Number of eligible Medical Assistants in the Facility with at least 3 years working experience

Target	**:**	≥ 40% (for staff with at least 3 years working experience**)**
Data Collection	**:**	6 Monthly
Comments/Review	**:**	-

Indicator 05	:	**Peak Flow Rate (PEFR) Implementation for Asthma Patients in Asthma Bay by Medical Assistant (AMO)**

Rationale:

1. Asthmatic condition is assessed by PEFR procedure before and after treatment.
2. The aim is to manage Asthma patients according to severity of asthma and priority of treatment.
3. To ensure all AMOs are compliant to Standard Operating Procedure (SOP) in management of Asthma (Refer to Emergency Care SOP for AMOs)
4. PEFR as a crucial indicator in managing Asthma concurrent with current SOP and Clinical Practice Guidelines (refer to CPG- Management of Asthma - MOH/P/PAK/354.17(GU)
5. AMO Clinical Audit in Asthma Care (2016-2017). Findings: Poor practice of pre and post PEFR among AMOs.

Definition of Terms:

PEFR: Peak Expiratory Flow Rate

PEFR before treatment*:* Reading of Peak Flow Meter Device on patient before treatment is given

PEFR after treatment*:* Reading of Peak Flow Meter Device on patient after treatment is given

Asthma Category*:* 3 categories of asthma condition: Mild, Moderate and Severe Asthma

Priority of treatment*:* Asthma treatment are given according to the severity of asthma

Inclusion Criteria	**:**	All mild asthma patients with Pre and Post PEFR treated in Asthma Bay.
Exclusion Criteria	**:**	1. Patient refusal/uncooperative 2. Moderate & Severe Asthma 3. Unable to perform PEFR (patient factor and poor technique) 4. Patients with other lung conditions including congenital lung diseases in children or infants, foreign body and cardiovascular pathology that mimic asthma conditions
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Number of all asthma patients with Pre and Post PEFR treated in Asthma Bay. X 100 %
Denominator	**:**	Total number of asthma patients treated in Asthma Bay.
Target	**:**	>80% number of all asthma patients with Pre and Post PEFR treated in Asthma Bay
Data Collection	**:**	Monthly
Comments/Review	**:**	Mild Asthma } Refer to Clinical Practice Guidelines Moderate Asthma } (MOH/P/PAK/354.17(GU) Severe Asthma }

SERVICE STANDARD 26: CLINICAL RESEARCH CENTRE SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Number of trainings conducted per year	Minimum 2 per year	Yearly
2.	Number of publications per year	Minimum 2 per year	Monthly

Indicator 01	:	**Number of trainings conducted per year**

Rationale:
This indicator was selected as a generic indicator because:

- Staff knowledge, competency and skills acquired to conduct studies related to clinical practices enable the Health Facility to share on best practices in the industry. Training in Clinical Research is an important element in continuing education for staff development in clinical research and practices.
- The Hospital's Clinical Research Centre must undertake the responsibility to conduct Clinical Research Training for its own staff and for the Ministry of Health where required.
- Training in Clinical Research will be an early exposure and encouragement for staff to be involved in research

Definition of Terms:

Training in Clinical Research:
Refers to continuing education/training program designed to educate an individual and give him or her further skills or knowledge on Clinical Research to be applied in his or her line of work. These programs are intended to educate persons on new advancements, or to build upon a person's expertise in a given field.

Inclusion Criteria	**:**	All training conducted in the Facility in relation to Clinical Research in a year
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Clinical Effectiveness and Quality Improvement**
Numerator	**:**	Total number of training courses on Clinical Research conducted in the Facility in a year
Denominator	**:**	
Target	**:**	Minimum 2 per year
Data Collection	**:**	Yearly
Comments/Review	**:**	

Indicator 02 : **Number of publications per year**

Rationale:
This indicator was selected because:

- The Hospital's Clinical Research Centre must undertake the responsibility to publish Clinical Research studies conducted by the staff to share on their experiences and best practices in the industry. Publication on Clinical Research is an important element in continuing education for staff development.

- Publications on Clinical Research will be an early exposure and encouragement for staff to be involved in research

Definition of Terms:

Publications on Clinical Research:
Studies with significant results more likely to lead to a greater number of publications and presentations and to be published in journals with a high citation impact factor.

Inclusion Criteria	**:**	All publications on Clinical Research studies undertaken by the Facility's Clinical Research Centre
Exclusion Criteria	**:**	NA
Type of Indicator	**:**	**Clinical Effectiveness and Quality Improvement**
Numerator	**:**	Number of publications on Clinical Research undertaken the Facility's Clinical Research Centre in a year
Denominator	**:**	
Target	**:**	Minimum 2 per year
Data Collection	**:**	Yearly
Comments/Review	**:**	

SERVICE STANDARD 27: DECEASED ORGAN & TISSUE DONATION AND PROMOTION SERVICES			
There is tracking and trending of specific performance indicators which include but not limited to at least two (2) of the following indicators:			
No	**INDICATOR**	**TARGET**	**Reporting Frequency**
1.	Percentage of Potential Donor Detection	≥ 2%	Monthly
2.	Update of new organ and tissue donor pledger registration into National Transplant Resource Centre(NTRC) database within 3 working days	≥ 70%	Monthly

Indicator 01	:	**Percentage of Potential Donor Detection**

Rationale:
This indicator was selected because:

- Detecting potential donor is the first and crucial step in the deceased donation activity. It should be carried out actively by donor coordinators in the hospital, in which each potential donor should be referred to the National Transplant Resource Centre (NTRC).

- Identifying potential donors will create an opportunity for donor coordinators to plan and carry out family approach for organ and tissue donation and possibly convert potential donors to actual donors.

Definition of Terms:

Potential Donor:

a) A person whose circulatory functions have ceased and resuscitative measures are not to be attempted of continued, OR,
b) A person whose clinical condition is suspected to fulfil brain death criteria.

Actual Donor: A consented eligible donor in which an incision was made for the purpose of organ or tissue donation or at least one (1) organ or tissue was procured for the purpose of transplantation.

Brain Death: Irreversible cessation of all functions of the brain including the brain stem.

Critical Care Areas: An organised system for the provision of care to critically ill patients that provide intensive and specialised medical and nursing care, and enhanced capacity for monitoring and multiple modalities of physiological organ support to sustain life during a period of life-**threatening** organ system insufficiency i.e. Intensive Care Units (ICU), Cardiac Care Units (CCU), High Dependency Wards (HDW) and Emergency departments.

Inclusion Criteria	**:**	1. All deaths which include brain death and cardiac death. 2. In critical care areas and/or mortuary.
Exclusion Criteria	**:**	1. Other wards not mentioned in the above, including medical, geriatric, psychiatry, orthopaedics, rehabilitation, gynaecology, maternity and paediatric wards. 2. Operating theatres.
Type of Indicator	**:**	**Rate Based Process Indicator**

Numerator	**:**	Total number of potential donors X 100%
Denominator	**:**	Total number of deaths in the hospital

Target	**:**	≥ 2%
Data Collection	**:**	Monthly
Comments/Review	**:**	

Indicator 02	:	**Update of new organ and tissue donor pledger registration into National Transplant Resource Centre (NTRC) database within 3 working days**

Rationale:
This indicator was selected as a generic indicator because:

- The National Transplant Resource Centre (NTRC) has provided a database for the registry of pledgers. This database is accessible to officers in charge of promotion of activity of deceased organ and tissue donation in the country.

- With multiple campaigns held in many modalities, the number of new pledgers can be overwhelming. To avoid any delay in updating the donor pledger database, this database should be updated within 3 working days.

Definition of Terms:

New Registration: New registration of organ and tissue donor pledger received via exhibitions, web, social media and telephone.

Organ donation pledge: An individual who agrees to pledge as organ and tissue donor

Within 3 working days: A period of 3 working days from the time the completed registration form is received.

Inclusion Criteria	**:**	Completed donor pledger registration form.
Exclusion Criteria	**:**	1. Information in registration in the donor pledge form is not completed. 2. Parents /guardians of individuals under the age of 18 years who do not allow to pledge as an organ and tissue donor.
Type of Indicator	**:**	**Rate Based Process Indicator**
Numerator	**:**	Total number of updated new registration of organ and tissue donation pledgers into the main database within 3 working days X 100%
Denominator	**:**	Total number of updated new registration of organ and tissue donation pledgers into the main database
Target	**:**	≥ 70%
Data Collection	**:**	Monthly
Comments/Review	**:**	