



NEUROSURGERY				
NO	INDICATOR	DIMENSION	STANDARD	SECONDARY DATA REPORTING FREQUENCY
1a	Percentage of patients with waiting time of $\leq 60$ minutes to see the doctor at the Neurosurgery Outpatient Clinic ( <b>Two or more registration areas involved</b> )	Timeliness	$\geq 80\%$	Monthly
1b	Percentage of patients with waiting time of $\leq 90$ minutes to see the doctor at the Neurosurgery Outpatient Clinic ( <b>Only one registration area involved</b> )	Timeliness	$\geq 90\%$	Monthly
2	Mild Traumatic Brain Injury (TBI) Case Fatality Rate	Effectiveness	$\leq 2\%$	3 Monthly
3	Percentage of patients with surgical site infection following clean elective neurosurgical surgery	Safety	$\leq 5\%$	3 Monthly

\*For indicator 1, each department to report either 1a **OR** 1b, and not both. (Refer technical specification)



### Indicator 1

\*Either indicator 1a OR 1b is to be reported, based on how many registration counters are involved.

- **Two or more registration areas are 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 - Refer **Indicator 1a**.
- **Only one registration area is involved:** If registration of patient with payment collection is either done **ONLY** at clinical department counter **OR** it is done **ONLY** at hospital's main outpatient/ ACC complex registration counter with no further re-registration required at the clinical department counter- Refer **Indicator 1b**.

<b>Discipline</b>	: <b>Neurosurgery</b>
<b>Indicator 1a</b>	: <b>Percentage of patients with waiting time of ≤ 60 minutes to see the doctor at the Neurosurgery Outpatient Clinic (Two or more registration areas involved)</b>
<b>Dimension of Quality</b>	: Timeliness
<b>Rationale</b>	: <ol style="list-style-type: none"> <li>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 <u>patient first registers in the hospital</u> till the time patient is seen by doctor. (Reference: Director-General of Health Malaysia Circular No. 6/2004)</li> <li>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/ 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.</li> <li>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.</li> </ol>
<b>Definition of Terms</b>	: <p><b><u>Two or more registration areas involved:</u></b> 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.</p> <p><b>Waiting time:</b> 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.</p>
<b>Criteria</b>	: <p><b>Inclusion:</b></p> <ol style="list-style-type: none"> <li>1. All outpatients of Neurosurgery Outpatient Clinic.</li> </ol> <p><b>Exclusion:</b></p> <ol style="list-style-type: none"> <li>1. Patients who come without an appointment ("walk-in" patients).</li> <li>2. Patients that need to do procedures on the same day before seeing the doctors (e.g. blood taking or imaging).</li> </ol>



	<p><b>Sampling:</b> Using an average of total patients seen in a month, 30% of the patients in each month need to be sampled for this indicator. For example, in a case of 22 clinic days per month, 7 clinic days in a month need to be selected for data collection. Hospital/ department to ensure randomised sampling of data by ensuring each clinic day of the week is included to ensure proper representation of data.</p>									
<b>Type of indicator</b>	: Rate-based process indicator									
<b>Numerator</b>	: Number of sampled patients with waiting time of ≤ 60 minutes to see the doctor at the Neurosurgery Outpatient Clinic									
<b>Denominator</b>	: Total sample of patients seen by the doctor at the Neurosurgery Outpatient Clinic									
<b>Formula</b>	: $\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$									
<b>Standard</b>	: ≥ 80%									
<b>Data Collection &amp; Verification</b>	<p>1. <b>Where:</b> Data will be collected in the Neurosurgery Outpatient Clinic. 2. <b>Who:</b> Data will be collected by Officer/ Paramedic/ Nurse in-charge of the department/ unit. 3. <b>How to collect:</b> Data is suggested to be collected from patient's case notes/ appointment record book/ waiting time slip. 4. <b>How frequent:</b> Monthly data collection within department. Validated summarised secondary data to be sent monthly to Quality Unit of the respective hospital for monitoring. PVF to be sent 6 monthly to Quality Unit of hospital. 5. <b>Who should verify:</b></p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Prepared by</th> <th>Validated by</th> </tr> </thead> <tbody> <tr> <td>Primary Data</td> <td>Officer/ Paramedic/ Nurse in-charge</td> <td>Supervisor of the person who prepared the data</td> </tr> <tr> <td>Secondary Data</td> <td>Officer/ Paramedic/ Nurse in-charge</td> <td>Head of Department/ Specialist in-charge</td> </tr> </tbody> </table> <p>PVF must be verified by Head of Department, Head of Quality Unit and Hospital Director.</p>		Prepared by	Validated by	Primary Data	Officer/ Paramedic/ Nurse in-charge	Supervisor of the person who prepared the data	Secondary Data	Officer/ Paramedic/ Nurse in-charge	Head of Department/ Specialist in-charge
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<b>Remarks</b>	:									

<b>Discipline</b>	: <b>Neurosurgery</b>
<b>Indicator 1b</b>	: <b>Percentage of patients with waiting time of ≤ 90 minutes to see the doctor at the Neurosurgery Outpatient Clinic (Only one registration area involved)</b>
<b>Dimension of Quality</b>	: Timeliness
<b>Rationale</b>	<p>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 <u>patient first registers in the hospital</u> till the time patient is seen by doctor. (Reference: Director-General of Health Malaysia Circular No. 6/2004) 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/ 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</p>



		<p>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 (i.e. at hospital's main outpatient/ ACC complex registration counter) prior to the clinical department counter.</p> <p>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.</p>
<b>Definition of Terms</b>	:	<p><u>If registration of patient with payment collection is done ONLY AT CLINICAL DEPARTMENT COUNTER:</u>  <b>Waiting time:</b> 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.</p> <p><u>If the registration is done ONLY AT HOSPITAL'S MAIN OUTPATIENT/ ACC COMPLEX REGISTRATION COUNTER, with no re-registration at the clinical department counter:</u>  <b>Waiting time:</b> Time of registration counter at hospital's main outpatient/ ACC complex registration 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.</p>
<b>Criteria</b>	:	<p><b>Inclusion:</b></p> <ol style="list-style-type: none"> <li>All outpatients of the Neurosurgery Outpatient Clinic.</li> </ol> <p><b>Exclusion:</b></p> <ol style="list-style-type: none"> <li>Patients who come without an appointment ("walk-in" patients).</li> <li>Patients that need to do procedures on the same day before seeing the doctors (e.g. blood taking or imaging).</li> </ol> <p><b>Sampling:</b>                      Using an average of total patients seen in a month, 30% of the patients in each month need to be sampled for this indicator.                      For example, in a case of 22 clinic days per month, 7 clinic days in a month need to be selected for data collection. Hospital/ department to ensure randomised sampling of data by ensuring each clinic day of the week is included to ensure proper representation of data.</p>
<b>Type of indicator</b>	:	Rate-based process indicator
<b>Numerator</b>	:	Number of sampled patients with waiting time of ≤ 90 minutes to see the doctor at Neurosurgery Outpatient Clinic
<b>Denominator</b>	:	Total sample of patients seen by the doctor at the Neurosurgery Outpatient Clinic
<b>Formula</b>	:	$\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$
<b>Standard</b>	:	≥ 90%
<b>Data Collection &amp; Verification</b>	:	<ol style="list-style-type: none"> <li><b>Where:</b> Data will be collected in the Neurosurgery Outpatient Clinic</li> <li><b>Who:</b> Data will be collected by Officer/ Paramedic/ Nurse in-charge of the department/ unit.</li> <li><b>How to collect:</b> Data is suggested to be collected from patient's case notes/</li> </ol>



	<p>appointment record book/ waiting time slip.</p> <p>4. <b>How frequent:</b> Monthly data collection within department. Validated summarised secondary data to be sent monthly to Quality Unit of the respective hospital for monitoring. PVF to be sent 6 monthly to Quality Unit of hospital.</p> <p>5. <b>Who should verify:</b></p> <table border="1"> <thead> <tr> <th></th> <th>Prepared by</th> <th>Validated by</th> </tr> </thead> <tbody> <tr> <td>Primary Data</td> <td>Officer/ Paramedic/ Nurse in-charge</td> <td>Supervisor of the person who prepared the data</td> </tr> <tr> <td>Secondary Data</td> <td>Officer/ Paramedic/ Nurse in-charge</td> <td>Head of Department/ Specialist in-charge</td> </tr> </tbody> </table> <p>PVF must be verified by Head of Department, Head of Quality Unit and Hospital Director.</p>		Prepared by	Validated by	Primary Data	Officer/ Paramedic/ Nurse in-charge	Supervisor of the person who prepared the data	Secondary Data	Officer/ Paramedic/ Nurse in-charge	Head of Department/ Specialist in-charge
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<b>Remarks</b>	:									

<b>Discipline</b>	:	<b>Neurosurgery</b>
<b>Indicator 2</b>	:	<b>Mild Traumatic Brain Injury (TBI) Case Fatality Rate</b>
<b>Dimension of Quality</b>	:	Effectiveness
<b>Rationale</b>	:	<ol style="list-style-type: none"> <li>Mild Traumatic Brain Injury (TBI) is common and while, typically benign; has a very low risk of death sequelae, &lt; 1%.</li> <li>Management for mild TBI is provided by many primary and secondary centres.</li> <li>Important considerations in the management is to provide care in accordance with the national guidelines to avoid this preventable mortality.</li> </ol>
<b>Definition of Terms</b>	:	<p><b>Fatality:</b> Death of patients with isolated mild TBI within the same hospitalisation.</p> <p><b>Mild TBI:</b> Patient with a Glasgow Coma Scale (GCS) of 13 to 15; measured at approximately 30 minutes after the injury.</p>
<b>Criteria</b>	:	<p><b>Inclusion:</b></p> <ol style="list-style-type: none"> <li>Acute isolated brain injury caused by blunt external force.</li> <li>Direct admission with GCS 13-15.</li> <li>Patients of ≥ 18 years of age.</li> <li>Death occurring during the same hospitalisation.</li> </ol> <p><b>Exclusion:</b></p> <ol style="list-style-type: none"> <li>Acute brain injury caused by penetrating force or non-trauma such as stroke.</li> <li>Polytrauma where two or more serious injuries in at least (≥) two area of the body.</li> <li>Patients of &lt; 18 years of age.</li> <li>Death from causes other than mild TBI (e.g. Myocardial Infarction).</li> </ol>
<b>Type of indicator</b>	:	Rate-based outcome indicator
<b>Numerator</b>	:	Number of patients with mild TBI who dies within the same hospitalisation
<b>Denominator</b>	:	Total number of patients admitted for mild TBI
<b>Formula</b>	:	$\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$
<b>Standard</b>	:	≤ 2%
<b>Data Collection &amp;</b>	:	1. <b>Where:</b> Data will be collected in the Neurosurgical wards/ ICU/ CCU/ CRW/



<b>Verification</b>	<p>wards that cater for the above condition.</p> <ol style="list-style-type: none"> <li><b>Who:</b> Data will be collected by Officer/ Paramedic/ Nurse in-charge of the department/ unit.</li> <li><b>How to collect:</b> Data is suggested to be collected from patient's case notes/ admission &amp; discharge record book.</li> <li><b>How frequent:</b> Monthly data collection within department. Validated summarised secondary data to be sent 3 monthly to Quality Unit of the respective hospital for monitoring. PVF to be sent 6 monthly to Quality Unit of hospital.</li> <li><b>Who should verify:</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Prepared by</th> <th>Validated by</th> </tr> </thead> <tbody> <tr> <td>Primary Data</td> <td>Officer/ Paramedic/ Nurse in-charge</td> <td>Supervisor of the person who prepared the data</td> </tr> <tr> <td>Secondary Data</td> <td>Officer/ Paramedic/ Nurse in-charge</td> <td>Head of Department/ Specialist in-charge</td> </tr> </tbody> </table> </li> </ol> <p>PVF must be verified by Head of Department, Head of Quality Unit and Hospital Director.</p>		Prepared by	Validated by	Primary Data	Officer/ Paramedic/ Nurse in-charge	Supervisor of the person who prepared the data	Secondary Data	Officer/ Paramedic/ Nurse in-charge	Head of Department/ Specialist in-charge
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<b>Remarks</b>	: *This indicator is also being monitored as an Outcome Based Budgeting (OBB) indicator.									

<b>Discipline</b>	: <b>Neurosurgery</b>
<b>Indicator 3</b>	: <b>Percentage of patients with surgical site infection following clean elective neurosurgical surgery</b>
<b>Dimension of Quality</b>	: Safety
<b>Rationale</b>	: <ol style="list-style-type: none"> <li>Surgical site infections are a common cause of health care-associated infection. The reported rate ranges from 0.5-7.2% for cranial surgery and about 3.1% for spine surgery.</li> <li>The most important factors for prevention of surgical site infection are timely administration of effective preoperative antibiotics and careful attention to other preoperative control measures. Careful infection control is essential; interventions include hand hygiene and use of gloves and other barrier devices (masks, caps, gowns, drapes, and shoe covers) by all operating room personnel.</li> <li>Application of antiseptics to the skin is warranted to reduce the burden of skin flora. Patient with evidence of active infection prior to elective surgical procedure should complete treatment for the infection prior to surgery, particularly in circumstance when placement of prosthetic material is anticipated. The professional commitments in implementing these control measures for prevention of surgical site infection cannot be over-emphasized.</li> </ol>
<b>Definition of Terms</b>	: <p><b>Surgical site infection (SSI):</b> It is defined as infection related to an operative procedure that occurs at or near the surgical incision within (<math>\leq</math>) 30 days of the procedure.</p> <p>Clinical criteria for SSI include one or more of the following:</p> <ul style="list-style-type: none"> <li>A purulent exudate draining from a surgical site.</li> <li>A positive fluid culture obtained from a surgical site that was closed primarily.</li> </ul>



		<ul style="list-style-type: none"> <li>A surgical site that is treated or reopened in the setting of at one clinical sign of infection (pain, swelling, erythema, warmth).</li> </ul>									
<b>Criteria</b>	:	<p><b>Inclusion:</b></p> <ol style="list-style-type: none"> <li>All elective cranial and spinal surgery.</li> <li>Adult and paediatric patients.</li> </ol> <p><b>Exclusion:</b></p> <ol style="list-style-type: none"> <li>Elective cranial and spinal surgery for infective conditions (e.g. abscess).</li> <li>Re-surgery cases.</li> <li>Cancer therapy patients (chemotherapy and radiation therapy).</li> <li>Patients with active infection at a remote site.</li> <li>Surgery done for external CSF diversion procedures (e.g. EVD, lumbar drain).</li> <li>Patients who defaulted TCA.</li> </ol>									
<b>Type of indicator</b>	:	Rate-based outcome indicator									
<b>Numerator</b>	:	Number of patients with wound infection following clean elective neurosurgical surgery									
<b>Denominator</b>	:	Total number of patients underwent clean elective neurosurgical surgery									
<b>Formula</b>	:	$\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$									
<b>Standard</b>	:	≤ 5%									
<b>Data Collection &amp; Verification</b>	:	<ol style="list-style-type: none"> <li><b>Where:</b> Data will be collected in the Neurosurgery Outpatient Clinic.</li> <li><b>Who:</b> Data will be collected by Officer/ Paramedic/ Nurse in-charge of the department/ unit.</li> <li><b>How to collect:</b> Data is suggested to be collected from patient's case notes/ OT list/ OT record book/ wound slip.</li> <li><b>How frequent:</b> Monthly data collection within department. Validated summarised secondary data to be sent 3 monthly to Quality Unit of the respective hospital for monitoring. PVF to be sent 6 monthly to Quality Unit of hospital.</li> <li><b>Who should verify:</b> <table border="1" data-bbox="602 1249 1429 1421"> <thead> <tr> <th></th> <th>Prepared by</th> <th>Validated by</th> </tr> </thead> <tbody> <tr> <td>Primary Data</td> <td>Officer/ Paramedic/ Nurse in-charge</td> <td>Supervisor of the person who prepared the data</td> </tr> <tr> <td>Secondary Data</td> <td>Officer/ Paramedic/ Nurse in-charge</td> <td>Head of Department/ Specialist in-charge</td> </tr> </tbody> </table> <p>PVF must be verified by Head of Department, Head of Quality Unit and Hospital Director.</p> </li> </ol>		Prepared by	Validated by	Primary Data	Officer/ Paramedic/ Nurse in-charge	Supervisor of the person who prepared the data	Secondary Data	Officer/ Paramedic/ Nurse in-charge	Head of Department/ Specialist in-charge
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<b>Remarks</b>	:	Data collection to be done by 3 months retrospective cohort of data. For April 2021, it will be patients who had operation done in January 2021; as patient needs to be reviewed during the next TCA to obtain information on surgical site infection.									

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