



NUCLEAR MEDICINE				
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 Nuclear Medicine 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 Nuclear Medicine Outpatient Clinic <b>(Only one registration area involved)</b>	Timeliness	$\geq$ 90%	Monthly
2	Percentage of urgent Diagnostic Nuclear Medicine studies reports available within ( $\leq$ ) 2 working days	Efficiency	$\geq$ 90%	3 Monthly
3	Percentage of repeat studies in Diagnostic Nuclear Medicine	Safety	$\leq$ 1%	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>Nuclear Medicine</b>
<b>Indicator 1a</b>	:	<b>Percentage of patients with waiting time of ≤ 60 minutes to see the doctor at the Nuclear Medicine 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 <u>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:</u></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 Nuclear Medicine 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 Nuclear Medicine Outpatient Clinic									
<b>Denominator</b>	:	Total sample of patients seen by the doctor at the Nuclear Medicine Outpatient Clinic									
<b>Formula</b>	:	$\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$									
<b>Standard</b>	:	≥ 80%									
<b>Data Collection &amp; Verification</b>	:	<ol style="list-style-type: none"> <li><b>Where:</b> Data will be collected in the Nuclear Medicine Outpatient Clinic.</li> <li><b>Who:</b> Data will be collected by Officer/ Nuclear Medicine Technologist/ 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/ appointment record book/ waiting time slip.</li> <li><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.</li> <li><b>Who should verify:</b> <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> </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>	:										

<b>Discipline</b>	:	<b>Nuclear Medicine</b>
<b>Indicator 1b</b>	:	<b>Percentage of patients with waiting time of ≤ 90 minutes to see the doctor at the Nuclear Medicine Outpatient Clinic (Only one registration area involved)</b>
<b>Dimension of Quality</b>	:	Timeliness
<b>Rationale</b>	:	<ol style="list-style-type: none"> <li>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>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</li> </ol>



		<p>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.</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 Nuclear Medicine 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 $\leq 90$ minutes to see the doctor at Nuclear Medicine Outpatient Clinic
<b>Denominator</b>	:	Total sample of patients seen by the doctor at the Nuclear Medicine Outpatient Clinic
<b>Formula</b>	:	$\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$
<b>Standard</b>	:	$\geq 90\%$
<b>Data Collection &amp;</b>	:	1. <b>Where:</b> Data will be collected in the Nuclear Medicine Outpatient Clinic.



<b>Verification</b>	<p>2. <b>Who:</b> Data will be collected by Officer/ Nuclear Medicine Technologist/ Paramedic/ Nurse in-charge of the department/ unit.</p> <p>3. <b>How to collect:</b> Data is suggested to be collected from patient's case notes/ 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" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 35%;">Prepared by</th> <th style="width: 35%;">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>Nuclear Medicine</b>
<b>Indicator 2</b>	: <b>Percentage of urgent Diagnostic Nuclear Medicine studies reports available within (<math>\leq</math>) 2 working days</b>
<b>Dimension of Quality</b>	: Efficiency
<b>Rationale</b>	: Patient's clinical management require urgent decision-making based on supporting investigation result; in order to improve clinical outcome.
<b>Definition of Terms</b>	: <b>Urgent:</b> Case that is not in the routine list of appointment. The urgent appointment is only given after discussion between the referral team and the Nuclear Medicine physician/ doctor based on clinical nature and urgency of the disease management.
<b>Criteria</b>	<p><b>Inclusion:</b></p> <p>1. All urgent requests for Diagnostic Nuclear Medicine study (e.g. hepatobiliary study for biliary atresia, Meckel's scan &amp; RBC tagged scan for GI bleed, inpatient referral for myocardial viability before intervention/ revascularization, bone scan prior to chemotherapy, dynamic renoscintigraphy in post-renal transplant, lung perfusion in pulmonary embolism etc.).</p> <p><b>Exclusion:</b></p> <p>1. Non-urgent cases that primary team requested for earlier report.</p>
<b>Type of indicator</b>	: Rate-based process indicator
<b>Numerator</b>	: Number of urgent Diagnostic Nuclear Medicine reports available within ( $\leq$ ) 2 working days after completion of studies
<b>Denominator</b>	: Total number of urgent Diagnostic Nuclear Medicine studies performed
<b>Formula</b>	: $\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$
<b>Standard</b>	: $\geq 90\%$
<b>Data Collection &amp; Verification</b>	<p>1. <b>Where:</b> Data will be collected in the Nuclear Medicine Outpatient Clinic.</p> <p>2. <b>Who:</b> Data will be collected by Officer/ Nuclear Medicine Technologist/ Paramedic/ Nurse in-charge of the department/ unit.</p>



	<p>3. <b>How to collect:</b> Data is suggested to be collected from Diagnostic Nuclear Medicine studies record book/ copy of Diagnostic Nuclear Medicine studies reports.</p> <p>4. <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.</p> <p>5. <b>Who should verify:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 35%;">Prepared by</th> <th style="width: 35%;">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>Nuclear Medicine</b>
<b>Indicator 3</b>	: <b>Percentage of repeat studies in Diagnostic Nuclear Medicine</b>
<b>Dimension of Quality</b>	: Safety
<b>Rationale</b>	: It is important to avoid repeat studies in Diagnostic Nuclear Medicine as it causes: <ul style="list-style-type: none"> <li>Additional radiation dose.</li> <li>Delay in patient's management.</li> <li>Increase cost, time and human resource wastage.</li> </ul>
<b>Definition of Terms</b>	: <b>Repeat study:</b> Cases that require reinjection of the same radiopharmaceutical when and where the first injected radiopharmaceutical has not achieved its intended purposes as a result of any technical or non-technical causes.
<b>Criteria</b>	: <p><b>Inclusion:</b></p> <ol style="list-style-type: none"> <li>1. All studies done in Diagnostic Nuclear Medicine.</li> </ol> <p><b>Exclusion:</b></p> <ol style="list-style-type: none"> <li>1. Any diagnostic case that was postponed, delayed, aborted or rejected; but had not resulted in the need to re-inject radiotracer to the patient.</li> </ol>
<b>Type of indicator</b>	: Rate-based output indicator
<b>Numerator</b>	: Number of repeat studies in Diagnostic Nuclear Medicine
<b>Denominator</b>	: Total number of studies done in Diagnostic Nuclear Medicine
<b>Formula</b>	: $\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$
<b>Standard</b>	: $\leq 1\%$
<b>Data Collection &amp; Verification</b>	: <ol style="list-style-type: none"> <li>1. <b>Where:</b> Data will be collected in the Nuclear Medicine scanning room.</li> <li>2. <b>Who:</b> Data will be collected by Officer/ Nuclear Medicine Technologist/ Paramedic/ Nurse in-charge of the department/ unit.</li> <li>3. <b>How to collect:</b> Data is suggested to be collected from Diagnostic Nuclear Medicine studies record book.</li> <li>4. <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.</li> </ol>



	<p>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>	: *This indicator is also being monitored as an Outcome Based Budgeting (OBB) indicator.									

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