ORTHOPAEDIC				
NO	**INDICATOR**	**DIMENSION**	**STANDARD**	**SECONDARY DATA REPORTING FREQUENCY**
1	Percentage of patients with waiting time of less than (≤) 75 minutes to see doctor in Orthopaedic Outpatient Clinic after completion of pre-planned procedure	Timeliness	≥ 90%	Monthly
2	Percentage of patients with surgical site infection following clean elective orthopaedic surgery	Safety	≤ 2%	3 Monthly
3	Percentage of unacceptable internal fixations of fracture requiring revision	Effectiveness	≤ 2%	3 Monthly
4	Percentage of post primary total knee replacement patient with length of stay in hospital of ≤ 5 working days	Effectiveness	≥ 80%	6 Monthly

Discipline	:	**Orthopaedic**
Indicator 1	:	**Percentage of patients with waiting time of less than (≤) 75 minutes to see doctor in Orthopaedic Outpatient Clinic after completion of pre-planned procedure**
Dimension of Quality	:	Timeliness
Rationale	:	1. Patient-centred services must be given priority to prompt attention to patient's needs by reducing waiting times for consultation. 2. 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. 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.
Definition of Terms	:	**Waiting time**: Time of registration counter at department counter/ time of appointment given to patient/ time of completion of required pre-planned procedure (whichever is later) till the time the patient is first seen by the doctor, which is beginning of a consultation. **Pre-planned procedure**: Whereby the following are required prior to consultation: • Imaging procedure. • Cast removal. • Blood investigation. • Other relevant procedures.
Criteria	:	**Inclusion**: 1. All outpatients of Orthopaedic Outpatient Clinic. **Exclusion**: 1. Patients who come without an appointment ("walk-in" patients). **Sampling**: 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.
Type of indicator	:	Rate-based process indicator
Numerator	:	Number of sampled patients with waiting time of ≤ 75 minutes to see the doctor at the Orthopaedic Outpatient Clinic after completion of pre-planned procedure
Denominator	:	Total sample of patients seen by the doctor at the Orthopaedic Outpatient Clinic
Formula	:	$\frac{\text{Numerator}}{\text{Denominator}} \times 100\ \%$
Standard	:	≥ 90%
Data Collection & Verification	:	1. **Where**: Data will be collected in the Orthopaedic Outpatient Clinic. 2. **Who**: Data will be collected by Officer/ Paramedic/ Nurse in-charge of the department/ unit.

		3. **How to collect**: Data is suggested to be collected from patient's case notes/ appointment record book/ waiting time slip. 4. **How frequent**: 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. **Who should verify**: PVF must be verified by Head of Department, Head of Quality Unit and Hospital Director.
Remarks	:	

	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

Discipline	:	**Orthopaedic**
Indicator 2	:	**Percentage of patients with surgical site infection following clean elective orthopaedic surgery**
Dimension of Quality	:	Safety
Rationale	:	1. Surgical site infection is multi-factorial. The surgeon has a role in its prevention. Attention to details that includes pre-operative preparation, intra-operative soft tissue handling and post-operative wound care. Surgical site infection would be a reflection of such care. 2. Infection of surgical wounds is a significant nosocomial infection problem in hospitals, which in turn is an important issue in patient safety. Timely investigation of higher than expected rates of infection may identify issues relating to preventative factors for corrective action.
Definition of Terms	:	**Elective surgery**: Planned, scheduled, and well prepared patient. **Clean surgery**: Surgery in patients with no prior laceration wound at the surgical site or presence of wound/ sore/ infection in the body, or presence of acute severe soft tissue injury. **Surgical site infection (SSI):** Includes both the superficial and deep infection (Centres of Disease Control and Prevention guideline). The cut-off point to be considered SSI is 3 months post-surgery. Therefore, all the clean elective operative patients must be seen/ reviewed at around 3 months post-op. **Centres of Disease Control and Prevention (CDC); Definitions of surgical site infection (SSI):** 1. **Superficial infection**: Involves only the skin and subcutaneous tissue of the incision AND the patient has at least one of the following: a. Purulent drainage from the superficial incision. b. Organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial incision. c. At least one of the following signs or symptoms of infection (pain or

		tenderness, localized swelling, redness or heat). d. Superficial incision is deliberately opened by surgeon, unless incision is culture-negative. e. Diagnosis of superficial incisional SSI by the surgeon or attending physician. 2. **Deep infection:** Infection involved deep soft tissues (e.g. fascia and muscle layers) of the incision AND the patient has <u>at least one</u> of the following: a. Purulent drainage from the deep incision but not from the organ/ space component of the surgical site. b. A deep incision spontaneously dehisces or is deliberately opened by a surgeon when the patient has at least one of the following signs or symptoms (unless incision is culture-negative): i. Fever (>38^{0}C). ii. Localized pain or tenderness. iii. An abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathological or radiological examination. iv. Diagnosis of deep incisional surgical site infection by a surgeon or attending physician. ****Note:** • Do not count stitch abscesses (minimal inflammation and discharge confined to the points of suture penetration), or a localized stab wound infection as a surgical site infection. • If the incisional site infection involves or extends into the fascia and muscle layers; report as a deep incisional SSI. • An infection that involves both the superficial and deep incision sites should be classified as a deep incisional surgical site infection.
Criteria	:	**Inclusion:** 1. All patients who underwent clean elective orthopaedic surgery. This includes: • Arthroplasty. • Arthroscopic surgery. • Spine surgery. • Deformity correction. • Non-union. • Delayed union. **Exclusion:** 1. All emergency and semi-emergency surgeries. 2. External fixation.
Type of indicator	:	Rate-based outcome indicator
Numerator	:	Number of patients with surgical site infection in clean elective orthopaedic surgery
Denominator	:	Total number of patients underwent clean elective orthopaedic surgery
Formula	:	<u>Numerator</u> x 100 % Denominator
Standard	:	≤ 2%
Data Collection & Verification	:	1. **Where**: Data will be collected in the Orthopaedic Outpatient Clinic/ Orthopaedic wards/ wards that cater for the above condition.

<table>
<tr><td></td><td></td><td>2. Who: Data will be collected by Officer/ Paramedic/ Nurse in-charge of the department/ unit.
3. How to collect: Data is suggested to be collected from patient's case notes/ OT list/ OT record book/ wound slip.
4. How frequent: 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.
5. Who should verify:
<table>
<tr><td></td><td>Prepared by</td><td>Validated by</td></tr>
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<tr><td>Remarks</td><td>:</td><td>Data collection to be done by 4 months retrospective cohort of data. For May 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.</td></tr>
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Discipline	:	**Orthopaedic**
Indicator 3	:	**Percentage of unacceptable internal fixations of fracture requiring revision**
Dimension of Quality	:	Effectiveness
Rationale	:	1. Suboptimal fracture fixations delay/ prevent early recovery of patient. Increases morbidity and mortality, cost, and contribute to resource wastage. 2. Re-surgery also increases risk of nosocomial infection and length of hospital stay.
Definition of Terms	:	**Internal fixation**: Any form of device use to hold the bone fragments internally, includes any form of plate, nail, screw or wire buried under the skin. The number used in this indicator is based on number of internal fixations of fracture done and not the number of patients (e.g. if a patient had an internal fixation of radius and ulna on the same forearm and also internal fixation of humerus; it is calculated as 3 fixations and not just 1). **Unacceptable**: Fixations that are considered to result in poor fracture reduction, this may refer to the bone or fixation device. This decision is made by the senior surgeon or Head of Department. **Revision**: Corrective surgery to redo the fracture alignment or device configuration in areas as stated in the inclusion criteria. This decision is made by the senior surgeon or Head of Department.
Criteria	:	**Inclusion:** 1. All long bone fractures; as in femur, tibia, fibula, humerus, radius and ulna. 2. All peri-articular fractures around shoulder, elbow, wrist, hip (neck of femur), knee and ankle. 3. All small bone fractures (including carpal, metacarpal, metatarsal and tarsal bone) in the hand or foot.

<table>
<tr><td></td><td></td><td>Exclusion:
1. Pelvic and acetabulum fractures; scapula and glenoid fractures; and also spine injury.
2. All external fixations.</td></tr>
<tr><td>Type of indicator</td><td>:</td><td>Rate-based outcome indicator</td></tr>
<tr><td>Numerator</td><td>:</td><td>Number of unacceptable internal fixations of fracture requiring revision</td></tr>
<tr><td>Denominator</td><td>:</td><td>Total number of internal fixations of fracture performed</td></tr>
<tr><td>Formula</td><td>:</td><td>Numerator x 100 %
Denominator</td></tr>
<tr><td>Standard</td><td>:</td><td>≤ 2%</td></tr>
<tr><td>Data Collection & Verification</td><td>:</td><td>1. Where: Data will be collected in the Orthopaedic wards/ wards that cater for the above condition.
2. Who: Data will be collected by Officer/ Paramedic/ Nurse in-charge of the department/ unit.
3. How to collect: Data is suggested to be collected from patient's case notes/ OT notes/ OT record book/ Internal Fixation record list.
4. How frequent: 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.
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Discipline	:	**Orthopaedic**
Indicator 4	:	**Percentage of post primary total knee replacement patient with length of stay in hospital of ≤ 5 working days**
Dimension of Quality	:	Effectiveness
Rationale	:	1. Knee replacement surgery (arthroplasty) involves replacing a damaged, worn or diseased knee with an artificial joint. 2. It's a routine operation for knee pain most commonly caused by arthritis.
Definition of Terms	:	**Primary total knee replacement:** A surgical procedure to replace both sides of the knee joint with artificial material. **Length of stay:** Time taken from Day 1 post operation to the time when the patient discharged home.
Criteria	:	**Inclusion**: All non-complicated primary total knee replacement. **Exclusion**: 1. Bilateral total knee replacement. 2. Revision surgery.

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<tr><td></td><td></td><td>3. Patients with length of stay more than 5 working days due to their co-morbidities not due to the knee replacement surgery.</td></tr>
<tr><td>Type of indicator</td><td>:</td><td>Rate-based outcome indicator</td></tr>
<tr><td>Numerator</td><td>:</td><td>Number of post primary total knee replacement patients with length of stay in hospital of ≤ 5 working days</td></tr>
<tr><td>Denominator</td><td>:</td><td>Total number of patients who underwent primary total knee replacement</td></tr>
<tr><td>Formula</td><td>:</td><td>Numerator x 100 %
Denominator</td></tr>
<tr><td>Standard</td><td>:</td><td>≥ 80%</td></tr>
<tr><td>Data Collection & Verification</td><td>:</td><td>1. Where: Data will be collected in the Orthopaedic wards/ wards that cater for the above condition.
2. Who: Data will be collected by Officer/ Paramedic/ Nurse in-charge of the department/ unit.
3. How to collect: Data is suggested to be collected from patient's case notes/ OT notes/ OT record book/ admission & discharge record book.
4. How frequent: Monthly data collection within department.
Validated summarised secondary data to be sent 6 monthly to Quality Unit of the respective hospital for monitoring.
PVF to be sent 6 monthly to Quality Unit of hospital.
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<tr><td>Remarks</td><td>:</td><td>*This indicator is also being monitored as an Outcome Based Budgeting (OBB) indicator.
*This indicator is only applicable in facilities that perform total knee replacement surgeries.</td></tr>
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