Post-Op Sepsis

OECD: Post-Operative Sepsis

Rate of post-operative sepsis among people age 15 and older, per 100,000 surgical discharges

Method of Calculation

\[
\frac{\text{Number of surgical discharges with post-operative sepsis}}{\text{All surgical discharges (age 15 +)}} \times 100,000
\]

### Numerator

<table>
<thead>
<tr>
<th>Criteria</th>
<th>ICD-10-CA v. 2009 Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusions</td>
<td>• Discharges with sepsis</td>
</tr>
<tr>
<td></td>
<td>• Sepsis: A40.0, A40.1, A40.2, A40.3, A40.8, A40.9, A41.0, A41.1, A41.2, A41.3, A41.4, A41.5, A41.8, A41.9, R57.2, R57.8, R65.0, R65.1 or T81.1 with diagnosis type = (2) OR T81.4 with diagnosis type = (2) if A40 or A41 is also coded as diagnosis type = (3) on the same record</td>
</tr>
<tr>
<td>Exclusions</td>
<td>• None</td>
</tr>
</tbody>
</table>

### Denominator

<table>
<thead>
<tr>
<th>Criteria</th>
<th>ICD-10-CA v. 2009 Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusions</td>
<td>• Admissions to an acute care facility</td>
</tr>
<tr>
<td></td>
<td>• Surgical discharge with operating room procedure</td>
</tr>
<tr>
<td></td>
<td>• Age at admission 15+</td>
</tr>
<tr>
<td></td>
<td>• Surgical discharge with operating room procedure has been defined as records with MCC partition code = I and a procedure with the fourth and fifth digits ≥50</td>
</tr>
</tbody>
</table>

(cont’d on next page)
OECD: Post-Operative Sepsis (cont’d)

Denominator

**Exclusions**
- Invalid gender
- Hospital discharges with diagnosis codes denoting infection with diagnosis type = MRDx and not diagnosis type = (2)
- Hospital discharges with diagnosis codes denoting infection not as type (2) or (3)
- Hospital discharges with a code for immune-compromised state or cancer in any diagnosis field
- Pregnancy, childbirth and puerperium cases (MCC 13)
- Hospital discharges with a length of stay less than three days

- See list of diagnosis codes for infection (below)
- See list of diagnosis codes for immune-compromised state and cancer (below)

**Provincial Considerations**
Records are chosen based on the patient’s place of treatment.

**Data Source**

**Notes**
None

**Interpretation**
A low rate for this indicator can be interpreted as a positive result.

**Indicator Rationale**
*(OECD, 2011, p. 114)*
“Efforts to improve patient safety have sparked interest in reporting adverse events arising from health care . . . Adverse events are unintended incidents caused by health care that could lead to harm to patients. Such complications can never be fully avoided, given the high-risk nature of some interventions and the underlying health problems of patients . . . Sepsis after elective surgery is a severe complication that can lead to multiple organ dysfunction and death. It usually results from less severe infections, which should be avoided or properly treated. Many cases of postoperative sepsis can be prevented through the appropriate use of prophylactic antibiotics, sterile surgical techniques and good postoperative care.”

(continues on next page)
## List of Diagnosis Codes

<table>
<thead>
<tr>
<th>ICD-10 WHO Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infection</strong></td>
</tr>
</tbody>
</table>
| A00.0, A00.1, A00.9, A01.0, A01.1, A01.2, A01.3, A01.4, A02.0, A02.1, A02.2, A02.8, A02.9, A03.0, A03.1, A03.2, A03.3, A03.8, A03.9, A04.0, A04.1, A04.2, A04.3, A04.4, A04.5, A04.6, A04.7, A04.8, A04.9, A05.0, A05.1, A05.2, A05.3, A05.4, A05.8, A05.9, A20.0, A20.1, A20.2, A20.3, A20.7, A20.8, A21.0, A21.1, A21.2, A21.3, A21.7, A21.8, A21.9, A22.0, A22.1, A22.2, A22.7, A22.8, A22.9, A23.0, A23.1, A23.2, A23.3, A23.8, A23.9, A24.0, A24.1, A24.2, A24.4, A25.0, A25.1, A25.9, A26.0, A26.7, A26.8, A26.9, A28.0, A28.1, A28.2, A28.8, A28.9, A32.0, A32.1, A32.7, A32.8, A32.9, A33, A34, A35, A36.0, A36.1, A36.2, A36.3, A36.8, A36.9, A37.0, A37.1, A37.8, A37.9, A38, A39.0, A39.1, A39.2, A39.3, A39.4, A39.5, A39.8, A39.9, A40.0, A40.1, A40.2, A40.3, A40.8, A40.9, A41.0, A41.1, A41.2, A41.3, A41.4, A41.5, A41.8, A41.9, A42.0, A42.1, A42.2, A42.7, A42.8, A42.9, A43.0, A43.1, A43.8, A43.9, A46, A48.0, A48.1, A48.2, A48.3, A48.4, A48.8, A49.0, A49.1, A49.2, A49.3, A49.9, A54.0, A54.1, A54.2, A54.3, A54.4, A54.5, A54.6, A54.8, A54.9, B95.0, B95.1, B95.2, B95.3, B95.4, B95.5, B95.6, B95.7, B95.8, B96.0, B96.1, B96.2, B96.3, B96.4, B96.5, B96.6, B96.7, B96.8, D73.3, E32.1, G00.0, G00.1, G00.2, G00.3, G00.8, G00.9, G03.8, G03.9, G04.2, G06.0, G06.1, G06.2, G07, H00.0, H01.0, H01.8, H04.0, H04.3, H04.4, H05.0, H10.0, H10.2, H10.3, H10.5, H10.8, H10.9, H13.1, H44.0, H60.0, H60.1, H60.2, H60.3, H60.9, H66.0, H66.1, H66.2, H66.3, H66.4, H66.5, H68.0, H70.0, H70.2, H73.0, H83.0, I30.1, I30.8, I30.9, I32.0, I33.0, I33.9, I40.0, J01.0, J01.1, J01.2, J01.3, J01.4, J01.8, J01.9, J02.0, J02.8, J02.9, J03.0, J03.8, J03.9, J05.1, J13, J14, J15.0, J15.1, J15.2, J15.3, J15.4, J15.5, J15.6, J15.7, J15.8, J15.9, J17.0, J18.0, J18.1, J18.8, J20.0, J20.1, J20.2, J34.0, J36, J39.0, J39.1, J40, J44.0, J85.0, J85.1, J85.2, J85.3, J86.0, J86.9, J90, J98.5, K04.0, K04.6, K04.7, K05.0, K05.2, K10.2, K11.3, K12.2, K35.0, K35.1, K35.9, K36, K37, K57.0, K57.1, K57.2, K57.3, K57.4, K57.5, K57.8, K57.9, K61.0, K61.1, K61.2, K61.3, K61.4, K63.0, K65.0, K65.8, K65.9, K67.1, K75.0, K75.1, K80.0, K80.3, K80.4, K81.0, K81.8, K82.2, K83.0, K83.2, K85.0, K85.1, K85.2, K85.3, K85.8, K85.9, L00, L01.0, L01.1, L02.0, L02.1, L02.2, L02.3, L02.4, L02.8, L02.9, L03.0, L03.1, L03.2, L03.3, L03.8, L03.9, L04.0, L04.1, L04.2, L04.3, L04.8, L04.9, L05.0, L08.0, L08.8, L08.9, L30.3, L00.0, M00.1, M00.2, M00.8, M00.9, M03.0, M03.1, M03.2, M03.6, M46.2, M60.0, M63.0, M72.6, M73.0, M86.0, M86.1, M86.2, M86.3, M86.4, M86.5, M86.6, M86.8, M86.9, M90.1, N10, N12, N13.6, N15.1, N30.0, N30.8, N30.9, N34.0, N39.0, N41.0, N41.2, N41.3, N41.8, N41.9, N43.1, N45.0, N45.9, N48.1, N48.2, N49.0, N49.1, N49.2, N49.8, N49.9, N51.0, N51.1, N61, N70.0, N70.1, N70.9, N71.0, N71.9, N72, N73.0, N73.1, N73.2, N73.3, N73.5, N73.9, N75.1, N76.0, N76.1, N76.2, N76.3, N76.4, N76.8, O03.0, O03.5, O04.0, O04.5, O05.0, O05.5, O06.0, O06.5, O07.0, O07.5, O08.0, (cont’d on next page)
<table>
<thead>
<tr>
<th>ICD-10 WHO Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>O23.0, O23.1, O23.2, O23.3, O23.4, O23.5, O23.9, O41.1, O86.1, O86.2, O86.3, O86.4, O91.0, O91.1, O91.2, O98.2, O98.8, O98.9, P36.0, P36.1, P36.2, P36.3, P36.4, P36.5, P36.6, P36.8, P36.9, P38, P39.0, P39.2, P39.3, P39.4, P39.8, P39.9, P77, R02, R57.2, R57.8, R65.0, R65.1, T80.2, T81.4, T82.6, T82.7, T83.5, T83.6, T84.5, T84.6, T84.7, T84.9, T85.7, T87.4, T88.0, U04.9, U80.0, U80.1, U80.8, U81.0, U81.8, U88, U89.8, U89.9</td>
</tr>
<tr>
<td>Immune-Compromised State</td>
</tr>
<tr>
<td>B20.0, B20.1, B20.2, B20.3, B20.4, B20.5, B20.6, B20.7, B20.8, B20.9, B21.0, B21.1, B21.2, B21.3, B21.7, B21.8, B21.9, B22.0, B22.1, B22.2, B22.7, B23.1, B23.2, B23.8, B24, B59, D47.1, D70, D71, D72.0, D80.0, D80.1, D80.2, D80.3, D80.4, D80.5, D80.6, D80.7, D80.8, D80.9, D81.0, D81.1, D81.2, D81.3, D81.4, D81.5, D81.6, D81.7, D81.8, D81.9, D82.0, D82.1, D82.2, D82.3, D82.4, D82.8, D82.9, D83.0, D83.1, D83.2, D83.8, D83.9, D84.0, D84.1, D84.8, D84.9, D89.8, D89.9, E40, E41, E42, E43, I12.0, I13.1, I13.2, K91.2, N18.0, N18.1, N18.5, N18.8, T86.0, T86.1, T86.2, T86.3, T86.4, T86.8, T86.9, Y83.0, Z49.0, Z49.1, Z49.2, Z94.0, Z94.1, Z94.2, Z94.3, Z94.4, Z94.8, Z94.9</td>
</tr>
<tr>
<td>Cancer</td>
</tr>
</tbody>
</table>
| C00.0, C00.1, C00.2, C00.3, C00.4, C00.5, C00.6, C00.8, C00.9, C01, C02.0, C02.1, C02.2, C02.3, C02.4, C02.8, C02.9, C03.0, C03.1, C03.9, C04.0, C04.1, C04.8, C04.9, C05.0, C05.1, C05.2, C05.8, C05.9, C06.0, C06.1, C06.2, C06.8, C06.9, C07, C08.0, C08.1, C08.8, C09.0, C09.1, C09.8, C09.9, C10.0, C10.1, C10.2, C10.3, C10.4, C10.8, C10.9, C11.0, C11.1, C11.2, C11.3, C11.8, C11.9, C12, C13.0, C13.1, C13.2, C13.8, C13.9, C14.0, C14.2, C14.8, C15.0, C15.1, C15.2, C15.3, C15.4, C15.5, C15.8, C15.9, C16.0, C16.1, C16.2, C16.3, C16.4, C16.5, C16.6, C16.8, C16.9, C17.0, C17.1, C17.2, C17.3, C17.8, C17.9, C18.0, C18.1, C18.2, C18.3, C18.4, C18.5, C18.6, C18.7, C18.8, C18.9, C19, C20, C21.0, C21.1, C21.2, C21.8, C22.0, C22.1, C22.2, C22.3, C22.4, C22.7, C22.9, C23, C24.0, C24.1, C24.8, C24.9, C25.0, C25.1, C25.2, C25.3, C25.4, C25.7, C25.8, C25.9, C26.0, C26.1, C26.8, C26.9, C30.0, C30.1, C31.0, C31.1, C31.2, C31.3, C31.8, C31.9, C32.0, C32.1, C32.2, C32.3, C32.8, C32.9, C33, C34.0, C34.1, C34.2, C34.3, C34.8, C34.9, C37, C38.0, C38.1, C38.2, C38.3, C38.4, C38.8, C39.0, C39.8, C39.9, C40.0, C40.1, C40.2, C40.3, C40.8, C40.9, C41.0, C41.1, C41.2, C41.3, C41.4, C41.8, C41.9, C43.0, C43.1, C43.2, C43.3, C43.4, C43.5, C43.6, C43.7, C43.8, C43.9, C45.0, C45.1, C45.2, C45.7, C45.9, C46.0, C46.1, C46.2, C46.3, C46.7, C46.8, C46.9, C47.0, C47.1, C47.2, C47.3, C47.4, C47.5, C47.6, C47.8, C47.9, C48.0, C48.1, C48.2, C48.8, C49.0, C49.1, C49.2, C49.3, C49.4, C49.5, C49.6, C49.8, C49.9, C50.0, C50.1, C50.2, C50.3, C50.4, C50.5, C50.6, C50.8, C50.9, C51.0, C51.1, C51.2, C51.8, C51.9, C52, C53.0, C53.1, C53.8, C53.9, C54.0, C54.1, C54.2, C54.3, C54.8, C54.9, C55, C56, C57.0, C57.1, C57.2, C57.3, C57.4, C57.7, C57.8, C57.9, C58, C60.0, C60.1, C60.2, C60.8, C60.9, C61, C62.0, C62.1, C62.9, C63.0, C63.1, (cont’d on next page)
Glossary of Terms

**ICD-10-CA** is the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Canada. ²

**Most Responsible Diagnosis (MRDx) or Diagnosis Type (M)** is the diagnosis or condition that can be described as being most responsible for the patient’s stay in hospital.³

**Diagnosis Type (1) or Pre-Admit Comorbidity** is a condition that existed prior to admission, has been assigned an ICD-10-CA code and satisfies the requirements for determining comorbidity.³

**Diagnosis Type (2) or Post-Admit Comorbidity** is a condition that arises post-admission, has been assigned an ICD-10-CA code and satisfies the requirements for determining comorbidity.³

**Diagnosis Type (3) or Secondary Diagnosis** is a secondary diagnosis or condition that a patient may or may not have received treatment for, has been assigned an ICD-10-CA code and does not satisfy the requirements for determining comorbidity.³

**Major clinical category (MCC)** is a concept used within CIHI’s Case Mix Group+ (CMG+) methodology. MCCs are used to broadly categorize patients into clinical categories.⁴
References


