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## **SURGICAL SITE INFECTION (SSI) DEFINITION**

Please note that the "Introduction to National Guidelines for Surveillance" must be read in conjunction with this document.

### **PREAMBLE**

Estimating the true burden of infections associated with surgery in Australia is difficult due to the absence of valid, reliable, large, standard, datasets. However, the *National Strategy to Address Health Care Associated Infections, July 2003*, published by the Australian Council for Safety and Quality in Health Care, suggests that between 2% to 13% of patients suffer from surgical site infections (SSIs). The attributable and human costs of SSI are therefore significant. The Surveillance Working Party of the Australian Council for Safety and Quality in Health Care's Health Care Associated Infections Advisory Committee hopes that improved surveillance of SSIs will lead to better understanding and appropriate efforts to reduce their occurrence. The following proposed definitions are the first step in this process.

In reviewing current practice the Surveillance Working Party agreed to combine the specific infection site categories proposed by the National Advisory Board of the Australian Infection Control Association (deep incisional and organ space), in the reporting of surgical site infection due to the difficulty in distinguishing between these two categories. Further more, local evidence suggests that the occurrence of deep/organ space is low and supports the collapse of the two categories into one. The level of reporting proposed now aligns with the benchmark set by the Australian Council on Healthcare Standards (ACHS).

Access to resources that support the adoption and implementation of the definitions can be found at: [www.safetyandquality.org/index.cfm?page=action#haci](http://www.safetyandquality.org/index.cfm?page=action#haci)

SUPERFICIAL INCISIONAL	DEEP INCISIONAL/ORGAN SPACE
<b>Definition must meet the following criteria</b>	
<p>Infection involves only skin and subcutaneous tissue of this incision</p> <p><b>AND</b></p> <p>Occurs within 30 days after the operative procedure</p> <p><b>AND</b></p> <p>Exhibits <b>at least one</b> of the following from the superficial incision:</p> <ol style="list-style-type: none"> <li>1. Purulent discharge (NOT stitch abscess).</li> <li>2. Organisms isolated from an aseptically collected culture of fluid or tissue. Note: a positive wound swab (in contrast to wound aspirate) without other significant evidence of infection is not adequate for diagnosis of infection.</li> <li>3. Displays at the site of incision any of the following signs and symptoms of infection: <ul style="list-style-type: none"> <li>• Pain or tenderness</li> <li>• Localised swelling</li> <li>• Redness or heat</li> </ul> <p>AND the incision is deliberately explored by the Surgeon resulting in a positive wound culture.</p> <p>Note: A culture-negative finding does not meet this criterion unless the patient was on antibiotics immediately prior to diagnosis.</p> </li> <li>4. Diagnosis or antimicrobial treatment of superficial incisional infection by the operating Surgeon or Registrar.</li> </ol>	<p>Involves deep soft tissues (eg fascial and muscle layers) AND/OR organs/spaces opened or manipulated during an operation</p> <p><b>AND</b></p> <p>Occurs within 30 days after the operative procedure if implant not present OR within one year if implant insitu</p> <p><b>AND</b></p> <p>Exhibits either 1 and/or 2:</p> <ol style="list-style-type: none"> <li>1. Purulent drainage from deep soft tissue or drain that is placed through a stab wound into the organ/space.</li> <li>2. Spontaneous dehiscence at the incision site or the wound is deliberately explored by a surgeon with the patient showing evidence of <b>one or more</b> of the following signs or symptoms: <ul style="list-style-type: none"> <li>• Fever &gt; 38°C, localised pain or tenderness with culture positive specimen. A culture-negative finding does not meet this criterion unless the patient was on antibiotics immediately prior to the wound being explored and/or the culture being taken;</li> <li>• Organisms isolated from aseptically obtained culture of fluid or tissue obtained from an organ/space;</li> <li>• An abscess or other evidence of infection involving a deep/organ space is found on direct examination, during re-operation, or by histopathologic or radiologic examination; or</li> <li>• Diagnosis of, or antimicrobial treatment of a deep incisional or organ/space SSI by the operating Surgeon or Registrar.</li> </ul> </li> </ol>

**SUPERFICIAL INCISIONAL****DEEP INCISIONAL/ORGAN SPACE****REPORTING INSTRUCTIONS**

1. Do not report a stitch abscess (minimal inflammation and discharge confined to the points of suture penetration) as an infection.
2. If infection involves or extends into fascial and muscle layers, report as deep/organ space SSI.
3. Coronary bypass graft data (i.e. graft and chest incision site) should be collected and reported separately.

1. Classify infection that involves both superficial and deep incisional sites as deep incisional SSI
2. The following are specific sites of an organ/space SSI:
  - Osteomyelitis
  - Breast abscess or mastitis
  - Myocarditis or pericarditis
  - Disc space
  - Ear, mastoid
  - Endometritis
  - Endocarditis
  - Eye, other than conjunctivitis
  - Gastro intestinal tract
  - Intra-abdominal, not specified elsewhere
  - Intracranial, brain abscess or dura
  - Joint or bursa
  - Other infections of the lower respiratory tract
  - Mediastinitis
  - Meningitis or ventriculitis
  - Oral cavity (mouth, tongue or gums)
  - Other male or female reproductive organs
  - Other infections of the urinary tract
  - Spinal abscess without meningitis
  - Sinusitis
  - Upper respiratory tract
  - Arterial or venous infection
  - Vaginal cuff

## GENERAL REPORTING INSTRUCTIONS

Surveillance methodology is not a diagnostic tool; it seeks to flag problem areas that require further investigation.

Rates of SSI should be calculated using a denominator, which consists of a patient population of similar risk. Cases of SSI (the numerator) should include only those infections diagnosed within the relevant patient population (the denominator).

***Procedure Specific Infection Rate:***

Number of SSI in procedures of the same type performed during a specific surveillance period	X 100
Number of procedures of the same type performed during a specific surveillance period	X 1

If an SSI becomes apparent after discharge, a Medical Officer (excluding operating Surgeon or Registrar) diagnosis is not accepted UNLESS other criterion for infection is also present.

Rates of infection determined by post-discharge surveillance are to be reported separately as 'post discharge' (as combined rates will often be substantially higher than surveillance limited to in-hospital patients).

## References

1. Gaynes RP, Horan TC. Surveillance of Nosocomial Infections. In: Mayhall CG, ed. Hospital Epidemiology and Infection Control, 3rd edition. Philadelphia: Lippincott Williams and Wilkins, 1999:1285-318.
2. Auricht E, Borgert J, Butler M, Cadwallader H, Collignon P, Eades M, Ferguson J, Kampen R, Looke D, MacBeth D, McLaws M-L, Olesen D, Pawsey M, Richards M, Riley T, Sykes P, Whitby M, West R, Zerner L. Introduction to Australian Surveillance Definitions: Surgical Site Infections and Bloodstream Infections. Australian Infection Control, Vol 5 (3). 2000: pp 25 – 31.

## ACKNOWLEDGEMENT

The Health Care Associated Infection Advisory Committee on behalf of the Australian Council for Safety & Quality in Health Care would like to acknowledge the use of information contained within the Australian Infection Control Association (AICA) Surgical Site Infection (SSI) Definition developed by the National Advisory Committee to AICA.

We would like to acknowledge the contribution of the Health Care Associated Infection Advisory Committee (HCAIAC) and the Surveillance Working Party (SWP), the Australian Society of Infectious Diseases (ASID) and Oz Bug subscribers.