

WHAT CAN BE DONE TO DECREASE THE INCIDENCE OF SSI AND WHAT WILL THE FUTURE SHOW?

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Surgical site infection (SSI) is an important postoperative complication. SSI is an infection that occurs somewhere in the operative field following a surgical intervention. The Centres for Disease Control and Prevention (CDC) considers SSI to include both incisional SSI and organ space SSI. Incisional SSI is subdivided into superficial and deep SSI, depending on whether the infection is limited to the skin and subcutaneous tissue only (superficial SSI) or extends into the deeper tissues, such as the fascia and muscular layers of the body wall (deep SSI). Organ/space SSI is an infection that occurs anywhere within the operative field other than where the body wall tissues were incised. Examples include intra-abdominal abscess developing after an abdominal operation, empyema developing after a thoracic operation, and osteomyelitis or joint infection developing after an orthopaedic procedure.

Based on extensive epidemiologic surveys, it has been estimated that SSI develops in at least 2% of hospitalized patients undergoing operative procedures, although this is a likely underestimate because of incomplete post-discharge data. Other data indicate that SSI develops following 3% to 20% of certain procedures, and that the incidence is even higher in certain high-risk patients.

Interventions to prevent SSI are based on knowledge of the various risk factors that predispose a patient to develop such an infection and an understanding of the microbiology of SSI. Apart from patient endogenous factors, the role of external risk factors in the pathogenesis of SSI is well recognized. However, among the many measures to prevent SSI, only some are based on strong evidence, for example, adequate perioperative administration of prophylactic antibiotics, and there is insufficient evidence to show whether one method is superior to any other. This highlights the need for a multimodal approach involving active post-discharge surveillance, as well as measures at every step of the care process, ranging from the operating theatre to postoperative care. Multicentre or supranational intervention programs based on evidence-based guidelines, 'bundles' or safety checklists are likely to be beneficial on a global scale. Although theoretically reducible to zero, the maximal realistic extent by which SSI can be decreased remains unknown. In the future, we will need to "open our minds" to new approaches, for instance to take into account the "biofilm paradigm". Biofilm management of SSIs is based on multiple concurrent strategies specifically targeting biofilm behaviour.