



WHO global guidelines for the prevention of surgical site infection



The 2016 World Health Organization (WHO) Global guidelines for the prevention of surgical site infection (SSI) are evidence-based and unique in that they are the first global guidelines of this sort, are based on systematic reviews and present additional information in support of actions to improve practice. They were developed by international experts adhering to WHO's Guideline Development Process and overall aim to achieve standardisation.

Summary

The objectives of the new Guidelines are:

1. To provide comprehensive evidence- and expert consensus-based recommendations to be applied during the pre-, intra- and postoperative periods for prevention of SSI and to help combat antimicrobial resistance (AMR).
2. To support health (and related) settings and practitioners to develop or strengthen infection prevention and control (IPC) programmes, with a focus on surgical safety, as well as AMR action plans.
3. To highlight that working as teams, both practices and patient outcomes can be improved, taking account of resource availability.

Why these guidelines?

1. To increase awareness of the global burden of SSI in all settings, and including in maternal and child health.
2. To increase knowledge of the need for appropriate antibiotic prophylaxis for surgical patients.
3. To increase knowledge of the high burden of preventable SSI and to mobilize surgeons, nurses, technical support staff, anaesthetists and any professionals directly providing surgical care.
4. Because every infection prevented is an antibiotic treatment avoided.

Strong guideline recommendations

- Patients with known nasal carriage of *S. aureus* should receive **intranasal applications of mupirocin 2% ointment with or without a combination of chlorhexadine gluconate body wash**.
- **Mechanical bowel preparation alone (without the administration of oral antibiotics) should NOT be used** in adult patients undergoing elective colorectal surgery.
- In patients undergoing any surgical procedure, **hair should either NOT be removed or, if absolutely necessary, should only be removed with a clipper**. Shaving is strongly discouraged at all times, whether preoperatively or in the operating room.
- **Surgical antibiotic prophylaxis (SAP) should be administered before surgical incision**, when indicated.
- **SAP should be administered within 120 min before incision**, while considering the half-life of the antibiotic.
- **Surgical hand preparation should be performed** either by scrubbing with a suitable antimicrobial soap and water or using a suitable alcohol-based handrub before donning sterile gloves.
- **Alcohol-based antiseptic solutions based on CHG for surgical site skin preparation should be used** in patients undergoing surgical procedures.
- Adult patients undergoing general anaesthesia with endotracheal intubation for surgical procedures should receive **80% fraction of inspired oxygen intraoperatively** and, if feasible, in the immediate postoperative period for 2–6 h.
- **Surgical antibiotic prophylaxis administration should not be prolonged** after completion of the operation.

Conditional guideline recommendations

Immunosuppressive medication	Immunosuppressive medication should <u>not</u> be discontinued prior to surgery for the purpose of preventing SSI.
Nutritional formulas	Consider the administration of oral or enteral multiple nutrient-enhanced nutritional formulas for the purpose of preventing SSI in underweight patients who undergo major surgical operations.
Bathing before surgery	It is good clinical practice for patients to bathe or shower before surgery. Either a plain soap or an antiseptic soap could be used for this purpose.
Intranasal mupirocin	Consider treating patients with known nasal carriage of <i>S. aureus</i> undergoing other types of surgery with perioperative intranasal applications of mupirocin 2% ointment with or without a combination of CHG body wash.
Antibiotics & MBP	Preoperative oral antibiotics combined with MBP should be used to reduce the risk of SSI in adult patients undergoing elective colorectal surgery.
Antimicrobial sealants	Antimicrobial sealants should <u>not</u> be used after surgical site skin preparation for the purpose of reducing SSI.
Warming devices	Warming devices should be used in the operating room and during the surgical procedure for patient body warming with the purpose of reducing SSI.
Blood glucose control	Protocols for intensive perioperative blood glucose control should be used for both diabetic and non-diabetic adult patients undergoing surgical procedures.
Fluid therapy	Goal-directed fluid therapy should be used intraoperatively for the purpose of reducing SSI.
Drapes and gowns	Either sterile disposable non-woven or sterile reusable woven drapes and surgical gowns can be used during surgical operations for the purpose of preventing SSI.
Adhesive drapes	Plastic adhesive incise drapes with or without antimicrobial properties should <u>not</u> be used for the purpose of preventing SSI.
Wound protectors	Consider the use of wound protector devices in clean-contaminated, contaminated and dirty abdominal surgical procedures for the purpose of reducing the rate of SSI.
Saline wound irrigation	There is <u>insufficient evidence</u> to recommend for or against saline irrigation of incisional wounds for the purpose of preventing SSI.
Povidone iodine irrigation	Consider the use of irrigation of the incisional wound with an aqueous povidone iodine solution before closure for the purpose of preventing SSI, particularly in clean and clean-contaminated wounds.
Antibiotic irrigation	Antibiotic incisional wound irrigation before closure should <u>not</u> be used for the purpose of preventing SSI.
Neg pressure wound therapy	Prophylactic negative pressure wound therapy <u>may</u> be used on primarily closed surgical incisions in high-risk wounds and, taking resources into account, for the purpose of preventing SSI.
Coated sutures	Triclosan-coated sutures <u>may</u> be used for the purpose of reducing the risk of SSI, independent of the type of surgery.
Laminar flow ventilation	Laminar airflow ventilation systems should <u>not</u> be used to reduce the risk of SSI for patients undergoing total arthroplasty surgery.
Peri-op antibiotics	Perioperative surgical antibiotic prophylaxis should <u>not</u> be continued due to the presence of a wound drain for the purpose of preventing SSI.
Wound drains	The wound drain should be removed when clinically indicated. No evidence was found to allow making a recommendation on the optimal timing of wound drain removal for the purpose of preventing SSI.
Advanced dressings	Advanced dressing of any type should <u>not</u> be used over a standard dressing on primarily closed surgical wounds for the purpose of preventing SSI.