The last recommendations for prevention and control of surgical site infection

CDC Guidelines for Prevention

of Surgical Site Infection

(2017)

- **Recommendations**
- Antimicrobial prophylaxis:

- Administer **preoperative antimicrobial** agents **only when indicated** by published clinical practice guidelines, and time administration so that a bactericidal concentration is established in serum and tissues **when the incision is made.**

  (strong recommendation; accepted practice)

- Administer appropriate parenteral prophylactic antimicrobial agents **before skin incision** in all cesarean section procedures

  (strong recommendation; high-quality evidence)

- In clean and clean-contaminated procedures, **do not administer additional** prophylactic antimicrobial agent **doses after the surgical incision is closed** in the operating room (OR), even in the presence of a drain

(strong recommendation; high-quality evidence)

- **Do not apply antimicrobial agents** (ie, ointments, solutions, or powders) to the **surgical incision** with the aim of preventing SSI

(strong recommendation; low-quality evidence)

- **Glycemic control & normothermia**

- Implement perioperative glycemic control, and use blood glucose target levels **lower than 200 mg/dL** in patients with and without diabetes

  (strong recommendation; high- to moderate-quality evidence)

- **Maintain perioperative normothermia**

  (strong recommendation; high- to moderate-quality evidence)

Oxygenation

- For patients with **normal pulmonary function undergoing general anesthesia with endotracheal intubation**, employ an **increased** fraction of inspired oxygen (**FiO_2**) during the surgical procedure and after extubation in the immediate postoperative period; to optimize **tissue oxygen delivery**, maintain perioperative **normothermia** and **adequate volume replacement**.

  (strong recommendation; moderate-quality evidence)

- **Antiseptic prophylaxis**

- Advise patients to **shower or bathe** the **full body** with either antimicrobial or nonantimicrobial soap or an antiseptic agent on at least the **night before the day of the procedure**

  (strong recommendation; accepted practice)

- Perform intraoperative **skin preparation** with an **alcohol-based antiseptic agent** unless this is contraindicated

  (strong recommendation; high-quality evidence)

- Consider the use of **triclosan-coated sutures** for the prevention of SSI

  (weak recommendation; moderate-quality evidence)

- **Application of autologous platelet-rich plasma** is **not necessary** for the prevention of SSI

  (weak recommendation; moderate-quality evidence suggesting a trade-off between clinical benefits and harms)

- **Application of a microbial sealant** immediately **after intraoperative skin preparation** is **not necessary** for the prevention of SSI

  (weak recommendation; low-quality evidence)

- The use of **plastic adhesive drapes with or without antimicrobial properties** is **not necessary** for the prevention of SSI.

  (weak recommendation; high- to moderate-quality evidence)

- **Consider** intraoperative irrigation of deep or subcutaneous tissues with **aqueous iodophor solution** for the prevention of SSI; **intraperitoneal lavage** with aqueous iodophor solution **is not necessary** in contaminated or dirty abdominal procedures

  (weak recommendation; moderate-quality evidence)

- **Do not withhold transfusion** of necessary blood products from surgical patients undergoing prosthetic joint arthroplasty as a means of preventing SSI

  (strong recommendation; accepted practice)

- **In clean or clean-contaminted prosthetic joint arthroplasties**, **do not administer additional antimicrobial prophylaxis doses** after the surgical incision is closed in the OR, even in the presence of a drain

  (strong recommendation; high-quality evidence)

WHO Guidelines on Surgical Site Infection 2016

- It is good clinical practice for patients to **bathe or shower** prior to surgery. Either **plain soap** or an **antimicrobial soap** may be used for this purpose.

- Patients undergoing cardiothoracic and orthopedic surgery with **known nasal carriage** of S. aureus should receive perioperative intranasal applications of **mupirocin** 2% ointment with or without a combination of **chlorhexidine gluconate** (CHG) **body wash**.

- Surgical **antibiotic prophylaxis** (SAP) should be administered **prior to the surgical incision** when indicated (depending on the type of operation). The panel recommends the administration of SAP **within 120 min** before incision, while considering the half-life of the antibiotic.

- **Preoperative oral antibiotics** should be combined **with mechanical bowel preparation** to reduce the risk of SSI in adult patients undergoing **elective colorectal surgery**. **Mechanical bowel preparation alone** (without administration of oral antibiotics) **should not be used** for the purpose of reducing SSI in adult patients undergoing elective colorectal surgery.

- In patients undergoing any surgical procedure, **hair** should either **not be removed** or, if absolutely necessary, should be removed only with a **clipper**. **Shaving is strongly discouraged** at all times, whether preoperatively or in the OR.

- **Alcohol-based antiseptic** solutions are recommended **based on CHG** for surgical site skin preparation in patients undergoing surgical procedures.

- **Antimicrobial sealants should not be used** after surgical site skin preparation for the purpose of reducing SSI.

- **Surgical hand preparation** should be performed by scrubbing with either a suitable **antimicrobial soap and water or** using a **suitable alcohol-based handrub** before donning sterile gloves.

- 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**.

- **Do not discontinue** **immunosuppressive medication** prior to surgery for the purpose of preventing SSI.

- **Adult patients** undergoing **general anesthesia with endotracheal intubation** for surgical procedures should receive an **80%** fraction of inspired oxygen **intraoperatively** and, if feasible, **in the immediate postoperative period for 2-6 hr** to reduce the risk of SSI.

- Use **triclosan-coated sutures** for the purpose of reducing the risk of SSI, independent of the type of surgery.

- **Preoperative antibiotic prophylaxis should not be continued** in the presence of a **wound drain** for the purpose of preventing SSI.

IDSA Guidelines on Surgical Site Infection

(2014)

- **Suture removal** plus **incision** and **drainage** should be performed for SSIs.

(strong recommendation, low-quality evidence)

- Adjunctive **systemic antimicrobial therapy** is **not routinely indicated** but, in conjunction with incision and drainage, may be beneficial for **SSIs associated with a significant systemic response**, such as **erythema** and **induration** extending **more than 5 cm** from the wound edge, **temperature exceeding 38.5°C**, **heart rate higher than 110 beats/min**, or **white blood cell** (WBC) count **higher than 12,000/µL**.

(weak recommendation, low-quality evidence)

- **A brief course of systemic antimicrobial therapy** is indicated in patients with SSIs **after clean operations** on the **trunk**, **head** and **neck**, or **extremities** that also **have systemic signs of infection**.

(strong recommendation, low-quality evidence)

- A **first-generation cephalosporin** or an **antistaphylococcal penicillin** for methicillin-sensitive *S aureus* (**MSSA**)—or **vancomycin**, **linezolid**, **daptomycin**, **telavancin**, or **ceftaroline** where risk factors for methicillin-resistant *S aureus* (**MRSA**) are **high** (**nasal colonization**, **prior MRSA infection**, **recent hospitalization**, or **recent antibiotics**)—is recommended.

(strong recommendation, low-quality evidence)

- **Agents active against** gram-negative bacteria and anaerobes, such as a **cephalosporin** **or** **fluoroquinolone** in **combination** with **metronidazole**, are recommended for infections after operations on the **axilla**, **gastrointestinal tract**, **perineum**, or **female genital tract**.

(strong recommendation, low-quality evidence)