



Infection Prevention Control (IPC) Topic: Surgical Site Infections

Intro: A surgical site infection is an infection that occurs after surgery in the part of the body where the surgery took place.⁴ Surgical site infections can sometimes be superficial infections involving the skin only. Other surgical site infections are more serious and can involve tissues under the skin, organs, or implanted material.⁴

What is the risk?³ Germs can live on all types of surfaces. Germs spread by bypassing or breaking down the body's defenses. Healthcare tasks often involve breaking the skin. Breaking the skin – from putting in an IV, drawing blood, surgery, or trauma – creates a pathway for germs to spread into the body.

Reservoirs for these organisms include^{2,3,5,6,7,8,9,10,11}

- Skin reservoir
 - The skin, nose, and hair of patients and surgical team members.
- Dry surfaces
 - This includes a contaminated environment- for example improper cleaning and disinfecting pre or postoperatively.
- Devices and blood
 - Contaminated instruments and equipment spread germs when not properly cleaned or disinfected.
- GI system or gut
 - Germs can spread when bowel contamination occurs.
 - An example would be during a colonoscopy- the scope is improperly cleaned and disinfected.
- Water
 - Contamination can occur if a sterile instrument tray becomes contaminated with water or improperly reprocessed.

Highlights:

Symptoms of a surgical site infection include:⁴

- Redness and pain around the area where you had surgery.
- Drainage of cloudy fluid from your surgical wound.
- Fever

Patient Education prior to surgery to help prevent infections^{3,4,5}

Education is to be done under a healthcare providers guidance or in consultation with a health care provider.

- Bathing/showering should be done prior to surgery with soap and water to lower the bacteria on the skin. Inquire with your healthcare provider if any special soap is

necessary prior to surgery. Pre-operative bathing needs to occur. Depending on your facility, clean linens will be placed.

- Do not shave near where you will have surgery. Shaving with a razor can irritate your skin and make it easier to develop an infection.
- Underlying health issues like diabetes, allergies, or obesity may need to be discussed further due to an increased risk of infection.
- Smoking, vaping, or using smokeless tobacco should be stopped prior to surgery. Smoking and use of nicotine prevents healing due to lack of oxygen to tissues.

The steps patients can take to prevent surgical site infections include:

- Hands need to be clean before and after dressing changes at home. Inform family members to clean hands when visiting.
- If you have any symptoms of an infection, such as redness and pain at the surgical site, drainage, or fever, call your doctor immediately.
- Surgical site infections may not always occur within a few days or a week; if signs of infection are seen even after surgery, notify your doctor.

Steps that qualified Healthcare workers can do to prevent infections.^{3,4,5}

- Blood sugar control
 - Blood glucose less than 200 mg/dl to help wound healing, and to keep tissue healthy.
 - Educate patients on monitoring blood sugars preoperatively and postoperatively.
- Maintain a normal body temperature- which is 97.7–99.5 °F.
 - Helps tissue heal and creates less blood loss.
 - Help patient maintain body temperature by providing warm blankets or warmed IV fluids.
- Pre-surgery antibiotics
 - Helps prevent infections, used within an hour of surgery.
 - Typically, no further doses are given after-this is to prevent antibiotic resistance.
- Alcohol-based skin antiseptic agent
 - Use skin prep containing alcohol, chlorhexidine gluconate, or a povidone iodine solution.
 - This is to lower to bacteria growth on skin or surgical area.
- Supplemental oxygen
 - Administered in operating room and in post-anesthesia.
 - Helps maintain normal body temperature and replace the oxygen loss in tissues.

Some other actions that all staff can perform include:

- Staying home when sick.
- Clean your hands.
- Wear appropriate PPE.
- Clean and disinfect devices and patient spaces.

Summary: Successful prevention of surgical site infections starts with the patient and all healthcare workers involved with the patient. Healthcare workers can take steps in preventing infections before surgery and after. Extensive patient education and risk recognition to where germs live and how they spread can be the key to preventing infections.

For more information on recognizing risk for surgical site infections and related Project Firstline materials, see references below:

1. [Hand Hygiene in Healthcare Settings | CDC](#)
2. [Germs lives on the skin \(cdc.gov\)](#)
3. [Centers for Disease Control and Prevention Guideline for the Prevention of Surgical Site Infection, 2017 - PubMed \(nih.gov\)](#)
4. [Surgical Site Infection \(SSI\) | HAI | CDC](#)
5. Guidelines for Perioperative Practices. AORN. 2023 Edition.
https://content.yudu.com/web/1zk04/0A29evv/GuidePerPrac23/html/htmlArticles/index.html?origin=reader&page=1&article=/00_cover1.html *available with subscription only.
6. [Print Materials and Job Aids from Project Firstline | Infection Control | CDC](#)
7. [Germs can live in blood \(cdc.gov\)](#)
8. [Germs live in “the gut” \(cdc.gov\)](#)
9. [Germs live in “the gut” \(cdc.gov\)](#)
10. [Germs can live on devices \(cdc.gov\)](#)
11. [Germs live in water and on wet surfaces \(cdc.gov\)](#)