Wound classifications

QUESTION: At my facility, surgical team members continue to have questions concerning wound classifications. The Centers for Disease Control and Prevention (CDC) “Guidelines for prevention of surgical site infection” identifies four surgical wound classifications. Can AORN provide examples of wound classifications for surgical procedures that are not mentioned by the CDC?

ANSWER: The wound classification system is a formula that the surgical team uses for postoperatively grading the extent of microbial contamination, indicating the chance that a patient will develop an infection at the surgical site. In addition, it assists the surgeon in determining whether or not to use preoperative antimicrobial prophylaxis. The CDC uses an adaptation of the American College of Surgeons wound classification schema, which divides surgical wounds into four classes.

- **Class I/clean wounds**—an uninfected surgical wound in which no inflammation is encountered and the respiratory, alimentary, genital, or uninfected urinary tracts are not entered. In addition, clean wounds are primarily closed and, if necessary, drained with closed drainage. Surgical wound incisions that are made after nonpenetrating (ie, blunt) trauma should be included in this category if they meet the criteria.

- **Class II/clean-contaminated wounds**—a surgical wound in which the respiratory, alimentary, genital, or urinary tracts are entered under controlled conditions and without unusual contamination. Specifically, surgical procedures involving the biliary tract, appendix, vagina, and oropharynx are included in this category, provided no evidence of infection is encountered and no major break in technique occurs.

- **Class III/contaminated wounds**—open, fresh, accidental wounds. In addition, surgical procedures in which a major break in sterile technique occurs (eg, open cardiac massage) or there is gross spillage from the gastrointestinal tract and incisions in which acute, nonpurulent inflammation is encountered are included in this category.

- **Class IV/dirty or infected wounds**—old traumatic wounds with retained or devitalized tissue and those that involve existing clinical infection or perforated viscera. This definition suggests that the organisms causing postoperative infection were present in the wound before the surgical procedure. The schema is considered the gold standard by which wounds are classified. Areas not specifically addressed in the CDC document include wounds in pediatric patients; procedures performed outside of the OR such as from endoscopic procedures, cardiac catheterizations, and interventional radiology; and surgical wounds unique to minimally invasive procedures.

Exclusion of the above situations requires clinical judgment when ambiguity exists in determining how to classify a wound. Consultation with an infection control practitioner may be needed but the ultimate decision should be made by the surgeon. The following is a sampling of
procedures for which perioperative nurses have questioned what classification to apply:

- Wounds with an open drain (ie, Penrose drain)—class II
  - Rationale: open drains increase the risk of surgical site infection.¹
- Laparoscopic removal of an ectopic pregnancy—class I
  - Rationale: no inflammation or rupture is present.
- Laparoscopic cholecystectomy—class II
  - Rationale: the gallbladder, which is part of the biliary tract, is entered under a controlled environment.
- Cystoscopy—class II
  - Rationale: the urinary tract is entered under a controlled environment.
- Laparoscopic procedure in which a uterine manipulator is used—class II
  - Rationale: the vagina, an area of higher contamination, is entered; therefore, the wound classification defaults to the next higher level.
- Amputation for dry gangrene (ie, tissue death without presence of infection)—class III
  - Rationale: nonpurulent inflammation is present.
- Amputation for wet gangrene (ie, infected by saprogenic microorganisms)—class IV
  - Rationale: devitalized tissue is present and the microbial load is greater.

The term *major break* is used throughout the wound classification schema although it is not clearly defined in regard to aseptic technique; therefore, clinical judgment again becomes instrumental. Major breaks in aseptic technique may include those that come in direct contact with a patient (ie, skin-to-skin) or those that are indirect through a malfunction of environmental controls.

As of October 1, 2008, The Centers for Medicare & Medicaid Services no longer will reimburse facilities for certain hospital-acquired conditions. Correctly classifying a wound, therefore, becomes an important piece of the puzzle in preventing surgical site infections.

**REFERENCES**


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