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## **AST Guidelines for Best Practices in Bowel Technique**

### **Introduction**

The following Guidelines for Best Practices were researched and authored by the AST Education and Professional Standards Committee, and are AST approved.

AST developed the Guidelines to support healthcare delivery organizations (HDO) reinforce best practices in bowel technique as related to the role and duties of the Certified Surgical Technologist (CST®), the credential conferred by the National Board of Surgical Technology and Surgical Assisting. The purpose of the Guidelines is to provide information OR supervisors, risk management, and surgical team members can use in the development and implementation of policies and procedures for bowel technique in the surgery department. The Guidelines are presented with the understanding that it is the responsibility of the HDO to develop, approve, and establish policies and procedures for the surgery department regarding bowel technique according to HDO protocols.

### **Rationale**

The following are Guidelines related to the intraoperative use of *bowel technique*, also referred to as *bowel isolation technique*. The technique is utilized to prevent *cross-contamination* of the surgical abdominal wound by peritoneal microorganisms thus leading to a *surgical site infection* (SSI). SSIs are the third most frequently reported nosocomial infection.<sup>1</sup> In 2010, approximately 16 million surgeries were performed in acute care hospitals in the United States (U.S.).<sup>2</sup> A recent prevalence study reported that SSIs are the most common *healthcare-associated infection* (HAI), accounting for 31% of all HAIs in hospitalized patients at a cost of \$3.2 billion per year.<sup>3</sup> The CDC multistate point-prevalence survey of HAIs found that there were an estimated 157,500 SSIs associated with inpatient surgeries in 2011.<sup>4</sup> From 2006-2008, the CDC National Healthcare Safety Network (NHSN) data reported 16,147 SSIs in 849,659 surgical procedures.<sup>5</sup> However, there was encouraging data between 2008 and 2014; there was a 17% decrease in SSIs related to 10 select procedures including abdominal hysterectomy and colon surgery.<sup>6</sup>

SSIs result in an increase in postoperative days that the patient spends in the hospital and deep SSIs are associated with a greater increase in hospital stays and costs. Even though SSIs significantly contribute to the morbidity and mortality rates of surgical patients (mortality rate of patients with SSIs is 3%), improved surgical techniques such as the use of meticulous bowel technique aid in reducing the risk of SSI to the surgical patient.<sup>7</sup> In a focused study needle holders and tissue forceps used for anastomoses of the small intestine and colon were cultured. The study reported there was consistent contamination of the instruments for anastomoses of the small intestine and colon; however, there was a significant higher level of contamination for those instruments used during colon surgery.<sup>8</sup> A second study involving a literature review and clinical audit reported that the use of bowel technique is effective in preventing SSIs.<sup>9</sup> The results of the

studies support the practice of bowel technique on all surgical procedures that involve entry into the gastrointestinal (GI) tract for both open and endoscopic procedures. All members of the surgical team should be involved in the process of developing and implementing surgical department policies and procedures for establishing the consistent use of bowel technique.

### **Evidence-based Research and Key Terms**

The research of articles, letters, nonrandomized trials, and randomized prospective studies is conducted using the Cochrane Database of Systematic Reviews and MEDLINE®, the U.S. National Library of Medicine® database of indexed citations and abstracts to medical and healthcare journal articles.

The key terms used for the research of the Guidelines include: asepsis; bowel isolation technique; bowel technique; clean closure technique; clean and dirty scrub technique; cross-contamination; healthcare-associated infection; intraoperative bowel technique; isolation technique; principles of asepsis; principles of bowel technique; sterile technique; surgical site infection. Key terms used in the Guidelines are italicized and included in the glossary.

### **Guideline I**

**The principles of bowel technique should be utilized by the surgical team in order to avoid cross-contamination and reduce the risk of SSI to the patient.**

1. Bowel technique should be recognized as beginning when the GI tract is opened and ends once the tract is closed.<sup>10</sup>
  - A. The sterile surgical team should verbally confirm that the GI tract is being opened/entered.<sup>11</sup>
2. All items, including instruments, sponges, suction tip, Asepto®, light handles, Bovie tip, gloves and gowns, that come into contact with an open GI tract or are handled with gloved hands are considered contaminated.<sup>10,12</sup>
  - A. The CST should create two Mayo stand set-ups; one is for the clean incision (clean Mayo) and dissection into the peritoneal cavity as well as instruments, laparotomy drape, towels, sponges, Asepto®, light handles, suction tip, and Bovie tip for a clean closure, and a second set-up is for use on the open GI tract (contaminated Mayo). Additionally, a contaminated basin should be designated for the CST to place the surgical specimen to be handed off to the circulating person.
  - B. The instruments on the contaminated Mayo should be isolated from the clean Mayo and sterile back table.
  - C. The CST and other members of the sterile surgical team should not directly handle the supplies and instruments that are on the clean Mayo stand set-up and on the sterile back table until the GI tract has been closed, and gloves and gowns have been changed.
    - 1) In the instance when the CST needs to obtain additional instruments or supplies from the back table, he/she should place a sponge stick inside a small basin (kidney or round basin) to use to obtain the needed item. The CST should only touch the ring-handles of the sponge stick and replace back into the small basin for possible further use.<sup>11</sup>

- D. Sterile towels should be placed around the surgical incision site prior to the GI tract being opened to aid in reducing the possibility of cross-contamination and preventing a surgical site infection from GI tract spillage. According to surgeon's preference a polyethylene wound protector may also be utilized.<sup>12</sup>
- E. When closure of the GI tract is complete the CST should remove the Asepto®, suction tip, Bovie tip, and light handles to place with the other contaminated instruments and supplies on the contaminated Mayo stand set-up as well as remove the sterile towels or polyethylene wound protector that were situated around the surgical incision. The contaminated sponges should be thrown into the sponge bucket. The contaminated Mayo should be moved away from the sterile field and isolated, but within sight of the CST in order to complete instrument and sharps counts with the circulating person. The contaminated basin with surgical specimen should be handed to the circulator.
- F. After removal of the contaminated items and after to closure of the GI tract, the sterile surgical team should change gloves and gowns. The CST should be the first person to change his/her gown and gloves, and then assist the other sterile team members in donning new sterile gowns and gloves.<sup>10</sup>
- G. The CST should complete the following actions after changing the gown and gloves: new sterile laparotomy drape is placed over contaminated drape or incision site squared off with new towels placed over the contaminated drape according to surgeon's preference; new suction tip and Bovie tip placed; clean sponges brought onto the sterile field; new Asepto® obtained; new light handles positioned; and clean Mayo positioned.

## **Guideline II**

### **The surgery department should review the policies and procedures (P&P) regarding bowel technique on an annual basis.**

- 1. The surgery department should include members of the surgical team and administration when reviewing the P&Ps, including CSTs, surgeons, RNs, risk management and infection control officer.
  - A. The surgery department should document when the P&P was reviewed, revision completed (if necessary), and who participated in the review process.
- 2. CSTs should be familiar with the P&Ps for bowel technique. The orientation of new employees should include reviewing the bowel technique P&Ps.
  - A. The surgery department should establish a standardized routine for the use of bowel technique that CSTs should follow for all GI procedures. A consistent, standardized routine used by all CST is important to reducing SSIs.

**Guideline III****CSTs should complete continuing education to remain current in their knowledge of bowel technique in the OR.<sup>13</sup>**

1. Surgery department continuing education on bowel technique is essential to preventing SSIs, and emphasizing the *principles of asepsis* and *sterile technique*.<sup>13</sup>
  - A. The continuing education should be based upon the concepts of adult learning, referred to as andragogy. Adults learn best when the information is relevant to their work experience; the information is practical, rather than academic; and, the learner is actively involved in the learning process.<sup>14</sup>
  - B. It is recommended surgery departments use various methods of instruction to facilitate the learning process of CSTs.
    - 1) If the education is primarily lecture, methods to engage learners include presentation of case studies for discussion, and audience discussion providing suggestions for improving and reinforcing the use of bowel technique.
    - 2) Other proven educational methods include interactive training videos, and computerized training modules and teleconferences.
    - 3) The education should include CSTs practicing bowel technique in a simulated setting prior to implementing during a surgical procedure. The employer should provide the education in multiple languages if necessary.
    - 4) The continuing education should be delivered over short periods of time such as in modules, and not in a one-time lengthy educational session.
2. Continuing education programs should be periodically evaluated for effectiveness including receiving feedback from surgery department personnel.
3. The surgery department should maintain education records for a minimum of three years that include dates of continuing education; names and job titles of employees that completed the continuing education; synopsis of each continuing education session provided; names, credentials, and experience of instructors.

## Competency Statements

Competency Statements	Measurable Criteria
<p>1. CSTs have knowledge of the principles of asepsis and sterile technique in order to reduce the risk of SSI.</p> <p>2. CSTs can participate in the review and revision of surgery department bowel technique P&amp;Ps since they are experts in the principles of asepsis.</p>	<p>1. Educational standards as established by the <i>Core Curriculum for Surgical Technology</i>.<sup>15</sup></p> <p>2. The didactic subjects of the principles of asepsis and sterile technique are included in a CAAHEP accredited surgical technology program.</p> <p>4. Students demonstrate knowledge of the principles of asepsis and sterile technique in the lab/mock OR and during clinical rotation.</p> <p>5. As practitioners, CSTs implement the principles of asepsis and sterile technique including when necessary bowel technique.</p> <p>6. CSTs complete continuing education to remain current in their knowledge of the principles of asepsis and sterile technique, and up-dated techniques to prevent SSIs and cross-contamination including annual review of the policies and procedures of the surgery department.<sup>13</sup></p>

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## Glossary

*Asepsis:* Absence of bacteria, viruses and other microbes.

*Bowel isolation technique:* See bowel technique.

*Bowel technique:* Techniques used during gastrointestinal procedures to isolate the contaminated instruments and supplies from the clean to prevent the patient from acquiring a postoperative surgical site infection.

*Clean closure technique:* Use of clean instruments, e.g., needle holders, forceps, skin stapler, etc., that were isolated from contaminated instruments used during a gastrointestinal procedure to close the layers of the surgical wound.

*Clean and dirty scrub technique:* See bowel technique.

*Cross-contamination*: The unintentional transfer of bacteria and/or other microbes from healthcare personnel to the patient, or the patient or healthcare personnel come into contact with a contaminated fomite.

*Healthcare-associated infection (HAI)*: Infections that patients acquire during the course of receiving treatment for other conditions within a healthcare setting.<sup>6</sup>

*Intraoperative bowel technique*: See bowel technique.

*Isolation technique*: See bowel technique.

*Principles of asepsis*: Practices applied by surgical team members to prevent the patient from acquiring a postoperative surgical site infection.

*Principles of bowel technique*: See bowel technique.

*Sterile technique*: The techniques used to put the principles of asepsis into practice.

*Surgical site infection*: An infection that occurs within 30 days of a surgical procedure classified as either superficial incisional; deep incisional; organ/space.<sup>1</sup>

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