

## Selected Best Practices and Suggestions for Improvement

### PSI 14: Postoperative Wound Dehiscence

#### Why Focus on Postoperative Wound Dehiscence?

- Postoperative wound dehiscence occurs in up to 3% of abdominal surgeries, and is associated with significant risk of mortality between 14% and 50%.<sup>1</sup> Other adverse events include prolonged length of stay, subsequent surgeries and incisional herniation.<sup>2,3</sup>
- Proper identification of patients at risk, prevention of surgical site infections, and appropriate postsurgical wound assessment and help decrease the incidence of postoperative wound dehiscence. Though many risk factors are nonmodifiable, there are factors that can be addressed by hospitals, such as nutritional status and decreasing surgical error.
- Not only does postoperative wound dehiscence cause patient harm, it also significantly increases the cost of patient care.
- At least part of this cost is likely to be shouldered by hospitals. In 2008 the Centers for Medicaid and Medicare Services (CMS) identified surgical site infections (a risk factor for wound dehiscence) as one of a number of conditions for which hospitals do not receive the higher payment for cases when the condition was acquired during hospitalization.<sup>4</sup>
- Starting in 2015, the postoperative wound dehiscence PSI will be one of the measures used for Medicare’s Hospital Value-Based Purchasing (as part of a composite measure) that links quality to payment.<sup>5</sup>
- This indicator is also reported on Medicare’s Hospital COMPARE as part of the Hospital Inpatient Quality Reporting Program.<sup>6</sup>

Recommended Practice	Details of Recommended Practice
Wound dehiscence risk assessment.	Determine risk factors for postoperative wound dehiscence and identify patients at risk. <sup>1-3,7</sup>
Reduce the incidence of surgical site infections.	Administer timely and appropriate antibiotics preoperatively and postoperatively. <sup>1,2</sup>
Postoperative wound assessment.	Assess the surgical wound postoperatively and document any findings of wound dehiscence. <sup>1,2,7</sup>

#### Best Processes/Systems of Care

##### Introduction: Essential First Steps

- Engage key nurses, physicians, hospitalists, respiratory therapists, dietitians, pharmacists, and certified nursing assistants from infection control, intensive care, and inpatient units including operating room; and representatives from quality improvement, radiology, and information services to develop time-sequenced guidelines, care paths, or protocols for the full continuum of care.

**Recommended Practice: Wound dehiscence risk assessment.**

- Complete a preoperative assessment to identify factors that could increase the risk of postoperative wound dehiscence.<sup>1-3,7</sup>
  - Patient related:
    - Anemia
    - Hypoproteinemia
    - Jaundice
    - Male gender
    - Overweight
    - Increasing age
    - Infection
    - Poor nutrition
    - Diabetes
    - Smoking
    - Malignancy
    - Chronic pulmonary disease
    - Presence of prior scar or radiation at the incision site
    - Noncompliance with postoperative instructions (such as early excessive exercise or lifting heavy objects)
    - Increased pressure within the abdomen due to: fluid accumulation (ascites); inflamed bowel; severe coughing, straining, or vomiting
    - Long-term use of corticosteroid medications
  - Procedure related:
    - Emergency surgery
    - Types of surgery (clean vs. contaminated)
    - Surgical error
- When possible, eliminate or mitigate risk factors.
- Educate patient about risk factors of noncompliance with postoperative instructions.
  - Encourage elimination of smoking products before surgery.<sup>1,2</sup>
  - Optimize nutrition before surgery, especially increased protein.<sup>1,2</sup>

**Recommended Practice: Reduce the incidence of surgical site infections.**

- Consider chlorhexidine bathing preoperatively.<sup>8</sup>
- If removing hair prior to surgery, use the following appropriate techniques.<sup>1,9</sup>
  - Hair removal with clippers, depilatory, or no hair removal at all
- Prophylactic antibiotics should be administered within 1 hour prior to surgical incision.<sup>1,2,9</sup>

- Administer appropriate antibiotic selection based on evidence based guidelines<sup>1,2,9</sup>
- Reduce the amount of staff traffic in and out of the operating room
- Use appropriate wound dressings determined by the type of closure:<sup>1</sup>
  - Primary: Dry, sterile cover dressing for 24-48 hours
  - Secondary and chronic: Dressings that provide a moist wound healing environment while preventing it from becoming too wet
- Perform routine pain assessments to ensure early identification of delayed wound healing.<sup>1,2</sup>

**Recommended Practice: Postoperative wound assessment.**

- Documentation of the surgical wound should occur 48 hours after surgery to establish a baseline.<sup>1,2,7</sup>
- Repeat assessment should occur every shift thereafter.<sup>2,7</sup>
- Symptoms of wound dehiscence should be elicited, including<sup>1,2</sup>:
  - Bleeding
  - Pain
  - Swelling
  - Redness
  - Fever
  - Broken sutures
  - Open wound
  - Pulling or ripping sensation reported by patient

**Educational Recommendation**

- Plan and provide education on protocols and standing orders to physician, nurses, and all other staff involved in postoperative care. Education should occur upon hire, annually, and when this protocol is added to job responsibilities.<sup>1</sup>

**Effectiveness of Action Items**

- Track compliance with elements of established protocol steps.
- Evaluate effectiveness of new processes, determine gaps, modify processes as needed, and reimplement.
- Mandate that all personnel follow the sepsis protocol and develop a plan of action for staff in noncompliance.
- Provide feedback to all stakeholders (physician, nursing, and ancillary staff; senior medical staff; and executive leadership) on level of compliance with process.
- Monitor and evaluate performance regularly to sustain improvements achieved.

## Additional Resources

### Systems/Processes

- Agency for Healthcare Research and Quality. Universal ICU decolonization: an enhanced protocol. Available at: [http://www.ahrq.gov/professionals/systems/hospital/universal\\_icu\\_decolonization/index.html](http://www.ahrq.gov/professionals/systems/hospital/universal_icu_decolonization/index.html)
- Centers for Disease Control and Prevention (CDC). Surgical Site Infection (SSI). Available at: <http://www.cdc.gov/hai/ssi/ssi.html>.

### Policies/Protocols

- World Health Organization (WHO). Postoperative care. Summary based on Surgical care at the district hospital. Available at: <http://www.who.int/surgery/publications/Postoperativecare.pdf>.

### Tools

- CDC. Surgical Site Infection Toolkit. Available at: [http://www.cdc.gov/HAI/pdfs/toolkits/SSI\\_toolkit021710SIBT\\_revised.pdf](http://www.cdc.gov/HAI/pdfs/toolkits/SSI_toolkit021710SIBT_revised.pdf).
- WHO Surgical Safety Checklist. Available at: <http://www.who.int/patientsafety/safesurgery/checklist/en/>.

### Staff Required

- Surgeons
- Perioperative and postoperative nursing

### Equipment

- Dressing supplies
- Appropriate antibiotics

### Communication

- Systemwide education on policy/protocol of monitoring postoperative patients

### Authority/Accountability

- Senior leadership mandating protocol for all providers

### References

1. Orstod H, Koast DK, Kuhnko J, et al. Best practice recommendation: prevention and management of open surgical wounds. *Wound Care Canada* 2010;8(1):6-32.
2. Hahler B. Surgical wound dehiscence. *Medsurg Nurs* 2006 Oct;15(5):296-301.
3. Van Ramshorst G, Nieuwenhuizen J, Lange J, et al. Abdominal wound dehiscence in adults: development and validation of a risk model. *World J Surg* 2010 Jan;34(1):20-7. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2795859/>. Accessed July 2, 2014.

4. Hospital-acquired conditions (HAC) in acute inpatient prospective payment system (IPPS) hospitals. Fact sheet. Baltimore, MD: Centers for Medicare & Medicaid Services; October 2012. Available at: <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/downloads/HACFactSheet.pdf>. Accessed June 23, 2014.
5. Hospital Inpatient Quality Reporting (IQR) Program measures (calendar year 2014 discharges. (Prepared by Telligen under contract to the Centers for Medicare & Medicaid Services.) Available at <http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic/Page/QnetTier3&cid=1138900298473>. Accessed June 23, 2014.
6. Medicare Hospital Compare. Measures displayed on Hospital Compare. Available at: <http://www.medicare.gov/hospitalcompare/Data/Measures-Displayed.html>. Accessed July 2, 2014.
7. Beattie S. Bedside emergency: wound dehiscence. Modern Medicine 2007 Jun 1. Available at: [www.modernmedicine.com](http://www.modernmedicine.com).
8. Universal ICU decolonization: an enhanced protocol. Rockville, MD: Agency for Healthcare Research and Quality; September 2013. AHRQ Publication No. 13-0052-EF.. Available at: [http://www.ahrq.gov/professionals/systems/hospital/universal\\_icu\\_decolonization/index.html](http://www.ahrq.gov/professionals/systems/hospital/universal_icu_decolonization/index.html) . Accessed July 2, 2014.
9. Specifications Manual for National Hospital Inpatient Quality Measures, Version 4.3. The Joint Commission. 2014. [http://www.jointcommission.org/specifications\\_manual\\_for\\_national\\_hospital\\_inpatient\\_quality\\_measures.aspx](http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx) (January 16, 2014).