Selected Best Practices and Suggestions for Improvement

PSI 15: Accidental Puncture or Laceration

Why Focus on Accidental Puncture and Laceration?

- Accidental puncture and laceration is not uncommon among hospitals in the United States. According to the Healthcare Cost and Utilization Project, the risk-adjusted rate of this indicator was 2.83 per 1,000 eligible patients in 2008.[1]
- Based on data from the Nationwide Inpatient Sample, cases flagged by this PSI had 2.2% excess mortality, 1.3 days of excess hospitalization, and $8,300 in excess hospital charges, relative to carefully matched controls that were not flagged. Data from the VA hospital system showed similar findings, where cases that were flagged by this PSI had 3.2% excess mortality, 1.4-3.1 days of excess hospitalization, and $3,359-6,880 in excess hospital costs, relative to carefully matched controls that were not flagged.[1]
- At least part of this cost is likely to be shouldered by hospitals, as accidental puncture or laceration is considered an avoidable complication. In 2008 the Centers for Medicaid and Medicare Services (CMS) identified accidental puncture or laceration 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.[2]
- Starting in 2015, the accidental puncture and laceration 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.[3]
- This indicator is also reported on Medicare's Hospital COMPARE as part of the Hospital Inpatient Quality Reporting Program.[4]
- Accidental puncture and laceration can also result in harm to health care personnel. Occupational exposure to bloodborne pathogens from needlesticks and other sharps injuries is associated with the approximately 385,000 needlesticks and other sharps-related injuries to hospital-based health care personnel that occur each year. Sharps injuries are primarily associated with occupational transmission of hepatitis B virus, hepatitis C virus, and HIV, and have been implicated in the transmission of more than 20 other pathogens.[5]
- Although there is little evidence on preventing patient accidental puncture-laceration, practices leading to the prevention of staff puncture-laceration can reduce risk for patients also.

Recommended Practice	Details of Recommended Practice
Use appropriate safety techniques during the perioperative period.	Use appropriate safety measures to protect patients and staff from accidental punctures and lacerations during the perioperative period.
At close of the surgery, appropriately dispose of all sharps.	Dispose of all needles and other sharps in appropriate containers after the completion of the surgery.

Best Processes/Systems of Care

Introduction: Essential First Steps

- Engage key nurses, physicians, and surgical technicians from the 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.[6]

Recommended Practice: Appropriate Safety Techniques During Perioperative Period

- Use appropriate equipment selection methods[6-8]:
    - Use scalpel blades with safety blades.
    - Use mechanical/instrument tissue retraction.
    - Use blunt surgical instruments.
    - Use alternative cutting methods (e.g., cautery, harmonic scalpel).
- Keep used needles on the sterile field in a disposable puncture-resistant needle container.
- Adopt a hands-free technique of passing suture needles and sharps between perioperative team members.[6,9]
- Use a one-handed or instrument-assisted suturing technique to avoid finger contact with needles.
- Use control-release or pop-off needles.
- Double glove.[8,10]
- Do not bend, break, or recap contaminated needles.[9]

Recommended Practice: Appropriate Sharps Disposal

- Use closable orange or red, leak-proof puncture-resistant disposable containers.[7]
- Place disposal containers close to the point of use.[7]
- Empty routinely and do not allow to overfill.[7]
- Use mounted, upright containers, either floor or wall.[7]

Educational Recommendation

- Plan and provide education on protocols and standing orders to physician, nurses, and all other staff involved in accidental puncture and laceration prevention and care. Education should occur upon hire, annually, and when this protocol is added to job responsibilities.

Effectiveness of Action Items

- Track compliance with elements of established protocol steps.[7]
- Evaluate effectiveness of new processes, determine gaps, modify processes as needed, and reimplement.[7]
- Mandate that all personnel follow the 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.[7]

Additional Resources

Systems/Processes

- Centers for Disease Control and Prevention. Workbook for designing, implementing and evaluating a sharps injury prevention program. Available at: http://www.cdc.gov/sharpssafety/resources.html.
- ECRI Institute. Sharps Safety & Needlestick Prevention. Available at: https://www.ecri.org/Products/Pages/Sharps_Safety_Needlestick_Prevention.aspx.
- Occupational Safety & Health Adminisntration. Needlestick/Sharps Injuries. Available at: https://www.osha.gov/SLTC/etools/hospital/hazards/sharps/sharps.html.
- American Nurses Association. Needlestick prevention guide. Available at: http://www.nursingworld.org/MainMenuCategories/WorkplaceSafety/Healthy-Work-Environment/SafeNeedles/NeedlestickPrevention.pdf.

Tools

- World Health Organization. Needlestick Injury Prevention Assessment Tool. Available at: http://www.who.int/occupational_health/activities/2needlest.pdf.

Staff Required

- Surgeons
- Perioperative nurses
- Surgical technologists

Equipment

- Personal protective equipment
- Sharps containers

Communication

- Systemwide education on protocol
- Communication between surgeon and surgical nurse/surgical technician on agreed upon neutral zone

Authority/Accountability

- Senior leadership mandating protocol for all providers

References

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3. 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 24, 2014.
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10. Recommended practices for prevention of transmissible infections in the perioperative setting. In: Perioperative standards and recommended practices. Denver, CO: Association of periOperative Registered Nurses; December 2012. p. e91-123.