Anesthesia Provider's Preception on Preserving Asepsis at the Epidural Catheter Hub

Kindra Dominique, BSN, RN, SRNA, & Travis Barcelow, BSN, RN, SRNA.
Project chair: Dr. Amanda Bracken, DNAP, CRNA.
Project Mentor: Emily Triana-Olin, CRNA, & Project Reviewer: Dr. Janice Lowden-Stokley Ph.D., RN, CNE.
AdventHealth Doctor of Nurse Anesthesia Program

Problem

One of the biggest risks of an epidural catheter is infection, which can cause life-threatening and sometimes irreversible harm to the patient as well as delay medical discharge[1].

A 2011 survey conducted by McKenzie and Darragh, surveying 164 anesthesia clinicians, found that 128 of the providers responded that they adhered to uniform best practice, while 21 of the providers did not follow any of the best practice guidelines. The remaining 15 abstained from responding to the question[2].

While the McKenzie and Darragh (2011) survey cannot be generalized, it suggests that there may be an inconsistent application of best practices to epidural catheter hub management.

This project will identify the knowledge providers have on maintaining aseptic conditions at the catheter hub.

Literature Review

Epidural catheter infections can occur along a spectrum from as mild as a skin level cellulitis around the entry site to an infection of the epidural space or meninges that can cause permanent neurological deficits and death.

There are three routes through which an infection can occur with the epidural catheter. The first is at the level of the skin and the microorganism spreads down the exterior of the catheter. The second is caused by hematological spread which occurs when the epidural catheter passes through infected blood while being placed (i.e septic patient). The third and final route is through intraluminal spread occurring from an organism growing on the epidural catheter hub and being flushed into the epidural space or from infected medication being injected.

Even with epidural catheters being placed under sterile precautions and with sterile dressings, a review of the literature found that 8.8%-53%, with an average of 23.6% of epidural catheters, tested positive for bacterial growth.

Methods

Project Design

- The survey tool, *Prevention of Infection with Epidurals and Spinals – A National Survey of Practice in Obstetric Units* created by McKenzie and Darragh (2011) will be sent via email to anesthesia providers which will provide a link to where a copy of the survey can be completed anonymously.

Inclusion Criteria

- Currently licensed and practicing Anesthesiologists and Nurse Anesthetists.

Exclusion Criteria

- Incomplete or unanswered surveys.

Results

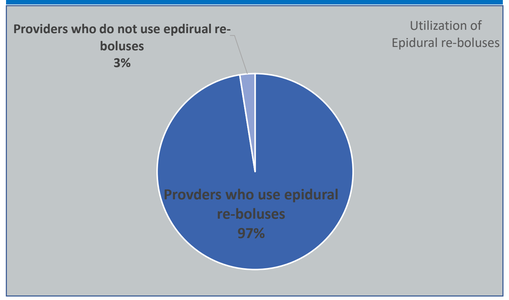
Assess if there is a discrepancy between provider's practice and established policy.

- There are no established policies regarding epidural hub asepsis. There were no recommendations from companies that manufacture or package epidural kits concerning evidence based best practice guidelines for maintaining epidural catheter hub asepsis.

Assess if there is a discrepancy between provider's practices for maintaining asepsis of an epidural catheter's hub.

- Of the 40 completed surveys only 1 provider responded that they did not re-bolus medication through an epidural (Illustration 1).
- Of the 39 providers who do redose through the epidural port, 8 of them do not clean the epidural port prior to injecting medication through it (Illustration2).

Illustration 1

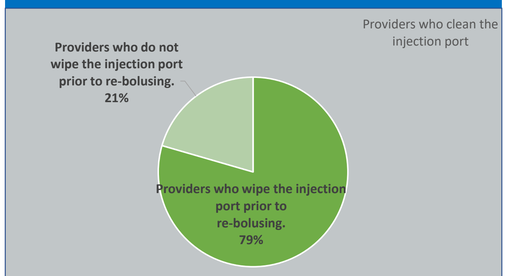


More Results

Assess if there is there a need for an educational module to standardize provider care.

- This research shows that there is a discrepancy between provider practice for maintaining epidural asepsis at the epidural catheter hub

Illustration 2



Discussion & Implications

- Conduct further evidence-based research on if using alcohol on the epidural catheter port is detrimental or not to patients.
- A set standard of care should be created so that providers are able to follow a set practice guideline based on research.
- Provide education regarding the practice gap among anesthesia providers.

Conclusions

- Additional evidence-based research on the use of iso-propyl alcohol being utilized on the epidural catheter hub before an informed recommendation can be made.
- Address discrepancy or knowledge gaps among provider practice.

Acknowledgements

Thank you to Emily Triana, CRNA, for being our project mentor whom was always readily available to provide encouragement and answer questions. Thank you to Dr. Janice Lowden-Stokley as our project reviewer. We would additionally like to thank Amanda Bracken, DNAP, CRNA who searched as our research chair for all the time she spent helping us bring this research to fruition.

AdventHealth UNIVERSITY