Quality Improvement Process for Reducing Central Line-Associated Blood Stream Infections

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Abstract

The purpose of this paper is to evaluate a strategy leadership can take in order to reduce the rate of central line-associated blood stream infections in a hospital setting. The process includes identifying a clinical need for change, creating a specialized interdisciplinary team, implementing strategies for change in standards of practice, and evaluating the goals after the change in practice has taken place. Through this process the ability to increase patient safety and lower the cost of healthcare is proven.
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Each year there are approximately 80,000 central line infections that occur in hospitals. Of these infections, about 30,000 will result in patient death and cost the health care system an average of $45,000 to treat per infected patient; leading to an estimated total expense of $2 billion annually (McMullan, Propper, Schumacher, Sokoloff, Harris, Murphy, & Greene. 2013). There is strong evidence to suggest that preventing central line-associated bloodstream infections (CLABSI) will result in better patient outcomes and a reduction in health care costs. In 2014, the Joint Commission developed an on-line toolkit that outlines evidence-based practices and techniques to assist health care organizations prevent and sustain a zero standard for CLABSI’s. By utilizing the practices and techniques provided by The Joint Commission, health care costs and patient outcomes can be significantly improved. This paper will analyze a collaborative team approach for the reduction and prevention of CLABSI’s.

Clinical Need

One of The Joint Commission’s 2014 National Patient Safety Goals for Hospital Accreditation, states that hospitals are to “implement evidence-based practices to prevent central line–associated bloodstream infections” (2014). The Joint Commission outlines the 13 elements of performance in order to achieve this specific goal, they include: 1) proper education regarding the importance of managing central lines and preventing CLABSI’s for all personal responsible for monitoring and caring for the central lines (2) patients and their families are required to be informed of the risks involved with central line placement prior to insertion (3) implementation of evidence-based practice and policies for the prevention of CLABSI’s must be put into practice (4) monitor CLABSI’s by performing periodic assessments and evaluating prevention interventions (5) presenting the acquired data and prevention outcome measurements to
appropriate staff (6) utilize a protocol and catheter checklist for the insertion of central lines (7) enforcing strict hand hygiene prior to insertion and care of central lines (8) do not use the femoral vein for catheter line placement, unless it is absolutely necessary (9) a standardized kit must be developed to be used during central line insertion (10) a sterile barrier must be used during insertion (11) the patient’s skin must be prepped using an antiseptic that has been proven effective by evidence-based practice (12) utilization of a protocol for the disinfecting of catheter hubs and injection ports (13) continued monitoring of the need for the central line and removal of it immediately when it is no longer needed (2014). This goal and its elements were designed to diminish one of the leading causes of mortality and morbidity that is plaguing our health care system.

**Interdisciplinary Team**

It is important when instituting change in a healthcare environment, that a collaborative approach consisting of all representatives of the healthcare team are involved in the process. When all members of the team are involved it will ensure that policies are being followed through with appropriately and outcomes can be managed effectively.

**Nursing Staff**

This includes both licensed and non-licensed staff. They are the individuals that are directly responsible for monitoring and caring for the central lines. Their responsibilities would be to continually assess central lines for signs of infection, the use of proper insertion technique, dressing maintenance, and the continued need for the central line.

**Physician Staff**

Physicians and physician assistants are responsible for determining the need for a central line to be placed, the appropriate location of placement, and that proper sterile technique is used
during placement. It is also important that physician staff continuously monitor the patient for signs of infections and discuss the necessity for the central line to remain in place daily.

**Nurse Manager**

The role of the nurse manager would include educating the staff regarding the upcoming policy changes and to provide the clinical evidence showing that change is necessary. The nurse manager would also have to support the staff nurses during the period of change, by being a resource, answering questions, and encouraging proper communication between the interdisciplinary team.

**Quality Management**

Quality management is responsible for chart audits, monitoring and collecting the outcomes of the policy changes, and coordinating the data results for staff to review.

**Data Collection**

According to Yoder-Wise (2014), “after the multidisciplinary team forms, the group collects data to measure the current status of activity, service, or procedure under review” (p.396). Quality management would collect the data and provide a flowchart in order to illustrate the root causes, gaps and missed opportunities for improvement related to CLABSI’s (Khalid, Salmi, Qushmaq, Hroub, Kadri, Qabajah, 2013). A histogram could be utilized to depict how often central lines are being placed for particular conditions; helping to illustrate the possibility of the overuse of central lines. After quality management has collected, interpreted, and organized the data they will then present the findings to the interdisciplinary team (Yoder-Wise, 2014).
Estabishes Outcomes

The goals for improvement would be based on The Joint Commission’s recommendations previously stated. It would be imperative that the multidisciplinary team would have to raise staff’s awareness and make it everyone’s responsibility in order to change the CLABSI rates (Khalid, Salmi, Qushmaq, Hroub, Kadri, Qabajah, 2013). Mandatory educational meetings would be organized for appropriate education, and educational flyers would be placed in highly visible areas for staff reference in order to enforce hospital policy regarding central-line care and to create an environment that reflects change positively. Performing random audits that focus on compliance with central line prevention policies, hand hygiene, and line insertion techniques would also be required.

Implementation Strategies

During this time, the team will discuss all plans and strategies for the outcomes to be reached. A plan will be implemented and the process will begin to produce change (Yoder-Wise, 2014). At this point, staff should be ready for the change and education should have taken place: expectations and goals for a zero CLABSI rate are put into motion. During this period, continued data collection would be taking place and the data would be posted for staff to visualize on a monthly basis in order to reflect the positive outcomes of their interventions (Khalid, Salmi, Qushmaq, Hroub, Kadri, Qabajah, 2013). The established objectives for this phase would include: significant decline in the number of days a central line has been in place, improved hand hygiene, and an overall decrease in CLABSI rates.

Evaluation

As the plan continues to be implemented, the interdisciplinary team continues to gather and analyze the data in order to verify that the established outcomes are being met. If it is noted
that an outcome is not being met, then the plan must be reexamined and modified. The interdisciplinary team may need to meet periodically to evaluate data and ensure the process is moving forward smoothly; if not then the team must meet in order to overcome obstacles (Yoder-Wise, 2014). Successful completion of the process would not only show a change in CLABSI rates, but a change in the way the healthcare team views CLABSI’s and the importance of preventing them; they will demonstrate the new standards of care and it will be reflected in the decreased CLABSI rates.

**Conclusion**

Interdisciplinary teams are essential to identifying opportunities for change in order to improve patient outcomes and decrease the cost of healthcare. It takes a collaborative effort to design a plan for implementing change and new standards of care. When this process is applied to the current healthcare problem revolving around CLABSI’s there is proof that patient mortality and healthcare costs can be significantly impacted. Current evidence shows that when these interventions are put into place CLABSI’s can be lowered and sustained at a rate of zero for long periods of time (Khalid, Salmi, Qushmaq, Hroub, Kadri, Qabajah, 2013).
References


