Overview:

State the Quality Issue you Worked On:

In the past decade there has been a fundamental shift in how surgical patients are viewed. Previously, the focus was strictly on the surgical procedure from the actual incision, intervention to the outcome. Now preparing a patient for surgery is not just viewed solely in the context of a surgical incision and outcome but rather the role of the surgical team from pre-admission through discharge. At the Boone County Health Center (BCHC) this shift did not go unnoticed. Led by a team composed of the Quality Improvement Coordinator, Director of Clinical Services and Surgical Nurse coordinator, the team began to refocus medical staff to view the surgical process as a continuum of care from what should occur before, during and after surgery. Redefining the surgical process at BCHC resulted in significant outcomes including an increase in patient safety and satisfaction; improved communication between patients and medical providers; 100-percent compliance to a benchmark in patient care and satisfaction among medical staff, administration and the Board of Trustees that our Health Center is meeting the goal of our mission statement to provide to our patients and communities the highest quality of care and services. Specifically, the quality issue we undertook was to apply a best practice to ***Achieve a Standard of Care in the Administration of Prophylactic Antibiotics to Surgical Patients 1-hour Prior to Surgery at the Boone County Health Center.***

Describe How You Identified this Issue:

In 2002, BCHC entered into a contract with a consultant to obtain, review and extract specific data as it relates to Quality Improvement projects at the Health Center. While the information was compiled for BCHC, it was not submitted to Nebraska's CIMRO for

comparison with other organizations and in quantifying our facility's results due to time and manpower constraints. In 2004, BCHC allocated funds to hire additional manpower to assist BCHC's Quality Improvement Coordinator in compiling and submitting to CIMRO benchmark data for review including data indicating the timeframe in which prophylactic antibiotics were given to surgical patients at the Health Center.

Results from CIMRO data were shared with medical providers, administration, departmental supervisors and Board of Trustees in 2005 at a biennial strategic planning workshop. As CIMRO results were reviewed at the planning session, collected surgical data showed a 0-percent compliance (1st quarter) with the surgical benchmark for administrating antibiotics within a one-hour window prior to surgery. At the strategic planning session, staff chose 42 performance indicators (industry benchmarks) and combined these indicators with CIMRO data to target concerns over the next two years. The consensus among staff was to develop a responsive, goal-oriented plan that could continue to track performance while providing staff with knowledge and tools for improvement. Priority was given to those areas that were identified as "low compliance" to industry standards including giving antibiotics within the optimal one-hour timeframe prior to surgery. One of the results of quality reporting of performance indicators is not only how our organization identified this deficiency but also how BCHC went from 0-percent to 100% compliance in administrating prophylactic antibiotics to surgery patients one hour prior to surgery.

Discuss the Importance this Issue has for Your Organization and Patients. Because the Boone County Health Center is the singular and primary source of healthcare and essential services for the twelve rural communities within a 45-mile radius, the impact

this issue has on the service area is significant. The potential to affect our patients, communities and our organization exists in three areas. Those areas where the project's impact would be most felt are patient safety, public trust and the capacity to expand future services offered by the Health Center.

Patient Safety: Providing optimal, standard of care practices to valued patients is at the core of this project. All patients, not just surgery patients must believe that patient safety is a priority and a documented practice at BCHC. Achieving a 100-percent compliance rate in the administration of prophylactic even life-saving antibiotics within the optimal one-hour window prior to surgery for surgical patients was our commitment and goal to increased patient safety.

Public Trust: It is critical that our patients trust us to provide quality care based on best practice guidelines. As public reporting and accountability on quality healthcare issues becomes more prevalent, our organization must be able to demonstrate through nationwide data comparisons and performance reviews in those areas being measured that our healthcare services are trustworthy, excellent and worth choosing.

Future Services: Rural sustainability is closely linked to a community's overall health status. Healthy people supported by a quality healthcare system are able to work, take care of their families and in turn, return resources to their communities. As a healthcare organization, it is important to continue to expand and build our capacity to offer new services to our service area. Increased capacity and new services allows BCHC to not only retain but also build on market share. During the timeframe of this project, BCHC sought to add new surgical services to its roster. Among these services was total joint replacement surgery, which required 100% compliance to the standard of care for the

timeframe of antibiotics given prior to surgery. This requirement added further incentive to attain our goal of 100% compliance. Of note, within our service area, 27% of our rural residents are age 65 or older. This is an important demographic because often individuals in this demographic are: 1) unwilling or unable to access medical care outside of their service area and 2) older individuals tend to need more specialty medical services, all of which was taken into consideration in our ability to meet our patient's need to access new, medically appropriate healthcare services like total joint replacement surgical options.

Provide a Brief Overview of the Project, including the stakeholder and how they were affected. Although the medical staff prides itself in the quality of care delivered at the hospital, there is always room for improvement, and in this case, much improvement. With quality reporting reviewed at the Health Center's strategic planning workshop showing a 0-percent compliance statistic in giving antibiotics 1 hour prior to surgery, our staff charted the following steps for improvement:

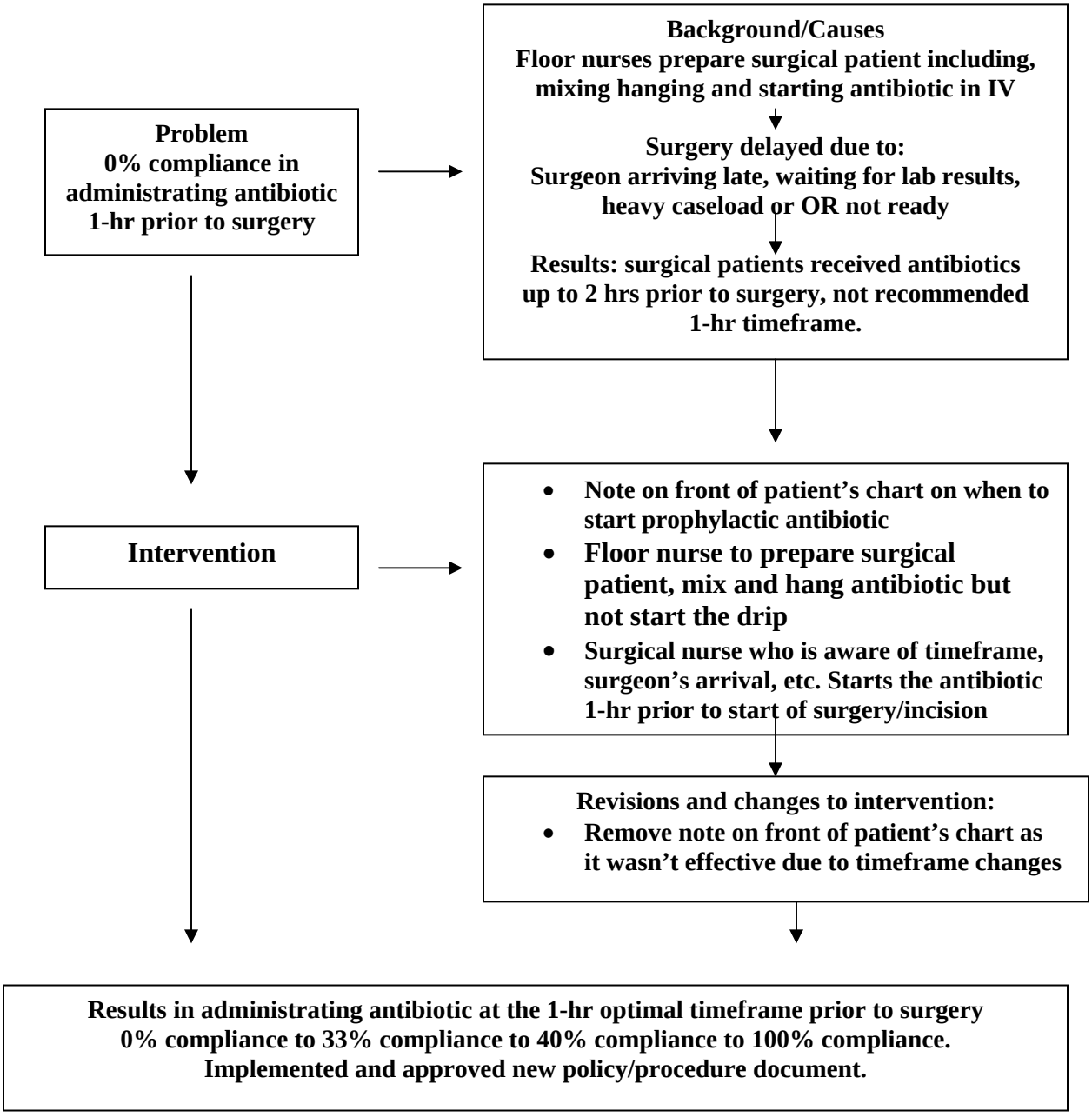
- Form collaborative team composed of the following stakeholders: medical providers, Clinic Services Coordinator, Quality Improvement Coordinator, nursing staff; surgical nurses/and supervisor; Certified Registered Nurse Anesthetist; Quality Analyst for BCHC and specialty surgeons utilizing our facility. However, the ultimate stakeholder in this project was our patients.
- Research and understand the standard of care, other hospital's protocol for administrating antibiotics prior to surgery, and the importance of compliance as it relates to patient safety.

- Provide educational opportunities, tools and meaningful discussion with targeted medical staff. Actively sought "new ways to teach old things**"** with workshops for all involved employees to relearn, discuss and exchange ideas to achieve 100% compliance in giving antibiotics within 1 hour timeframe prior to surgery. Supervisors strongly encouraged to value all employee discussions and input.
- Drafted a policy and procedure for this criteria.
- Implemented new plan.
- Continued data tracking, timely extraction of data and quality reporting to benchmark BCHC's surgical patient outcomes in the administration of antibiotics prior to surgery.
- Fine tune original intervention and methods with updates.
- Finalize and receive approval of new policy when compliance rate achieved 100%.

Methods:

Describe the intervention approach implemented (the process used).

With the ultimate goal of achieving 100% compliance in administrating prophylactic antibiotics 1-hour prior to surgery, the lead team members worked towards implementing an appropriate plan using the PDSA approach. This approach involves **Planning:** identifying and planning improvements; **Do:** implementing the intervention and continue to track results; **Studying:** reviewing the collected data, checking for errors; and **Act:** actions taken to optimize and retain positive changes and gains. The following chart illustrates the process. (See page 6)



Identify the Timeframe for Intervention: The overall timeframe for the project was November 2005 through the successful completion of the project in August 2006.

November 2005: Quality issue identified at Strategic Planning Workshop from review of data submitted to CIMRO. Priority given to form collaborative team, seek input from OR staff, Anesthesia Department, Surgeons, floor nurses and medical providers.

Research protocol and standard of care for quality issue. Compliance rate was charted at 0% for antibiotics given 1-hour prior to surgery/incision for surgical patients.

November 30, 2005: First draft of intervention plan includes note on front of patient's chart stating what time the antibiotic is to be started by floor nurses who prepare patient for surgery.

February 2006: The compliance rate for the project was reported at 40%. Lead team reviewed, analyzed and discussed results with OR nurses and floor nurses. Reviewed policy and decided to continue tracking data and remain with first draft of intervention policy.

May 2006: The compliance rate on this quality issue was still hovering in the 40-50% range. The team agreed this was unacceptable and the intervention needing strengthening beyond just a standing order note on a patient's chart indicating when to start the antibiotic. Combined, the Quality Improvement Coordinator, Clinical Supervisor and Surgical Nurse Coordinator changed the intervention by having the floor nurse prepare the surgical patient, mix and hang the antibiotic but the Surgical Nurse would begin the flow of the antibiotic on the patient since the Surgical Nurse was more aware of any delays in the surgical schedule. The intervention was also revised to include deleting the note of what time to start the antibiotic on the patient's chart. In addition, the Surgical Nurse would keep a list of patient's names and which floor nurse they were assigned to. The surgical nurse coordinator would monitor if any floor nurse was starting a surgical patient's IV antibiotic prior to surgery.

August 2006: First quarter quality reporting of data on this project showed 100% compliance of administrating antibiotics within the optimal 1-hour timeframe prior to

surgery, which is the project's improvement and goal. The success of the project hinged on the simple step of shifting the job flow from the floor nurse preparing, mixing, hanging and starting a surgical patient's antibiotic to the floor nurse preparing, mixing and hanging the antibiotic but not starting the IV antibiotic. The actual starting of the IV antibiotic drip was allocated to the surgical nurse. The rationale for the surgical nurse actually starting the IV flow within the optimal 1-hr timeframe was based on the knowledge that the patient's surgical nurse was better able to accurately gauge when a patient's initial incision and surgery would begin because of her awareness of surgical delays due the surgeon arriving late, waiting for lab results or the readiness of the surgical suite.

Identify the Stakeholders: The success of this project is closely linked to establishing ownership at all levels. Successful outcomes are hinged on participation of the stakeholders and their sharing of ideas and suggestions that are valued and factored into the intervention. The stakeholders were identified as medical providers, Clinical Services Coordinator, Quality Improvement Coordinator, nursing staff, surgical nurses and supervisor, Certified Nurse Anesthetist, BCHC quality analyst and specialty surgeons. However, consumers of the Health Center are the ultimate stakeholders in the successful completion of this project.

Provide demonstration of organizational buy-in: how the work environment enabled employees to participate.

Organizational buy-in and momentum for the project was accomplished by 1) collaborative input from the organization's stakeholders (not including patients) early in the process to discuss, analyze and provide educational training and tools for the involved staff to understand and feel comfortable with; 2) value placed on the stakeholders views

and input. No one's opinion was dismissed or overlooked; 3) a strong focus on sharing quality reporting information and 4) an equally strong focus on a non-punitive organization where quality improvements and shared knowledge empowers the capacity of our employees to design a meaningful and attainable intervention to solve problems that increase patient safety and satisfaction.

Describe the indicators used to measure the results. The indicators used to achieve 100% compliance in administrating prophylactic antibiotics within a 1-hour timeframe prior to incision were provided by CIMRO. A copy of these criteria is attached.

Show how the intervention led to the improvement identified. The effectiveness of the project and intervention is demonstrated by going from a 0% compliance rate in administrating antibiotics 1 hour prior to surgery to 33% to 40% to the goal and optimal compliance rate of 100% achieved by August 2006. Details of the intervention's success are described in timeframe section.

Results

What were your results? Discuss the improvement that was achieved as a result.

In the course of ten months, BCHC's surgical department saw their 0% compliance in the standard of care recommendation for the timely administration of antibiotics prior to surgery increase from 33% to 40% before achieving 100% compliance. As a result of achieving this quantified goal, BCHC's surgical department realized it had attained the best practice standard in this quality improvement area. This standard directly impacts BCHC's already low surgical incision infection rate as well as its nosocomial infection rate by reinforcing and ensuring the surgical incision and nosocomial infection rate will remain well below the national level.

Include Examples of Procedures/Policy. See attachment of BCHC's approved policy as a result of achieving 100% compliance.

Lessons Learned

Identify Barriers: Two barriers were identified while successfully completing this project. 1) There was reluctance among staff to change. At first, the surgical department wanted to continue to do things the "old way" since the infection rate was already low and they did not believe that upgrading the compliance rate would make a difference. There was an adherence to "do things the old way" not how to find "new ways to do old things." 2) There was an unwillingness between both the floor and surgical nurses to accept responsibility for administrating antibiotics to surgical patients within the 1-hr optimal timeframe. Neither department wanted to fail and be accountable for trying to implement the intervention. Both of these barriers could have been eliminated earlier had the leadership team reinforced the no-blame environment, increased collaborative efforts and promoted education on the importance of this matter earlier.

Sustainability of Intervention: To sustain this intervention, the Quality Improvement committee will be doing concurrent reviews of all surgical charts to ensure the intervention is on going. In September 2006, the QI committee will discuss with medical staff quality improvement results on this policy and if further applications need to be investigated.

Portability of Intervention: Quality assurance reporting and public accountability are vital; actively seek and value meaningful collaborative projects among staff; encourage staff who can see across disciplines to take an active role in problem-solving; provide staff with educational opportunities to empower them to think creatively.