Constraining Function as a Means of Reducing OR Traffic

Jonathon Salava MD, Thomas Riley IV MD, Felix H. Cheung MD, Kristie Winters RN, Franklin D. Shuler MD, PhD and Ali Oliashirazi MD

Department of Orthopaedic Surgery, Marshall University, Huntington, WV 25701

Introduction

The burden of surgical site infections (SSI) results in greater utilization of health care resources1-4, but it also takes a toll on the patient.5 In order to reduce such infections, initiatives directed at optimizing the patient preoperatively and improving surgical technique have been developed. Enhancing the surgical environment has also had significant effects on infection rates. Operating rooms have accomplished SSI reductions by utilizing ventilation, addressing shedders, and limiting length of surgery and number of staff in the room. There is also evidence that limiting operating room (OR) traffic may decrease SSI rates6-8. One potential method of limiting traffic is to employ a constraining function, which requires completion of the constraining task prior to proceeding, to restrict unnecessary entry.

Objective of this QI/PS Project

We introduced a foot traffic monitoring tool requiring a signature prior to entering or leaving the OR as a constraining function and compared this traffic to a monitored control room to demonstrate the effectiveness of a constraining function in limiting OR traffic.

Methods

From January 1, 2012 to October 31, 2012 OR traffic, defined as the number of door openings between incision and closure, were monitored during the cases of two surgeons. One author’s room was identified as the constraining room with sign-in sheets on the inside and outside of each entrance. Another author’s room acted as a control room in which traffic was recorded by the circulating nurse without the remaining staff aware. Cases were limited to total hip and knee arthroplasties, as well as unicompartmental knee arthroplasties. The median and mean traffic for the two rooms were compared, and the Mann-Whitney U test and Student’s t-test were utilized to assess for statistical significance.

Results

A total of 332 arthroplasties were performed during the study period, 270 in the constraining room and 62 in the control room. The median and mean for the constraining room traffic was 3 and 3.17 respectively, with a range of 0 to 10 door openings. Conversely, the traffic in the control room was significantly higher with a median of 10 (p<.00001) and a mean of 10.55 (p=.00001) with a range of 2-27 door openings.

Discussion

The utilization of a constraining device, such as a foot traffic monitoring tool, demonstrated significantly less OR traffic when compared to the control room. The room traffic in the control group, however, remains within the range of traffic described in the current literature (6-83 door openings per case). The use of a constraining function in the OR setting is poorly described with no similar studies available for comparison. Most traffic studies utilize a sign with other monitoring methods, but are void of any constraining devices. Limitations of the study include a potential selection bias. The pre-study traffic of the constraining room was not known, and may have already been significantly less than that of the control room. A follow up study to analyze traffic trends after removal of the device may help validate its utility.

Conclusion

The OR traffic monitoring tool requiring staff to sign-in anytime the OR door is opened demonstrated great promise as a constraining function to limit room traffic. Further study is necessary to validate this effect. Currently, monitoring of the constraining room is being performed without a sign-in sheet for comparison.

Acknowledgments: The authors would like to thank Russell Villars and Steve Sparklock for their assistance in data collection.

References (continued):
Who are you? A.W.A.Y. to Help Families Recognize Medical Team Member Roles

Rebecca M. Hayes, MD,1,2 Afton Wickline, MS-4,3 Christina Hensley, MD,1 Kelsey Cowen, MS-2,3 Ashley Jessie, MD,1,2 Melanie Akers, MSN RN NE-BC,4 Jenna Dolan, MD,1 Audra Pritt MD,1 Shea Goodrich MD,1 Kelly O’Neill, BSN RNC,4 Susan L. Flesher, MD1

**Aim Statement**

- 80% of the families would understand the roles of the supervising (attending) physician, doctors (residents) and medical students after implementation of one or more QI interventions.

- The first Plan-Do-Study-Act cycle consisted of 3 modifications of the FCR introduction:
  1. Supervising doctor leads introduction and were given script to help standardize
  2. Level of education of each team member was included in the introduction
  3. Supervising doctor focused on engaging the family during introductions

**Team Members**

- The team consisted of 3 pediatric supervising doctors (attendings), 4 doctors (residents), 2 nurse leaders and 1 medical student

**Interventions**

- Supervising doctor
- Do you recognize this person? (a) Yes (b) No
- What is their title/role? (a) Supervising doctor (b) Doctor (c) Medical student (d) Nurse (e) Patient care assistant (f) Nursing student (g) Other

**Key Drivers**

- Clarity of verbal introductions and descriptions of roles
- Family’s attention and engagement during introductions and descriptions
- Family’s understanding of language used to describe the roles
- Family’s expectations of an attending doctor
- Readability and clarity of name tags
- Accessibility of picture and written role
- Familiarity and ease of name tags
- Familiarity and ease of introducing

**Affiliations**

1Department of Pediatrics, Joan C. Edwards Marshall University School of Medicine, Huntington, WV; 2Department of Internal Medicine, Joan C. Edwards Marshall University School of Medicine, Huntington, WV; 3Marshall University School of Medicine, Huntington, WV; 4Hospital at Cabell Huntington Hospital, Huntington, WV

**Comparison of Pre to Post Intervention % of Families Who Knew Role**

<table>
<thead>
<tr>
<th>ROLE</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
<th>% Difference</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervising Doctor</td>
<td>49%</td>
<td>68%</td>
<td>+19%</td>
<td>0.005</td>
</tr>
<tr>
<td>Doctor</td>
<td>39%</td>
<td>69%</td>
<td>+30%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Medical Student</td>
<td>75%</td>
<td>76%</td>
<td>+1%</td>
<td>0.094</td>
</tr>
</tbody>
</table>

**Conclusion**

Although we did not meet our goal of 80% recognition of healthcare team members’ roles, we did significantly improve recognition with the first PDDSA cycle. Ideas for future PDSSA cycles include whiteboards in each patient room with pictures and names as well as nametags emphasizing the role of each member.
Impacts/ Beliefs of Efforts

According to the CDC, 50% of needlesticks go unreported nationally. OSHA requires Employers to report exposures, Needlestick Safety and Prevention Act 2000. Risk of transmission: HIV-0.3%, Hepatitis B-6% to 30%, Hepatitis C-1.8%.
Worldwide: 2 million of 35 million healthcare workers are exposed each year.
37.6% cases of Hepatitis B, 39% cases of Hepatitis C, 4.9% cases of HIV in Healthcare workers are from needlesticks.
Chronic HBV and HCV account for more than 50% of new cases of chronic liver disease—a leading cause of death.
Approximately 4.4 million people are estimated to be living with HBV and HCV infection; most do not know they are Infected.

In West Virginia, between 2007 and 2011:
Reported rates of acute hepatitis B increased by 36%. Reported rates of acute hepatitis C increased by 150%.
Approximately 20% of BBPE at Marshall Health involved source patients with Hepatitis C and 2% of source patients with HIV/AIDS. Reporting of injuries can decrease rates of injury by identifying risk prone behaviors.

Barriers to reporting: Inadequate training, resources support and accessibility, ignorance or apathy to learn, perception of low risk, anxiety and fear, too time consuming, did not want to stop work at hand, felt post-exposure prophylactic was not beneficial.

Problem Statement

According to the CDC, approximately 50% of healthcare workers do not complete follow up for their blood borne pathogen exposures. Healthcare workers underreport exposure incidents. Our goal is to improve compliance of needlestick reporting and follow up visits and to determine infectious rate with or without post-exposure prophylaxis (PEP). To assure patient safety through compliance.

Steps to Further Improvement

To gather data on Marshall Health employees to determine barriers to compliance by using a job-specific survey with the following questions:
- Gender
- Age Range
- Task performing when exposure occurred.
- Exposure history

Fears or apprehensions that kept you from reporting your exposure
Did you know what to do when exposure occurred?
Any other barriers that kept you from reporting your exposure?

1. After information has been reviewed, determine if initiation of increased education, convenience of services has made an impact. This information will be used to educate new and existing employees.

2. Form a Safety Sub-Committee with a focus on preventing bloodborne pathogen exposures. This committee will be comprised of Marshall Health management, Nurse Managers, Resident and Attending Physicians, and Housekeeping Management to define problems and develop strategies to prevent further exposures.

3. Review of sharps injury prevention devices, determine if new products would provide more safety to employees.

4. Increasing education on proper use and disposal of equipment, protocols for reporting/follow up.

Further Improvements Implemented

Increase awareness of services offered by Marshall Occupational Health & Wellness. Post-Exposure follow up care is offered to all employees. We offer on-site follow up as well as extended evening hours by appointment.
To reduce hospital length of stay, readmission rates, and rapid response codes in patients with asthma by standardizing albuterol weaning by using a validated scoring system that may be used by respiratory therapists, nurses, and physicians.

**Scientific or Scholarly Rationale**

Asthma causes significant morbidity and even mortality in the pediatric patient population. Standardizing albuterol weaning could not only reduce hospital length of stay, readmission rates, and rapid response codes, but it would then also decrease parental time off work, patient school absences, nosocomial acquired infections, hospital cost, and adverse psychological effects of hospitalization in children. Larger institutions have implemented and studied this model and have shown success, however, we would like to show this model can work at smaller institutions with fewer resources.

**How to calculate the Pediatric Asthma Score (PAS)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- obtained over 30 sec, multiply x2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-3 years</td>
<td>≤34</td>
<td>35-39</td>
<td>≥40</td>
</tr>
<tr>
<td>4-5 years</td>
<td>≤30</td>
<td>31-35</td>
<td>≥36</td>
</tr>
<tr>
<td>6-12 years</td>
<td>≤26</td>
<td>27-30</td>
<td>≥33</td>
</tr>
<tr>
<td>&gt; 12 years</td>
<td>≤23</td>
<td>24-27</td>
<td>≥28</td>
</tr>
<tr>
<td>Oxygen requirement - obtained with pH on room air for 2 min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90-92% on RA</td>
<td>≤93%</td>
<td>93-92%</td>
<td>≥92%</td>
</tr>
<tr>
<td>Auscultation</td>
<td>Clear breath sounds</td>
<td>Expiratory Wheezes</td>
<td>Inspiratory and Expiratory Wheezes or Diminished breath sounds</td>
</tr>
<tr>
<td>Work of breathing -nasal flaring</td>
<td>≤1 accessory muscle</td>
<td>2 accessory muscles</td>
<td>≥3 accessory muscles</td>
</tr>
<tr>
<td>-suprasternal muscle use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-intracostal muscle use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-subcostal muscle use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyspnea</td>
<td>Speaks full sentences, playful</td>
<td>Speaks partial sentences</td>
<td>Speaks short phrases, grunting</td>
</tr>
</tbody>
</table>

**Purpose of Research**

We will retrospectively look at all hospital admissions with ICD-9 codes of asthma or asthma exacerbation for age two to eighteen years and analyze their length of stay, readmission rates within thirty days and rapid response codes for a 1 year period of September 2013 to September 2014. We will then prospectively analyze, during the time period of September 2014 to September 2015, the same data after implementing albuterol weaning protocol and look for improvement in length of stay, readmission rates, and rapid response codes. We will exclude patients with the diagnosis of viral bronchiolitis, croup, chronic lung disease (BPD, CF, airway anomalies), cardiac disease, or those who require intubation and ventilator support.

**Procedures to be Performed**

Prior to implementation of weaning protocol, albuterol is weaned on as case-by-case basis with different physicians’ discretion based on work of breathing, auscultation findings, and time since last treatment.

**Inpatient Asthma Exacerbation Protocol**

**Description of Procedures Already Being Performed for Diagnostic or Treatment Purposes**

The risks of implementing an albuterol weaning protocol are very low, but potentially, patients could be weaned too soon. Also, risk involved in having respiratory therapists and nursing staff making medical decisions by allowing them to determine if albuterol can be weaned. However, the potential benefit is better patient care because asthma patients will be assessed more often using a validated scoring system for weaning albuterol. Therefore, patients will potentially have shorter hospital length of stay, readmissions and rapid response codes due to more frequent assessments.

**Inpatient Progression Through Protocol based on Pediatric Asthma Score**

**Risks and Potential Benefits of Research**
Indications for urinary catheter:

1. Perioperative use
2. Accurate measurement of urinary output in critically ill patients (ICU).
3. Promote healing of pressure ulcers in incontinent patients.
4. Management of acute urinary retention or obstruction.
5. Improved patient comfort for end of life care.

Don’t be naughty, prevent C.A.U.T.I!

Estimated 1 in 4 patients receive an indwelling urinary catheter during hospitalization; 50% of these are unnecessary.

MONEY, MONEY, MONEY!!!
C.A.U.T.I.’s are NOT reimbursed. Almost ALL are caused by instrumentation.

Plans for Prevention of C.A.U.T.I.
- Didactic education for residents by Urological specialists.
- Collaboration between nursing and residents to reduce catheter days and insertion frequency.
- Bladder scanner utilized prior to foley catheter insertion.

- Institute “foley rounds” with resident and charge nurse.
- If hemodynamically stable, consider removal of foley catheter.
- Bowel regimen for constipation to prevent urinary retention.

Contacts

Sabrina Esenbock
Rob Sias, RN – MICU
Dr. A. Zawodniak – IM resident
Dr. Nusair – Infectious Disease
Dr. Shorman – Infectious Disease

Indications for urinary catheter:

1. Perioperative use
2. Accurate measurement of urinary output in critically ill patients (ICU).
3. Promote healing of pressure ulcers in incontinent patients.
4. Management of acute urinary retention or obstruction.
5. Improved patient comfort for end of life care.

CAUTI rates for CHH compared to NSHN benchmark since 2010.

Table 1: Examples of Appropriate Indications for Indwelling Urinary Catheter Use

<table>
<thead>
<tr>
<th>Diagnosis/Condition</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perioperative care</td>
<td>Necessary</td>
</tr>
<tr>
<td>Shock</td>
<td>Necessary</td>
</tr>
<tr>
<td>Surgery</td>
<td>Necessary</td>
</tr>
<tr>
<td>Inability to void</td>
<td>Necessary</td>
</tr>
<tr>
<td>Obstructed bladder</td>
<td>Necessary</td>
</tr>
<tr>
<td>Neurogenic bladder</td>
<td>Necessary</td>
</tr>
<tr>
<td>Bladder catheter</td>
<td>Necessary</td>
</tr>
</tbody>
</table>

References:
Central Line Associated Blood Stream Infections in the trauma population: An initiative to reduce hospital acquired infections and central line days

Farzad Amiri MD, Matthew Krantz MD, Thomas Alberico MD, Rahman Barry MBBS, Alex Baronowsky MD, Jason, Brown MD, Jeffrey Groves MD, Hagger Ali MS3, Victoria Watson MS3, Jason Adams MS3, Audrey Dean MS3, Farid Mozafarri MD FACS, David Denning MD FACS

Marshall Health Department of Surgery

Introduction

In the United States today, Central line associated blood stream infections (CLABSI), are a topic of much debate with scrutiny from Centers for Medicaid & Medicare. While the indications for placement and use of central lines are at the discretion of the prescribing physician, focus is now on criteria for removal of the central line, with early removal obviously allowing less time for infection to occur. The CLABSI rate nationally ranges from 1.14-1.65 per 1000 central line days. We propose instituting a protocol similar to those with urinary catheters that are aimed at reducing catheter associated urinary tract infections (CAUTI). Our goal is to reduce the average central line days in our trauma population.

Methods

A retrospective analysis of our trauma population admitted from 10/1/2013 through 9/30/2014 were collected including whether central lines were placed emergently in the trauma bay or semi-urgently in the surgical ICU setting. Exclusion criteria include age <18, patients expiring within 30 days of admission, patients with sepsis or bacteremia prior to central line placement, peripherally inserted central catheters (PICC). Inclusion criteria includes central lines placed in patients >18 years of age, placed emergently or urgently in the trauma bay and/or ICU.

Results

A total of 652 patients were identified within our trauma registry, of those 130 were excluded by age, death, or burn with 523 left in the study. Of those 523 patients, 55 central lines were placed, 19 were placed emergently in the trauma bay, 9 ultrasound guided (non-emergently), and locations identified by picograph (see left). The average Hospital stay was 4.61 days, 30 percent of those required an ICU admission. The average ICU admission was 5.12 days, and Ventilated days were 2.45 days. The average Central line was placed for 9.21 days for all admissions.

Proposal

We propose a new set of protocols in order to reduce central line days as well as reduce the possibility of central line associated blood stream infections.

- Notify MD if central line site appears erythematous, indurated, purulent
- Notify MD daily if central line is in place >3 days for justification. Exceptions: Patient on TPN or central line placed for poor peripheral access.
- Nurse order: If patient is not on TPN, place peripheral IV’s and notify MD before central line removal except in ICU setting
- Nurse order: may use central line...
Discrepancy in EBUS Performance

Division of Pulmonary and Critical Care and Sleep medicine, Internal Medicine, JCESOM
Yousef R Shweihat, MD FCCP, DAABIP. Loui Abdelghani, MD

Introduction or Background
Endobronchial ultrasound guided biopsy is currently the initial test of choice for sampling the mediastinal lymph nodes and is recommended by different lung cancer societies as the first choice in mediastinal staging. It has been reported that only a few procedures are enough for training purposes on the special equipment needed to do the procedure. We believe to the contrary of the current available evidence, that extended periods of training and prolonged exposure to this procedure is needed to adequately use it to its full potential.

Statement of Problem or Question
In our institution, we are studying the overall performance of our physicians in the use of endobronchial ultrasound guided biopsy both as a diagnostic tool and as a staging tool for lung cancer. We are looking at the different factors that affect the adequacy and yield of this procedure. Training and length of experience and number of procedures performed are being studied as factors.

Findings to Date
We have reviewed a large number of the procedures performed (154 procedures). To date, the adequacy of the procedure has been about 90% for all users which is in agreement to what is reported in the literature from the major centers. There is a slight difference between the different practitioners with adequate sampling ranging from 85 to 96%. Mediastinal staging for lung cancer (obtaining 3 or more lymph nodal samples) was not consistent between practitioners. There was a difference between practitioners regarding the indications for the procedure. Benign etiology as an indication varied from 18% to 62%.

Objectives of Program/Intervention
Our goal is to increase the adequacy of the use of EBUS-TBNA. We also want to increase the rate of adequate mediastinal staging if performed for a suspected lung cancer case.

Description of Program/Intervention (Methods)
The collection of data has not yet been completed. We are reviewing the last 6 months of procedures currently. It is expected that the adequacy of the sampling process will improve when the practitioners have more experience in the procedure. If the data from the last 6 months does not show any improvement in the yield or adequate sampling, a series of lectures are planned. Interventions with posters and reminders on the location and access to different mediastinal stations will be placed in the different bronchoscopy suites. Notes to encourage sampling all mediastinal nodes when staging for cancer will also be placed in the bronchoscopy suite.

Success factors & Lessons Learned
We have identified a discrepancy in the performance of EBUS guided bronchoscopy and biopsy between the different practitioners. Once the final data is available, and interventions are implemented, improvement in yield and adequacy of sampling are expected. New procedures and skills need to be monitored by the programs and hospitals to assure the safe performance of these procedures.

Future goal: or Conclusion/Implementation
After completing collection of additional data and implementation of our interventions, we will reassess the different discrepancies and performance of this new, standard of care procedure.

References


Introduction:
Hospital acquired infections cause significant morbidity and mortality, especially in burn patients. Recent studies have shown that decontamination protocols have decreased the incidence of hospital acquired infections in the ICU. Recent observations in our burn unit have shown a high incidence of hospital acquired infections, especially with methicillin resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa*. The purpose of this study was to develop a universal decontamination protocol for a high volume burn center and evaluate its effect on the incidence of overall infections in the burn patient population.

Methods:
A universal decontamination protocol was established in May 2014 for all burn patients who were admitted to the ICU. This protocol consists of a daily bath from the neck down with 2% chlorhexidine, even on the burns. All patients on admission and monthly thereafter are treated with Bactroban to the nose for 5 days. Previous to this protocol the burn patients were cleaned with Dial soap and water daily and only received Bactroban treatment if the admission nasal swab was positive. The incidence of MRSA colonization, central line infections, catheter associated urinary tract infections, and ventilator associated pneumonia were compared prior to and after the implementation of the protocol to assess efficacy.

Results:
Results are currently pending due to recent initiation of this protocol however a significantly lower incidence of infection clinically has been seen by the staff since it’s induction.

Discussion:
Patients with burns are at significant risk for hospital acquired infections due to the loss of the protective layer of skin and the resultant immune suppression related to burns. Thus a higher incidence of infections have been seen in this patient population with resultant increases in morbidity and mortality. Decontamination protocols have been shown to improve hospital acquired infection incidence. We plan to show that a decontamination protocol can be established for burn patients with improvement in overall incidence of infection as a result.

References:
Currently, there is no standardized format for the patient handoff used amongst the General Pediatric Floor Team. The current process involves a nonintegrated, paper handoff tool (Excel spread sheet) that includes various information, including name, date of birth, date of admission, admitting diagnosis, medicines, lab results and pending labs, and a non-standardized verbal handoff of information regarding each patient. We will survey the current residents and faculty about the handoff process that is in place as part of a pre-intervention measure of the current system. The process of standardizing patient handoff will occur in two parts. The first phase will be to implement the I-PASS handoff system, a standardized verbal tool. The residents of the pediatric program will undergo a 2-hour workshop that includes didactic lectures, role-playing, and lessons on team work and communication.

The second phase of standardizing the handoff process will include adapting an electronic/paper handoff tool that is integrated with the electronic medical records. It will replace the aforementioned nonintegrated, paper handoff tool.

The patient handoff process will be evaluated by residents and pediatric hospitalists after implementation of each phase of the standardization. The primary outcomes will be medical errors, adverse events, and level of confidence among the residents with the handoff system.

BACKGROUND

In today’s world of postgraduate medical education, work hour restrictions have created an issue that was not present in the days past: an increased number of patient handoffs. Patient handoffs are a communication between two health care teams or individuals when a shift change occurs, although this definition is not clearly defined in literature. These handoffs are vital in today’s health care system. With increasing number of patient handoffs, there is also the possibility of higher rates of medical errors and adverse events.

Miscommunications or “handoff errors” are a leading cause of medical error or adverse events. The majority of patient handoffs have a verbal and a written component. While there may be some structure, there is usually no standardized format. There is a need to standardize patient handoffs and some programs have implemented a standard format that has shown to decrease medical error and adverse events associated with patient handoffs.

REFERENCES

Misclassification of Operative Wounds
Marco Yung, M.D. // Brian Gibson, M.D. // Farid Mozaftari M.D.
Dept. of Surgery, Joan C Edwards School of Medicine, Marshall University

Abstract

Misclassification of operative wounds can lead to an underestimation of the risk for a surgical site infection. Operative reports from 15 exploratory laparotomies were reviewed to determine a wound classification. This was compared to the one documented peri-operatively by the operating room staff. Correct classification was found in only 20% of cases, 20% were placed incorrectly into a higher class and 53% was misclassified into a lower wound class. Correct wound classification will allow accurate stratification of a patient’s risk of developing a surgical site infection. This is becoming increasingly important in an age of outcomes based performance review. Further study will be needed in order to expand the sample size.

Introduction

Our institutional practice is for a wound classification, based on the degree of contamination, to be documented for each procedure by the operating room nurse. The wound classification is often done without input from the operating surgeon. Unfortunately, the degree of contamination may change depending on the course of the surgery (i.e. iatrogenic bowel injury) and may not be accurately reflected in the documented wound classification. This is especially true in exploratory laparotomies as they can range from a clean case (lysis of adhesions) to a dirty case (perforated viscera). We hypothesize that misclassification of wounds in exploratory laparotomies leads to an underestimation of the wound class.

Methods

There were a total of 234 general surgical cases performed in the month of November 2013, of which 16 were exploratory laparotomies. The operative reports were reviewed and a wound classification given based on the intra-operative findings. Wound classifications were based on the CDC guideline for prevention of surgical wound infections (1). The four wound classes are: Clean, clean-contaminated, contaminated, and dirty (Table 1).

Results

15 of the 16 cases were documented as a class II wound. One case did not have a wound classification entered. On review of the operative records, one case was incorrectly categorized as an exploratory laparotomy and was excluded from the analysis. Three of the cases fit the definition of a clean wound. Three others were found to be clean-contaminated and correctly classified. 8 cases were found to be dirty wounds (Graph 1). Only 20% of wounds were correctly identified. 3 wounds were incorrectly documented into a higher class and 8 were misclassified into a lower wound class.

Discussion

Surgical site infections (SSI) are the most common hospital acquired infections (HAI), accounting for 31% of all HAIs (2). In addition, SSIs are associated with a 3% mortality rate (3). Precise data from the surveillance of SSIs is essential in reducing the risk of SSI. Correct classification is especially important as we transition to outcomes based performance review. Accurate wound classification will allow identification of patients who are at higher risk of SSIs. Examination of one month’s exploratory laparotomies revealed that a large percentage of wounds were misclassified. We hope to expand the time period in which operations are reviewed to increase our sample size. Using this data, we may be able to influence a change in our current practice that will reduce the error in wound classifications.

Table 1. Four classes of wound contamination.

An uninfected operative wound in which no inflammation is encountered and the respiratory, alimentary, genital, or uninfected urinary tract is not entered. In addition, clean wounds are primarily closed and, if necessary, drained with closed drainage. Operative incisional wounds that follow nonpenetrating (blunt) trauma should be included in this category if they meet the criteria.

Class I/Clean:

An operative wound in which the respiratory, alimentary, genital, or urinary tracts are entered under controlled conditions and without unusual contamination. Specifically, operations involving the biliary tract, appendix, vagina, and oropharynx are included in this category, provided no evidence of infection or major break in technique is encountered.

Class II/Clean-Contaminated:

Operative, fresh, accidental wounds. In addition, operations with major breaks in sterile technique (e.g., open cardiac massage) or gross spillage from the gastrointestinal tract, and incisions in which acute, nonpustular inflammation is encountered are included in this category.

Class III/Contaminated:

Old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection or perforated visera. This definition suggests that the organisms causing postoperative infection were present in the operative field before the operation.

Class IV/Dirty-Infected

References

Optimization of an Obstetrical Triage Unit

People

- Nursing staff familiar with and trained for OB triage unit
- Resident and attending physicians aware of triage policies/uploads
- Prior notification of patient referred to triage from provider

Patients

- Proper patient prioritization
  - Gestational Age
  - Decreased fetal movement
  - Labor/Vaginal Bleeding
- Proper prior patient education of use of obstetrical triage unit

Protocol

- Guidelines for patient placement
  - Trauma patients to ER
  - EMS calls unit en route

Process

- Efficient patient registration

Availability of support staff
- Phlebotomy/Lab
- Radiology - US/CXR/CT
- Housekeeping - room turnover

Patient Safety in an Obstetrical Triage Unit

Use of an Ishikawa diagram or cause-and-effect diagram to improve patient safety

Ashleigh Clickett, DO
Jared Brownfield, MD
Arifa Khokar, MD
Rachel Edwards, MD
The Post-Operative Checklist

Kathryne Blair, M.D. and Rebecca Klug M.D.
Marshall University, Joan C. Edwards School of Medicine Department of Surgery

Introduction

The task of caring for surgical patients is dynamic, complex, and requires persistence from all members of the team. The hospital course of a patient depends, in part, on how well the team is prepared to take care of the patient. A well-prepared team knows the patients medical history, clearly understands their current surgical condition and is equipped to deal with any untoward events.

Sometimes the patient suffers events during their hospital course that are unpredictable and unmanageable or she may suffer a preventable event.

Factors V Leiden, Thrombophilia and the use of DVT, stopped venous last month due to cost
Develops post-op fever, prolonged hospital course; routine abdominal pain
Develops Primary Embolism

Preventable Event:
medication reconciliation were completed, poor history

Though caring for surgical patients has improved over the decades, patients are still suffering from adverse events that increase cost and length of stay, as well as their mortality. One study showed that 14.4% of surgical patients suffered adverse events; these include unintended injuries and healthcare mismanagement. More than one-third of these events were found to be preventable.

In another study, patients sent to the SICU from the surgical ward or died were found to have preventable events.

40 y/o Female POD 3/6 Laparoscopic Appendectomy

Post-OP Checklist

Strategies to overcome preventable failures as above are as simple as a creating a checklist. Standardizing routine tasks allows for safe and reliable care of patients. During the immediate post-operative period, there are many issues that the surgical team must address to ensure proper care of the patient during their stay.

POST-OPERATIVE CHECKLIST

- Patient ID
- Diagnosis
- Labs / Imaging / Diagnostics
- Surgery
  - Surgeon / Resident
  - Events
  - Specific instructions
- Co-morbidities
  - Medication reconciliation
    - Home medications
    - New Medications
    - DVT/GI prophylaxis
- Diet
- Vitals / Monitoring
- Oxygen / Incentive Spirometer
- IV access
- Labs / diagnostics ordered
- Fluids
- Drains / Tubes location & care
- Wound Care
  - Urinary Function, (Catheter)
- Bowel Function
- Activity
- Consults
- Potential issues
- Discharge planning

Further Research

Ward rounds, checkouts and discussions of patient care occur multiple times per day. During each of these events, at least a few items are discovered had not been during the immediate post-operative period. These items have the potential to cause clinical issues when not addressed early enough. As the surgical personal rotate through the wards, these individuals have variable levels of experience in managing these types of patients. Applying a post-operative checklist during this time can regulate the variations.

On the surgical wards, the use of standardized lists for patient assessment and evaluation post-operatively does enhance the patient care. Applying these types of measures are inexpensive to execute and provide invaluable benefits when preventable events leading to patient morbidity & mortality are avoided.

The next step would be to survey the surgical team concerning the usefulness and applicability of the checklist, making modifications as needed. Once the list is incorporated into the routine of the surgical resident’s workflow, data collected from the users may determine the overall satisfaction of using the checklist.

Composing a checklist tailored to the needs of the surgical team implements a standardized approach to patient care. Improvements in patient care include: assuring appropriate orders for the patient, assessing the needs of the patient earlier, identifying concerns that have the potential to cause a decline in the patient’s status, and improving documentation and communication.

References

Initiation of Protocol at Cabell Huntington Hospital to Manage Postpartum Hemorrhage
Melissa A. Rowe, MD :: Jesse N. Cottrell, MD
Department of Obstetrics and Gynecology, Marshall University, Huntington, WV

Introduction:
- Postpartum Hemorrhage (PPH) is the leading cause of maternal mortality
- PPH defined by a loss of 500 mL of blood after vaginal delivery, 1000 mL of blood after a cesarean section
- Observed estimated blood loss is commonly only about half the actual loss
- The diagnosis of PPH is usually reserved for pregnancies that have progressed beyond 20 weeks gestation

Currently there are no standardized guidelines or protocol at Cabell Huntington Hospital to manage postpartum hemorrhage.

Epidemiology:
- Overall global rate of PPH is approximately 10.8%
- Rate in North America approximately 13%
- Rate is higher for multiples versus singletons (32.4% compared with 10.6%)
- Rate is higher for primagravidas versus multigravidas (12.9% versus 10.0%)
- 5% of women delivering vaginally lose more than 1000 mL of blood
- PPH risk increases with increasing BMI

Obstetrical Hemorrhage Causes:
- Uterine atony
- Trauma during labor and delivery
- Small maternal blood volume
- Abnormal placentation
- Coagulation defects

We are proposing a protocol to manage postpartum hemorrhage. Our goal is for the rate at Cabell Huntington Hospital to be <10%.

We propose a protocol to manage postpartum hemorrhage. Our goal is for the rate at Cabell Huntington Hospital to be <10%.

Maternal Mortality and Severe Morbidity

<table>
<thead>
<tr>
<th>Cause</th>
<th>Mortality (1-2 per 1000)</th>
<th>ICU Admit (1-2 per 1000)</th>
<th>Severe Morbidity (1-2 per 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTE and APE</td>
<td>10%</td>
<td>6%</td>
<td>2%</td>
</tr>
<tr>
<td>Infection</td>
<td>10%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>15%</td>
<td>30%</td>
<td>45%</td>
</tr>
<tr>
<td>Preeclampsia</td>
<td>15%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Cardiac Disease</td>
<td>25%</td>
<td>20%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Our proposed protocol includes:

Stage 0: Risk assessment and management of third stage of labor in all patients
- Assess every mother for risk of hemorrhage
  - Low risk-Monitor
  - Medium risk-Type and Screen
  - High risk-Type and Screen with Crossmatch for 2 Units PRBCs
  - Evaluate for additional risk factors and treat/monitor appropriately

Stage 1: Blood loss > 500cc for Vaginal Delivery or >1000cc for CS or VS changes
(by <15% or HR >110, P < .05/45, O2 Sat < 95%)
- Notify 08 resus if not present, charge nurse and anesthesia
- VS with O2 saturation 15mm with cumulative assessment of blood loss at that time
- Careful assessment with good exposure of vaginal wall and cervix
- Assess uterine cavity and placenta if delivery
- Anec to intervene with minimum 16 gauge – give I.V's as appropriate
- Increase Oxytocin and request fundal massage
- Give Methergine 0.2mg IM (if not hypertensive) – Can repeat if still if no response
- Move to 2nd stage uterotonics; Hemabate 25mg IM (if not ASTHMIC) or Misoprostal 800mg PR
- Empty bladder
- Type and crossmatch for 2 Units of PRBCs if not previously done

Quality Improvement and Learning:
- Establish post-event debriefs to identify positive outcomes and areas for improvement
- Data collection by retrospective chart review to assess maternal and fetal outcomes and progress towards goal
- Further improvement will focus on identification of risk factors unique to patients presenting to Cabell Huntington Hospital

Proposed Obstetric Hemorrhage Care Protocol

<table>
<thead>
<tr>
<th>Stage 2: Continued bleeding with Blood loss &lt; 1500cc</th>
</tr>
</thead>
<tbody>
<tr>
<td>O.B to bedside if not there already and call for 2nd OR resident to assist</td>
</tr>
<tr>
<td>Continue VS and cumulative blood loss assessment Q 10 minutes (weighting blood materials)</td>
</tr>
<tr>
<td>Send lab CBC and DIC panel</td>
</tr>
<tr>
<td>If postpartum: Move to IR or OR</td>
</tr>
<tr>
<td>Consider special cases: Uterine inversion or amniotic fluid embolism</td>
</tr>
<tr>
<td>Sequentially advance from Methergine to 2nd level Uterotonics; Hemabate 25mg IM (if not ASTHMIC) or Misoprostal 800mg PR</td>
</tr>
<tr>
<td>Observe 2nd EAC at least 15 minutes – continue VS as appropriate</td>
</tr>
<tr>
<td>If vaginal birth and 2nd level uterotonics not helpful:</td>
</tr>
<tr>
<td>- Move to IR</td>
</tr>
<tr>
<td>- Repair tears</td>
</tr>
<tr>
<td>- O.C for retained products</td>
</tr>
<tr>
<td>- Place intravenous line</td>
</tr>
<tr>
<td>- Selective embolization (R)</td>
</tr>
<tr>
<td>- If Ceseanum birth (will Intersoperative)</td>
</tr>
<tr>
<td>- Reinspect laceration, posterior uterine and for retained placenta</td>
</tr>
</tbody>
</table>
- Consider B valve suction |
- Consider intrauterine balloon device |
- Notify Blood Bank of postpartum hemorrhage |
- Call for 2 Units of PRBCs at bedside and transfer per clinical lab lab if “DONT’ WONT” on any |
- Use blood warmer |
- Consider using 2 Units PRBCs |
- Determine availability of additional units PRBCs and crossmatch products |

Stage 3: Blood loss > 1500 cc or 2 Units PRBC given or VS unstable or suspicion of DIC
- Mobilize team |
- Notify and discuss with advanced OR surgery |
- Consider 2nd iv therapy provider, notify OR staff |
- Repeat labs including CBC and ABG’s |
- Consider Central line |
- Initiate Massive transfusion protocol |
- Social work for family support

References:
Decreasing length of hospital stay for infants after surgery for pyloric stenosis on general pediatrics floor.

Bakri Alzarka, MD., Susan Flesher, MD.
Department of Pediatrics, Marshall University - Joan C. Edwards School of Medicine

**Background**

Hypertrophic pyloric stenosis is a common disease occurring in 2 per 1,000 live births. Pyloric stenosis is a hypertrophy of the pyloric muscle which prevents emptying of the stomach leading to gastric outlet obstruction. The vomiting that ensues becomes projectile and can result in severe dehydration with hypokalemic, hypochloremic metabolic alkalosis. Our protocol post op is to feed the patient 3 hours after surgery, then advance feeds every 2 hours giving 2 rounds of 30 ml clear liquid, then 2 rounds of half strength formula/breast milk 30 mls each, then 6 rounds of full strength starting at 30 mls and ending at 90 mls. Goal is 90 mls every 3 hours before discharge. If infants vomits times two, will hold next feed and go a step back.

**Purpose**

To decrease the length of hospital stay in infants on the general pediatrics floor after pyloric stenosis surgery by reducing time to reach their feeding goal.

**Methods**

**Qualifying Conditions**
- Diagnosis of pyloric stenosis - status post surgery.
- Formula fed or breast fed infants.
- No other diagnosis which may interfere with feeding.

**Postoperative management: Ad lib feeding.**
- NPO X 4 hours.
- IV + PO fluids: D10 1/2 NS with 20 mEq KCl/L at 100ml/kg/day
- Initiate ad lib bottle feeds of full-strength breast milk or formula 4 hours following pyloromyotomy for pyloric stenosis,
- If clinically significant emesis, wait 2 hours followed by ad lib bottle feeds of full-strength breast milk or formula.
- If ad lib feeding fails twice, due to repeat emesis, follow pyloric feeding regimen.

**Conclusions**

Our study demonstrates that using Ad Libitum feeds after pyloric stenosis surgery allows patients to reach their feeding goal faster, and decreases length of hospitalization without adverse effects after surgery. Ad lib feeding protocol should become the standard of care for all post surgical pyloric stenosis patients. The next step will be to evaluate if using ad lib feeding protocol will decrease hospital costs.

**Failed Ad libitum feeds**

**Postoperative Management: Pyloric feeding regimen**
- Start with clears (glucose water or Pedialyte) 30 ml q2h X 2
- Full strength formula or breast milk 30 ml q2h X 2
- Full strength formula 45 ml q2h X 2, may start breast feeding
- Full strength formula ad lib, breast milk, or breast feeding. Advance as tolerated to ad lib feeds.
- If clinically significant emesis, withhold feeds one cycle and restart at previously successful level.

**Measures**

The key measures used to evaluate the effectiveness of interventions Included the length of hospital stay after surgery. Data was collected and abstracted from the hospital electronic medical record for six months prior to the intervention and will be followed for six months following the intervention.
Physician/Nurse Rounding– A Team Approach to Patient Care

Dr. Eva Patton Tackett MD, FACP
TJ Ritchie RN, BSN

<table>
<thead>
<tr>
<th>Introduction or Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication in the hospital is often a source of poor patient outcomes. It is also the cause of increased frustration among physicians and nurses. Patient status, orders, and plans of care are often not communicated effectively and hence appropriate care is delayed. There is also deficiency in communication with the patient and patient's family about the plan of care.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement of Problem or Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently at Cabell Huntington Hospital the physician conducts rounds on the patients without the nurses present at the bedside.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Findings to Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>There has been more direct communication about issues such as input and output specifically need for things such as Foley Catheters. Subjectively we believe this has improved physician and nursing satisfaction. Orders are carried out more promptly. Plans of care are communicated more uniformly to the patient and the patient's family.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objectives of Program/Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Improve physician and nurse communication</td>
</tr>
<tr>
<td>☐ Improve patient communication</td>
</tr>
<tr>
<td>☐ Improve patient outcomes by promoting prompt implementation of orders and direct communication of the patient status</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Program/Intervention (Methods)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Several months ago the nurse manager on cardiac step-down proposed that when the Internal Medicine teaching service is making rounds that the nurses be contacted to come to the bedside during rounds. This has been implemented intermittently over the course of 6-12 months. When the attending physician arrives at the floor a member of the team contacts the nurse via their spectra link phone and the nurse joins the team while rounding on each patient. After leaving the patient room there is review of the plan of care and what things need to be ordered from the nurse and physician perspective.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Success factors &amp; Lessons Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Definitely the beginning of an excellent program.</td>
</tr>
<tr>
<td>☐ Need to objectively measure the nursing and physician satisfaction with the new structure</td>
</tr>
<tr>
<td>☐ Need to objectively measure if orders are implemented more promptly</td>
</tr>
<tr>
<td>☐ Need to objectively measure if patient satisfaction has improved.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Future goal: or Conclusion/Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>We would like to see all units at Cabell Huntington Hospital adopt Physician/Nurse Rounding</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special Thanks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TJ – Nurse manager on Cardiac Step-down The nursing staff on Cardiac Step-down Marshall Internal Medicine</td>
</tr>
</tbody>
</table>
Obstetrics is a field that demands prompt assessment and management of the myriad of conditions that can complicate pregnancy. Many of these complications can be life threatening for the fetus and/or the mother. Having staff and rooms available to manage these patients is imperative. By reducing the number of visits for non-emergent complaints, we anticipate better management of emergencies. It is standard for discharge paperwork to include patient education materials related to the visit to Triage. As of now, there is no patient education material regarding bleeding in pregnancy. Since this is a common Triage complaint, we should have education materials available. Secondarily, patient safety will be improved with this project for those patients coming to Triage complaining of vaginal bleeding. With this education material, fear and anxiety should be reduced. The emotional stress that can be relieved by educating patients about expecting some normal vaginal bleeding in pregnancy is immeasurable. In addition to lowering anxiety, we can limit the number of visits to the hospital for obstetrics patients. This should reduce the known risk for nosocomial infections.

The Problem

Obstetrics Triage is viewed as an extension of the Emergency Department. The staff has a responsibility to determine which patients need to be seen first—hence the name "Triage." Complicating this important function of the unit is the frequently high volume and resultant unavailability of rooms and staff. If there is a way to limit "non-emergent" visits to Triage, one can anticipate better care being delivered. By limiting the number of patients in rooms complaining of vaginal bleeding that can be completely normal for pregnancy, we anticipate the ability to deliver more efficient and effective care to the patients with serious complaints that require immediate attention. Staff and room availability are instrumental in prompt evaluation and treatment. We anticipate that patient education material on vaginal bleeding during pregnancy will be a key factor in limiting multiple visits to Triage for non-emergent bleeding.

The Goal

The measurable goal is a decrease in OB Triage chief complaints of "vaginal bleeding." By providing patient education material about vaginal bleeding in pregnancy on the first visit to Triage for this chief complaint, we hypothesize that the number of return visits for vaginal bleeding will decrease. With fewer return visits for vaginal bleeding, we anticipate better availability to treat emergent cases.

The Quality Improvement

The Plan

Data collection can easily be completed by tallying the number of chief complaints of "vaginal bleeding." Over time, we anticipate this number to trend downwards. Future improvements will focus on continuing to update the patient education materials. Educating patients about their complaints is important for providing adequate care and for reducing logistical stress on the healthcare system as a whole.

The Discussion

Obstetrics is a field that demands prompt assessment and management of the myriad of conditions that can complicate pregnancy. Many of these complications can be life threatening for the fetus and/or the mother. Having staff and rooms available to manage these patients is imperative. By reducing the number of visits for non-emergent complaints, we anticipate better management of emergencies. It is standard for discharge paperwork to include patient education materials related to the visit to Triage. As of now, there is no patient education material regarding bleeding in pregnancy. Since this is a common Triage complaint, we should have education materials available.
IMPLEMENTATION OF RESPIRATORY THERAPY DRIVEN MECHANICAL VENTILATOR MANAGEMENT PROTOCOL DECREASES VENTILATOR DAYS IN MEDICAL INTENSIVE CARE UNIT

JAI KUMAR KHATRI MD, RONNIE NIDA2 RRT, LISA REYNOLDS BSN3, AVIRAL ROY3 MD, AHMAD R. NUSAIR1 MD

DEPARTMENT OF INTERNAL MEDICINE
MARSHALL UNIVERSITY JOAN C. EDWARDS SCHOOL OF MEDICINE HUNTINGTON, WV

BACKGROUND:
Invasive mechanical ventilation is widely used in ICUs and only expected to be used more. The implementation of protocols enables institutions to provide consistent care to the growing patient population within the confines of limited staff. Protocol can be more reliable than skillful healthcare worker in implementation of evidence based practices such as the low tidal volume (LTV) in patient receiving IMV. LTV has several benefits: reduces acute lung injury (ALI), pulmonary infections, and mortality. Our institution had relied on physicians to initiate and manage IMV. As expected there was inter and intra-variability in selection of mode and setting of IMV among teams and team members.

METHODS:
In March 2014 we implemented a respiratory therapist (RT) driven MV management protocol. The preparation phase in the three months preceding the go live day included series of lectures and workshops for nurses, RTs & physicians. The protocol guides RTs to choose the appropriate initial settings, including low tidal volume and to make necessary adjustments based on measured ventilator parameters and blood gas.

CONCLUSION:
When compared to year 2011, 2012, 2013 during same time period, in year 2014 we found 20.5%, 27%, 35% reduction in mechanical ventilation days per patient respectively.

REFERENCES:

REFERENCE CARE MECHANICAL VENTILATION INITIATION AND MANAGEMENT PROTOCOL CHH ICU

RESPIRATORY CARE MECHANICAL VENTILATION INITIATION AND MANAGEMENT PROTOCOL CHH ICU

PAPs to watch:
A. Conduct a SPONTANEOUS BREATHING TRIAL, daily
1. FiO2 ≤ 30% and PEEP ≤ 5
2. PIP and PEEP ≤ values of previous day
3. Patient has acceptable spontaneous breathing efforts (i.e. decrease in VT by 50% over 3 minutes is desirable)
4. Spontaneous R ≥ 15/min without supplementary support
5. No recommencement of blocking agents or sedation

B. SPONTANEOUS BREATHING TRIAL (SBT)
If all above criteria are met and subject has been on the ventilator for at least 24 hours, initiate a trial of CPAP or 3 minutes of spontaneous breathing with FiO2 ≤ 30% and PEEP ≤ 5
1. Place on CPAP, humidification at 1 L/min, PEEP ≤ 5
2. Assure for tolerance of no more than 2 to 4 hours
3. Spontaneous R ≥ 15/min
4. Spontaneous VT ≤ 20 mL/kg
5. Spontaneous RR ≤ 25
6. Spontaneous PaCO2 ≤ 40
7. Spontaneous PaO2 ≥ 60
8. Spontaneous heart rate ≤ 120
9. Spontaneous ECG normal
10. Spontaneous blood pressure normal
11. Spontaneous body temperature normal
12. Spontaneous patient cooperation
13. Spontaneous patient comfort

If the ventilated patient’s condition continues to worsen despite using the guidelines provided within this protocol, the Respiratory Therapist should contact the attending physician for additional guidance.

JAI KUMAR KHATRI1 MD,  RONNIE NIDA2 RRT, LISA REYNOLDS BSN3, AVIRAL ROY3 MD, AHMAD R. NUSAIR1 MD

DEPARTMENT OF INTERNAL MEDICINE
MARSHALL UNIVERSITY JOAN C. EDWARDS SCHOOL OF MEDICINE HUNTINGTON, WV

CONCLUSION:
When compared to year 2011, 2012, 2013 during same time period, in year 2014 we found 20.5%, 27%, 35% reduction in mechanical ventilation days per patient respectively.

REFERENCES:
Quick Clot Interventional Hemostatic Bandage is embedded with Kaolin, an aluminum silicate. Kaolin is biologically inert and serves as a potent activator of the coagulation cascade. When the Quick Clot Bandage is applied with manual pressure to an actively bleeding wound, the Kaolin within the bandage makes contact with blood and increases the rate that both Factor XII and Factor XI are converted to their active forms. It also promotes the conversion of prekallikrein to its activated form, kallikrein. All three of these products go on to increase the rate that both Factor XII and Factor XI are converted to their active forms. It also promotes the conversion of prekallikrein to its activated form, kallikrein. All three of these products go on to increase the rate that both Factor XII and Factor XI are converted to their active forms. 

The inert nature of kaolin eliminates the possibility of allergies at the site of application. This allows the use of Quick Clot Interventional Hemostatic Bandage to be ubiquitous, without any contraindications.

**References**

5. Marshall University School of Medicine- Department of Surgery. (2012). In our continued collaboration with HealthNet Aeromedical Services, we will track their use of Quick Clot while in the field. Our goal will be to qualify measurable outcomes in patients with the use of Quick Clot for hemostasis. We would like to give a special thanks to CEO Clinton Burley and Dir. Of Ed. Sean McManus of HealthNet Aeromedical Services for their assistance with these projects.
Introduction
Urinary Tract infections (UTI) are significant source of morbidity and mortality in hospitalized patients. More than 70-80% of UTIs can be attributed to indwelling urinary catheters. Acute care hospitals are attributing 15% of reported infections to Catheter Associated Urinary Tract Infections (CAUTI). With the rise of the number of infections comes worsening patient outcomes such as longer length of stay, increased financial burden (400-500 million dollars a year), secondary infections, decreased mobility, and unnecessary antimicrobial use. Catheter associated urinary tract infections (CAUTI) can cause such complications such as cystitis, pyelonephritis, gram negative bacteremia, prostatitis, orchitis, and rarely endocarditis, and osteomyelitis. While CAUTIs seem like a minor issues there approximately 13,000 deaths attributed to indwelling urinary catheters. Multiple studies have shown that the incidence of CAUTI is directly proportional to the duration of catheterization. The risk of bacteruria can be as high as 3-7% each subsequent day of catheterization.

Surgery patients provide an interesting quandary, indwelling catheters are routinely placed in surgical patients for laparoscopic cases, long surgical cases, after epidural anesthesia, or repair of genitourinary structures. Post operative urinary retention (POUR) is a common issue both surgeons and anesthesiologists face each day. This issue is usually managed by utilization of ultrasound bladder scanning and then either straight catheterization or replacement of a Foley catheter. While it is common for the surgeon to remove the catheter postoperative day one, is this really necessary?

Methods

Study Design

The proposed study will plan to address the necessity of remove indwelling urinary catheters post operative day 1 versus removal of the catheter in the OR at the conclusion of the case.

Poster Operative Urinary Retention Risk Factors

<table>
<thead>
<tr>
<th>Preoperative</th>
<th>Postoperative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Estimated Urine &gt;350 cc</td>
</tr>
<tr>
<td>Age &gt;50</td>
<td>Sedative Medications</td>
</tr>
<tr>
<td>Inguinal Hernia Repair</td>
<td>Post Operative Analgesia</td>
</tr>
<tr>
<td>Anorectal Surgery</td>
<td></td>
</tr>
<tr>
<td>Bladder volume at arrival in PACU &gt;270 cc</td>
<td></td>
</tr>
<tr>
<td>BPH Previous Pelvic Surgery</td>
<td></td>
</tr>
<tr>
<td>Neurological Disease</td>
<td></td>
</tr>
<tr>
<td>Epidural Anesthesia</td>
<td></td>
</tr>
<tr>
<td>Alpha or Beta blocker use</td>
<td></td>
</tr>
</tbody>
</table>

Inclusion Criteria
All elective abdominal general surgical cases with patients ranging from 18-99 who have had a Foley catheter placed in the operating room will be included.

Exclusion Criteria
Patients will be excluded from the study if the case is emergent, trauma related, critically ill patients requiring intensive care, Low anterior resections, Abdominoperineal resections, the bladder was violated and repaired, patients requiring self catheterization, or the patient has a pre-existing medical condition such as benign prostate hypertrophy requiring medical therapy.

Experimental Design
All patients meeting the inclusion/exclusion criteria will be enrolled in the study. All eligible patients after the completion of their surgical case will have their Foley catheter removed by the nurse while still on the operating table. The proposed algorithm is illustrated below.

Results
Patients age, gender, type of surgical case open versus laparoscopic, POUR risk factors, day at CAUTI diagnosis, Number of In and Out catheterization, bacterium isolated, length of stay, and time to ambulation will be analyzed.

Conclusions
CAUTIs are a significant source of morbidity and mortality for all surgical patients. With early removal of indwelling urinary catheters, we hope to decrease length of stay, unnecessary antibiotics, decrease cost of stay, promote early ambulation, and increase patient comfort.

References
2. Post Operative Urinary Retention
Designing a Patient Safety/Quality Improvement Curriculum for Graduate Medical Education

Franklin D. Shuler, MD, Ph.D., Eva Patton-Tackett, MD, Ellen Thompson, MD, Rodhan Khthir, MD, Nancy Munn, MD, Farid Mozaffari, MD, Maria Tirona, MD and Jo Ann Raines, M.A.

Introduction

The Accreditation Council for Graduate Medical Education (ACGME) has recently required all Residents and Fellows to be engaged in patient safety (PS) and quality improvement (QI). Trainees are now required to demonstrate specific PS/QI competencies prior to completing their postgraduate medical education training.

To address this requirement, the JCESOM Office of Graduate Medical Education (GME) has implemented a Teaching for Quality (TeQ4) development program. This program provided training on how to integrate PS/QI across the continuum of medical education. The development, implementation and evaluation of a PS/QI Curriculum is currently in progress for all of MUSOM’s Graduate Medical Programs.

Objective

1. To identify how prepared our current residents and fellows are in meeting the new patient safety and quality improvement competency requirement;
2. To collaboratively devise curriculum implementation strategies, tools and techniques needed to assist our trainees meet this requirement.

Methods

As part of (Te4Q) Improvement and Patient Safety initiative, Marshall University Joan C. Edwards School of Medicine offered an AAMC designed certificate program for medical school clinical faculty and invited other health profession educators. The aim of the Te4Q program was to disseminate the knowledge and tools necessary to successfully implement QI and safety education in undergraduate medical education (UME), graduate medical education (GME), continuing medical education (CME), and health profession schools. This Poster however focuses on the GME aspect of the curriculum. The seven of the 13 Residency and Fellowship Program Directors who participated in this day and one-half program identified a quality improvement and patient safety curriculum gap and structured a required independent learning rotation structure. This PS/ QI Curriculum proposal is complete with goals, objectives and evaluation and is designed to supplement and enhance current program offerings and requirements.

AMA Introduction to Practice of Medicine (IPM)

The AMA Introduction to Practice of Medicine is a web-based educational series that will complement and reinforce what is being taught in patient settings and didactic curriculum in resident and fellowship training programs.

Required Modules:

1. Patient Safety: Further Steps to Prevent Patient Harm
2. Patient Safety: Identifying Medical Errors
3. Patient Safety: National Patient Safety Goals
4. Quality Improvement Panel
5. Quality Improvement: Q & A

Conclusion

The initial online assessment of the PS/QI culture will be completed in early 2015.

Trainees are now required to demonstrate specific PS/QI competencies prior to completing their postgraduate medical education training.
Smoking has been shown to have a number of harmful effects in patients including pulmonary and cardiovascular problems. In patients who already have pulmonary disease, it is particularly important that they quit smoking.

It is important that patients in the Pulmonary clinic be asked about their smoking history. If they are active smokers, it is very important that they be advised of the risks of smoking and counselled about the need to stop. They should also be offered available aides for cessation of smoking.

All Fellows and Faculty in the Pulmonary clinic did a review of charts of recent clinic patients to determine if the patients had been asked about tobacco use, staged for motivation to quit, advised of risks of tobacco use and offered cessation aides. A faculty member then gave an educational session to review staging of patients, risks, and various cessation techniques. After the educational session, all fellows and faculty again reviewed their patients to see if there was improvement in tobacco cessation counseling.

Pulmonologists and Pulmonary Fellows very frequently assessed patients for tobacco use and advised quitting although performance improved after the educational session. However, pulmonary physicians are still not evaluating patients for passive smoke exposure on a regular basis. Practitioners assessed patients as to their stage of motivation for quitting the majority of the time. There was a significant improvement in informing patients about the risks of smoking after the educational session. Practitioners informed the patient about risk for lung disease a similar percentage of the time (66% compared to 65%). As per graph, Pulmonary physicians were more likely to review the various smoking cessation aides with their patients after attending the educational session on Smoking Cessation.

We are considering repeating the study to see if practitioners are still consistently advising patients of the risks of smoking and reviewing cessation aides with them. We would also emphasize the need to evaluate for passive smoking exposure and use of smokeless tobacco or non-smoking nicotine use (electronic cigarette).

### References


## Smoking History

<table>
<thead>
<tr>
<th>History</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asked about tobacco use</td>
<td>99%</td>
<td>100%</td>
</tr>
<tr>
<td>Actively using tobacco</td>
<td>86%</td>
<td>90%</td>
</tr>
<tr>
<td>Advised to quit</td>
<td>85%</td>
<td>89%</td>
</tr>
<tr>
<td>Asked about passive smoke exposure</td>
<td>55%</td>
<td>43%</td>
</tr>
</tbody>
</table>
Measuring the Impact of the Teaching for Quality (Te4Q) Improvement and Patient Safety initiative at Marshall University JCESOM and its Affiliates

Darshana Shah, PhD., Paulette Wehner, MD. And Jim Becker, MD., Marshall University, Joan C. Edward School of Medicine.

**INPUTS**
- Program investments

**OUTPUTS**
- Activities
- Output
- Recipients

**OUTPUTS**
- What we invest and what we do
  - • Supportive leadership
  - • GME/ Marshall Health/Faculty Affairs/ VA/ CHH, School of Pharmacy
  - • Resources:
  - • Logistic support
  - • TIME: For the faculty to attend
  - • For faculty &Staff to Develop, support implement program

- Identify needs & design approach to meet them
- Offer faculty development educational activities under one umbrella of Te4Q
- Provide logistic support to Te4Q workshops,
- Promote faculty participation and use of resources
- Evaluation outcomes
- Evaluation Data

**OUTCOMES**
- What results we achieve

- AAMC-Te4Q Educational Workshop with certificate upon completion
- Scheduled advertisement well designed workshop
- One stop information (easy Access)
- Well established Te4Q website

- Faculty: involved in the training of medical students, Residents,
- Staff involved in patient safety and satisfaction safety

- Participants are Satisfied with learning experience and improve mastery of learning objectives *
- Participants apply learning to their teaching practice and educational activities **

**IMPACT**

- Improvement in Teaching and Learning about Te4Q in Educational system:
  - • UME-GME-CME Development of Te4Q curriculum intervention
  - • Scholarly contribution related to Te4Q education made to the field of QI and PS through publication and presentation

- Medical Students, Residents and faculty are better equipped to practice medicine in a professional, societally responsible way

- A culture of professional development and continuous improvement in Te4Q education is developed / enhanced

- Improved Patient care
- Patient advocacy
- Health of the community

**Te4Q Post-evaluations**
**Te4Q Project proposals**

**KAS survey**
**Patient safety culture Survey**
Establishing the Roles of the Trauma Response Team
A Quality Improvement Project to Enhance the Efficiency and Accuracy of the Evaluation and Resuscitation of a Trauma Patient

Johnson Walker MD, Chadwick Knight MD, KellyAnn Vandendool MD, Thomas Alberico MD, Kathyn Blair MD, Farid Mozaffari MD, David Denning MD

DEPARTMENT OF SURGERY
MARSHALL UNIVERSITY - JOAN C. EDWARDS SCHOOL OF MEDICINE

What is the problem?

Major trauma centers across the country have developed detailed protocols for which departments and healthcare providers should respond to an alerted trauma in the Emergency Department. Our facility is not unlike these centers – a trauma team has been well described; however, specific assigned tasks for the respondents have not been detailed at our facility. The lack of prescribed responsibilities for each trauma team member can lead to inefficiencies and/or inaccuracies in the evaluation and resuscitation of the trauma patient on presentation, with the potential for major complications.

What are the goals?

Efficient and accurate primary and secondary survey of the trauma patient has been shown to improve outcomes. Likewise, there is improved morbidity and mortality with expeditious evaluation and transit to the CT scanner; however, before this can happen, a well-synchronized effort from the doctors, nurses, laboratory personnel, support staff and x-ray technicians must take place. Any delay can be very detrimental to the patient’s outcome.

Rationale for the Project

Organization and communication are vitally important to success in all healthcare delivery settings. This is never more evident than in the intense environment of a Rapid Response, Code Blue or Trauma Alert. Our facility would benefit from specific delineation of the roles and responsibilities of the trauma team members to more efficiently and effectively take care of trauma patients. This QI project aims to establish that delineation.

Who is the trauma team at CHH?

- Trauma Surgery (residents, attending, medical students)
- Emergency Department (attending, medical students)
- Anesthesia (CRNA, attending)
- ED Nurses (primary, secondary)
- ED Patient Care Assistant
- Laboratory personnel (phlebotomy)
- Respiratory therapy
- Pharmacy (PharmD, pharmacy students)
- Radiology / EKG technicians
- Pastoral Care and Social Work
- Director of Trauma and Trauma NP

Identifying Roles and Responsibilities

- Trauma #1: Senior General Surgery resident
  - Oversees trauma resuscitation – in charge of entire room
  - Primary communication – relays findings, orders to scribe
  - Performs primary survey, FAST exam
  - Obtains airway, if necessary
- Trauma #2: Junior General Surgery resident
  - Primary RN:
    - In charge of nursing team – communicates with Senior Surgery resident
    - Obtains peripheral IV access; places patient on monitor; provides resuscitation at discretion of the senior Surgery resident
  - Secondary RN:
    - Acts as a scribe, documenting timeline of events and orders
  - Trauma Attending:
    - Present for all P1 activations
    - Will communicate with Senior Surgery Resident
  - ED Attending:
    - Primary healthcare provider until arrival of Senior Surgery Resident
    - Available for consultation after arrival of trauma team
  - Respiratory therapist:
    - Manages patient’s airway, if already established
    - Provides ventilator support

Discussion and Future Plans

Without clear roles for each member of the trauma team, trauma activations can be chaotic and inefficient. Our facility needs to delineate these roles – and have strict adherence to the protocol. Every task that is required in the resuscitation of a trauma patient can be accomplished by these four bedside providers, with help from the auxiliary team members, as directed by the Senior Surgery resident. Without extra bodies in the trauma bay, the evaluation of these patients can be without delay.

In the future, we can provide this information to the ED staff, as well as the trauma team, and allow the Senior Surgery resident to command the team’s actions as they see fit. Many facilities post a diagram on the wall in the trauma bay, so healthcare providers are constantly reminded of their role. CHH may benefit from such a posting.

Undoubtedly, with more efficient trauma resuscitation, we would proceed to the CT scanner more quickly and thus, improve morbidity and mortality. Future studies will include investigation of the patient’s time of resuscitation, time to CT scanning, and outcome to see if strict adherence to roles and responsibilities can improve outcomes.