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Quality Improvement to Reduce Obstetrical Hemorrhage—It's Time to Stop the Bleeding!

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Preconference Objectives

- Gain an understanding of healthcare quality
- Discuss implementation science
- Discuss how to initiate a quality improvement project
- Review the evidence
- Analyze the data
- Discuss how to implement a postpartum hemorrhage initiative
- Attend a hands-on skills, drills, and debrief exercise

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Introductions

- Name
- Facility
  - Name of facility
  - Location of facility
  - Number of annual births
- Role
  - Bedside nurse
    - Antepartum
    - L&D
    - Postpartum
  - Administrator
  - Quality
  - Other
- What do you want to get out of today?

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Atrium Health—Who are we?

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Size and Scope

65,000+ teammates | 44 hospitals across 3 states

29 urgent care locations | 35 EDs | 25+ cancer care locations

3,000+ physicians | 16,000+ nurses

$9.9 billion net operating revenue

$2.9 billion in last 5 years invested into renovations, new care locations, equipment upgrades and other capital projects

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Atrium Health—Women's Division

- **20 acute care facilities** with inpatient obstetric services—system wide
- **32 OB/GYN practices—**Charlotte-metro area
- **37,000+ newborn births** annually
- Focus on **quality, safety, and affordability**

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What is Quality?

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What is Quality?

- Quality improvement is different from Evidence Based Practice and Research
- Origins in the business world—automotive industry
- Intent of quality is to analyze existing **data** to improve outcomes
- Uses existing knowledge to improve performance

Knowledge: research generates it; EBP translates it; Quality Improvement incorporates it
(they are equally important)

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What is Quality?

- Incorporates existing knowledge into process improvement activities
- Institutional Review Board (IRB) is not required for this type of project unless outcomes are intended for publication
- Approach is rapid-cycle and small tests of change, then larger spread
- Tools used depend on the problem being improved
  - Lean Six Sigma
  - Plan-Do-Study-Act
  - Model for Improvement

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Quality Improvement

- Initial question/problem guides which methodology is chosen
- A review of the literature is common
- Benchmarking with similar institutions with data collection and analyses is often used
- Results are not generalizable to other organizations, however others may benefit from lessons learned

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Why the focus on Quality???

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Current Situation is Unsustainable

- **Individuals, families, businesses, municipalities can't afford health care**
- **Health care costs continue to escalate**
- **Costs shifting to individual employees & their families**
- **Access, Quality, Safety & overall Population Health is mediocre**
- **Clinicians & staff stress is high (and worsening) due to inefficiencies**
- **Lack of Physicians (especially PCP's) for aging & obese population**

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Why is this difficult?

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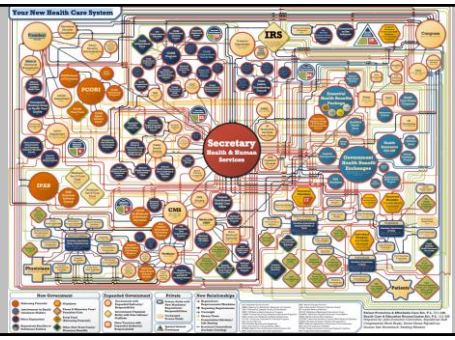

What is the Government really saying?

- Standardize care when possible
- Reduce variation
- Provide evidence based care to your patients
- Reduce cost when possible without affecting quality
- Outcomes need to be improved

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Who Is Measuring?

Institute of Medicine, Priority Areas
The Leapfrog Group, NSQIP
Healthy People 2020, U.S., Health & Human Services
HEDIS® of the National Committee for Quality Assurance
Hospital Quality Alliance (HQA)
Ambulatory Quality Alliance (AQA)
Agency for Healthcare Research and Quality (AHRQ)
CMS - Quality Improvement Organization
American Medical Association - Specialty Consortiums
National Quality Forum
Advocate Efficiency and Cost Information
Specialty Specific Groups - NSQIP
Insurance, Payer plans

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Quality Measures and Value-Based Purchasing

- Incentive payments are based on how well hospitals perform on each measure or how much they improve their performance on each measure
- CMS sees this as the next step in promoting higher quality care for Medicare beneficiaries
- Withholding of dollars affected discharges occurring on or after October 1, 2012

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How to identify opportunities?

- Review the data/performance
- Is your performance acceptable (average, above average, below average)?
- Do you want to improve your performance?
- Create a burning platform for a needed change

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A Patient Story…..

A 40 year old woman was admitted to the hospital for a scheduled C-section accompanied by her husband. The parents had 2 small children who were also born by C-sections so they knew what to expect – a few days in the hospital and then everyone goes home. But not this time. After the baby was born and the mom was recovering, an RN noticed heavy bleeding. It is very difficult to accurately estimate the amount of blood loss patients have – and in this case, as in many across the country, the seriousness of the patient's postpartum hemorrhage was not immediately recognized. With a team of experts responding as the patient became unstable a Massive Transfusion Protocol was initiated and everything that could be done was, including removing the patient's uterus in an effort to save her life. However, the patient was not able to overcome her blood loss and passed away.

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OB Hemorrhage

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Why Focus on Maternal Hemorrhage?!?

- Obstetrical hemorrhage is the leading cause of maternal morbidity and mortality worldwide and accounts for nearly one-quarter of all maternal deaths
- After extensive review of these hemorrhage cases, many deaths from hemorrhage could have been prevented with prompt recognition and timely and adequate treatment

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Why Focus on Maternal Hemorrhage?!?

- Morbidity associated with hemorrhage can be severe and may include organ failure, shock, edema, compartment syndrome, transfusion complications, thrombosis, acute respiratory distress syndrome, sepsis, anemia, intensive care resource utilization, and prolonged hospitalizations.
- Health care teams who deal with postpartum hemorrhage know that minutes count and lives can change forever. Some hemorrhages are not preventable but early recognition can mitigate the impact. In an effort to do all we can, CHS committed to implementing an obstetrical hemorrhage protocol to improve outcomes for our moms and babies.

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Why Focus on Maternal Hemorrhage?!?

- The actual incidence of maternal hemorrhage is generally considered to be much higher due to widespread underestimates of maternal blood loss at delivery
- Accurate and timely recognition of excessive blood loss is critical to the clinician's ability to determine when to initiate blood transfusions and other maternal resuscitative efforts

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So How Did We Get Started???

Use Evidence Based Protocol as your Foundation

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AWHONN OB Hemorrhage Project Video

- https://www.youtube.com/watch?v=jjy2Uevf7MM&t=18s

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OB Hemorrhage Initiative—Project Goals

- **Primary Objective**: Strategically develop and implement an Obstetrical Hemorrhage Protocol across all CHS facilities that provide inpatient obstetric services to assure evidence based care is provided to this patient population regardless of the facility where care is delivered.
- **Primary Goal**: Decrease the Unplanned Peripartum Hysterectomy Rates across all CHS facilities that provide inpatient obstetrical care by 40% from the 2013 baseline of 0.08% to 0.05% in 2015.
- **Secondary Goal**: Increase the incidence of performing Quantification of Blood Loss for all deliveries across all CHS facilities that provide inpatient obstetrical care by 40% from the 2014 baseline of 38.47% to 53.86% in 2015.

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PDSA Model for Improvement

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Plan—Where to Begin??

- Do you have high performers that can be **identified** as **champions** for your improvement project?
- **Establish best practice protocols/guidelines** for the change needed
- **Educate teammates** on these new best practices

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Improvement Process

- A facility champion from 2 facilities and the Outcomes Specialist for Perinatal Services attended the Florida Perinatal Quality Collaborative Obstetric Hemorrhage Initiative initial meeting
- These champions designed the Obstetric Hemorrhage Initiative for CHS including:
  - Development of an obstetric hemorrhage toolkit for system implementation
  - Coordination and leading of the kick-off meeting for the initiative
  - Collaboration with Carolinas Simulation Center (CSC)
  - Coordination with the Hospital Engagement Network work
  - Establish the system go-live date

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OB Hemorrhage Toolkit

- This toolkit included the following:
  - Hemorrhage protocol template
  - Creation of a massive transfusion protocol
  - Development of a risk assessment tool
  - Provider and staff education templates
  - Instructions for performing quantification of blood loss (QBL)
  - Ordering information for under-the-buttocks drapes for calculating QBL
  - Supply list for the obstetric hemorrhage carts
  - Instructions for the B-lynch procedure and postpartum hemorrhage tamponade balloons
  - List of medications that should be readily available on the units to use for hemorrhage events
  - Obstetrical Hemorrhage Scorecard with process and outcome measures

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The First Step—Establish a Pilot Site

- The Maternity Center at Carolinas HealthCare System-Pineville
  - 36 LDRP Suites
  - Level III Special Care Nursery
  - Lactation Services
  - Childbirth Education

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Team Approach

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OB Hemorrhage Risk Assessment (sample)


Obstetric Hemorrhage

Example

Risk Assessment Tables

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OB Hemorrhage Protocol (sample)

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Goals for Obstetric Providers

- Actively manage 3rd stage of labor
- Aggressively utilize uterotonics
- Recognize hemorrhage early by quantitative blood loss measurement and clinical signs. Do not wait for lab results.
- Activate team approach (OB, anesthesia, blood bank, IR, OR)
- Order blood and component replacement (2 units uncrossmatched then 4:4:1 ratio)
- Identify and treat etiology of hemorrhage
- Utilize intrauterine balloon therapy
- Utilize uterine compression stitches
- Consider interventional radiology
- Consider hysterectomy

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Active Management of the Third Stage of Labor

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AWHONN Quantification of Blood Loss Video

https://www.youtube.com/watch?v=F_ac-aCbEn0&t=34s

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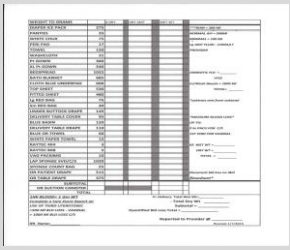
Quantification of Blood Loss—Dry Weight Form (sample)



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Quantitative Blood Loss

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OB Hemorrhage Medications for Treatment

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OB Hemorrhage Medications for Treatment

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Postpartum Hemorrhage Cart

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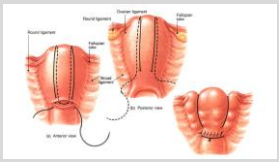
Medical Management of Uterine Atony

- Uterine tamponade balloon
- B-lynch suture



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Pilot Site Expected Outcomes

- Reduction of maternal death
- Reduction of unplanned peripartum hysterectomy
- Reduction of massive transfusion
- Reduction of maternal ICU admissions as a result of hemorrhage
- Reduction of costs associated with high level interventions

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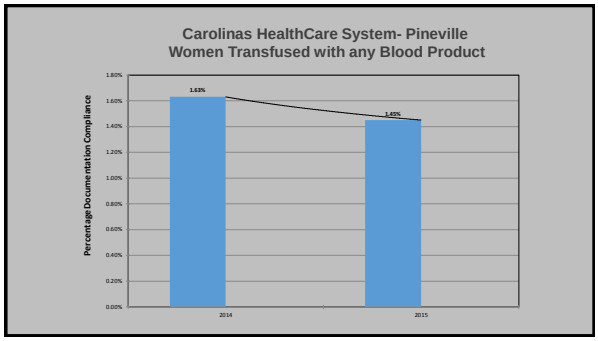

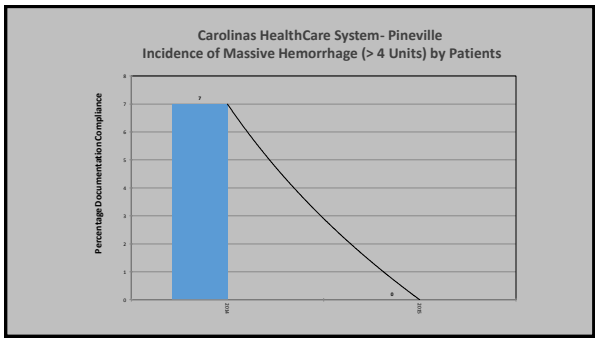

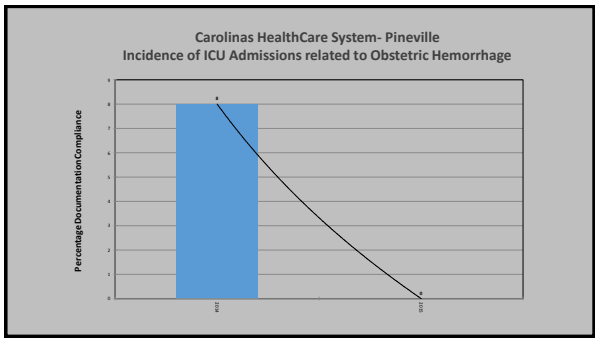

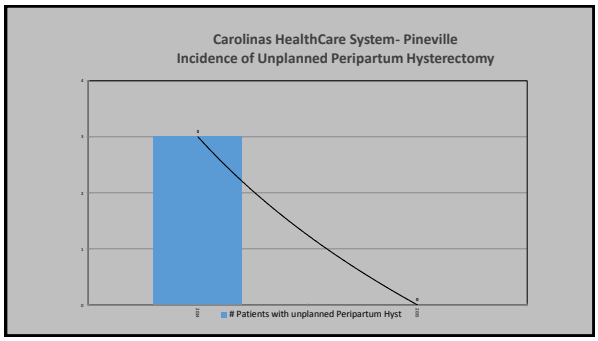

Second Step—System Spread of Initiative

- Structure, process, and outcomes of the pilot site were shared with the system level OB leaders
- Plans for implementing the initiative across the system occurred and included:
  - Creation of individual facility multidisciplinary teams
  - Development of individual facility protocols
  - Education of providers and nursing
  - Purchasing of carts and needed supplies
  - Simulation training
  - Data reporting (scorecard development)

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Simulation Training

- Carolinas Simulation Center (CSC) designed, developed and implemented a Mobile Experiential Learning Program for facilities that participated in the OB Hemorrhage Initiative
- Over a three-month period, CSC teammates met system educational needs for protocol/guideline implementation using a high-fidelity birthing simulator and a transport vehicle offering simulation sessions to 16 facilities and 310 team members across two states
- CSC facilitated 46 separate four-hour training sessions in the Labor and Delivery/Post-Partum units

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Simulation Training

- The team also collected data regarding the effectiveness of the training
- Participating facilities were provided education on the new OB Hemorrhage initiative and Qualitative Blood Loss (QBL) measuring prior to the simulation sessions
- Coordination with other disciplines at each facility (lab, blood bank, providers, Operating Room staff, Rapid Response, and Emergency Department) was highly encouraged to ensure an interprofessional understanding of the new initiative and allow an opportunity for a team approach to new best practice process implementation
- Simulation scenarios were created to allow for Interprofessional Education (IPE) and a team approach to patient safety and quality outcomes where teams could practice high-stakes situations in a low-stakes environment, without harm to real patients

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System Level Results/Outcomes

- **Primary Goal: Decrease the Unplanned Peripartum Hysterectomy Rates across all CHS facilities that provide inpatient obstetrical care by 40% from the 2013 baseline of 0.08% to 0.05% in 2015.**
  - The primary goal focused on decreasing the rate of unplanned peripartum hysterectomies
  - The rate was calculated using the number of unplanned hysterectomies/total number of deliveries per month
  - The goal was determined by the Hospital Engagement Network utilizing a 40% improvement in the rate
  - The 2013 baseline rate of 0.08% was reduced by 40% in 2015 to a rate of 0.05% (see exhibit #1)
    - **12 women did not have a hysterectomy in 2015 that would have had if this process was not implemented**

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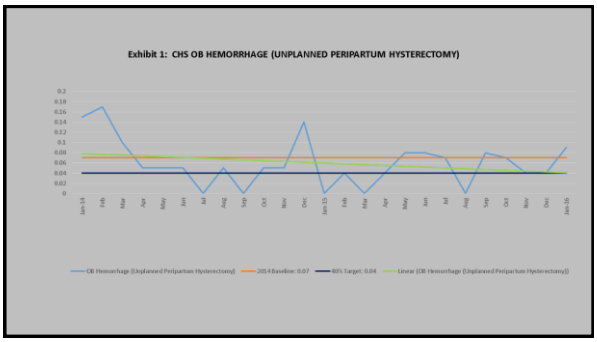

Results/Outcomes

- **Secondary Goal: Increase the incidence of performing Quantification of Blood Loss for all deliveries across all CHS facilities that provide inpatient obstetrical care by 40% from the 2014 baseline of 38.47% to 53.86% in 2015.**
  - The secondary goal focused on increasing the performance of quantifying blood loss (QBL) for all deliveries
  - The rate was calculated using the number of patients with a documented QBL in the medical record/total number of deliveries per month
  - The goal was set using the HEN methodology of a 40% improvement in the rate. The outcome data is illustrated in Exhibit #2.
  - The 2014 baseline rate of 38.47% was increased by 82.51% to 70.21% in 2015. This rate exceeded the 53.86% goal for 2015.

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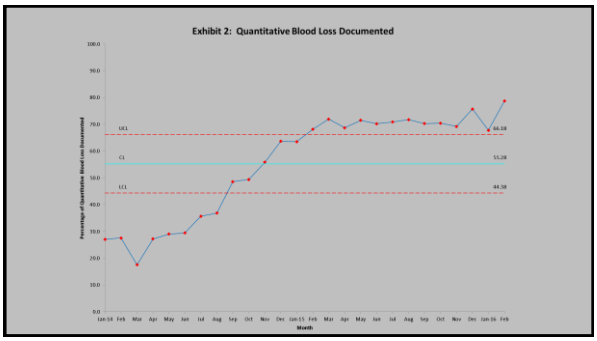

Secondary Outcome

- **Dissemination of best practices across 16 participating hospitals to facilitate standardization and identify opportunities for improvement**
  - CSC members were able to take lessons learned at each of the participating facilities and disseminate them across other facilities
  - Scenarios were able to be customized and adjusted to meet each facilities' goals and protocol/guideline
  - The use of experiential learning through simulation was also designed to test systems for implementing and adhering to new protocols/guidelines in a safe and low-stakes environment

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Sustainability of Results

- **2016 System-wide rate of documenting QBL—67.81%**
  - **Primary enterprise facilities—81.54%**
- **2016 Unplanned peripartum hysterectomy rate—0.04%**
- **Both NC and SC are AIM states—will focus on OB Hemorrhage as the first project (starts 3rd quarter 2017)**
- **Focus on facilities that have been late adopters to performing QBL**
- **Continue to review protocol compliance with all hemorrhage cases**

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Skills, Drills, and Debriefs

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Estimating versus Quantifying Blood Loss

- Hands-on practice on estimating blood loss versus quantitative blood loss

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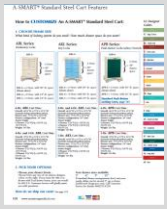
OB Hemorrhage Cart

- Review the cart contents and how to set up the supplies
  - CMQCC is a great resource to review potential cart contents

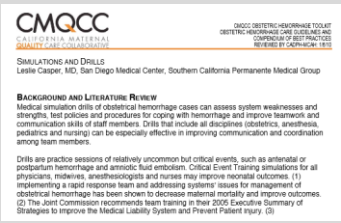


Supplies

- Review supplies
  - Graduated drape
  - Tamponade balloon

Drills

- CMQCC is a great resource for drills



CMQCC
CALIFORNIA MATERNAL QUALITY CARE COLLABORATIVE

CMQCC OBSTETRIC HEMORRHAGE TOOLKIT
OBSTETRIC HEMORRHAGE CARE GUIDELINES AND COMPENDIUM OF BEST PRACTICES
REVIEWED BY CAOPH-MCAH: 10/15

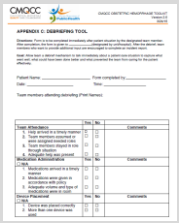
SIMULATIONS AND DRILLS
Leslie Casper, MD, San Diego Medical Center, Southern California Permanente Medical Group

BACKGROUND AND LITERATURE REVIEW

Medical simulation drills of obstetrical hemorrhage cases can assess system weaknesses and strengths, test policies and procedures for coping with hemorrhage and improve teamwork and communication skills of staff members. Drills that include all disciplines (obstetrics, anesthesia, pediatrics and nursing) can be especially effective in improving communication and coordination among team members.

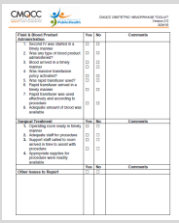
Drills are practice sessions of relatively uncommon but critical events, such as antenatal or postpartum hemorrhage and amniotic fluid embolism. Critical Event Training simulations for all physicians, midwives, anesthesiologists and nurses may improve neonatal outcomes. (1) implementing a rapid response team and addressing systems' issues for management of obstetrical hemorrhage has been shown to decrease maternal mortality and improve outcomes. (2) The Joint Commission recommends team training in their 2005 Executive Summary of Strategies to improve the Medical Liability System and Prevent Patient Injury. (3)

Debriefs



CMQCC

APPENDIX C: DEBRIEFING TOOL



CMQCC

Action Planning

Action Planning

- Work with your facility team
  - Identify the steps needed to implement an obstetrical hemorrhage initiative at your facility
  - Identify the stakeholders
  - Identify the multidisciplinary team that would need to be created (i.e, lab, blood bank, pharmacy, materials management, OR staff, anesthesia, OBGYN providers, nursing, etc.)
  - Protocol development
  - Education plan development for providers and nursing
  - Equipment that would need to be purchased (scales, carts, etc.)
  - Dry-weight forms
  - Plan for Quantifying Blood Loss (QBL)
  - Documentation of events in the EMR
  - Tracking data, showing improvement
  - Drills and debriefs
  - Plan for challenges and identify barriers for implementation
- Report your plan and timeline for implementation to the group for feedback

Questions??

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Wrap-Up

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Adjourn

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