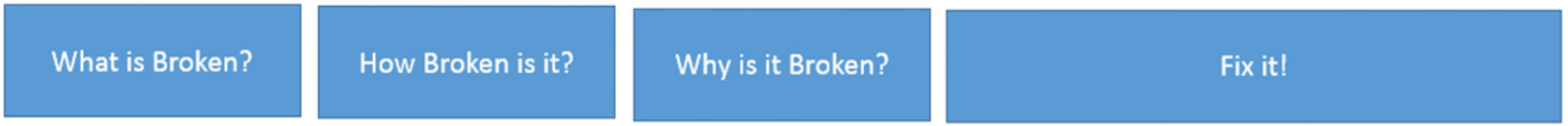
Quantitative Blood Loss Using the DMAIC Process

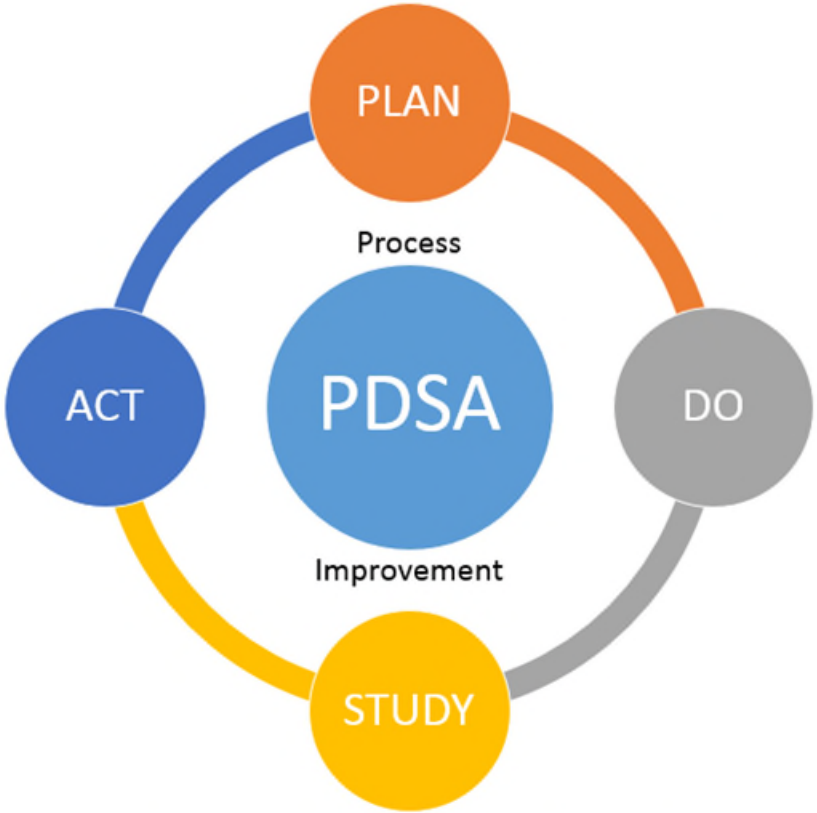
Norton Women's and Children's Hospital

DMAIC

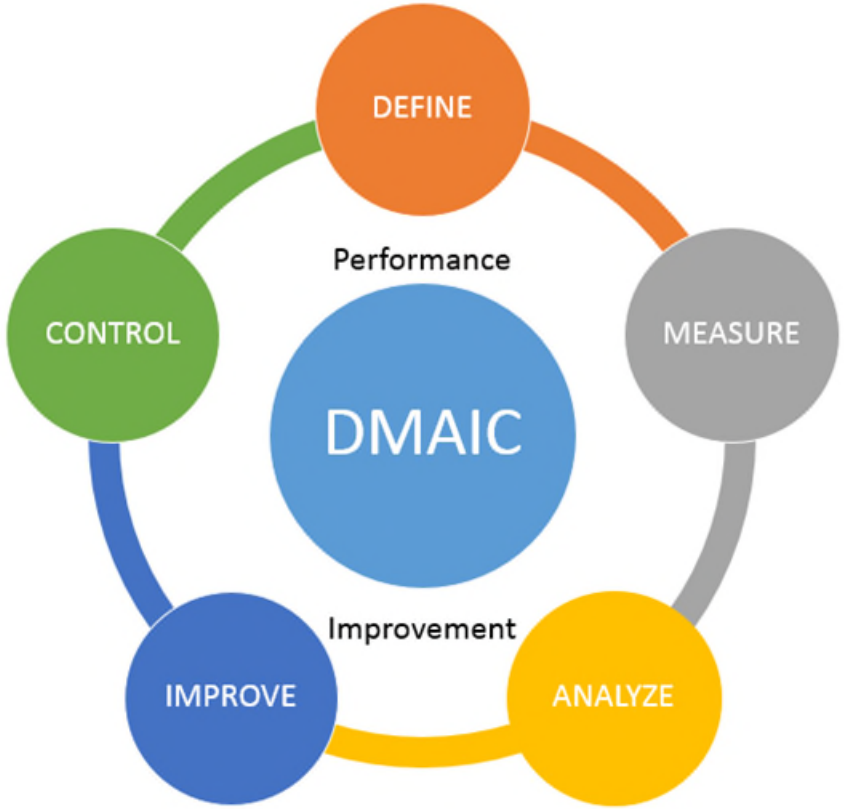


PDSA

NORTON WOMEN'S CARE



The way we carry out a test
Through the lens of the process



The way we *launch* sustainable
performance improvements through
the voice of the customer and business

Project Description: Maternal hemorrhage is the leading cause of preventable maternal morbidity and mortality. Recognition and early intervention are vital to saving lives. Recognition relies heavily on blood loss during birth. Estimated blood loss (EBL) is a visual estimation and has been shown to over and under estimate blood loss. Over and under estimation both have negative effects on patients, healthcare personnel, and our community. Quantitative blood loss (QBL) is cited in the literature to be a more accurate measurement of blood loss.

Project Goal: As part of the hemorrhage bundle, change practice from EBL to the better predictive QBL to reduce maternal harm (for over and under estimation) and decrease unnecessary blood transfusion and supplies (for over estimation).

Scope & Constraints: Phased approach for rollout: NWCH OBOR --> NWCH LD/MB/AP --> NH OBOR/LD/MB/AP
Process starts when blood loss begins. Process ends with blood loss determination at 24 hours [from process start time] and team reaction.
In scope: OBED, AP unit, OBOR and main OR, LD/MB: NWCH, NH. Supply considerations. Financial impact. Epic documentation modifications.
Out scope: Main ED

KEY BARRIERS

Process Acceptance	Education	Streamlined Documentation	Time	Cost/Resources	Epic Logistics
Provider buy-in	PCAs, techs in LD/MB for education	confusion on how/where to document	time to educate EVERYONE/all specialties	resources to educate EVERYONE/all specialties	
staff buy-in	time to educate EVERYONE/all specialties	nurses reverting to old practices - not using calculator	time it takes to get the equipment	lack of staff to do the work	current BPA fires for 'old'/current process
non-OB providers buy-in, education	education for ICU nurses/providers	3 different places to document	time to do the measurement	currently no/lacking equipment to do QBL	current BPA does not fire for ICU context
non-OB nurse buy-in, education		jumping in/out multiple tabs for documentaton	deliveries are chaotic	cost for supplies	
Provider "nothing will change in management based on change in measurement process"			vs taken by PCAs and not nurses	patient transfers to ICU	

Reduction of Blood Utilization thru Quantitative Blood Loss Process

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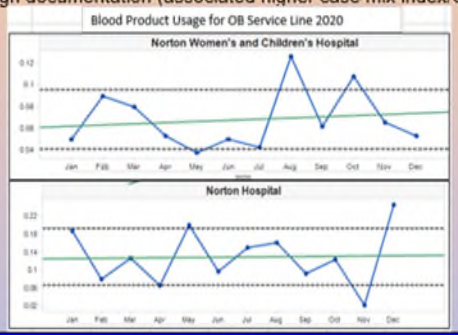
Designated BlueDistinction® Center+ Maternity Care

Purpose

Norton Women's and Children's Hospital (NWC)

As part of the hemorrhage bundle, the goal is to change practice from EBL to the better predictive QBL to reduce maternal harm (for over and under estimation) and decrease unnecessary blood transfusion and supplies (for over estimation).

Associated goal: increased capture of hemorrhagic emergencies through documentation (associated higher case mix index/CMI).



Background

Maternal hemorrhage is the leading cause of preventable maternal morbidity and mortality. Recognition and early intervention are vital to saving lives. Recognition relies heavily on blood loss during birth. Estimated blood loss (EBL) is a visual estimation and has been shown to over and under estimate blood loss. Over and under estimation both have negative effects on patients, healthcare personnel, and our community. Quantitative blood loss (QBL) is cited in the literature to be a more accurate measurement of blood loss. The project began in June 2021 with QBL being completed on all C/S. The project then brought in vaginal deliveries as a phased approach in January of 2022

Acknowledgements

Thanks to all the efforts of the women's services staff and physicians in reducing blood utilization by implementing the process for quantitative blood loss.

Action Items

Update Quantitative Blood Loss Calculator in EPIC to ensure documentation

Obtain dry weights for all items used in deliveries for ERM build

Purchase biohazard containers for all mother baby and labor and delivery rooms, also needed were additional scales

Assign "buddies" for deliveries in order to educate at the bedside during deliveries

Develop education for staff and physicians

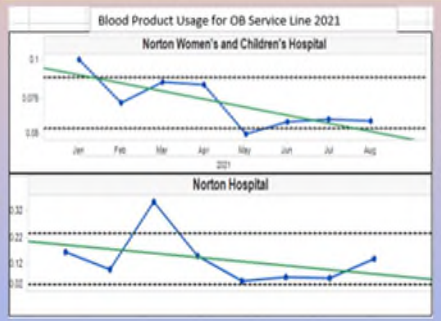
Shadow and complete a workflow on a C-Section to ensure that it is workable

Provide education to patient post partum as to what to keep if meet criteria for hemorrhage

Gain insight into blood utilization and reports needed for ERM and data tracking, using blood banks input

Develop spreadsheet for auditing for QBL

Results



-Decrease overall blood usage for system service line
-For C-Section deliveries our QBL tended to be over estimated
-Vaginal delivery QBL was found to be underestimated
-Blood product usage continued to decline throughout 2022
-Staff and physicians are now more comfortable with the process
-The number of physicians continuing to document estimated blood loss (EBL) has continued to decline as trust is garnered in the process of QBL

Discussion

The need for including the last component of the hemorrhage bundle was recognized within the Norton Healthcare System. This initiative has been presented in the past with much resistance.

Barriers were identified for both staff members and providers. Staff member barriers included confusion in documentation for nurses, increased time to do the input of weights into the ERM, jumping in and out of tabs in the ERM, and the lack of equipment to do QBL on the unit. Physician barriers included lack of physician buy-in to the process of QBL, and the general consensus that practice is not going to change based on results.

Voice of customer and process maps were obtained and education was developed. Education was ongoing and remains ongoing as new team members join the service line. Changes have had to be made to calculator in ERM as new products have been introduced and this has become an easier task to complete.

Overall blood usage in Women's Services has declined over the past year. This has been cost saving for the hospitals and also improves our patient outcomes by treating them with the correct interventions based on their actual blood loss.

References

California Maternal Quality Care Collaborative *Improving Health Care Response to Obstetric Hemorrhage Toolkit, Version 3.0, Errata 7/18/2022*
Quantitative blood loss in obstetric hemorrhage. ACOG Committee Opinion No. 794. American College of Obstetricians and Gynecologist. Obstet Gynecol 2019; 134:e150-6