

One Team One Goal: *Enhancing Perinatal Care Through Unified Efforts*

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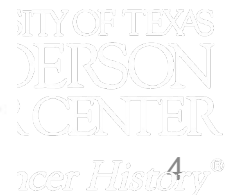
Learning Objectives

- Analyze the benefits and challenges of interdisciplinary collaboration for aligning care practices and protocols to improve perinatal outcomes.
- Identify evidence-based practices and guidelines on standardizing protocols, care pathways, and collaboration to ensure a unified approach to improve perinatal patient outcomes.

Disclosures

None

University Hospital San Antonio

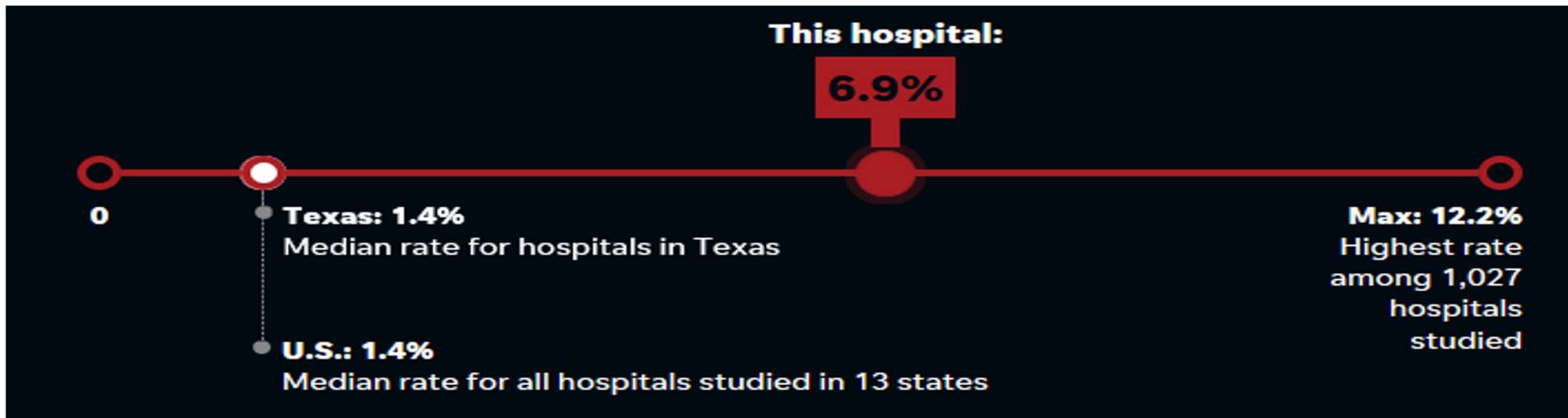


University Hospital San Antonio

- Level 4 Designated Maternal Center
- Level 4 Designated NICU
- Level 1 Adult & Pediatric Trauma Center
- StorkOne Maternal/Neonatal Transport Team
- 7 ICUs onsite

Identifying the Opportunity





Hospitals blame moms when childbirth goes wrong. Secret data suggest it's not that simple.

A USA TODAY analysis of billing data from 7 million births found about one in eight hospitals have complication rates of at least double the norm.

Alison Young and John Kelly and Christopher Schnaars, USA TODAY
Updated 10:35 a.m. CST Mar. 9, 2019

In Texas, officials at University Hospital in San Antonio explained its complication rate of 6.9 percent – more than four times the median – by saying its patients are uniquely complex.

University Hospital, also an OB/GYN teaching site, said it could be fairly compared only to a tiny group of specialty hospitals in Texas. Asked to identify peers, officials named three – University of Texas Medical Branch Hospital in Galveston, Ben Taub Hospital in Houston and Parkland Hospital in Dallas.

All three have lower rates, USA TODAY found. And University's rate was more than four times higher than one of them, the UT hospital in Galveston.

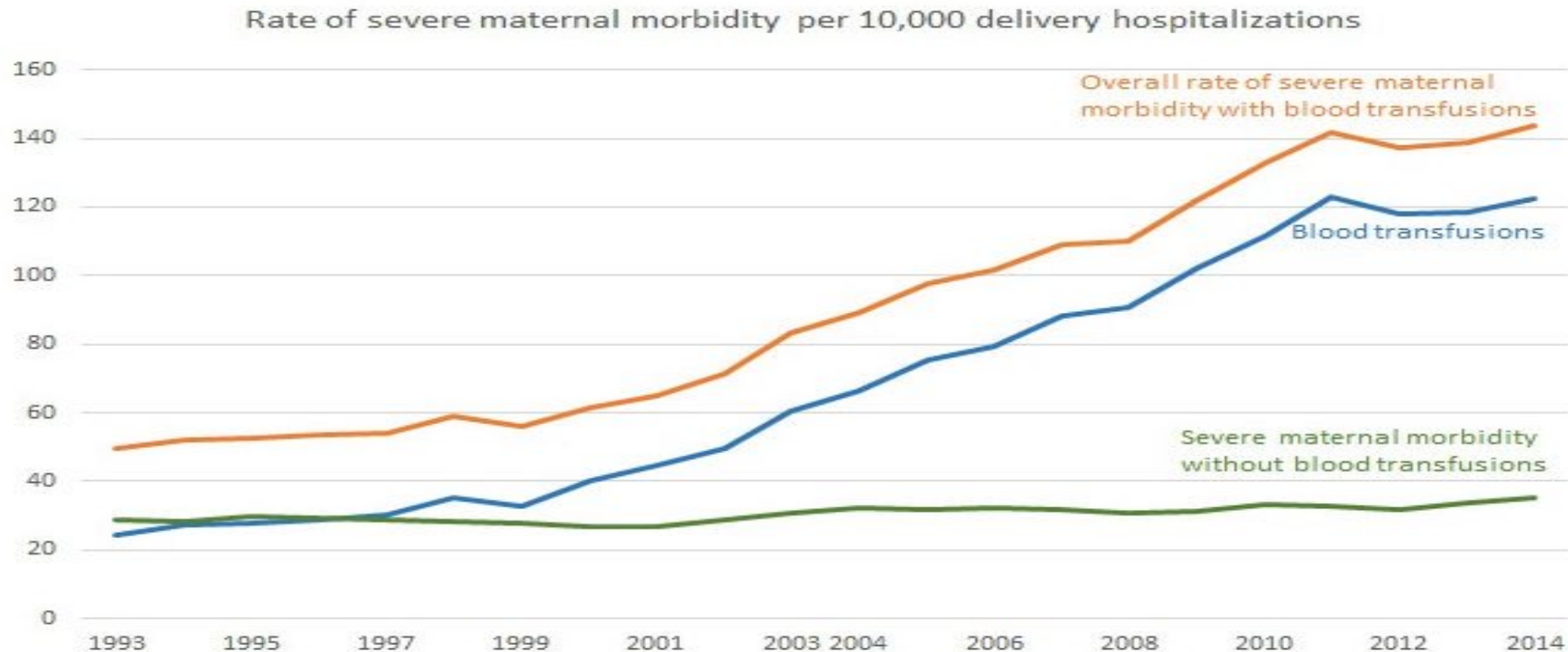
“You know, they're probably not true apples to apples,” University chief medical officer Dr. Bryan Alsip said after being shown the numbers.

Severe Maternal Morbidity (CDC)

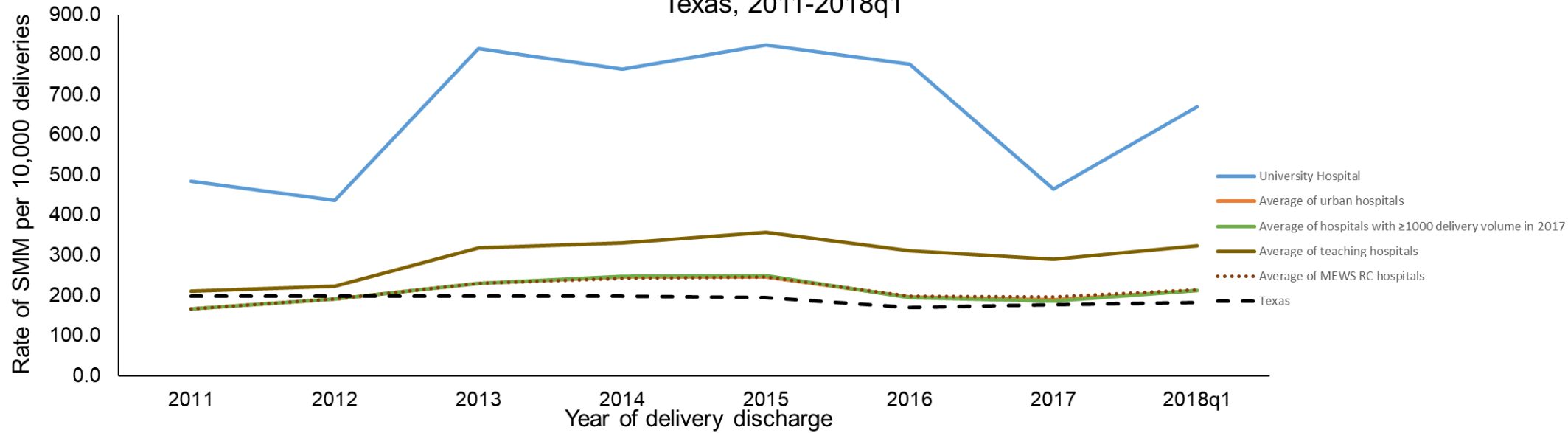
- Acute myocardial infarction
- Aneurysm
- Acute renal failure
- Adult respiratory distress syndrome
- Amniotic fluid embolism
- Cardiac arrest/Ventricular fibrillation
- Cardioversion of cardiac rhythm
- Disseminated intravascular coagulopathy
- Eclampsia
- Heart failure/Arrest during surgery/procedure
- Puerperal cerebrovascular disorders
- Pulmonary edema/Acute heart failure
- Severe anesthesia complications
- Sepsis
- Shock
- Sickle cell disease with crisis
- Air/thrombotic embolism
- **Blood transfusion**
- Hysterectomy
- Temporary tracheostomy/Ventilation

Severe Maternal Morbidity (SMM)

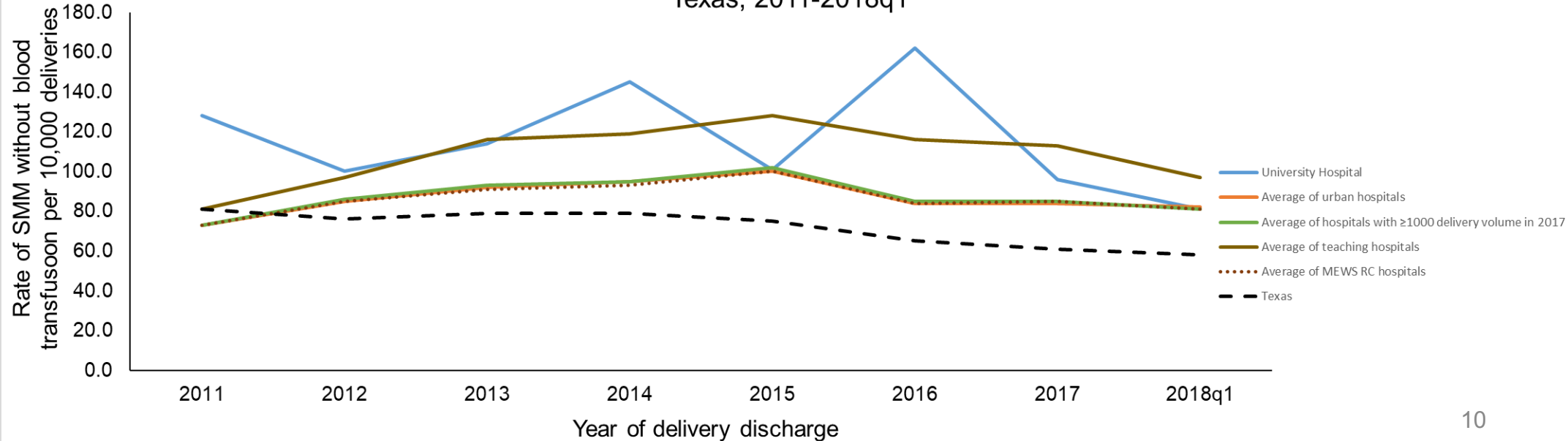
unintended outcomes of the *process of labor and delivery* that result in *significant* short-term or long-term consequences to a woman's health



Severe maternal morbidity rate, overall, and by Hospital
Texas, 2011-2018q1



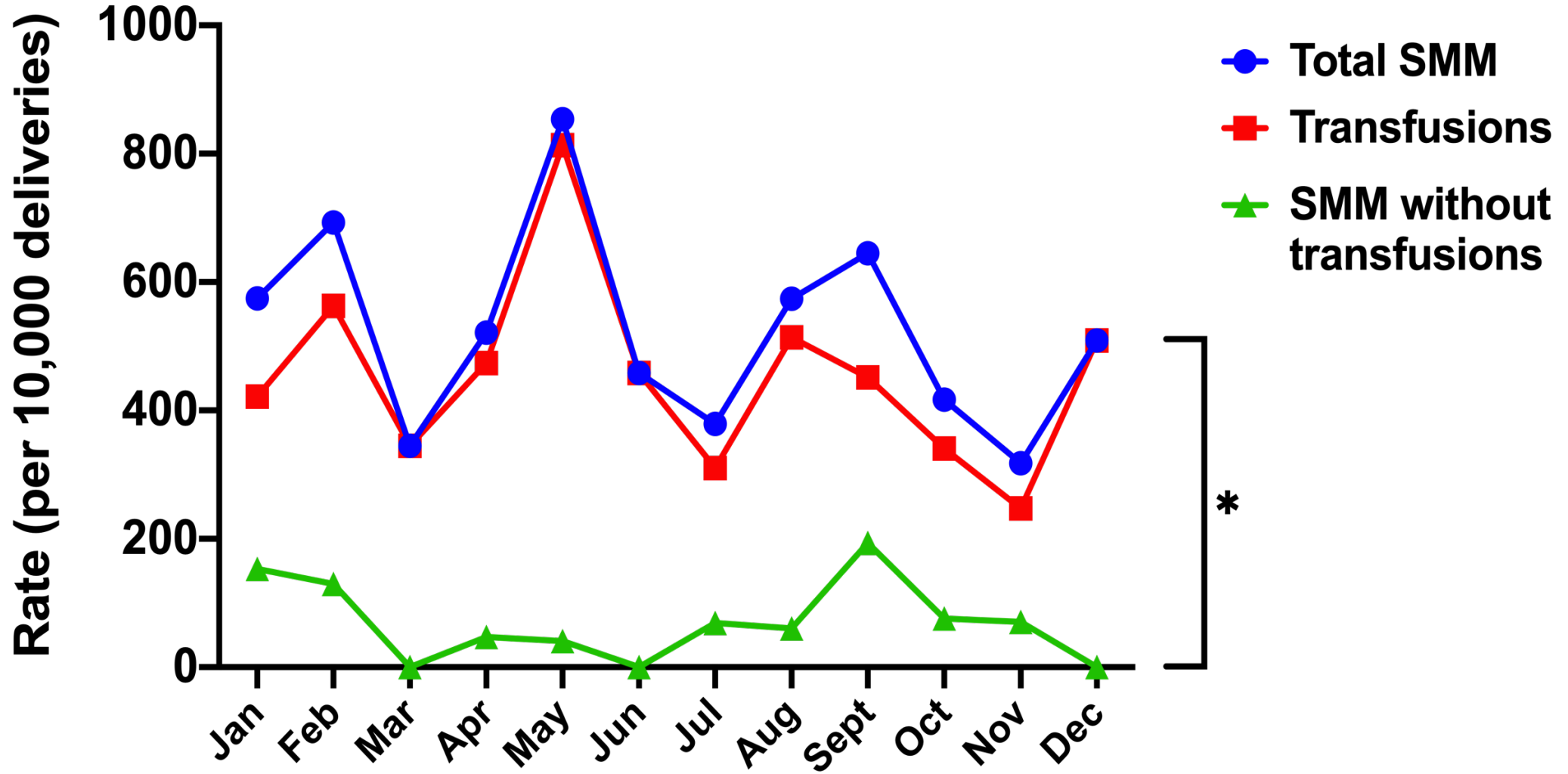
Severe maternal morbidity without blood transfusion rate, overall, and by Hospital
Texas, 2011-2018q1



Maternal Transfusion Reduction Initiative

Severe Maternal Morbidity (SMM) rate University Hospital, 2019

Pre-Intervention



How Did We Compare to Others?

At University hospital 2014-2017, 6.7% deliveries with SMM (per 14K deliveries) – 79% ONLY had blood transfusion

- Ben Taub 3.3%/14K deliveries
- Memorial Herman 3.0%/10K deliveries
- UTMB 1.6%/21K deliveries
- Parkland 4.9%/44K deliveries

To decrease 30% → Parkland, to decrease 50% → Ben Taub

Which goal is more appropriate as the short term vs. long term goal?

UT Health Clinical Safety and Efficacy Course

- - 9 month training in
QI/PI
- Multidisciplinary
team project



The Team

- Team:

- Dr. Kayla Ireland, **Maternal Fetal Medicine**
- Dr. Jessian Munoz, **Maternal Fetal Medicine** Fellow
- Dr. Sarah Page-Ramsey, **Obstetrics and Gynecology**
- Dr. Elizabeth Bowhay-Carnes, **Hematology and Oncology**
- Dr. Rahaf Alkhateb, **Transfusion Medicine Pathology** Fellow
- Dr. Eva Wong , **Obstetrics and Gynecology** Resident
- Evangelina Saucedo-Yebra, **RN – Ambulatory Area Manager**
- Belinda Lopez, CNM - **UT/UHS Midwifery Practice**
- Natalie Acovio-Galindo, **BSN, RNC-OB - Inpatient UHS PCC**
- Facilitators: Drs. Patrick Ramsey, Tania Roman, and Angela Boyd, Sherry Martin

- Sponsor:

- Department of OB/GYN

What We Are Trying to Accomplish?

Outcome Goal

Our long-term objective is to reduce the Severe Maternal Morbidity and Mortality (SMM) rate at University Hospital by reducing maternal peripartum blood transfusions, the leading contributing factor to the SMM rate

What We Are Trying to Accomplish?

AIM Statement

The aim of our project is to reduce the rate of peripartum blood transfusion (from 6% to 4%, by 33%) at University Hospital through implementation of transfusion prevention and reduction bundle during the time period of October 2019 to April 2020

How Will We Know That a Change is an Improvement?

Phase 1

- **retrospective, systematic evaluation**
 - identify “at risk” populations and predisposing risk factors

Phase 2

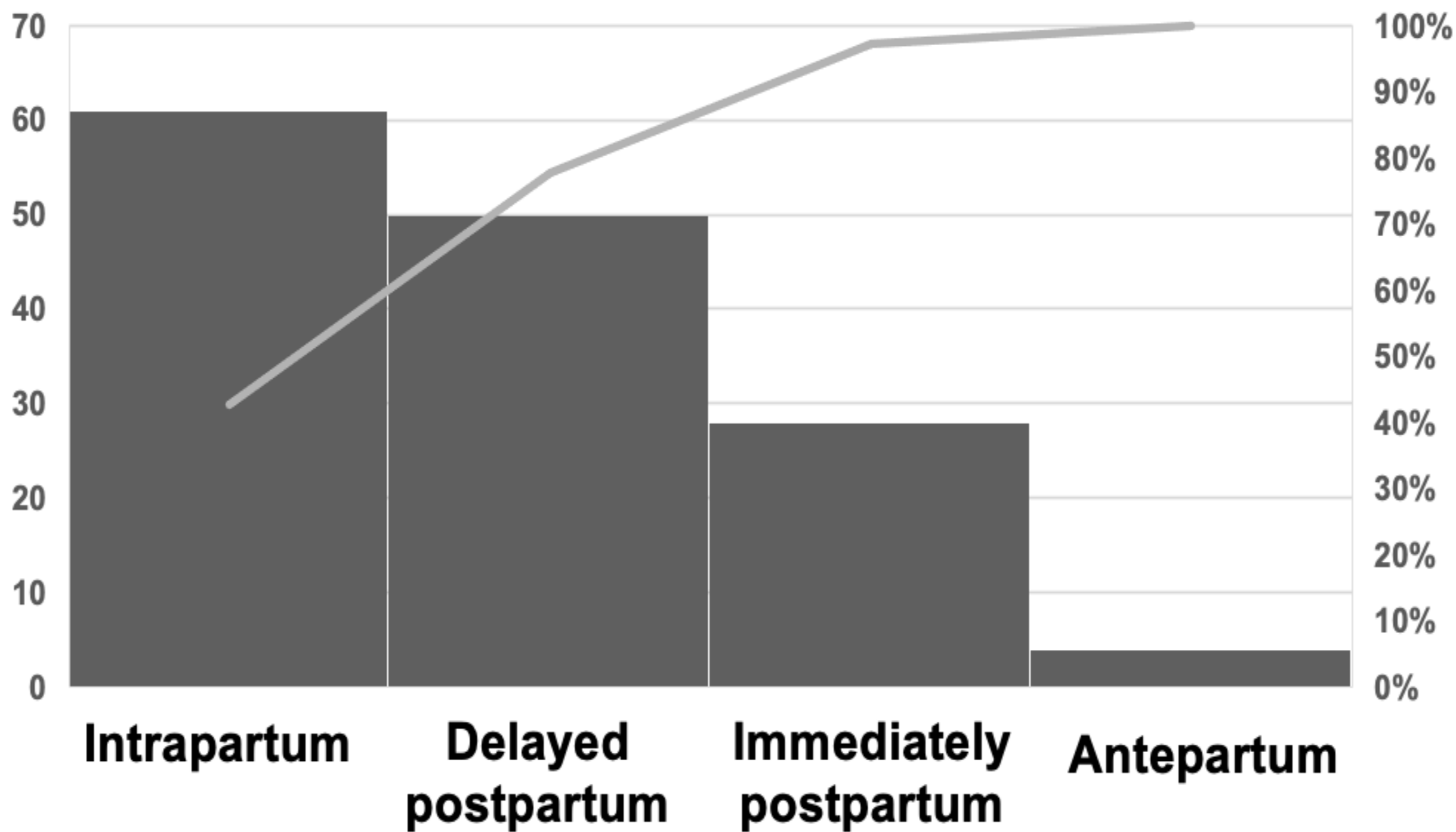
- **develop “transfusion prevention and reduction bundle”**
 - prospectively identify and manage “at risk” population

Phase 3

- **Compare transfusion rates**
 - before and after implementation to determine efficacy of intervention.

Developing the Transfusion Reduction Bundle

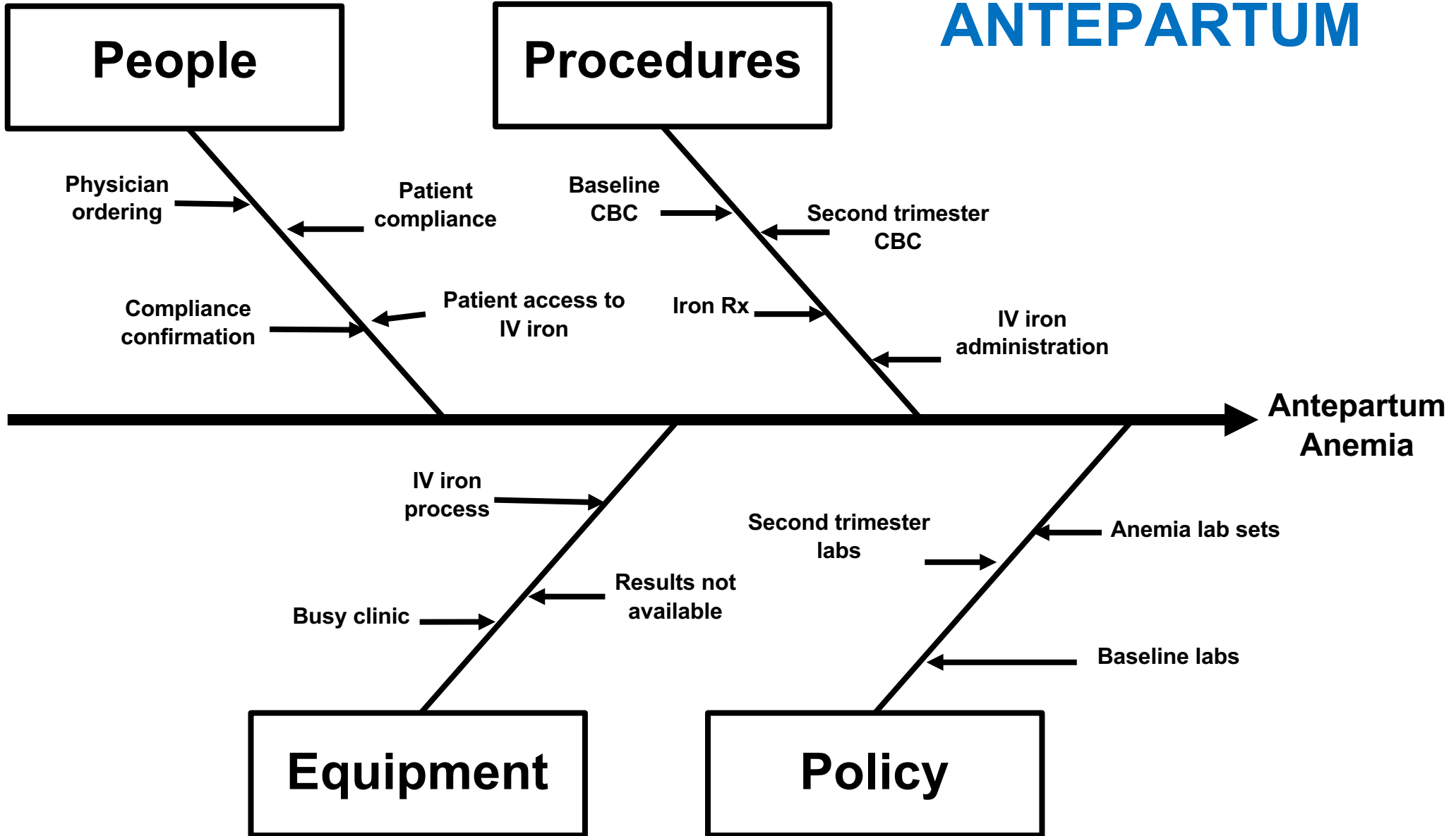
Timing of Transfusion, 2019



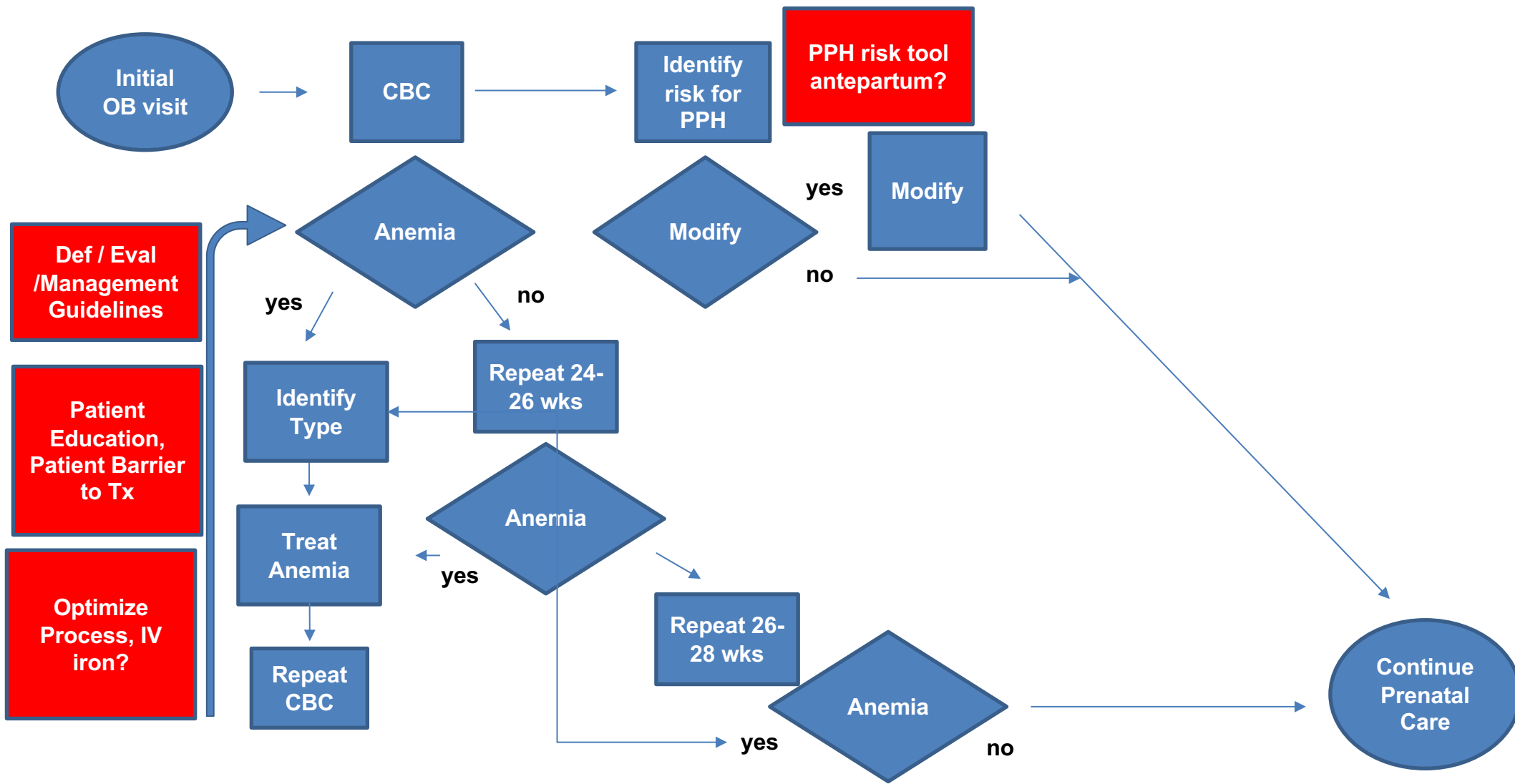
Team Brainstorming Sessions



ANTEPARTUM



Maternal Transfusion Reduction - ANTEPARTUM



INTRAPARTUM

People

Procedures

Review H&H and
placenta location

Anesthesia
staff

Intraoperative
complications

Management of
PPH

**Intrapartum
Anemia**

Balloon
instruments

Number to
transfuse

Transfusion
criteria

Hemorrhage kit

Pre-op
H&H

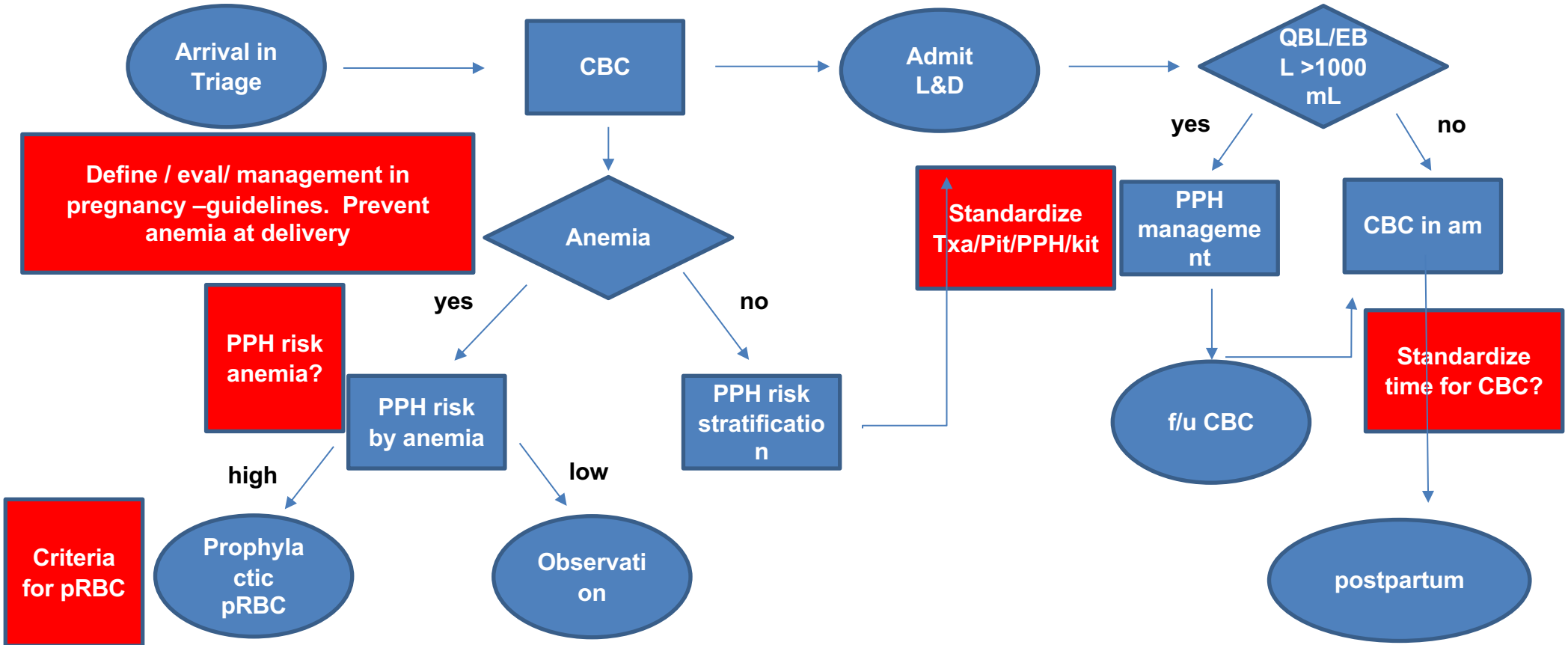
Transfusion
indications

PPH
management

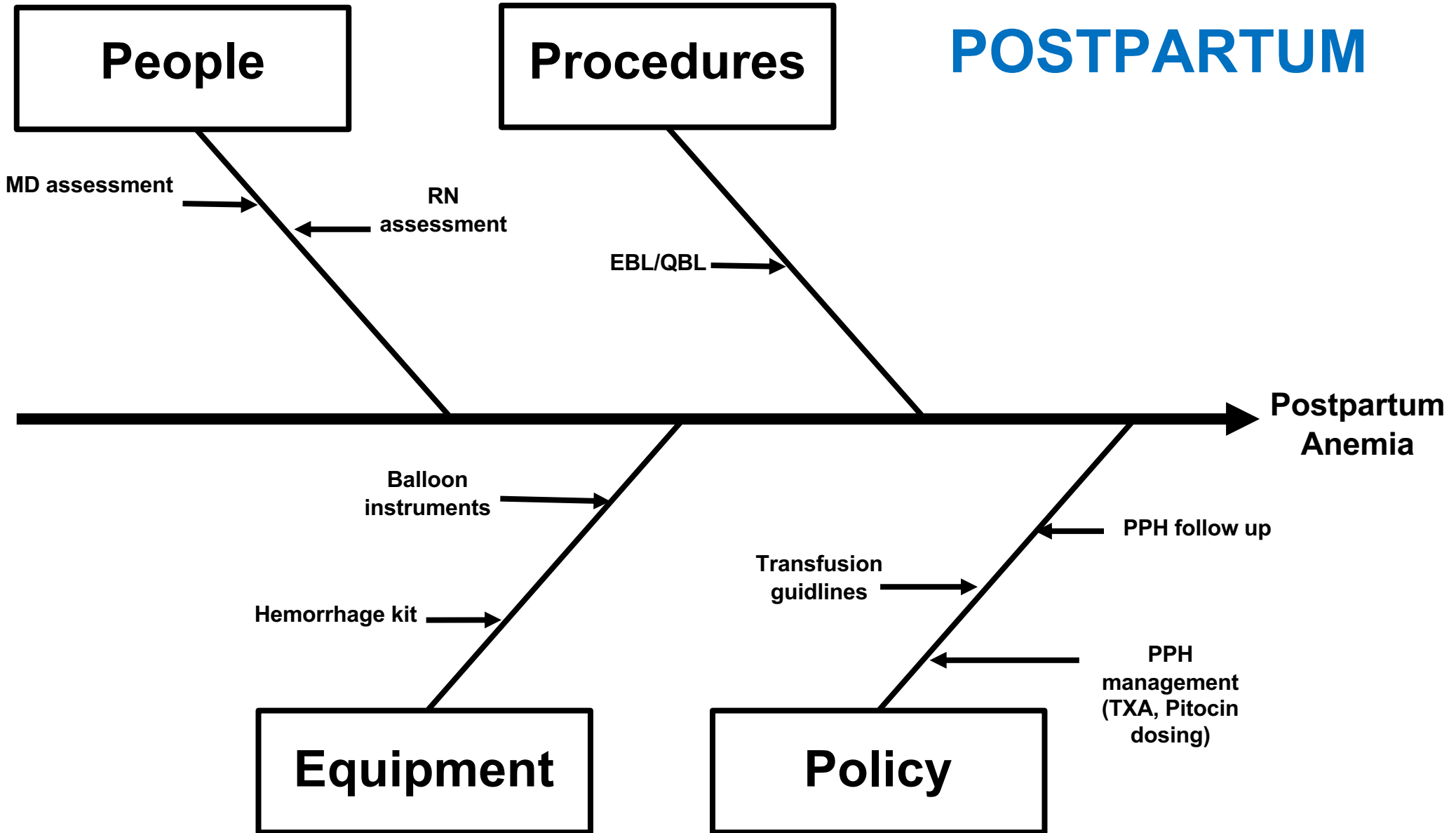
Equipment

Policy

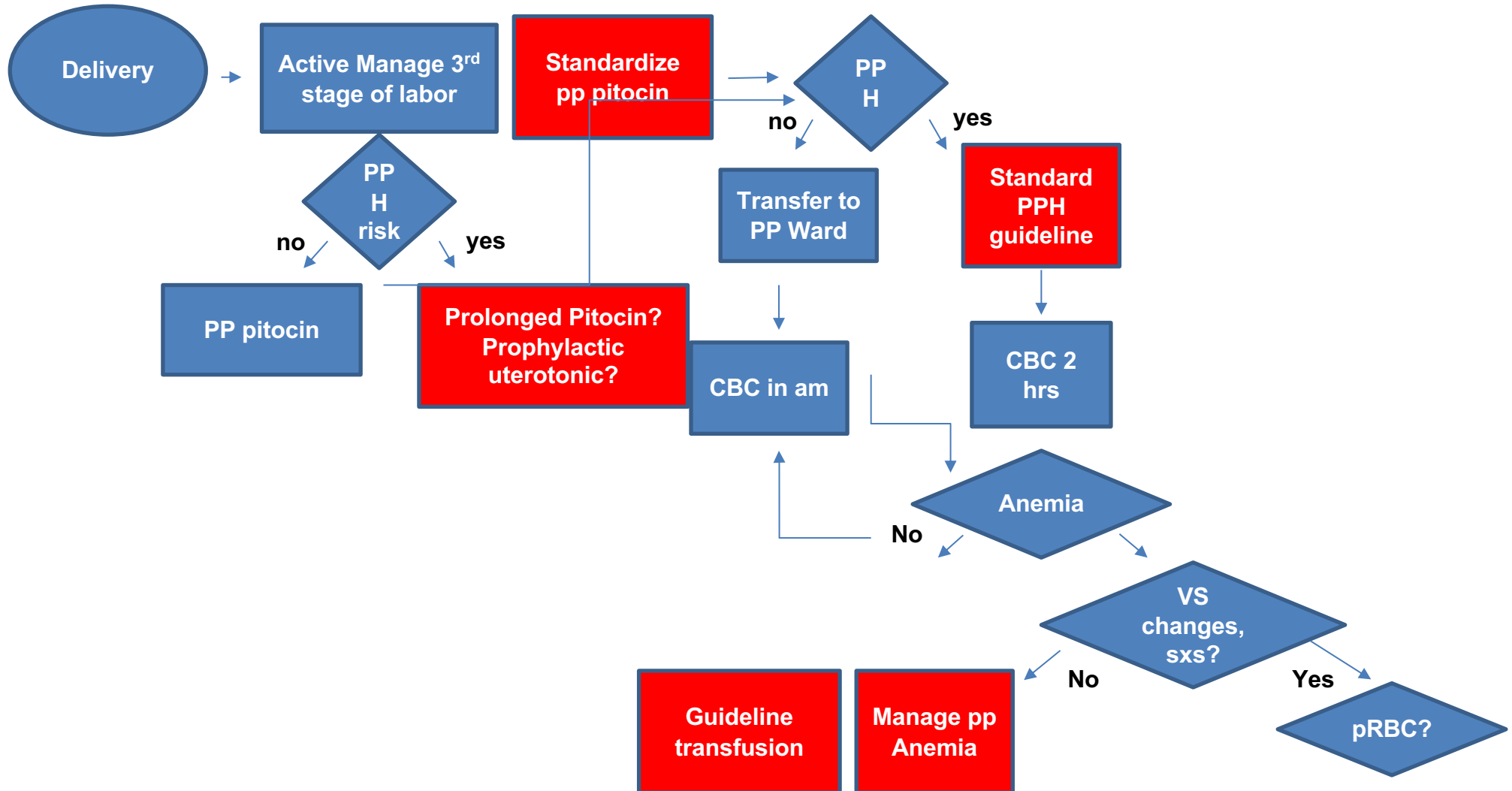
Maternal Transfusion Reduction - INTRAPARTUM



POSTPARTUM



Maternal Transfusion Reduction – Postpartum



Maternal Transfusion Prevention and Reduction Bundle

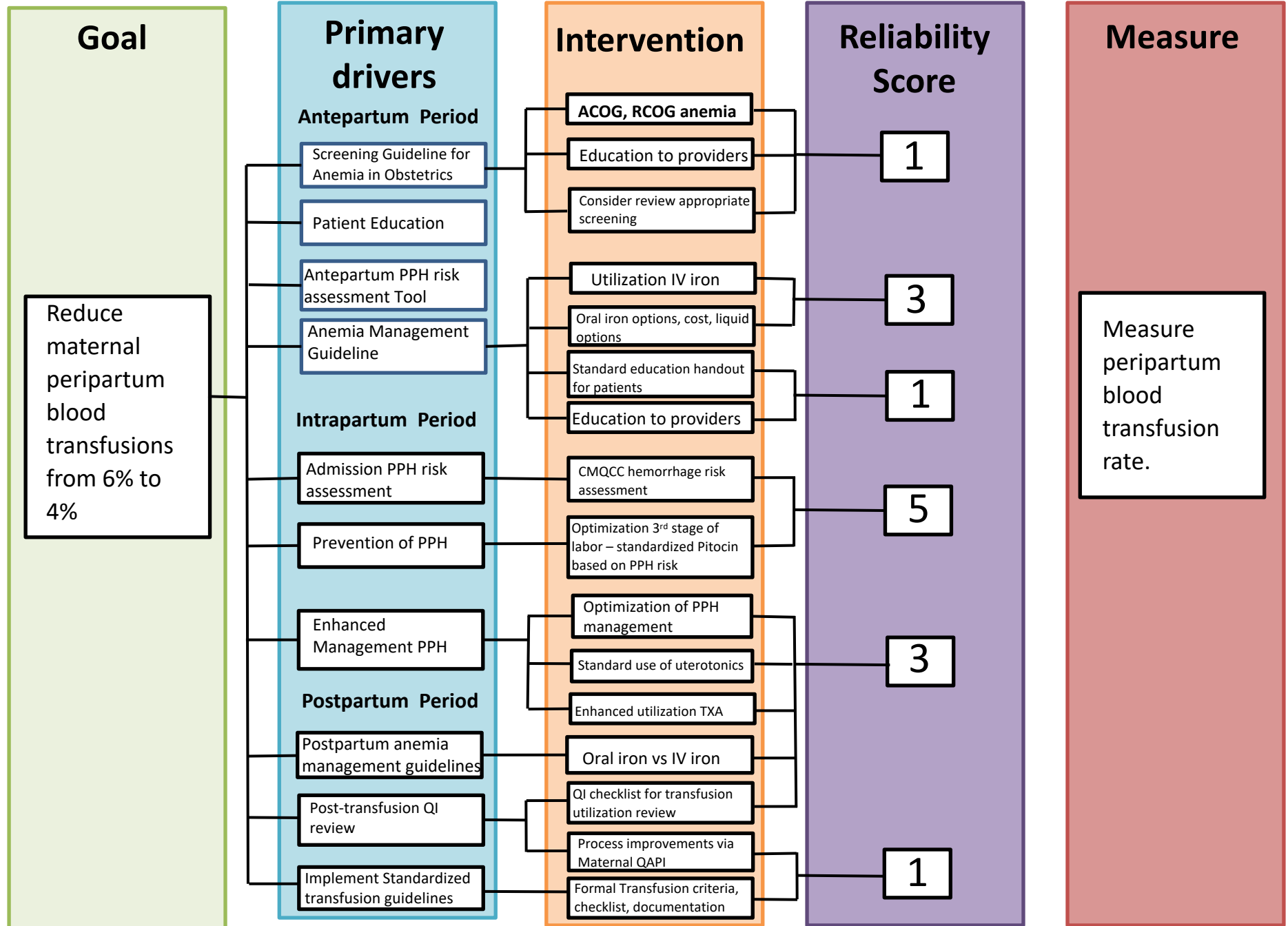
Period	Bundle Component	UHS
Antepartum	Screening Guideline for Anemia in Obstetrics	Screening for Anemia in Pregnancy Guideline
	Anemia Management Guideline	Other Anemia Diagnosis and Management Guideline Iron Deficiency Anemia Guideline Oral iron options, cost, liquid options Standard education handout for patients Education to providers
	Patient Education	Prenatal Visits
	Antepartum PPH risk assessment Tool	
Intrapartum	Admission PPH risk assessment	UHS Obstetrics Hemorrhage Guideline 9.1600 WHS
	Prevention of PPH	Optimization 3 rd stage of labor – standardized Pitocin based on PPH risk
	Enhanced Management PPH	Optimization of PPH management Standard use of uterotonics Enhanced utilization TXA
Postpartum	Implement Standardized transfusion guidelines	Formal Transfusion criteria, checklist, documentation
	Postpartum anemia management guidelines	Oral iron vs IV iron
	Post-transfusion QI review	QI checklist for transfusion utilization review Process improvements via Maternal QAPI

Implementation



Implementing the Change

Event	Team Lead	Date	Lesson Learned
Ob/Gyn Grand Rounds “SMM and UT/UHS Transfusion Reduction Initiative”	Munoz, Ireland	10/30/2019	Introduction
UHS Women’s Health APP Grand Rounds	Lopez	11/8/2019	Introduction
Family Medicine Grand Rounds	Munoz	11/20/2019	Introduction
PP Pitocin Standardization Implementation	Acovio-Galindo	12/10/2019	Pump, Intraop vs pp pit, EMR order update
Maternal Morbidity and Mortality Conference – Postpartum Pitocin Standardization	Ireland	12/20/2019	Addressed PPH treatment vs prevention, Order/EMR issue
Maternal Morbidity and Mortality Conference and Ob/Gyn Faculty Meeting – Transfusion Reduction Bundle Update	Ireland / Yebra-Saucedo	1/8/2020	Bundle available via UHS intranet, Update APP and FM stakeholders, Empower Women’s Health Nursing prescreen and identify anemia outpatient prior to provider contact
Weekly Maternal Morbidty and Mortality Conference – Transfusion Review Standardized Form	Ireland / ALL	1/22/2020, Ongoing	Standardized form with outcome measures discussed WEEKLY
Maternal QAPI – review of all triggers including PPH, transfusion	Ireland / Munoz / Acovio-Galindo / Page-Ramsey	On-going Monthly	



Data Collection Plan - Antepartum

Type of Measure	Measure	Data Elements	Category		Data Source	Data Freq	Data Steward
Process	% entry PNC anemia evaluated	# anemia entry to prenatal care (<24 weeks and >24 weeks) eval / Hgb <11 in pregnancy and delivery at UHS	New	M	EMR, delivery book	Quarterly	Munoz, Ireland
Process	% entry PNC anemia treated	# anemia entry to prenatal care (<24 weeks and >24 weeks) treatment / Hgb <11 in pregnancy and delivery at UHS	New	M	EMR, delivery book	Quarterly	Munoz, Ireland
Process	% 2nd TM CBC	# entry PNC <24 weeks and repeat CBC 24-28 wks / delivery at UHS	New	M	EMR, delivery book	Quarterly	Munoz, Ireland
Process	% Anemia workup	# anemia with guideline appropriate workup (labs) / Hgb <11 in pregnancy and delivery at UHS	New	M	EMR, delivery book	Quarterly	Munoz, Ireland
Process	% Oral Iron	# IDA and oral iron /Hgb <11 in pregnancy and delivery at UHS	New	M	EMR, delivery book	Quarterly	Munoz, Ireland
Process	% Repeat CBC	# anemia with repeat CBC / Hgb <11 in pregnancy and delivery at UHS	New	M	EMR, delivery book	Quarterly	Munoz, Ireland
Process	% refractory iron treated with IV iron	# IDA failed oral per guideline / Hgb <11 in pregnancy and delivery at UHS	New	M	EMR, delivery book	Quarterly	Munoz, Ireland
Balancing Measure	Number patients referred for IV iron		New	M	EMR		Yebara

Data Collection Plan - Intrapartum

Type of Measure	Measure	Data Elements	Data Category		Data Source	Data Frequency	Data Steward
Process	% Admission Risk Assessment	# Admission hemorrhage risk assessment / ALL deliveries	New	M	EMR, delivery book	M	Acovio-Galindo
Process	% standardized pitocin with PPH	# yellow/red PPH risk who received standardized pitocin / delivery with PPH	New	M	EMR (MIDAS), delivery book	M	Acovio-Galindo
Process	% appropriate uterotonics with PPH	# atony PPH uterotonics / delivery with atony PPH	New	M	EMR (MIDAS), delivery book	M	Acovio-Galindo
Process	% TXA with PPH	# PPH and additional uterotonic treated with TXA / delivery with PPH additional uterotonics	New	M	EMR (MIDAS), delivery book	M	Acovio-Galindo

Data (Process Measures) – Intrapartum

Measure	Jan	Feb	Mar
% Admission Risk Assessment	92% (n=286)	94% (n=207)	(n=266)
% PPH / Deliveries	5.90%	8.20%	6.70%
% standardized Pitocin with PPH	100% (n=286)	100% (n=207)	100% (n=266)
% appropriate uterotonics with PPH	80% (n=15)	100% (n=13)	82% (n=11)
% TXA with PPH	61% (n=13)	61% (n=13)	54% (n=11)

Data Collection Plan - Postpartum

Type of Measure	Measure	Data Elements	Data Category		Data Source	Data Frequency	Data Steward
Process	% Documentation Indication Transfusion	# Documentation of indication / # transfusions per weekly delivery	New	M	Transfusion Review Form	Weekly	Wong
Process	% Quality Review at M&M presentation	# presented at M&M / # transfusions per weekly delivery	New	M	Transfusion Review Form	Weekly	
Outcome	% Transfusions	# Transfusions / weekly delivery	New	A	EMR (Midas / Statit)	Monthly	MIDAS/Statit Munoz/Ireland
Outcome	Severe Maternal Morbidity (SMM) Rate	# SMM (CDC Definition)/10,000 Live births	Existing	A	EMR (Midas / Statit)	Quarterly	Midas / Statit) QAPI

Results

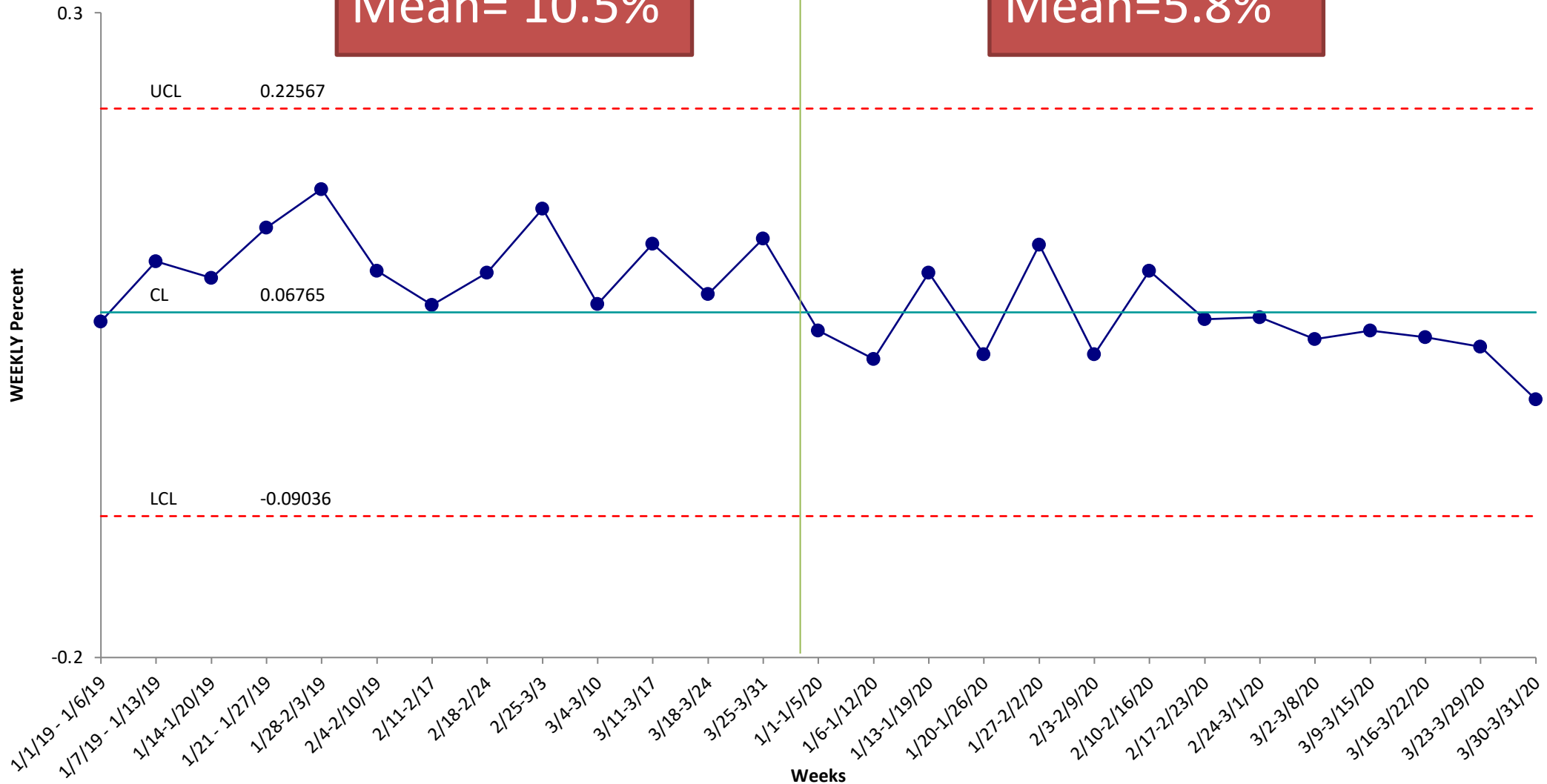
% Transfusions per Weekly Delivery

Retrospective (Pre)
2019

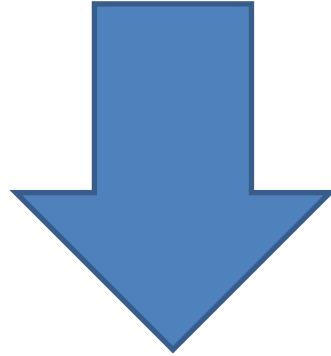
Mean= 10.5%

Prospective (Post)
2020

Mean=5.8%



**GOAL: Reduce the rate of peripartum
blood transfusion (from 6% to 4%) by 33%**



ACTUAL:

Jan – March 2019 to Jan – Mar 2020

**The rate of peripartum
blood transfusion was reduced (from 10.5% to 5.8%)
by 45%**

Costs Transfusion, IV Iron

Blood Transfusion

Transfusion Administration Charge	\$400 / transfusion
ABO Rh Testing	\$229
Antibody screen test	\$216
Antibody panel (if positive antibody screen)	\$417.25*
Cost of Unit (vary depending antibody result)	\$886 - thousands
TOTAL	\$1731 (\$2148*)

Data: UHS Blood Bank 2020

IV Iron

IV Iron (400 mg Venofer)	\$150 (\$50 pharmacy cost + 100 patient cost)
Infusion Center Administrative Cost (Cash Quote)	
OB Triage EC Visit	*\$294
Labs: CBC, Iron, Ferritin, B12, Folate	26+26+62+51+66 = \$231
Total	\$675

Data: Mdsave.com, UHS Billing 2020

Return on Investment

- Decrease in transfusions
 - Anticipated 33% decrease
 - 6/100 deliveries to 4/100 deliveries
 - $\$10,386 - 6,924 = \$3,462 / 100$ deliveries
 - **3500 deliveries year → \$121,170**
 - Actual 45% decrease
 - 10.5/100 deliveries to 5.8/100 deliveries
 - $\$18,175.50 - 10,039.80 = \$8,135.70 / 100$ deliveries
 - **3500 deliveries per year → \$284,749.50**

Return on Investment

Cost averted= \$8135.70¹ – \$1957²= \$6178.70/100 deliveries

\$216,254 / 3500 deliveries annually

¹ *Cost Averted: Blood Transfusion difference/100 deliveries*

² *Cost Additional Resources : IV Iron Infusion, Use of Infusion Center, Potential admission or EC visit for infusion, Labs: Iron, Ferritin, CBC. Total IV post implementation rate/100 deliveries: 22 ordered / 757 deliveries = 2.9 / 100 deliveries*

Sustainability

Antepartum:

- Integration into culture, Guideline posted in clinic and intranet

Sustainability

Intrapartum:

- Standardization of postpartum Pitocin – only option for order, universal nursing/education – hard stop
- Continued efforts to reduce PPH through Texas AIM – PPH Debrief
- PPH risk assessment integrated into EPIC with color coding L&D status board

Sustainability

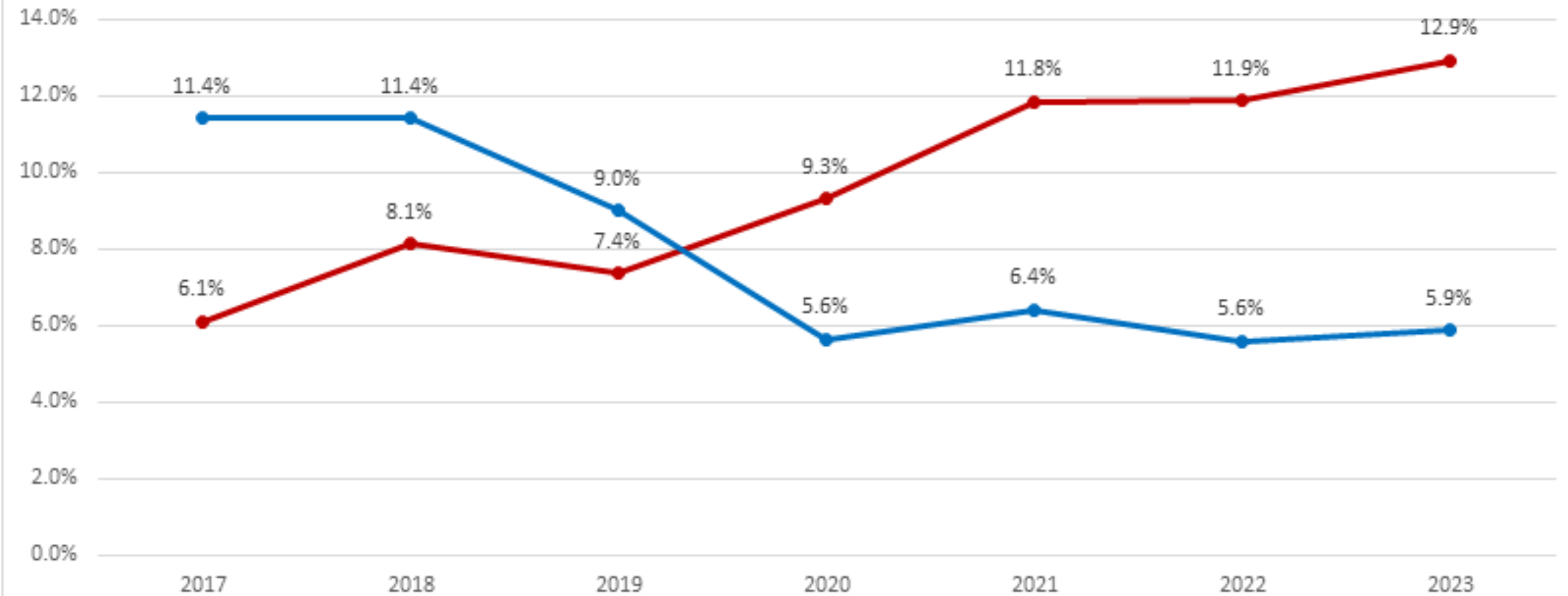
Postpartum

- Transfusion indication documentation integrated into EMR (EPIC)
- Maternal QAPI reviews transfusions, PPH, SMM monthly with trends

Sustainability

PPH Vs Transfusion Rate 2017-2023

PPH Rate Transfusion Rate



Sustainability

- Continued review through QAPI – identified concomitant increase in PPH as the result of the transfusion reduction initiative
 - QBL? Enhanced team awareness of blood loss?*
 - Other Factors?*
- PPH now has become the focal point for our current service line QI initiative

Questions for Panel

- How did you navigate working between the various disciplines involved in the initiative?
- What pearls would you give to the audience members who are planning a QI initiative involving multiple disciplines?
- If you were to start on this initiative again from scratch, would you have done anything differently?

**One Team One Goal:
*Enhancing Perinatal Care
Through Unified Efforts***

Questions?



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