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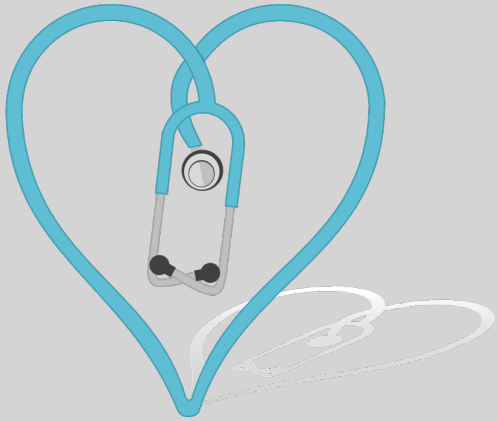
Reducing Maternal Morbidity: Postpartum Hemorrhage Risk Assessment

HARRISHEALTH SYSTEM

Baylor College of Medicine

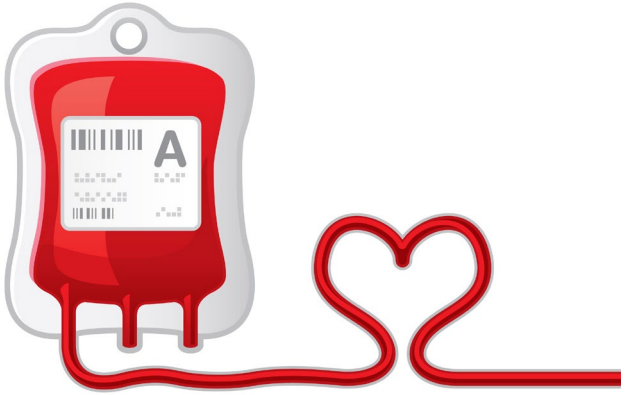
MARCH OF DIMES



Maternal Outcomes

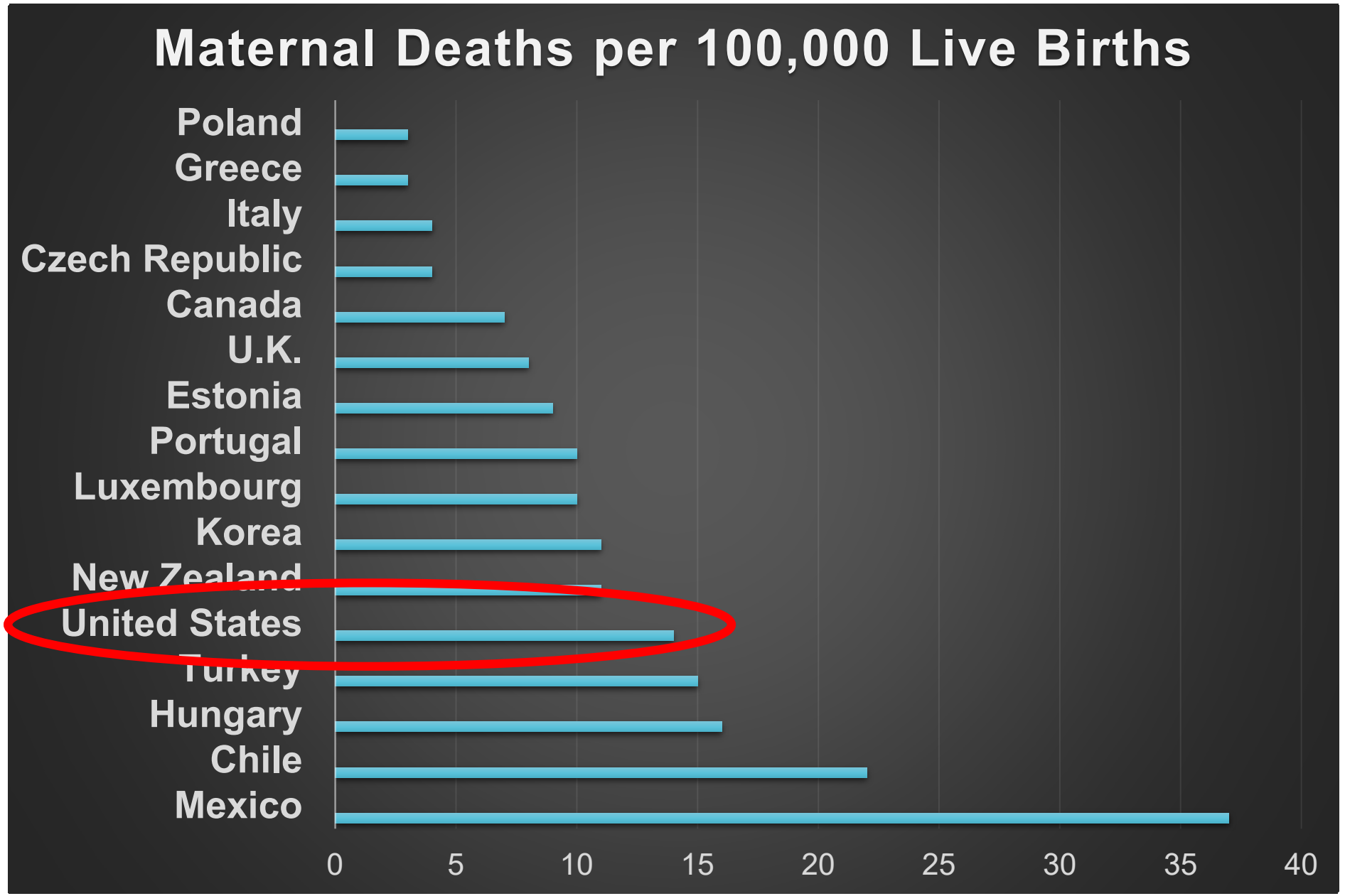
unexpected outcomes that result in significant short or long-term consequences to a woman's health

Severe Maternal Morbidity

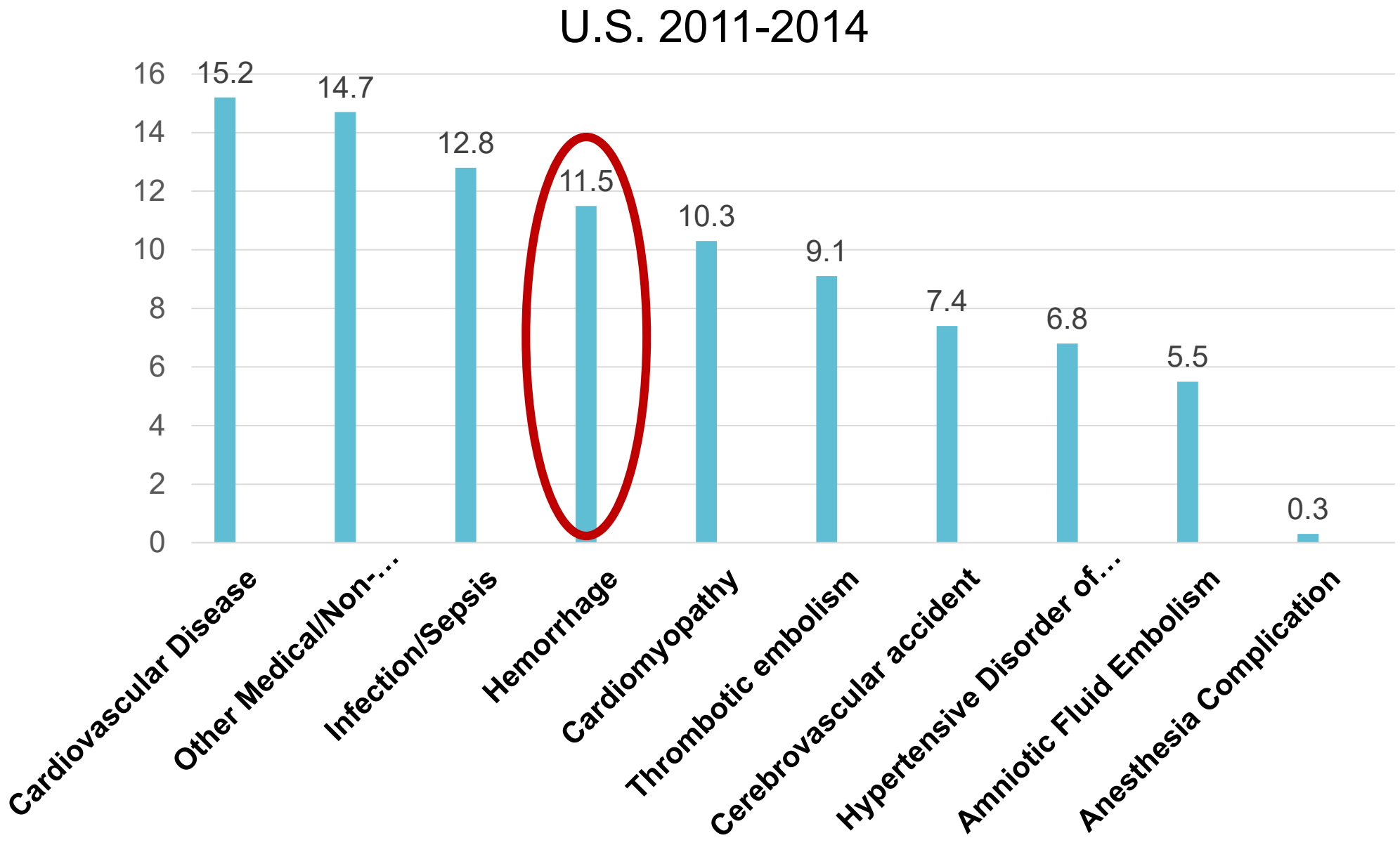


Maternal Mortality

death of a woman while pregnant or within 1 year of the end of a pregnancy


Maternal Deaths per 100,000 Live Births
Poland
Greece
Italy
Czech Republic
Canada
U.K.
Estonia
Portugal
Luxembourg
Korea
New Zealand
United States
Turkey
Hungary
Chile
Mexico
0
5
10
15
20
25
30
35
40

Causes of Pregnancy-Related Deaths

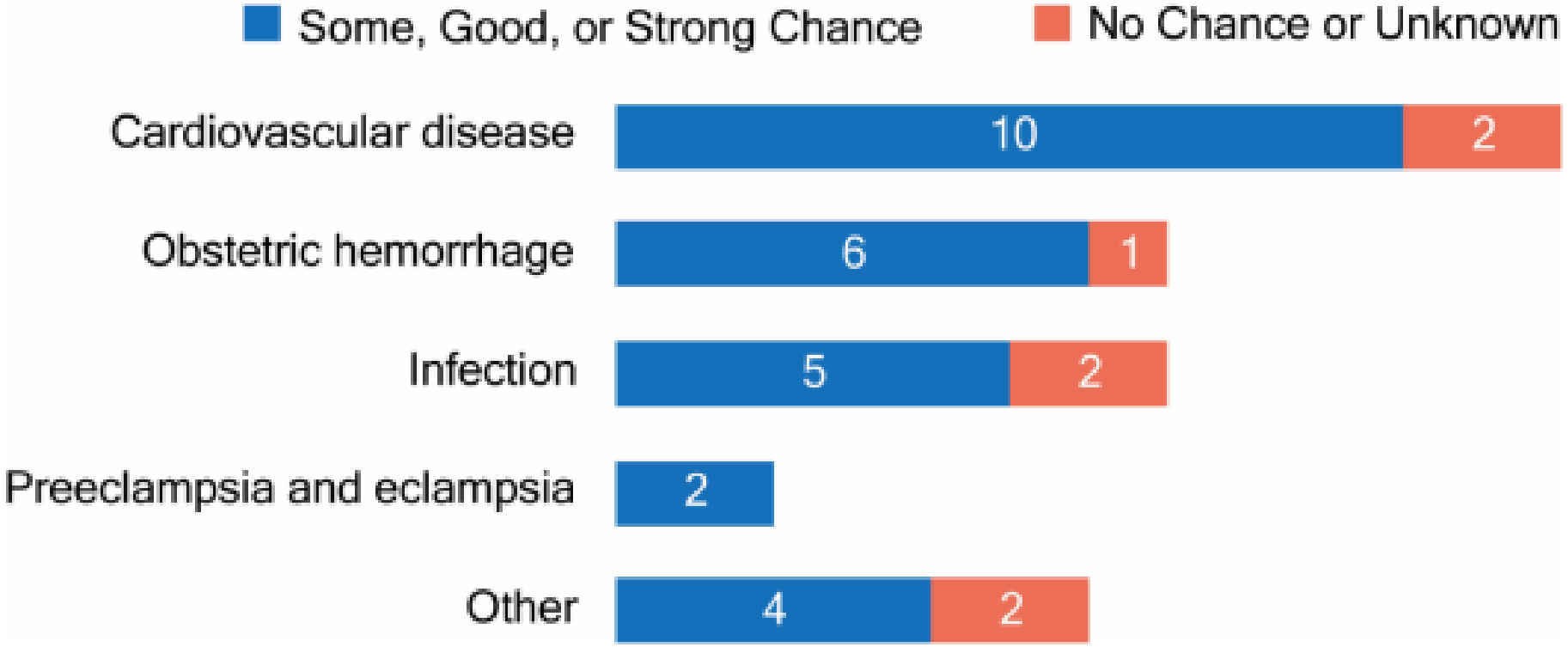


Texas Maternal Morbidity

Cause of Death	While Pregnant	0-7 Days Post Partum	8-42 Days Post Partum	43-60 Days Post Partum	61+ Days Post Partum	Total
Drug Overdose	0	3	7	5	49	64
Hemorrhage	3	12	2	0	3	20
Hypertension	0	7	4	0	7	18
Infection/ Sepsis	1	3	14	3	11	32
Suicide	0	1	2	2	28	33

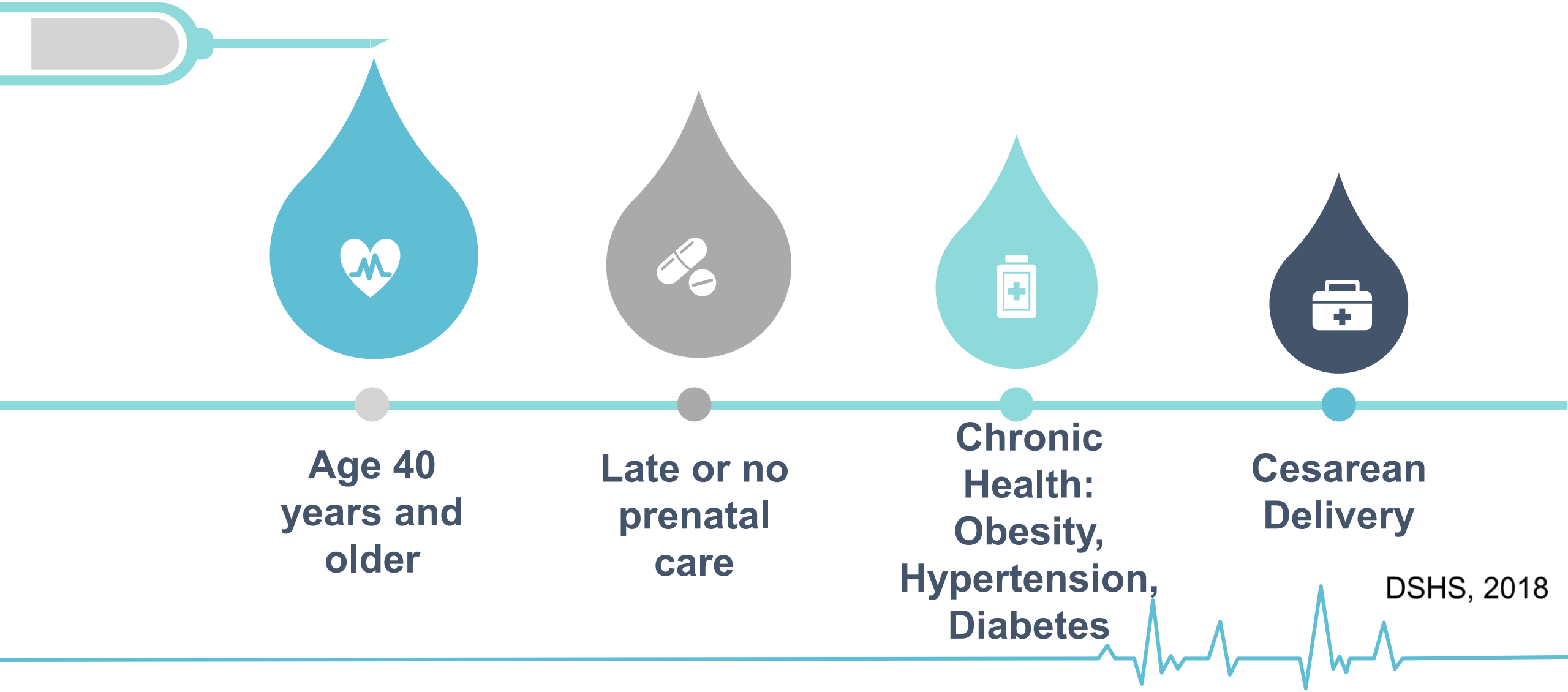
DSHS, 2018

Majority of Maternal Deaths – Preventable



Texas, 2012

Complex set of factors associated with increased risk for maternal death in Texas

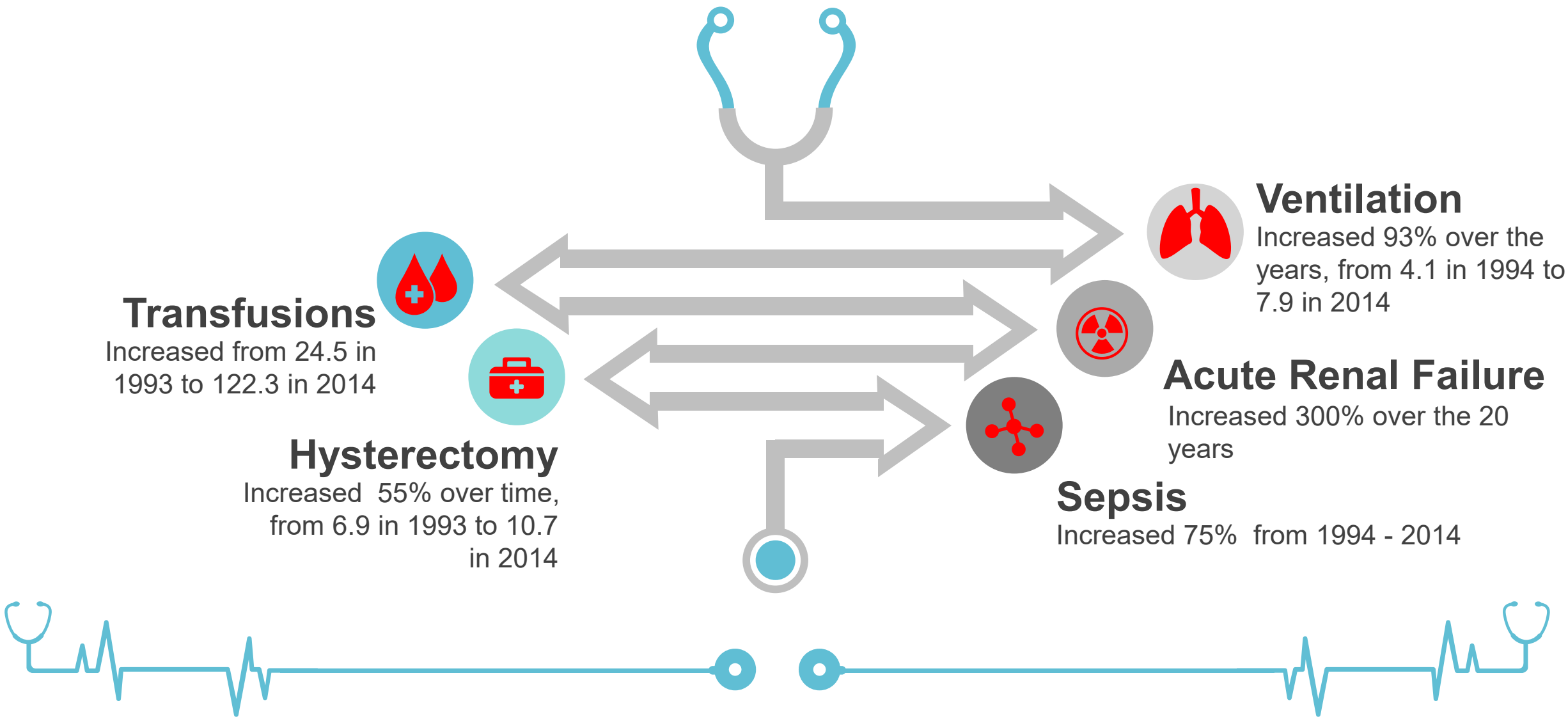


DSHS, 2018

Severe Maternal Morbidity(SMM)

- **For every maternal death, 100 women experience morbidity**
- **137 women per day – 50,000 per year, suffer severe complications or life-threatening injuries**

Severe Maternal Morbidity



Transfusions
Increased from 24.5 in 1993 to 122.3 in 2014

Hysterectomy
Increased 55% over time, from 6.9 in 1993 to 10.7 in 2014

Ventilation
Increased 93% over the years, from 4.1 in 1994 to 7.9 in 2014

Acute Renal Failure
Increased 300% over the 20 years

Sepsis
Increased 75% from 1994 - 2014

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE

safe health care for every woman

THE ALLIANCE FOR INNOVATION ON MATERNAL HEALTH (AIM) IS A NATIONAL PARTNERSHIP OF ORGANIZATIONS POISED TO REDUCE SEVERE MATERNAL MORBIDITY

American College of Nurse Midwives

American Academy of Family Physicians

American College of Obstetricians and Gynecologists

American Hospital Associati

National WIC Association

National Institute for Children's Health Quality

National Perinatal Information Center

National Association of Nurse Practitioners in Women's Health

Association of Maternal & Child Health Programs

American Society of Addiction Medicine

Association of State and Territorial Health Officials

Society for Maternal-Fetal Medicine

Association of Women's Health, Obstetric and Neonatal Nurses

Black Mamas Matter Alliance

California Maternal Quality Care Collaborative

Every Mother Counts

Society for Obstetric Anesthesia and Perinatology

Trinity Health

CityMatCH

Emergency Nurses Association

Genetic Alliance

HealthStream

March of Dimes

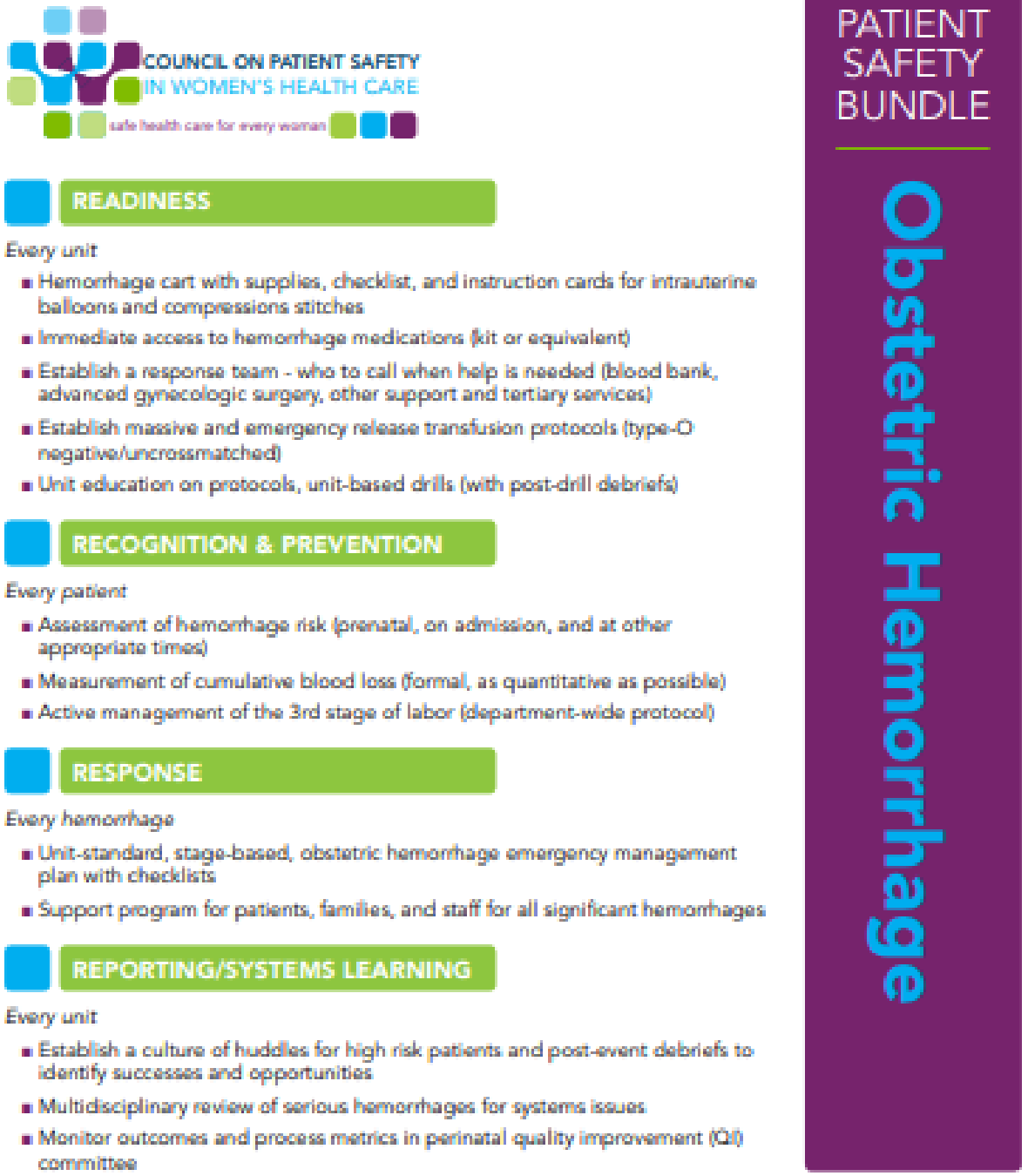
National Healthy Start Association

Bundle: noun al, tied or wrapped up t

AIM bundle: A ing safety in maternity c tice

Goal of the A practice with a **standard** app

States that joi ernal safety bundle a labor and delivery h



After bundle: 20.8% reduction in SMM

Among hospitals who implemented the national hemorrhage safety bundle, women with obstetric hemorrhage experienced a 20.8% reduction in SMM (Main, et al., 2017)

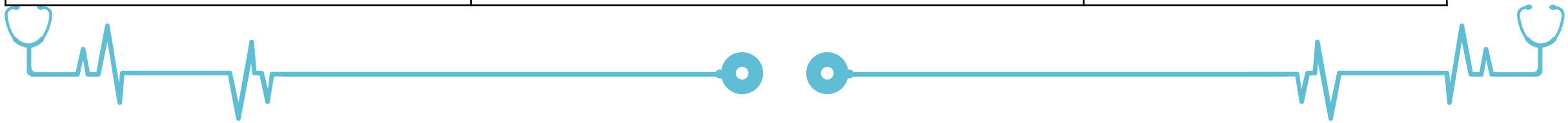
Hospitals who implemented the hemorrhage safety bundle had an 11.7% decrease in overall SMM among all obstetric patients

Postpartum Hemorrhage Risk Assessment

- Prevention of postpartum hemorrhage starts with preparation
- More than half of women who hemorrhage due to uterine atony have no known risk factors
- Identification of associated risk factors during the antenatal and intrapartum periods can improve readiness to respond for those with known risks

Risk Stratification

Low	Medium	High
≤ 4 previous vaginal births	HGB < 8	Placenta Previa
Singleton	Platelets < 100,000	Suspected Accreta
No previous PPH	≥ 3 Prior CD	Abruption
	> 4 vaginal births	Coagulopathy
	Chorioamnionitis	
	Multiple Gestation	
	EFW > 4250	
	History of postpartum hemorrhage	
	Obesity (BMI >40)	
	Large Uterine Fibroids (>5 cm)	



Actions based on risk

Low Risk

- Type and screen on admission (if antibody positive: crossmatch)
- Postpartum order: Oxytocin 30u in 500 mL LR 167cc bolus, then 42 cc/hr for 4 hours

Medium Risk

- Type and screen on admission (if antibody positive: crossmatch)
- Discuss risk of hemorrhage with patient
- Postpartum order: Oxytocin 30u in 500 mL LR 167cc bolus, then 42 cc/hr for 8 hours

Medium (+): ≥ 2 Medium Risk Factors

- Same as above, plus crossmatch 2 units PRBCs

High Risk:

- Crossmatch 4 (or more) units
- Discuss risk of hemorrhage and transfusion with patient
- Postpartum order: Oxytocin 30u in 500 mL LR 167cc bolus, then 42 cc/hr for 24 hours

Ben Taub Hospital
Harris Health System

Urban Academic Level 1 Trauma Center

Residency Program of 48

3500-4000 deliveries/year

- 86% “high risk”

5326 Deliveries (Aug 2016 – May 2018)

Risk Category	qBL Vaginal Delivery	qBL Cesarean Delivery	PPH n (%)	P Value	Sensitivity for PPH	Specificity for PPH
Low (n=946)	744 +/- 20	1060 +/- 33	291 (30%)	<0.001	54%	23%
Medium (n=325)	873 +/- 422	696 +/- 283	159 (49%)	<0.001	29%	80.7%
Medium plus (n-93)	987 +/- 31	1564 +/- 119	57 (61.3%)	<0.001	10.6%	95.8%
High (n=40)	2092 +/- 735	2735 +/- 456	34 (85%)	<0.001	6.33%	99.3%

qBL = quantitative blood loss
Data are displayed as either mean +/- standard deviation, or N (%)

*PPH- postpartum hemorrhage

Conclusion

- Risk stratification systems may increase awareness
- All team members must be prepared to recognize and respond to hemorrhage for women in *every* hemorrhage risk category

Thank You

References Available Upon Request

Email: Suzanne.Lundeen@harrishealth.org