THE FLORIDA SOCIETY OF ANESTHESIOLOGISTS

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National Partnership for Maternal Patient Safety Bundles: The Anesthesiologist's Role in Implementation for Every Obstetric Unit in Florida

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The United States' maternal mortality rate of 18-21 per 100,000 live births has more than doubled from 2000-2014, while in other developed nations, mortality has decreased substantially.[1] Florida's pregnancy-related mortality (PRMR) follows this range with a rate of 16.9 in 100,000 live births.[2] Explanations for this increase range from advanced maternal age, obesity, increased cesarean section rates and attendant co-morbidities to system process failures.[3] Leading causes of maternal mortality include hemorrhage, hypertension and thrombolic events.[4] Furthermore, studies have shown that between 28% to 50% of maternal deaths are preventable.[5]

In response to these trends, the Council on Patient Safety in Women's Healthcare in conjunction with the Partnership for Maternal Safety has developed three national multidisciplinary, evidenced-based guidelines, or bundles. These bundles may be adapted for local hospital conditions to optimally manage maternal patient care and outcomes.[6] "Maternal Safety Bundles for Hemorrhage," as well as "Hypertension in Pregnancy and Prevention of Venous Thromboembolism" were published in *Anesthesia and Analgesia* along with simultaneous articles in *Obstetrics and Gynecology, Journal of Midwifery* and *Women's Health* and *The Journal of Obstetric, Gynecological and Neonatal Nursing.*

The Florida Society of Anesthesiologists supports the maternal bundle recommendations and has partnered with the Florida Perinatal Quality Collaborative (FPQC) to support implementation throughout the state of Florida.

The FPQC, in association with the University of South Florida Lawton Chiles Center for Mothers and Babies, is a statewide collaboration of Obstetricians, Neonatologists, Perinatologists, Labor and Delivery Nurses, Nurse Midwives who aim to improve pregnancy related outcomes through evidenced based practice and quality improvement. FSA Board of Directors member Dr. David Birnbach serves on the FPQC Steering Committee.

Anesthesiologists have the unique opportunity to help implement these bundles within local Florida labor and delivery units. Each maternal safety bundle includes the 4 Rs: Readiness, Recognition, Response and Reporting, which reduce maternal morbidity and mortality. Tool kits to assist providers in all aspects of bundle implementation are available on the FPQC and Council on Patient Safety in

Woman's Health websites.[7] These bundles emphasize care for "every patient" and "every unit" with the caveat that components be "adapted to local resources."

The "Consensus Bundle on Obstetric Hemorrhage," published in *Anesthesia and Analgesia* in July 2015, urges every labor unit to utilize local resources to aid in consistency of practice, as well as other available resources to assist in processes to improve maternal hemorrhage recognition and treatment.[8] Areas of particular involvement for anesthesiologists are as follows: hemorrhage carts in labor and delivery units, immediate access to hemorrhage medications, establishment of a massive transfusion protocol, and participation in hemorrhage response teams. (Figure 1).

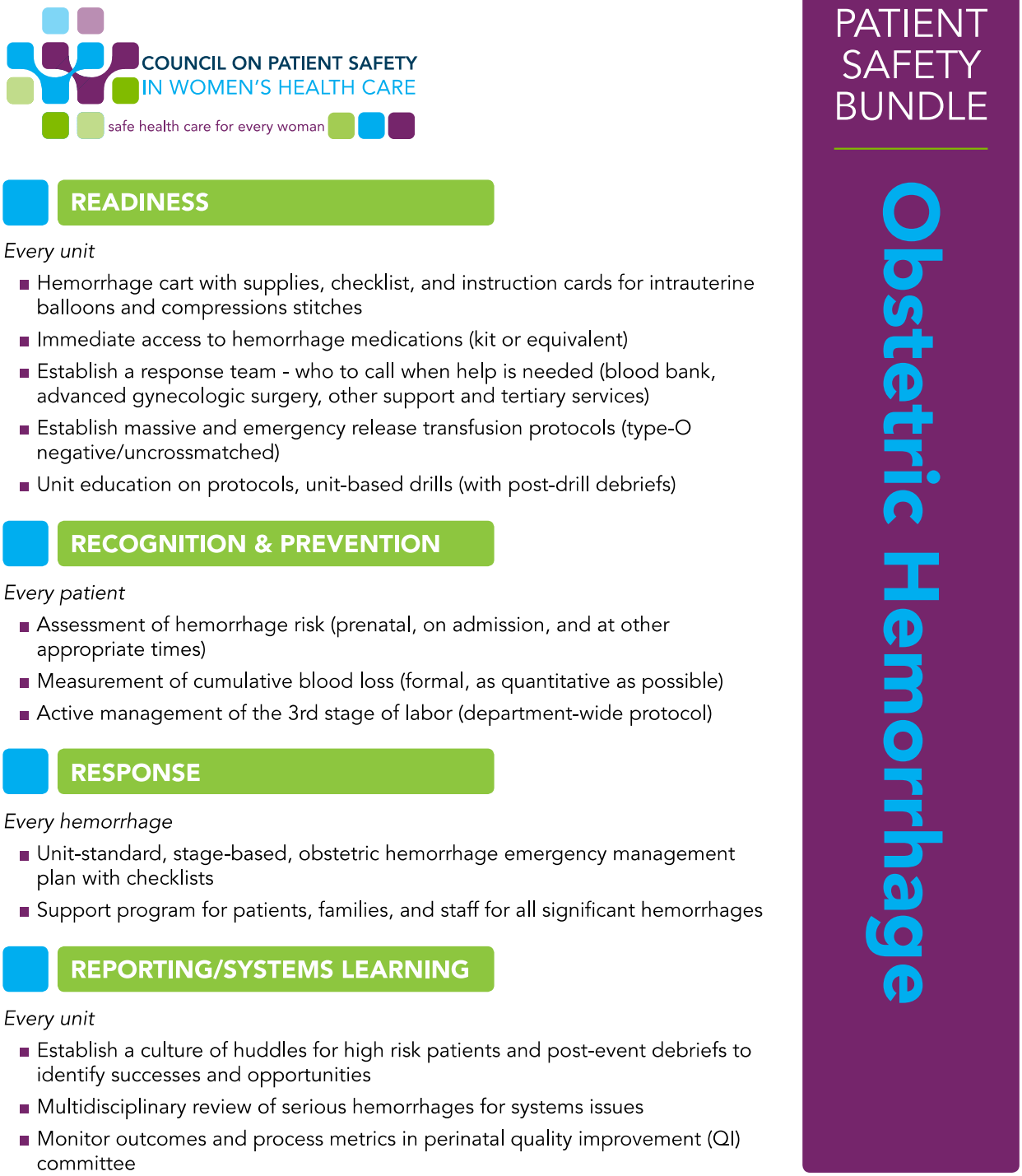
The "Consensus Bundle on Venous Thromboembolism" involves the physician anesthesiologist in coordinating risk assessment for thromboprophylaxis. In addition, this bundle includes timely pharmacologic anticoagulation management with timing of neuraxial anesthesia (Figure 2).[9] Anesthesiologists should be an integral part of decision making and timing of initiation, maintenance and discontinuance of anticoagulation management in high risk patients.

Key considerations within the bundle include attention to labor and delivery protocols to treat severe hypertension within an hour, airway management of eclamptic seizures, promotion of regional anesthesia, as well as recognition that the postpartum period is particularly perilous for preeclamptic patients (Figures 3a & 3b).[10]

Florida ranks in the top 5 most populous states for infant deliveries in the United States. As anesthesia professionals, we are integrated into the hospital systems where we can help to secure readiness, recognition, response and reporting to optimize maternal safety and reduce morbidity and mortality.

Is your labor and delivery suite doing the right things for all maternal patients all of the time?

Figure 1. Maternal Hemorrhage Bundle.



Standardization of health care processes and reduced variation has been shown to improve outcomes and quality of care. The Council on Patient Safety in Women's Health Care disseminates patient safety bundles to help facilitate the standardization process. This bundle reflects emerging clinical, scientific, and patient safety advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Although the components of a particular bundle may be adapted to local resources, standardization within an institution is strongly encouraged.

The Council on Patient Safety in Women's Health Care is a broad consortium of organizations across the spectrum of women's health for the promotion of safe health care for every woman.

May 2015

For more information visit the Council's website at www.safehealthcareforeverywoman.org

Figure 2. Maternal VTE Bundle.

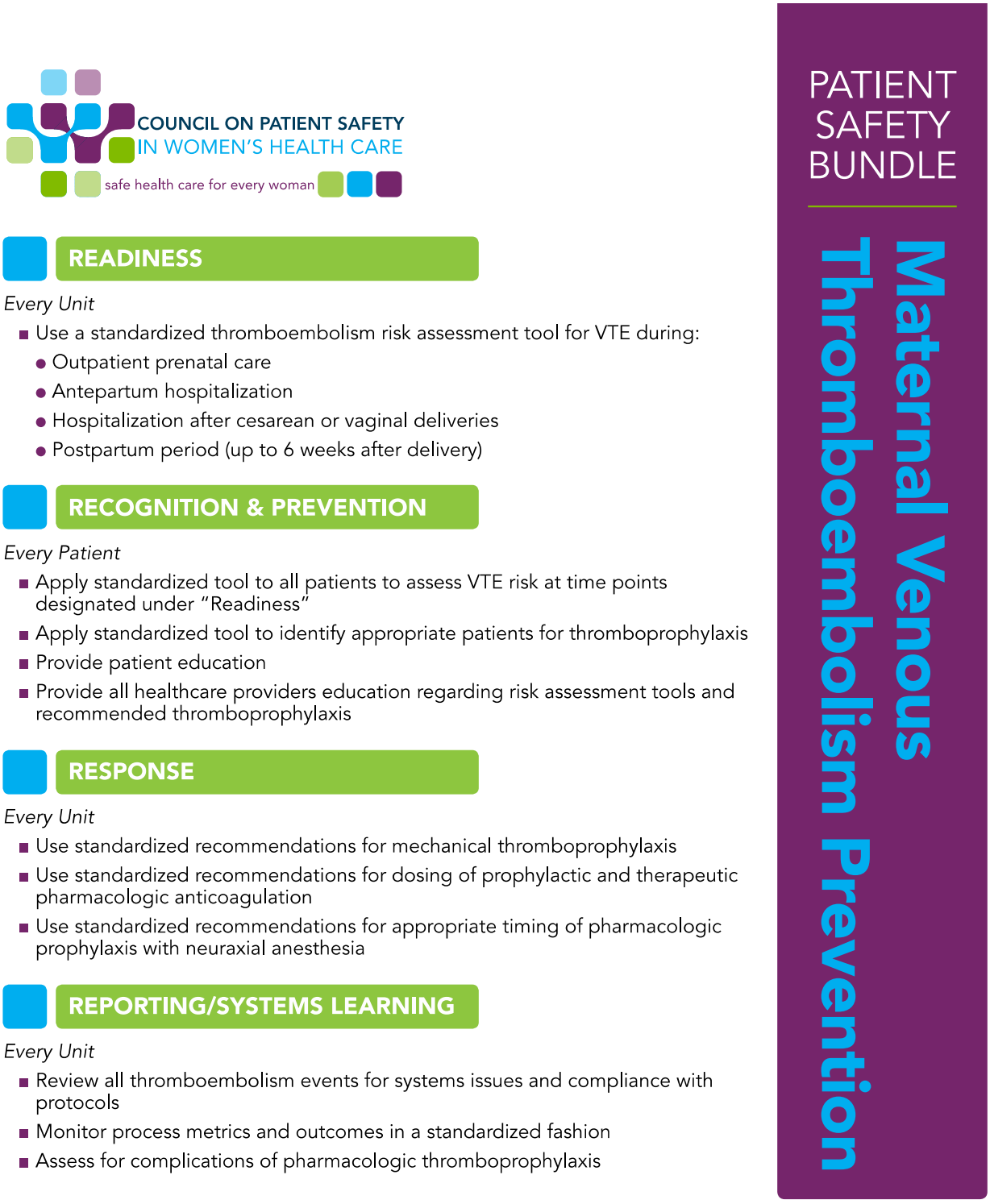


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Figure 3a. Maternal Hypertension in Pregnancy Bundle (Page 1 of 2).

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE
safe health care for every woman

PATIENT SAFETY BUNDLE

Hypertension

READINESS

Every Unit

- Standards for early warning signs, diagnostic criteria, monitoring and treatment of severe preeclampsia/eclampsia (include order sets and algorithms)
- Unit education on protocols, unit-based drills (with post-drill debriefs)
- Process for timely triage and evaluation of pregnant and postpartum women with hypertension including ED and outpatient areas
- Rapid access to medications used for severe hypertension/eclampsia: Medications should be stocked and immediately available on L&D and in other areas where patients may be treated. Include brief guide for administration and dosage.
- System plan for escalation, obtaining appropriate consultation, and maternal transport, as needed

RECOGNITION & PREVENTION

Every Patient

- Standard protocol for measurement and assessment of BP and urine protein for all pregnant and postpartum women
- Standard response to maternal early warning signs including listening to and investigating patient symptoms and assessment of labs (e.g. CBC with platelets, AST and ALT)
- Facility-wide standards for educating prenatal and postpartum women on signs and symptoms of hypertension and preeclampsia

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Figure 3b. Maternal Hypertension in Pregnancy Bundle (Page 2 of 2).

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE

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PATIENT SAFETY BUNDLE

Hypertension

RESPONSE

Every case of severe hypertension/preeclampsia

- Facility-wide standard protocols with checklists and escalation policies for management and treatment of:
  - Severe hypertension
  - Eclampsia, seizure prophylaxis, and magnesium over-dosage
  - Postpartum presentation of severe hypertension/preeclampsia
- Minimum requirements for protocol:
  - Notification of physician or primary care provider if systolic BP =/> 160 or diastolic BP =/> 110 for two measurements within 15 minutes
  - After the second elevated reading, treatment should be initiated ASAP (preferably within 60 minutes of verification)
  - Includes onset and duration of magnesium sulfate therapy
  - Includes escalation measures for those unresponsive to standard treatment
  - Describes manner and verification of follow-up within 7 to 14 days postpartum
  - Describe postpartum patient education for women with preeclampsia
- Support plan for patients, families, and staff for ICU admissions and serious complications of severe hypertension

REPORTING/SYSTEMS LEARNING

Every unit

- Establish a culture of huddles for high risk patients and post-event debriefs to identify successes and opportunities
- Multidisciplinary review of all severe hypertension/eclampsia cases admitted to ICU for systems issues
- Monitor outcomes and process metrics

Note: "Facility-wide" indicates all areas where pregnant or postpartum women receive care. (E.g. L&D, postpartum critical care, emergency department, and others depending on the facility).

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Resources:

1. MacDorman M, Declercq E, Cabral H. Recent increases in the U.S. Maternal Mortality Rate. Disentangling trends from measurement issues. *Obstetrics and Gynecology* 2016; Vol. 128 (3), Sept. 2016.

2. Florida's Pregnancy-Associated Mortality Review 2015 Update. Division of Community Health Promotion, Florida Department of Health, July 2017.

3. Main E, Menard M. Maternal Mortality: Time for National Action-Editorial. *Obstetrics and Gynecology* 2013, Vol. 122 (4): 735-736.

4. Pregnancy Mortality Surveillance System Causes of Pregnancy Related Deaths in the U.S. 2011-2013. https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html

5. Pronovost Pj, Holzmueller CG, Ennen CS, et al. Overview of progress in patient safety. *Am J Obstet Gynecol*. 2011; 204: 5-10.

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7. Florida Perinatal Quality Collaborative. http://health.usf.edu/publichealth/chiles/fpqc/current_projects

8. Main E, Goffman D, Scavone B et. al. National Partnership for Maternal Safety Consenus Bundle on Obstetric Hemorrhage. *Obstetrics and Gynecology* 2015. Vol. 126 (1); 155-161.

9. D'Alton, Friedman A, Smiley R. National Partnership for Maternal Safety: Consensus Bundle on Venous Thromboembolism. *Anesthesia and Analgesia* 2016. Vol. 123 (4): 942-949.

10. Bernstein P, Martin J, Barton J et.al. National Partnership for Maternal Safety: Consensus Bundle on Severe Hypertension during Pregnancy and the Postpartum Period. *Anesthesia and Analgesia* 2017. Vol. 125(2): 540-547.