

# The National Partnership for Maternal Safety

Mary E. D'Alton, MD, Elliott K. Main, MD, M. Kathryn Menard, MD, and Barbara S. Levy, MD

Recognition of the need to reduce maternal mortality and morbidity in the United States has led to the creation of the National Partnership for Maternal Safety. This collaborative, broad-based initiative will begin with three priority bundles for the most common preventable causes of maternal death and severe morbidity: obstetric hemorrhage, severe hypertension in pregnancy, and peripartum venous thromboembolism. In addition, three unit-improvement bundles for obstetric services were identified: a structured approach for the recognition of early warning signs and symptoms, structured internal case reviews to identify systems improvement opportunities, and support tools for patients, families, and staff that experience an adverse outcome. This article details the formation of the National Partnership for Maternal Safety and introduces the initial priorities.

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The problem of maternal mortality and morbidity in the United States has been highlighted in many reports over the past 5 years. Despite a decline in global maternal mortality, there has been an apparent increase in the maternal mortality ratio and the rate of severe maternal morbidity in the United States.<sup>1</sup> This increase has initiated multiple recent calls to action for an organized national approach to decrease maternal morbidity and mortality.<sup>1</sup> In 2010, the Joint Commission

issued a Sentinel Alert entitled “Preventing Maternal Death”<sup>2</sup> and proposed various initiatives to decrease maternal mortality including case reporting and review, health care provider education, team training and drills, and thromboembolism prophylaxis.

During the past 2 years, several organizations—including the American College of Obstetricians and Gynecologists (the College), the Centers for Disease Control and Prevention, the Society for Maternal–Fetal Medicine, the Health Resources and Services Administration, the Association of Women’s Health, Obstetric, and Neonatal Nurses, and the American College of Nurse-Midwives—have collaborated to identify priorities for maternal safety. Universal recognition of the need for action to reduce U.S. maternal mortality and morbidity led to the creation of the National Partnership for Maternal Safety. This report outlines a national initiative for every birthing facility in the United States to have a safety program in place for the most common preventable causes of maternal death and severe morbidity.

## MATERNAL MORTALITY SURVEILLANCE IN THE UNITED STATES

Over the past 20 years, the U.S. pregnancy-associated mortality ratio has doubled to 14.5 per 100,000.<sup>3</sup> Although it is unclear whether the U.S. numbers reflect an actual increase or better ascertainment of maternal deaths, we can state with confidence that maternal mortality has not decreased in this country for more than three decades.<sup>1</sup> Furthermore, the U.S. rate is nearly twice that of the United Kingdom where an extensive system for case ascertainment exists. Moreover, severe maternal morbidity is a much more prevalent problem than maternal death affecting more than 50,000 women every year; this number has increased substantially over the past decade.<sup>4</sup> Over the past two decades, deaths from hemorrhage have declined significantly primarily as a result of a decline in deaths from ectopic pregnancy.<sup>3</sup> There has been a modest decline in deaths from hypertension but no decline in deaths from pulmonary embolus. Most striking is the increase in the numbers of deaths resulting from cardiomyopathies

*From the Departments of Obstetrics and Gynecology, Columbia University Medical Center, New York, New York, California Pacific Medical Center, San Francisco, California, and University of North Carolina School of Medicine, Chapel Hill, North Carolina; and the American College of Obstetricians and Gynecologists, Washington, DC.*

*Dr. D'Alton and Dr. Menard represent the Society for Maternal-Fetal Medicine and Dr. Levy and Dr. Main represent the American College of Obstetricians and Gynecologists in the National Partnership for Maternal Safety.*

*Corresponding author: Mary E. D'Alton, MD, Chair, Department of Obstetrics and Gynecology, Columbia University Medical Center, 622 W 168th Street, PH16-28, New York, NY 10032-3725; e-mail: md511@columbia.edu.*

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and preexisting medical conditions, particularly cardiovascular conditions.<sup>3</sup>

There is a significant racial disparity with maternal mortality rates among African American women reaching 37.7 per 100,000, almost four times higher than for white women.<sup>3</sup> The reasons for this are not established and represent a major public health challenge. Most population-based studies have found that 40–50% of all maternal deaths are preventable, although the proportion varies significantly among the different causes with hemorrhage, hypertension, infection, and venous thrombosis recognized as being most preventable.<sup>5</sup> These figures represent an urgent need for a national strategy to implement systematic change in the delivery of obstetric care.<sup>1</sup>

## BUILDING CONSENSUS

The National Partnership for Maternal Safety is a growing multistakeholder effort comprised of leaders from organizations across the spectrum of women's health care including hospital organizations, various states, and federal and regulatory bodies that are focused on strategies to improve maternal health and safety in the United States.

During the initial meeting of this group in 2012, participants identified the need for development of three safety bundles for obstetric hemorrhage, severe hypertension, and venous thromboembolism, which are among the most common and preventable causes of maternal mortality and morbidity. Although those bundles represent immediate priorities to enhance maternal safety and preventable maternal morbidity and mortality, they are by no means comprehensive. Other bundles are planned that will focus on maternal cardiovascular complications, sepsis identification and treatment, and the management of the obese obstetric patient. Participants also recognized the need for measures to improve obstetric services including: 1) a more structured approach for recognition of early warning signs and symptoms; 2) structured case reviews to identify systems-improvement opportunities; and 3) support tools for patients, families, and staff that experience adverse outcomes. Separate multidisciplinary working groups were formed to address each of these six key maternal safety priorities (Box 1).

Representatives of more than 30 organizations participated in a consensus meeting in May 2013, which was sponsored by the Health Resources and Services Administration and coordinated by leadership of the Society for Maternal–Fetal Medicine and the College (Box 2). The safety and support bundles are summarized subsequently; more detailed descriptions

### Box 1. Key Priorities in Maternal Safety

#### Core Patient Safety Bundles

- Obstetric hemorrhage
- Severe hypertension in pregnancy
- Venous thromboembolism prevention in pregnancy

#### Supplemental Patient Safety Bundles

- Maternal Early Warning Criteria: criteria to identify maternal patients who require urgent bedside evaluation
- Facility Review: case review packages for facility-based, miniroot cause analysis for use in all cases of severe maternal morbidity and mortality
- Family and Staff Support: recommendations for support of patients, families, and staff who experience a severe maternal event

of these initiatives will be published separately in a maternal safety series in *Obstetrics & Gynecology*.

## PRIORITY BUNDLES

The Institute for Healthcare Improvement developed the concept of bundles to help health care providers more reliably deliver the best possible care for patients.<sup>6</sup> A bundle is a structured way of improving the processes of care and includes a straightforward set of evidence-based practices that, when performed correctly and reliably, have been proven to improve patient outcomes. Importantly, the current consensus process is not intended to develop new guidelines, but rather to package existing guidelines and tools in ways that they can be easily, consistently, and universally implemented.

### Obstetric Hemorrhage

It is critical to know that hemorrhage is a clinical sign and not a diagnosis, and different causes require different management strategies. Reviews have found that 93% of all hemorrhage-related deaths were considered potentially preventable.<sup>5</sup> Common preventable errors include underrecognition of the blood loss, lack of appropriate attention to clinical signs of hemorrhage and associated hypovolemia, failure to act decisively with lifesaving interventions, and failure to restore blood volume in a timely manner.<sup>7</sup> Comprehensive hemorrhage protocols have been shown to improve patient safety and reduce the use of blood products.<sup>8</sup>

The National Partnership for Maternal Safety recommends the following for all U.S. birthing facilities: a standard obstetric hemorrhage protocol and event checklist, a hemorrhage kit or cart with appropriate medication and equipment, partnership with the local blood bank for rapid and sustained availability of blood



## **Box 2. Organizations Represented at May 2013 Society for Maternal-Fetal Medicine–American College of Obstetricians and Gynecologists' Meeting**

### **Professional Organizations**

American Association of Blood Banks  
American Academy of Family Practice  
American College of Nurse Midwives  
American College of Obstetricians and Gynecologists  
Association of Maternal and Child Health Programs  
Association of Women's Health Obstetric & Neonatal Nurses  
Society for Maternal-Fetal Medicine  
Society for Obstetric Anesthesia & Perinatology  
National Association of Nurse Practitioners in Women's Health

### **Patient Safety and Quality Care Organizations**

California Maternal Quality Care Collaborative  
Cynosure Health  
Ohio Perinatal Quality Collaborative  
Patient Safety Council  
The Joint Commission

### **Perinatal Care Facilities**

American Association of Birth Centers  
American Hospital Association  
Hospital Corporation of America  
Voluntary Hospital Association

### **Federal Agencies**

Armed Services  
Centers for Disease Control and Prevention  
Indian Health Service  
Maternal and Child Health Bureau  
*Eunice Kennedy Shriver* National Institute of Child Health and Human Development

### **Foundations and Advocacy**

Merck for Mothers  
Preeclampsia Foundation

products, and universal use of active management of the third stage of labor.

## **Severe Hypertension in Pregnancy**

The contribution of hypertensive disorders to maternal mortality and morbidity is well documented.<sup>9</sup> The

degree of systolic hypertension may be the most important predictor of hemorrhagic stroke and cerebral infarction.<sup>9</sup> Although the goal of antihypertensive therapy is not to normalize blood pressure, lowering of systolic or diastolic blood pressure is important to prevent stroke and other sequelae. It has been estimated that up to 60% of maternal deaths resulting from hypertension are potentially preventable.<sup>1,5</sup> Key errors involve failure to adequately control blood pressure, failure to recognize hemolysis, elevated liver enzymes, and low platelet count syndrome, and failure to adequately diagnose and treat pulmonary edema.<sup>7</sup>

Standardized evidence-based guidelines have reduced the incidence of adverse maternal outcomes including a decrease in maternal hypertensive deaths resulting from a reduction in cerebral and respiratory complications.<sup>9</sup> Order sets for the use of intravenous labetalol and hydralazine for the initial management of acute severe hypertension in pregnant or postpartum women have been developed and are available from the College.<sup>9</sup> Furthermore, it is recommended that any pregnant woman with preeclampsia reporting shortness of breath, persistent cough, or with significant changes in pulse oximetry or respiratory rate receive a prompt medical evaluation and consultation from a maternal medicine specialist, an anesthesiologist, or medical internist or intensivist.

In 2010, the College president, Dr. James Martin, assembled an expert task force to evaluate the state of hypertensive disorders in pregnancy and make recommendations for practice guidelines and priority areas for future research. The results of this work have recently been released by the College.<sup>10</sup> The Severe Hypertension in Pregnancy Working Group is creating a bundle that operationalizes the recommendations from the report of this task force.

## **Prevention of Venous Thromboembolism in Pregnancy**

In a review of hospital-based maternal deaths, venous thromboembolism was the single cause of mortality most amenable to reduction by systematic change in practice.<sup>7</sup> The Joint Commission has recommended pneumatic compression devices for patients undergoing cesarean delivery who are at increased risk for pulmonary embolism.<sup>2</sup> Placement of compression devices should precede surgery and continue until the patient is fully ambulatory. The Joint Commission also recommends the evaluation of postpartum patients who are at high risk for thromboembolism for treatment with low-molecular-weight heparin. The epidemic of obesity, an independent risk factor



for venous thromboembolism, makes prophylaxis even more compelling.

There is clear evidence from the United Kingdom that implementation of national guidelines has resulted in a significant decrease in the rate of maternal death from thromboembolism.<sup>11</sup> Although many hospitals are using risk assessment tools for thromboembolism prevention, escalated efforts are needed to achieve universal use in all birthing facilities. Risk assessment tools and prophylaxis guidelines will be provided in the safety bundle on prevention of venous thromboembolism in pregnancy.

### Maternal Early Warning Systems

It is known that abnormal physiologic signs and symptoms often precede critical illness. With early intervention, major morbidity and mortality will more likely be avoided. Informed health care providers should have an effective policy for escalation of care. In its 2010 standards report, the Joint Commission issued a requirement for birth facilities to develop written criteria describing early warning signs indicating a change or deterioration in a patient's condition and the requirement to promptly seek further assistance.<sup>2</sup>

In its 2007 triennial report, the United Kingdom recommended adoption of the Modified Early Obstetric Warning System.<sup>12</sup> Review of the U.K. criteria by our working group led to the development of a more specific product, which is currently being tested at several locations.

### Maternal Mortality Reviews and Consensus Definition

The United Kingdom Confidential Enquiry into maternal deaths is recognized as the international gold standard for maternal mortality review.<sup>12</sup> This review program helps to assess and identify the underlying remediable factors that contribute to maternal deaths and aggregates the lessons learned into recommendations to improve maternal safety. Unfortunately in the United States, the maternal mortality review process is often hindered by limited access to medical records, differences in review processes at the individual state level, perceived lack of confidentiality, and limited funding available for timely and appropriately focused reviews.

In 2012, the Centers for Disease Control and Prevention's Division of Reproductive Health initiated a national maternal mortality initiative to develop standardized guidelines for state-based maternal mortality review processes.<sup>13</sup> Ideally, federal, state, and local funding and staffing should be made available to support the recommendation to develop,

implement, and sustain multidisciplinary, independent pregnancy-related mortality review boards in every state. Even in states with few maternal deaths, mortality reviews are important, because case studies become powerful tools for driving change in clinical practice and statewide policy decisions.

Because measures of severe maternal morbidity are likely to provide a more clinically useful assessment of maternal health than maternal mortality, the National Partnership for Maternal Safety proposes that a simple definition be used for identification and review of severe maternal morbidity. Specifically, we propose that severe maternal morbidity within the hospital be defined to include all mothers admitted to an intensive care unit or transfused four or more units of blood products. Case review packages for root cause analysis will be provided in this bundle.

### Family and Staff Support

King<sup>14</sup> has described maternal death or severe maternal morbidity as an event that is similar to tossing a pebble into a still pond of water. The consequences affect the patient's partner, her child or other children, her extended family, her physicians, nurses, and other care providers, her colleagues, and her community. Accordingly, communication, teamwork, debriefing, and grief counseling around the time of such an event are important. Every birthing facility should have a system of support including grief counseling, employee assistance programs, social workers, and the hospital chaplain for patients, their families as well as the staff who have been involved in a severe maternal event. The working group will create a support bundle that includes web site access to support materials, teaching videos, and checklists for use by families and health care providers after an adverse event.

### CALL TO ACTION

After the presentations of the working groups at the Maternal Safety Consensus Meeting during the 2013 College Annual Clinical Meeting, the steering committee of the National Partnership for Maternal Safety recommended that the Council on Patient Safety in Women's Health Care provide the oversight for the implementation of these safety bundles. The Council strongly supported the goal for every birthing facility in the United States to implement the three safety bundles within 3 years. Through an interactive web site ([www.safehealthcareforeverywoman.org](http://www.safehealthcareforeverywoman.org)), the Council will track the implementation of these bundles at facilities throughout the United States and—using lessons learned from the Institute for Healthcare Improvement's 5 Million Lives Campaign<sup>15</sup>—will provide



a platform for birthing facilities to share best practices and help each other resolve problems. For those interested, information on involvement at the individual and organizational levels will also be posted on the web site. The Council will also systematically review the effect of these initiatives with the goal of reducing maternal death and morbidity by 50% in 5 years.

Obstetric and hospital leaders must come together with a mutual pledge to ensure that all birthing facilities have a systematic and comprehensive framework to continually make obstetric care in the United States safer for both mother and neonate. The National Partnership for Maternal Safety strives to be a catalyst for all facilities to successfully standardize care in dealing with the major causes of maternal morbidity. The Institute of Medicine stated that “between the health care we have and the health care we could have lies not just a gap but a chasm.”<sup>16</sup> Because up to 50% of maternal deaths are preventable, it is time for hospitals and health care providers who practice obstetrics to join the National Partnership for Maternal Safety and to cross that chasm.

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