

# **HRSA Maternal Mortality Summit:**

*Promising Global Practices to Improve Maternal Health Outcomes*

**Technical Report**

**February 15, 2019**

**U.S. Department of Health and Human Services  
Health Resources and Services Administration**

---

# HRSA Maternal Mortality Summit - Technical Report

## Table of Contents

<b>Executive Summary .....</b>	<b>2</b>
<b>1. Introduction and Purpose of the Summit .....</b>	<b>4</b>
<b>2. The State of U.S. Maternal Health: Overview .....</b>	<b>5</b>
<b>3. Global Perspectives on Maternal Mortality and Morbidity .....</b>	<b>8</b>
<b>4. U.S. Perspectives on Maternal Mortality and Morbidity .....</b>	<b>12</b>
<b>5. Summit Key Findings .....</b>	<b>16</b>
<b>Conclusions .....</b>	<b>21</b>
<b>Appendix I: HRSA Maternal Mortality Summit Agenda at a Glance .....</b>	<b>22</b>
<b>Appendix II: Online Summit Resources .....</b>	<b>23</b>

Disclaimer: The views, opinions and country examples expressed in this technical report summary of the HRSA Maternal Mortality Summit reflect the discussion by participants and do not necessarily reflect the official policy or position of any agency of the U.S. government.

# HRSA Maternal Mortality Summit - Technical Report

## Executive Summary

**Introduction:** Maternal mortality and morbidity are key indicators of women’s health worldwide. Each year more than 300,000 women across the globe die from complications associated with pregnancy or childbirth.<sup>1</sup> The World Health Organization (WHO) reports that maternal mortality rates have fallen globally by nearly 44 percent from 1990 to 2015; however, the maternal mortality rate has increased in the United States (U.S.).<sup>2</sup> In 2015, the U.S. ranked 46th among the 181 countries with a maternal mortality rate that is among the highest of developed countries.<sup>3</sup> It is imperative that the U.S. and global partners review and address the current state of evidence-based maternal health policies, clinical programs, and data-driven solutions that have contributed to the global downward trend of maternal mortality and to improve maternal health outcomes.

**Purpose of the International Summit:** The purpose of the summit was to develop comprehensive solutions to lowering maternal mortality and morbidity rates. The U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA) hosted the HRSA Maternal Mortality Summit. HRSA is the primary U.S. federal agency charged with improving the healthcare of geographically isolated and economically or medically vulnerable individuals. Within HRSA, the Maternal and Child Health Bureau’s charge is improving the health of America’s mothers, children, and families.

HRSA convened the summit to discuss evidence-based approaches and identify innovative solutions to decreasing maternal mortality and morbidity rates both in the U.S. and across the globe. The summit entitled, “*Promising Global Practices to Improve Maternal Health Outcomes*,” invited international subject matter experts in maternal health from Brazil, Canada, Finland, India, Rwanda, the United Kingdom (U.K.), and the WHO. In addition, over 130 U.S. subject matter experts participated in person. Others, including government representatives, non-governmental organizations, state partners, academic partners, consumer advocacy organizations, and other maternal health stakeholders, participated through webcast viewership.

**Overview of the Technical Report:** The report summarizes key findings from the 3-day summit. During the summit presentations, maternal health experts identified challenges that women experience in receiving quality health care from the preconception, pregnancy, labor, delivery, postpartum and interconception care periods. Participants also outlined opportunities for improvement in these areas. The report’s sections include an overview of the purpose of the summit, an overview of the state of maternal health in the U.S., and global and U.S. perspectives on maternal mortality and morbidity.

Emerging issues addressed include the impact of maternal mental health, chronic health conditions, obesity, and opioid use disorder on women of reproductive age, and maternal health considerations during public health emergencies. Summit discussions emphasized how

---

<sup>1</sup> <http://www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2015/en/>.

<sup>2</sup> <http://www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2015/en/>.

<sup>3</sup> [http://www.who.int/gho/maternal\\_health/mortality/maternal/en/](http://www.who.int/gho/maternal_health/mortality/maternal/en/).

## HRSA Maternal Mortality Summit - Technical Report

these factors affect women throughout the life course and how these factors significantly affect maternal health outcomes.

Summit key findings include areas where action could contribute to decreased rates of maternal mortality and morbidity, as listed below including:

- **Access:** Improve access to patient-centered, comprehensive care for women before, during, and after pregnancy, especially in rural and underserved areas;
- **Safety:** Improve quality of maternity services through efforts such as the utilization of safety protocols in all birthing facilities;
- **Workforce:** Provide continuity of care before, during, and after pregnancies by increasing the types and distribution of health care providers;
- **Life Course Model:** Provide continuous team-based support and use a life course model of care for women before, during, and after pregnancies;
- **Data:** Improve the quality and availability of national surveillance and survey data, research, and common terminology and definitions;
- **Review Committees:** Improve quality and consistency of maternal mortality review committees through collaborations and technical assistance with U.S. states; and
- **Partnerships:** Engage in opportunities for productive collaborations with multiple summit participants.

**Conclusions:** Identifying innovative and evidence-based approaches to prevent further loss of life and serious health complications is an on-going priority for all who attended the summit. International partners, government entities, community-based organizations, stakeholders, and individuals who support women throughout the preconception, pregnancy, postpartum, and interconception phases identified multi-pronged and multi-level approaches are needed to reduce maternal deaths and pregnancy-related complications throughout the world, but the research lacks the rigor needed to make specific recommendations or to suggest causal relationships. The following Technical Report documents the opportunities for effective collaboration, individualized care solutions, and increased access to care, together with the recognition that much more research remains in the identification of country-specific predictors of maternal mortality as well as research-based interventions proven effective at reducing maternal mortality in localized regions throughout the world.

# HRSA Maternal Mortality Summit - Technical Report

## 1. Introduction and Purpose of the Summit

Maternal mortality remains a universally recognized public health priority, despite efforts and some success in addressing this issue. Maternal mortality is also a key indicator of health and is associated with the accessibility of maternal and other health care services in a country. Estimates from 2015 indicate that annually more than 300,000 women across the globe die from complications of pregnancy or childbirth and the global maternal mortality ratio is estimated at 216 per 100,000 live births.<sup>4</sup> Sustainable Development Goals (SDGs) are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. The SDG health-focused goal is to, *Ensure healthy lives and promote well-being for all at all ages*, and specifically addresses maternal mortality in the first target, which states: *By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births.*

HRSA is the primary federal agency charged with improving the health care of geographically isolated, economically or medically vulnerable individuals, including those in need of high-quality primary health care, such as pregnant women and mothers. HRSA's mission is to improve health and achieve health equity through access to quality services, a skilled workforce, and innovative programs. To achieve its mission, HRSA utilizes evidence-based strategies to implement programs and uses data and evaluation to monitor the effectiveness of these programs. HRSA has a role in addressing maternal mortality and morbidity through health promotion, risk prevention, and training health care professionals to identify and treat early maternal warning signs to prevent obstetric emergencies.

HRSA's Office of Global Health (OGH) and Maternal and Child Health Bureau (MCHB) convened the HRSA Maternal Mortality Summit "*Promising Global Practices to Improve Maternal Health Outcomes*," from June 19-21, 2018. HRSA hosted the summit in collaboration with other U.S. government agencies and partners. The summit brought together national and international subject matter experts to discuss and share current practices and innovative strategies that may be successful in reducing maternal mortality and maternal morbidity.

Global speakers were invited for the geographic, demographic, and economic diversity of the countries they represented, as well as for the various approaches they have taken to address maternal mortality. International subject matter experts in maternal health included representatives from Brazil, Canada, Finland, India, Rwanda, the U.K., and the WHO. In addition, over 130 U.S. subject matter experts participated. Participants shared approaches, evidence-based practices, data, policies, health system strategies, programs, and clinical practices that countries have undertaken to improve maternal health outcomes. The summit identified promising approaches that, with further analysis and research to both identify determinants and design interventions, could inform national strategies and global efforts to reduce maternal mortality rates.

---

<sup>4</sup> <http://www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2015/en/>

# HRSA Maternal Mortality Summit - Technical Report

This Technical Report provides additional background information on the summit, and summarizes key findings that emerged during summit plenaries and facilitated breakout sessions.

## 2. The State of U.S. Maternal Health: Overview

Over the past few decades, the rate of pregnancy-related deaths, during or within one year of pregnancy, in the U.S. has more than doubled from 7.2 deaths per 100,000 live births in 1987 to 18.0 per 100,000 live births in 2014.<sup>5</sup> There are currently two national data sources for measuring maternal mortality in the U.S., the Centers for Disease Control and Prevention's (CDC) National Vital Statistics System (NVSS), and the CDC's PMSS. The NVSS is the official source of data on maternal mortality in the U.S. NVSS uses death certificates and assigns International Classification of Diseases (ICD) codes to capture maternal deaths that occurred during pregnancy or within 42 days of termination of pregnancy from any cause related to, or aggravated by, the pregnancy or its management but not from accidental or incidental causes.<sup>6</sup> The PMSS was developed to better ascertain and understand the causes of pregnancy-related deaths that occurred during pregnancy or within one year of pregnancy by linking death certificates to live birth and fetal death records where possible.<sup>7</sup> Medical epidemiologists review the linked data sources to determine the clinical cause of death in relation to pregnancy that may inform prevention strategies. In contrast to the maternal mortality rate estimated from the NVSS, the PMSS produces a pregnancy-related mortality ratio (PRMR) defined as the number of pregnancy-related deaths per 100,000 live births, which extends the period for capturing maternal deaths from 42 days to 1 year after termination of pregnancy. The PMSS moves beyond death certificate data and corresponding ICD-10 codes by allowing a clinical examination of cases, while relying heavily on vital statistics data.

While this increasing rate is largely attributable to improved ascertainment of deaths, the increasing prevalence of obesity and other chronic health conditions among pregnant women may also play a role.<sup>8,9</sup> From 2011-2014, cardiovascular disease was the leading cause of pregnancy-related death, followed by other noncardiovascular medical conditions, infection, hemorrhage, and cardiomyopathy. Additional causes of pregnancy-related deaths included thrombotic pulmonary embolism, cerebrovascular accident, hypertensive disorder of

---

<sup>5</sup> Data are from the CDC PMSS that includes death certificates for all women who died during pregnancy or within one year of pregnancy and matching birth or fetal death certificates. Pregnancy-related deaths are defined as the death of a woman while pregnant or within one year of the end of a pregnancy—regardless of the outcome, duration or site of the pregnancy—from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. This definition extends the World Health Organization definition of maternal deaths from within 42 days to within one year of pregnancy.

<sup>6</sup> Hoyert DL. Maternal mortality and related concepts. National Center for Health Statistics. Vital Health Stat 3(33). 2007. [https://www.cdc.gov/nchs/data/series/sr\\_03/sr03\\_033.pdf](https://www.cdc.gov/nchs/data/series/sr_03/sr03_033.pdf)

<sup>7</sup> Centers for Disease Control and Prevention. Pregnancy Mortality Surveillance System. <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html>

<sup>8</sup> <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-mortality-surveillance-system.htm>

<sup>9</sup> <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-mortality-surveillance-system.htm>

## HRSA Maternal Mortality Summit - Technical Report

pregnancy, amniotic fluid embolism, and anesthesia complications. The cause of death was unknown for nearly 7 percent of pregnancy-related deaths during this time period.<sup>10</sup>

Other factors impact the poor maternal health outcomes experienced within the U.S. One major factor is the variability of, and in some cases, lack of access to high quality prenatal and maternity care services. Access issues affect women of all races and ethnicities. Too often, women cannot initiate prenatal care within the first trimester of their pregnancy due to lack of access to providers or coverage for services.<sup>11</sup> Although national data on women's health and outcomes according to residence are limited, disparities in rural women are apparent. Recent research shows that 45 percent of rural U.S. counties had no hospital obstetric services from 2004–2014, and another 9 percent of rural counties experienced the loss of all hospital obstetric services during this same period.<sup>12</sup> Prenatal care initiation in the first trimester was lower for mothers in more rural areas compared with suburban areas.<sup>13</sup> Relative to women living in large peri-urban and medium to small metropolitan areas, rural women experienced slightly higher rates of hospitalizations with complications during pregnancy in 2008.<sup>14</sup> This lack of access may mean life or death if a woman experiences complications, such as hemorrhage or hypertension after returning home from delivery.

Provider knowledge, training and preparedness, as well as access to life-saving medication and tools (e.g., crash cart with obstetric supplies) within birthing facilities are other factors impacting high maternal mortality rates. Unfortunately, not all birthing facilities are prepared to manage obstetric emergencies and may not have immediate access to vital equipment, medications, and supplies for a rapid response. Because obstetric emergencies are an infrequent occurrence in many inpatient and outpatient facilities, providers and staff may not be routinely educated or trained on recognizing and responding to the early warning signs of emergencies.<sup>15</sup> This lack of experience in dealing with obstetric emergencies may result in denial and delay of care when warning signs are present.

Pregnant and postpartum women, their family and social networks may also lack knowledge about the early warning signs of obstetric emergencies, during both the pregnancy and postpartum periods. Clinical providers play a vital role in providing patients and their families with adequate guidance on identifying the early warning signs of complications, and by helping women recognize potential life threatening post-birth warning signs and educating them on

---

<sup>10</sup> <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-mortality-surveillance-system.htm>

<sup>11</sup> <https://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.9.4.91>

<sup>12</sup> Hung, P., Henning-Smith, C., Casey, M., and Kozhimannil, K. "Access To Obstetric Services In Rural Counties Still Declining, With 9 Percent Losing Services, 2004–14." *Health Affairs* 36, No. 9 (2017).

<sup>13</sup> Agency for Healthcare Research and Quality. 2012 national healthcare disparities report. AHRQ Publication No. 13-0003. Rockville (MD): AHRQ; 2013. Available at: [http://www.ahrq.gov/research/findings/nhqrdr/nhdr12/nhdr12\\_prov.pdf](http://www.ahrq.gov/research/findings/nhqrdr/nhdr12/nhdr12_prov.pdf).

<sup>14</sup> Elixhauser A, Wier LM. Complicating conditions of pregnancy and childbirth, 2008. Statistical Brief #113. Healthcare Cost and Utilization Project (HCUP). Rockville (MD): Agency for Healthcare Research and Quality; 2011. Available at: [http://www.hcup-us.ahrq.gov/reports/stat\\_briefs/sb113.pdf](http://www.hcup-us.ahrq.gov/reports/stat_briefs/sb113.pdf).

<sup>15</sup> Robinson DW, Anana M, Edens MA, et al. Training in Emergency Obstetrics: A Needs Assessment of U.S. Emergency Medicine Program Directors. *West J Emerg Med*. 2017;19(1):87-92. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5785207/>.

## HRSA Maternal Mortality Summit - Technical Report

how best to obtain immediate medical attention. Women are often discharged after only a brief hospitalization post-delivery, and consistent messaging about early warning signs should be reinforced early and often.

Once home, these women may be uncertain whether they are experiencing symptoms that warrant medical attention and may not have rapid access to expert guidance 24 hours a day.

The postpartum visit offers an opportunity to address any health concerns post-delivery. While evidence shows close monitoring and follow-up care throughout the postpartum period is crucial, not all women attend a postpartum visit. Currently, as many as 40 percent of women do not attend a postpartum visit.<sup>16</sup>

Severe maternal morbidity (SMM) is nearly 100 times more common than maternal mortality. In 2014, more than 50,000 U.S. women were affected by SMM.<sup>17</sup> SMM includes unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a woman's health.<sup>18</sup> Similar to maternal death, SMM has been on the rise in the U.S. for the past 2 decades. The Centers for Disease Control and Prevention (CDC) reports that the rates for most SMM indicators increased between 1993 and 2014, with the largest relative increases observed for blood transfusions, acute myocardial infarction or aneurysm, acute renal failure, and adult respiratory distress syndrome.<sup>19</sup> These complications of labor and delivery have significant short- and long-term outcomes.<sup>20</sup>

The risk of experiencing maternal mortality and morbidity are magnified for specific populations, including women of advanced maternal age and those residing in medically underserved areas.<sup>21</sup> Significant racial and ethnic disparities also exist. African American women are three to four times more likely to die from pregnancy complications than White women.<sup>22</sup>

---

<sup>16</sup> <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Optimizing-Postpartum-Care>.

<sup>17</sup> <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/severematernalmorbidity.html>

<sup>18</sup> <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/severematernalmorbidity.html>

<sup>19</sup> <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/severematernalmorbidity.html>

<sup>20</sup> American College of Obstetricians and Gynecologists. Severe maternal morbidity: screening and review. *Am J Obstet Gynecol*, 2016; 215 (3): B17-B22.

<sup>21</sup> <https://www.cdc.gov/chronicdisease/resources/publications/aag/maternal.htm>

<sup>22</sup> Creanga A, Syverson C, Seed K, Callaghan W. Pregnancy-related mortality in the United States, 2011-2013. *Obstet Gynecol*, 2017; 130(2): 366-373.



# HRSA Maternal Mortality Summit - Technical Report

---

*“Maternal mortality and morbidity are serious concerns both here in the U.S. and across the globe.”*

**Dr. George Sigounas, HRSA Administrator**

---

The HRSA-supported summit was designed to learn about effective global approaches to address maternal mortality and to identify approaches that can potentially be applied across the globe to reduce current maternal mortality and morbidity rates. The next section focuses on the summit content devoted to international approaches as shared by representatives from Brazil, Canada, Finland, India, Rwanda, and the U.K.

## 3. Global Perspectives on Maternal Mortality and Morbidity

Across the globe, advances have been made to improve maternal health outcomes and prevent maternal death. For example, Saving Mothers Giving Life (SMGL) was launched in 2012 to reduce maternal mortality in targeted districts of Uganda and Zambia. The project focused on the critical period of labor, delivery, and 48 hours postpartum, when most maternal deaths and about half of newborn deaths occur. The program also sought to link women and children to other essential services, including HIV prevention, care, and treatment. The SMGL initiative contributed to maternal mortality reductions by about half in targeted districts.<sup>23</sup> Maternal health subject matter experts from Brazil, Canada, Finland, India, Rwanda, U.K., and WHO provided country perspectives on addressing maternal mortality throughout the summit to inform efforts underway in the U.S. and globally.

WHO provides global estimates of maternal mortality ratios using the definition of maternal death as found in the *International statistical classification of diseases and related health problems* 10th revision (ICD-10), “The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management (from direct or indirect obstetric death), but not from accidental or incidental causes.”<sup>24</sup> Table 1 provides maternal mortality ratios comparing WHO estimates from 2000 and 2015 for the countries that participated in the summit.<sup>25</sup> The country presentations began with an overview of the data, challenges, and successes in each country, and efforts to reach the United Nations Sustainable Development Goal 3.<sup>26</sup>

---

<sup>23</sup> <https://www.usaid.gov/what-we-do/global-health/maternal-and-child-health/projects/saving-mothers-giving-life>

<sup>24</sup>

[https://apps.who.int/iris/bitstream/handle/10665/194254/9789241565141\\_eng.pdf;jsessionid=45B3E728814024456E4B40DE5EF20CA1?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/194254/9789241565141_eng.pdf;jsessionid=45B3E728814024456E4B40DE5EF20CA1?sequence=1)

<sup>25</sup>

[https://apps.who.int/iris/bitstream/handle/10665/194254/9789241565141\\_eng.pdf;jsessionid=45B3E728814024456E4B40DE5EF20CA1?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/194254/9789241565141_eng.pdf;jsessionid=45B3E728814024456E4B40DE5EF20CA1?sequence=1)

<sup>26</sup> <https://sustainabledevelopment.un.org/sdg3>

## HRSA Maternal Mortality Summit - Technical Report

**Table 1. Maternal Mortality Ratios by Participating Country, 2000 and 2015**

Country	Maternal Mortality Ratio (per 100,000) 2000	Maternal Mortality Ratio (per 100,000) 2015
Brazil	66	44
Canada	9	7
Finland	5	3
India	374	174
Rwanda	1,020	290
United Kingdom	12	9
United States	12	14

Source: <http://apps.who.int/gho/data/node.main.15>

Despite recent progress, participants concurred that more work is needed to improve data collection to understand and address all maternal deaths and cases of maternal morbidity. There was a significant emphasis on the need for comprehensive surveillance of maternal deaths, and for review of those deaths to inform policy and programmatic initiatives.

---

*“Only a small fraction of estimated maternal deaths have a cause assigned. If you are not included in the counting, how do we accurately track outcomes?”*

**Dr. Doris Chou, WHO**

---

Specific country data collection concerns include use of standard definitions; ability to collect accurate data; the use of adjustment factors to compare estimates across countries; analysis and interpretation of data; and mechanisms to disseminate and discuss data findings with stakeholders. Once accurate surveillance mechanisms are employed utilizing a consistent methodology, countries can accurately measure maternal mortality and ultimately use the data to address factors causing maternal mortality and morbidity.

The discussion on how to develop and implement policies to support maternal health outcomes before, during, and after pregnancy began with a dialogue on the types of health coverage in each country. Canada, Finland, and the U.K. have publicly funded health systems, and noted the ability to provide care to women of reproductive age without the potential barrier of out of pocket payments. Universal coverage for care and counseling, supportive home visits, and family education and training during the early postpartum period are also components of the

## HRSA Maternal Mortality Summit - Technical Report

clinical care structure in these countries. Lastly, access to paid maternity and paternity leave were also highlighted as approaches to support improvement in maternal health outcomes within these countries.

These and other summit discussions showed that progress in reducing maternal mortality can be made by utilizing surveillance data to inform clinical care. The need to support ongoing Maternal Mortality Review Committees (MMRC) or other coordinating committees that review and analyze maternal health data was central to the summit discussions. These committees identify actionable recommendations to address leading causes of maternal death and enhance clinical capacity to deliver safe, high quality, and comprehensive maternity care services. Participants also noted workforce issues linked to the provision of care. Providers who support women during childbirth and early postpartum periods vary by country and include community health workers, skilled birth attendants, midwives, and physicians.

---

*“Every mother’s life matters. No woman should lose her life giving life.”*

***Dr. Albert Tuyshime, Rwanda Biomedical Center***

---

In summary, global representatives identified approaches to improve maternal health outcomes across the globe. These approaches include (1) improving practice by listening to patients and respecting women and their needs and (2) increasing access to comprehensive and continuous care across the lives of women within the context of their culture. Further, sustained changes will necessitate collaboration, effective utilization of data, amelioration of unconscious biases among providers, and the inclusion of all provider groups in the provision of care. See Table 2 for selected approaches from the presentations made by the six participating countries.

## HRSA Maternal Mortality Summit - Technical Report

Table 2. Select Approaches from Participating Countries presented during the Summit to address Maternal Mortality <sup>27</sup>	
<b>Brazil</b>	<ul style="list-style-type: none"> <li>National strategies focus on strengthening networks of prenatal care, delivery, and postpartum care through the National Caesarean and Normal Birth Guidelines and policies aimed at vulnerable populations.</li> <li>The care model has less medicalization and includes Obstetric Nurses and Obstetricians in low-risk childbirth care.</li> <li>Normal Delivery Centers; Pregnant, Baby, and Puerperal Homes; and “Maternity Ambience” provide an adequate place of birth, guaranteed privacy, and comfort.</li> </ul>
<b>Canada</b>	<ul style="list-style-type: none"> <li>The Canadian Perinatal Surveillance System provides guidance and tracks indicators about maternal, newborn, and childcare to guide policy development.</li> <li>Increase attention to detailed maternal and perinatal death review.</li> <li>The Canadian Neonatal Network, a national neonatal/perinatal database established by and for researchers, provides an infrastructure for collaboration.</li> </ul>
<b>Finland</b>	<ul style="list-style-type: none"> <li>Child Health Clinics prevent complications during pregnancy, detect problems in their early stages, and promote equality.</li> <li>Sexual health training and education for various health care occupational groups.</li> <li>After delivery, provide women a home visit and one health examination.</li> <li>Provide a Maternity Grant (a maternity package of baby clothes, products and materials, or a cash benefit) to all mothers who underwent a medical examination at a maternal health clinic or a doctor’s office before the end of the fourth month of pregnancy.</li> </ul>
<b>India</b>	<ul style="list-style-type: none"> <li>The National Rural Health Mission works to reduce MMR, Infant Mortality Rates, and Total Fertility Rates, with a focus on improving indicators related to vulnerable populations.</li> <li>The Reproductive Maternal Newborn Child Health + Adolescent Health Approach links maternal and child survival to other health systems components (i.e., family planning, adolescent health, gender equality).</li> <li>Implement the Labor Room Quality Improvement Initiative.</li> <li>Strengthen referral services and high-risk pregnancy identification.</li> </ul>
<b>Rwanda</b>	<ul style="list-style-type: none"> <li>Strengthen inter-sectoral collaboration and coordination to address social determinants of poor reproductive, maternal, newborn, child, and adolescent health outcomes.</li> <li>Implement package of maternal health promotion, prevention, and treatment interventions, commodities, and innovative technologies at hospital, health center, and community levels.</li> <li>Conduct research on cost-effectiveness of Community Health Workers providing real time reporting of complications via Short Message Service.</li> </ul>
<b>United Kingdom</b>	<ul style="list-style-type: none"> <li>National confidential enquiries improve maternal mortality. Substantive value of reviewing care of women with severe morbidity during or shortly after pregnancy in addition to those who die is well recognized.</li> <li>Raise awareness of sepsis in the UK and Ireland, resulting in a decrease in maternal death rates from sepsis due to indirect causes.</li> <li>Utilize Certified Nurse Midwives and evidence to achieve the recommended midwifery ratio of one midwife to 27 women, which has shown improved health outcomes. Continuity of care by a midwife proved important for vulnerable women; evidence suggests reductions of, for example, pre-term birth by 24 percent and fetal loss by 19 percent.</li> </ul>

<sup>27</sup> Summit country presentations are available at <https://www.hrsa.gov/maternal-mortality/2018-summit.html>

# HRSA Maternal Mortality Summit - Technical Report

## 4. U.S. Perspectives on Maternal Mortality and Morbidity

In addition to the emphasis on global efforts to address maternal mortality and SMM, the summit also addressed topics associated with the U.S. perspective on maternal mortality and SMM. Data quality, access to services, disparities, provider knowledge, training and preparedness, as well as maternal health factors were among the themes that emerged in these discussions, as described below.

**Surveillance and Data Capacity:** Tracking of maternal deaths is inconsistent and often incomplete at the national and state levels. Access to consistent, high quality, and reliable data that identify both the characteristics of women who die due to pregnancy complications and the specific circumstances that lead to these deaths is essential to inform critical action steps and for developing strategies to prevent maternal mortality and SMM.

Over the past several decades, numerous national, state, and local initiatives have been implemented to improve the identification, review, and prevention of maternal deaths. However, challenges remain with respect to shared terminology, definitions, and accuracy of maternal mortality data. There continues to be a need for better data to understand the trends and causes of maternal death and to inform preventive efforts to reduce maternal mortality and SMM in the U.S.

As noted earlier, there are two national data sources for measuring maternal mortality in the U.S., CDC's National Vital Statistics System (NVSS) and the Pregnancy Mortality Surveillance System (PMSS). The NVSS is the official source of data on maternal mortality in the U.S. This system uses death certificates and assigns International Classification of Diseases (ICD) codes to capture maternal deaths that occurred during pregnancy or within 42 days of termination of pregnancy from any cause related to, or aggravated by, the pregnancy or its management but not from accidental or incidental causes.<sup>28</sup> The 2003 revision of the U.S. standard death certificate added a checkbox to indicate whether a woman was pregnant or postpartum at the time of death. These data have been limited by delays in states' adoption of the revised certificate, the use of nonstandard pregnancy questions in selected states, and the increased misclassification of maternal deaths.<sup>29</sup>

The MMRCs have the potential to address limitations and provide a more complete view of these national data sources by using additional information to identify maternal deaths at the state level. Similar to the PMSS, the MMRCs primarily identify maternal deaths by using linked vital records but in their deliberations also use other data sources, such as medical records, and autopsy reports to explore the contributing circumstances surrounding these deaths. With this

---

<sup>28</sup> Hoyert DL. Maternal mortality and related concepts. National Center for Health Statistics. Vital Health Stat 3(33). 2007. [https://www.cdc.gov/nchs/data/series/sr\\_03/sr03\\_033.pdf](https://www.cdc.gov/nchs/data/series/sr_03/sr03_033.pdf)

<sup>29</sup> St Pierre A, Zaharatos J, Goodman D, Callaghan WM. Challenges and Opportunities in Identifying, Reviewing, and Preventing Maternal Deaths. *Obstet Gynecol*. 2018 Jan;131(1):138-142.

MacDorman MF, Declercq E, Thoma ME. Making Vital Statistics Count: Preventing U.S. Maternal Deaths Requires Better Data. *Obstet Gynecol*. 2018 May;131(5):759-761.

## HRSA Maternal Mortality Summit - Technical Report

information, MMRCs are able to evaluate preventability and identify actionable recommendations for addressing these contributing factors.<sup>30</sup>

**Access to Comprehensive, Continuous, and Quality Services:** An important factor contributing to high rates of maternal mortality and morbidity is lack of access to high quality prenatal and maternity care services for women of all races and ethnicities. Women often postpone prenatal care within the first trimester due to a lack of access to providers or coverage for services.<sup>31,32</sup> In addition, many women living in rural areas of the U.S. are geographically isolated with limited access to quality obstetric care facilities. As noted earlier, recent research shows that 45 percent of rural U.S. counties had no hospital obstetric services from 2004–2014 and another 9 percent of rural counties lost all hospital obstetric services during the same period.<sup>33</sup> This research also indicated that women in those rural counties with fewer medical providers, that also have a higher percentage of African-American and lower income residents, are even more likely to lack access to hospital obstetric service. This lack of access can also mean life or death if a woman experiences complications, such as hemorrhage or hypertension, during pregnancy or after returning home from delivery.

**Racial, Ethnic, and Geographic Disparities:** Significant racial, ethnic, and geographic disparities related to maternal health exist and have persisted. African American women experience a three to four fold higher risk of dying from pregnancy-related complications than White women. Similarly, American Indian and Alaska Native women experience a two-fold higher risk of dying from pregnancy than White women.<sup>34</sup>

In addition to issues associated with access to maternal health providers, other factors that may contribute to racial disparities in maternal outcomes include the quality of prenatal, delivery, and postpartum care; the ability to access culturally sensitive and patient-centered care; implicit and unconscious bias and racism, stress as well as social determinants of health.

**Provider Knowledge and Birthing Facility Preparation:** Provider knowledge, training, and preparedness, as well as access to life-saving medication and tools (e.g., crash carts with obstetric supplies) within birthing facilities, are factors affecting high maternal mortality rates. Unfortunately, not all birthing facilities are prepared to manage obstetric emergencies and may not have immediate access to vital equipment, medications, and supplies for a rapid response. Obstetric emergencies are an infrequent occurrence for many inpatient and outpatient facilities, and providers and staff may not be routinely educated or trained on recognizing and responding to the early warning signs of obstetric emergencies. This lack of experience and

---

<sup>30</sup> [https://reviewtoaction.org/Report\\_from\\_Nine\\_MMRCs](https://reviewtoaction.org/Report_from_Nine_MMRCs)

<sup>31</sup> [https://www.childtrends.org/wp-content/uploads/2015/12/25\\_Prenatal\\_Care.pdf](https://www.childtrends.org/wp-content/uploads/2015/12/25_Prenatal_Care.pdf)

<sup>32</sup> <https://www.omicsonline.org/open-access/first-trimester-prenatal-care-and-local-obstetrical-delivery-options-for-womenin-poverty-in-rural-virginia-2471-9846-1000137.pdf>

<sup>33</sup> Hung, P., Henning-Smith, C., Casey, M., and Kozhimannil, K. "Access To Obstetric Services In Rural Counties Still Declining, With 9 Percent Losing Services, 2004–14." *Health Affairs* 36, No. 9 (2017).

<sup>34</sup> <https://www.hrsa.gov/sites/default/files/ourstories/mchb75th/mchb75maternalmortality.pdf>

## HRSA Maternal Mortality Summit - Technical Report

training in dealing with obstetric emergencies can result in denial and delay of care when warning signs are present.

**Postpartum Visit(s):** Women and their families and health providers may lack training on the early warning signs of obstetric emergencies during pregnancy and the postpartum period. Providers often discharge women after only a brief post-delivery hospitalization. Once home, these women may be uncertain whether they are experiencing symptoms that warrant medical attention and may not have rapid access to expert guidance 24 hours a day. The postpartum visit offers an opportunity to address any health concerns post-delivery. While evidence shows close monitoring and follow-up care throughout the postpartum period is crucial, not all women attend a postpartum visit. Currently, as many as 40 percent of women do not receive a postpartum visit.<sup>35</sup> Close collaboration between providers, payers, and women might help to address this gap.

**Maternal Mental Health:** Perinatal depression is a common illness during pregnancy and the postpartum period, occurring in one in seven women. Risk factors for perinatal depression include but are not limited to psychosocial stressors such as low socioeconomic status, being a single mother, poor social support, unplanned and unwanted pregnancies, stress in a relationship with a partner and general life stress.<sup>36</sup> In addition, intimate partner violence (IPV) and suicide are pregnancy associated causes of death with severe consequences to families and communities.<sup>37,38</sup> Health care delivery models that provide comprehensive longitudinal support have yielded positive results for women experiencing mental health conditions. In the U.K., women with mental health conditions requiring hospitalization can receive services while keeping their baby with them in a mother/baby psychiatric unit. Evidence suggests that this model holds potential for improving outcomes for maternal mental health as well as child development.

**Advanced Maternal Age and Obesity:** Advanced maternal age (i.e.,  $\geq 35$  years old) is associated with increased risk of adverse maternal perinatal outcomes.<sup>39,40</sup> The incidence of births at an advanced maternal age is rising in the U.S. and in several of the countries represented at the summit.<sup>41,42,43</sup> Rates of obesity are also higher in all women including those of advanced maternal age.<sup>44</sup> Studies indicate the occurrence of obesity further increases the risk of a Caesarian birth.<sup>45</sup> Participants shared strategies that could lead to improved outcomes

---

<sup>35</sup> <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Optimizing-Postpartum-Care>

<sup>36</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4920261/>

<sup>37</sup> [http://www.who.int/mental\\_health/prevention/suicide/Perinatal\\_depression\\_mmh\\_final.pdf](http://www.who.int/mental_health/prevention/suicide/Perinatal_depression_mmh_final.pdf)

<sup>38</sup> [https://reviewtoaction.org/Report\\_from\\_Nine\\_MMRCs](https://reviewtoaction.org/Report_from_Nine_MMRCs)

<sup>39</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3577849/pdf/pone.0056583.pdf>

<sup>40</sup> <https://www.ncbi.nlm.nih.gov/pubmed/12297710>

<sup>41</sup> <http://www.icid.salisbury.nhs.uk/ClinicalManagement/MaternityNeonatal/Pages/AntenatalandIntrapartumCareforWomenofAdvancedMaternalAge.aspx>

<sup>42</sup> <https://www.sciencedaily.com/releases/2015/02/150211084031.htm>

<sup>43</sup> [http://rfppl.co.in/view\\_abstract.php?jid=56&art\\_id=5797](http://rfppl.co.in/view_abstract.php?jid=56&art_id=5797)

<sup>44</sup> <https://www.cdc.gov/mmwr/volumes/66/wr/mm665152a3.htm>

<sup>45</sup> [https://journals.lww.com/greenjournal/Abstract/2017/05001/Risk\\_of\\_Cesarean\\_With\\_Obesity\\_and\\_Advancing.107.aspx](https://journals.lww.com/greenjournal/Abstract/2017/05001/Risk_of_Cesarean_With_Obesity_and_Advancing.107.aspx)

## HRSA Maternal Mortality Summit - Technical Report

for obese and overweight women, including provider training on how to engage women to discuss and develop an action plan for weight management. In addition, highlighting training approaches that address obesity in a non-stigmatizing way, including counseling on the benefits of breastfeeding, access to healthy food, and overall self-care (e.g., sleep, hydration, and stretching). Community-based programs such as community gardens are promising practices that may lead to improvements in access to fresh fruits and vegetables for women and children.

**Impact of Opioid Use Disorder on Women of Reproductive Age:** The summit highlighted the emerging issue of opioid use disorder in women of reproductive age, and its impact on maternal mortality, morbidity, as well as perinatal health outcomes. Summit participants expressed an interest in examining opioid use and its contribution to maternal mortality and perinatal outcomes. Since 2000, there has been a five-fold increase in the number of babies born with neonatal abstinence syndrome (NAS), which has had tremendous impact on hospital costs. State maternal mortality reviews indicate that substance use is a contributing factor to pregnancy-associated mortality.<sup>46,47,48,49</sup>

The use of opioid agonists in medication assisted treatment (MAT), including methadone and buprenorphine, has been shown to improve pregnancy outcomes for women with opioid-use disorders.<sup>50,51</sup> Other promising practices include programs that focus on keeping mothers and children together, access to MAT and social services, and maternal participation in the care of the newborn. HRSA's Alliance for Innovation on Maternal Health (AIM) developed an opioid patient safety bundle that focuses on keeping the mother-infant dyad together, increasing maternal participation in newborn care, and improving access to MAT, and other social services to address co-morbidities, including residential treatment for those who need it.

One model discussed was North Carolina's comprehensive care program for substance-using women, which integrates behavioral health services into a high-risk obstetrics program. A cornerstone of this program's success is to increase the capacity of providers to find medication-assisted treatment for patients. Additionally, the program engages social service systems to focus on keeping mothers and babies together after birth, increasing breastfeeding rates, and decreasing likelihood for foster care placement.

**Maternal Health Considerations During Public Health Emergencies:** Pregnant women are especially vulnerable during public health emergencies where access to medical care and support services are disrupted.<sup>52</sup> Within HHS, the Office of the Assistant Secretary for Preparedness and Response (ASPR) works to include the needs of pregnant women and

---

<sup>46</sup> [https://reviewtoaction.org/Report\\_from\\_Nine\\_MMRCs](https://reviewtoaction.org/Report_from_Nine_MMRCs)

<sup>47</sup> <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Opioid-Use-and-Opioid-Use-Disorder-in-Pregnancy>

<sup>48</sup> [https://www.dshs.texas.gov/mch/pdf/Role-of-Opioid-Overdoses-in-Confirmed-Maternal-Deaths\\_Dec2017\\_FINAL.pdf](https://www.dshs.texas.gov/mch/pdf/Role-of-Opioid-Overdoses-in-Confirmed-Maternal-Deaths_Dec2017_FINAL.pdf)

<sup>49</sup> <https://www.mass.gov/files/documents/2018/05/02/ma-maternal-mortality-and-substance-use-april-2018.pdf>

<sup>50</sup> Center for Substance Abuse Treatment. Medication-assisted treatment for opioid addiction in opioid treatment programs. Treatment Improvement Protocol (TIP) Series 43. DHHS Publication No. (SMA) 05-4048. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2005.

<sup>51</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4506646/>

<sup>52</sup> <https://asprtracie.hhs.gov/technical-resources/62/access-and-functional-needs/60>



## HRSA Maternal Mortality Summit - Technical Report

children in public health emergency plans at the federal level in partnership with states and local authorities. Participants noted that more could be done to leverage relationships with federal programs serving pregnant women, such as HRSA Maternal and Child Health Block Grant recipients. Participants also expressed an interest in exploring how to incorporate midwives more systematically into the National Disaster Medical Assistance Teams model. Participants also discussed concerns that disaster responders do not always receive appropriate counseling or treatment upon return. An example of this was the Zika response, where workers did not receive routine screening with serologic testing before and after working in Puerto Rico. Participants recommended such issues be part of discussions on emergency preparedness for women of childbearing age and their partners. Brazil shared information on efforts to support their Zika response, including ensuring contraception was available to the public free of charge, insect repellent advisories, health services provided to women who wished to become pregnant, and community-based health educational groups for pregnant women.

Examples of innovative efforts to address the needs of pregnant women and children during disasters were shared, including Florida's registry of children with special needs,<sup>53</sup> HHS emPOWER map, ASPR's Technical Resources, Assistance Center, and Information Exchange (TRACIE),<sup>54</sup> and resources provided through the United Nations Fund for Population Affairs.<sup>55,56</sup>

### 5. Summit Key Findings

Key findings were drawn from the summit's plenary presentations, discussions, and interactive breakout sessions. Maternal health subject matter experts shared innovative strategies and practices to reduce maternal mortality and morbidity. Participants represented a diverse group of experts from the fields of policy, clinical service provision, surveillance, and others and shared insights and actionable and practical tools, methods, and mechanisms to support women before, during, and after pregnancy.

Key findings include information, strategies, and promising approaches that have worked well in other countries and in the U.S. The analysis, further research, adoption, and implementation of effective practices requires a systems-focused approach with support across global partners, including HHS, its agencies and other federal departments. Implementing agencies, state public health systems, and additional maternal health stakeholders are needed to achieve the shared goal to improve maternal health outcomes for all women.

---

<sup>53</sup> <https://snr.floridadisaster.org/Signin?ReturnUrl=%2f>

<sup>54</sup> <https://empowermap.hhs.gov/>

<sup>55</sup> <https://www.unfpa.org/resources/what-minimum-initial-service-package>

<sup>56</sup> <https://asprtracie.hhs.gov/>

# HRSA Maternal Mortality Summit - Technical Report

---

*“In the United States, we benefit from a robust health system but must embrace creative solutions to our rising maternal mortality and health disparities.”*

**VADM Jerome M. Adams, Surgeon General of the United States**

---

**KEY FINDING 1:** *Improve access to patient centered, comprehensive care for women before, during, and after pregnancy, especially in rural and underserved areas.*

Currently, as many as 40 percent of women do not receive a postpartum visit.<sup>57</sup> Support for improved access to health care during the preconception, pregnancy, and the early and late postpartum periods will assist with identification of risk factors that may lead to a traumatic event. The American College of Obstetricians and Gynecologists (ACOG) recommends that all women have an annual well woman visit, routine prenatal care, including screening for perinatal depression, and contact with their postpartum care provider within the first 3 weeks postpartum.<sup>58,59</sup> After this initial postpartum assessment, ongoing care should be received as needed, concluding with a comprehensive postpartum visit no later than 12 weeks after birth.<sup>60</sup> In the U.S., insurance and billing services often bundle delivered services providing one payment for the full scope of pregnancy-related services including prenatal, delivery and postpartum care, which can lead to failure in receiving a postpartum visit. Additional study of the relationship between billing practices and receipt of services could inform efforts to improve U.S. maternal outcomes.

In addition to acknowledging the importance of the ACOG recommendations for postpartum care, participants noted the benefits of shifting the paradigm of care from a visit-based model, to a holistic life-course approach to women’s health care. This approach, described by several representatives, includes comprehensive, coordinated, and longitudinal care for women.

Other recommended services including chronic disease management, healthy weight interventions, and mental health and substance use disorder services should be readily accessible to women who need them. Integrating mother and well-baby visits as noted by several nations could increase continuity of care and facilitate women's adherence to care recommendations.

---

<sup>57</sup> <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Optimizing-Postpartum-Care>

<sup>58</sup> <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Optimizing-Postpartum-Care>

<sup>59</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4920261/>

<sup>60</sup> <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Optimizing-Postpartum-Care>

## HRSA Maternal Mortality Summit - Technical Report

### **KEY FINDING 2:** *Improve quality of maternity services through efforts such as the utilization of safety protocols in all birthing facilities.*

The HRSA-funded AIM program is currently working to address maternal mortality and SMM in 19 states. Support for program expansion to more U.S. states and jurisdictions would have a positive impact on maternal mortality and SMM. Expansion of AIM's collaborative learning, quality improvement, and innovation infrastructure will help increase utilization of best practices among birthing facilities to show measurable impact and improved maternal health outcomes within a short period.

Implementation of AIM safety bundles will also respond to common state MMRC recommendations, such as improving policies regarding prevention initiatives, enforcing policies and procedures related to obstetric hemorrhage, and improving patient health care management.<sup>61</sup> As noted in a recent care recommendation by ACOG, state investments could support earlier, ongoing, and comprehensive postpartum care in the fourth trimester, or the period encompassing delivery through the first three months of the infant's life.<sup>62</sup> This program in collaboration with state Perinatal Quality Collaboratives (PQC) could ultimately enhance the ability of providers to deliver safe, high quality, comprehensive maternity care services.

### **KEY FINDING 3:** *Provide continuity of care before, during, and after pregnancies by increasing the types and distribution (access to and utilization of a variety of) health care providers.*

A recent LANCET article suggested that 80 percent of maternal deaths, stillbirths, and neonatal deaths worldwide could potentially be prevented by midwifery-driven family planning efforts and interventions for maternal and newborn health.<sup>63</sup> Yet, summit participants noted that midwives remain underutilized in the U.S. health care system. The country representatives emphasized the role that professional midwives could play in efforts to reduce maternal mortality in the U.S. Domestic participants noted several challenges to this approach, including the narrow workforce pipeline, state policies regarding scope of practice, the need for written agreements, legal risks, and other limitations that can hamper the practice of midwives and other health care practitioners.

Other workforce issues include training women's health care providers to screen patients for pregnancy intention and contraceptive need, substance abuse, chronic diseases, infections, environmental exposures, weight and nutrition, and mental illness. Providers should also receive specialized clinical training on the prevention, identification, and treatment of obstetric emergencies. Summit participants voiced a need to change elements of medical education related to obstetrics/gynecology rotation requirements for medical students as well as the infusion of nurse midwives into the faculty and training of medical students and

---

<sup>61</sup> [https://reviewtoaction.org/Report\\_from\\_Nine\\_MMRCs](https://reviewtoaction.org/Report_from_Nine_MMRCs)

<sup>62</sup> American College of Obstetricians and Gynecologists Presidential Task Force on Redefining the Postpartum Visit The Committee on Obstetric Practice, "Optimizing Postpartum Care," Committee Opinion Number 736, May 2018.

<sup>63</sup> [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(14\)60790-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)60790-X/fulltext)

## HRSA Maternal Mortality Summit - Technical Report

obstetrics/gynecology residencies. The transformation of maternal health care in the U.S. can occur with a team-based approach committed to improving the birth experience through the inclusion of doctors, nurse midwives, nurses, doulas, and other health professionals. Several countries have integrated a team-based approach to maternal health care allowing for improved outcomes.

**KEY FINDING 4:** *Provide continuous team-based support and use a life course model of care for women before, during, and after pregnancies.*

Summit participants from the U.K. emphasized that their positive outcomes in maternal mortality and morbidity were due to the utilization of the midwifery model of care with a focus on the woman's experience before, during, and after giving birth. One key aspect of this model is having one provider serving the woman during preconception, pregnancy, birth, and postpartum. In Finland, summit participants shared that the provider who served in this role of continuous support in their system was the obstetric nurse. In Rwanda, community health workers provide a consistent support for local women during preconception, pregnancy, birth, and postpartum. The common thread in these examples is continuous team-based support and recognition of the pregnancy, labor, and delivery life course as a journey for the woman and the baby and not as an acute event.

**KEY FINDING 5:** *Improve the quality and availability of national surveillance and survey data, research, and common terminology and definitions.*

The Pregnancy Risk Assessment Monitoring System<sup>64</sup> (PRAMS) collects state-specific, population-based data and covers about 83 percent of all U.S. births. Leveraging maternal and child health surveys like PRAMS data could help providers, researchers, and policy makers respond more immediately to emerging issues in maternal health. California, which has one-eighth of the births in the U.S., readily accesses state data to examine maternal mortality and improve the quality of services provided to women by implementing quality improvement methods, such as the use of safety bundles within birthing facilities.

Other efforts—some of which are already underway—could strengthen and support local, state, and national surveillance to monitor and characterize U.S. maternal health and maternity care. Key to this work is the development of national definitions for maternal mortality and severe maternal morbidity and associated terminology, which contribute to the knowledge base to address the needs of pregnant women, mothers, and their infants. These efforts would likely have a positive impact on the applicability and quality of data used to facilitate the reduction of preventable cases of maternal mortality and severe maternal morbidity, drive policy and practice changes, and inform programmatic efforts to improve maternal health outcomes.

Other data-driven themes raised by meeting participants included developing a maternal health research agenda and strategy for the U.S. based on existing gaps in knowledge.

---

<sup>64</sup> <https://www.cdc.gov/prams/index.htm>

## HRSA Maternal Mortality Summit - Technical Report

**KEY FINDING 6:** *Improve quality and consistency of maternal mortality review committees through collaborations and technical assistance with U.S. states.*

A critical component of improving maternal health is supporting local, state, and national partnerships to translate surveillance and survey data into action to improve maternal health and maternity care services in the U.S. A powerful example of the impact of the use of high quality surveillance data is the U.K.'s national Confidential Enquiry into Maternal Deaths (CEMD) program, which began in 1952. Confidential Enquiry includes a comprehensive review of anonymized medical records by teams of specialists to identify causes of maternal mortality and improve practices.

Currently, HRSA's Maternal and Child Health Block Grant program and CDC work closely with states to provide technical assistance on gathering data and conducting maternal mortality reviews. The Maternal Mortality Review Information Application (MMRIA)<sup>65</sup> is a data system developed for maternal mortality review committees to assist them with using and organizing consistent data. Review to Action<sup>66</sup> was developed as part of the *Building U.S. Capacity to Review and Prevent Maternal Deaths* initiative led by the CDC Foundation and provides access to resources online that support the development, implementation, and sustainability of state-led maternal mortality review committees.

Furthering support for all states to implement standardized maternal mortality review committees and implement findings to address causes of maternal mortality and morbidity is a critical step to improving maternal health in the U.S.

**KEY FINDING 7:** *Engage in opportunities for productive collaborations with multiple summit participants.*

Overwhelmingly, summit participants valued learning about successful models and approaches from the six invited countries and domestic partners and planned to seek opportunities to collaborate with others from the summit. The U.K.'s midwifery program and Rwanda's community health worker model were often mentioned. Participants from U.S. Federal agencies (e.g., HRSA, CDC, CMS, NIH, and USAID) also identified opportunities for further collaboration to expand and implement evidence-based programs. Several participants reported that they would go back to their home agency and share what was learned at the summit with organizational, state, and local colleagues and professional and advisory groups.

---

<sup>65</sup> <http://mmria.org>

<sup>66</sup> [www.reviewtoaction.org](http://www.reviewtoaction.org)

## HRSA Maternal Mortality Summit - Technical Report

Summit participants identified dozens of actions and activities that they would pursue post-summit, including:

- Integrating strategies to address health disparities into research and program development;
- Seeking to pursue policy change to extend medical coverage in the postpartum period in states or localities;
- Strengthening MCHB/OGH partnerships at both state and local level and using findings to examine and identify effective MCHB strategies that can be implemented at the state and local levels;
- Inviting speakers to identify collaborations to promote learning among colleagues about the details of other successful programs; and
- Convening all payers regarding maternity and postpartum care at the state and local level, emphasizing the importance of equitable access to maternity and postpartum care services.

Some participants provided their contact information (in addition to their suggestions for collaboration) so post-summit contacts could be initiated to undertake collaboration activities at state, local, national, and international levels.

### Conclusions

The HRSA-sponsored Maternal Mortality Summit, *"Promising Global Practices to Improve Maternal Health Outcomes,"* was well-received by participants and provided a unique opportunity to identify best practices to reduce maternal mortality and morbidity from international and domestic subject matter experts and leaders in the field of maternal health. Across the world, many committed people are identifying and developing new programs and solutions to strengthen our ability to provide access to patient-centered, comprehensive care for women before, during, and after pregnancy. In addition, these approaches will develop national surveillance and mortality review committees to improve our understanding of the causes of maternal mortality and morbidity so we can develop effective solutions.

As global efforts are united to address maternal mortality, action is needed to prevent further loss of life and serious short- and long-term health complications due to pregnancy-related complications. Such a cohesive, unified effort may help to curb the rising maternal mortality and SMM rates in the U.S. and globally. Partners across diverse sectors including government, health providers, payers, academia, public health, advocates, and community-based organizations who support women throughout the preconception, pregnancy, postpartum, and interconception care phases, must work collectively and collaboratively to tackle the shared U.S. and global goals to reduce maternal deaths and prevent future complications due to pregnancy-related causes.

# HRSA Maternal Mortality Summit - Technical Report

## Appendix I: HRSA Maternal Mortality Summit Agenda at a Glance

### Tuesday, June 19, 2018: Setting the Stage

8:30 – 9:15 a.m.	Summit Welcome
9:15 – 10:00 a.m.	The State of U.S. Maternal Health
10:00 – 10:15 a.m.	Break
10:15 – 11:15 a.m.	Role of Government, Non-Governmental Organizations, and Academia in Preventing Maternal Mortality and Severe Maternal Morbidity
11:15 – 11:40 a.m.	Consumer Perspectives on Maternal Mortality and Severe Maternal Morbidity
11:40 – 12:00 p.m.	Raising Soleil
12:00 – 1:00 p.m.	Lunch Break
1:00 – 1:30 p.m.	Global Perspectives on Maternal Mortality
1:30 – 3:00 p.m.	Country Panel 1: Canada, Finland, India
3:00 – 3:15 p.m.	Break
3:15 – 4:45 p.m.	Country Panel 2: Brazil, Rwanda, United Kingdom
4:45 – 5:00 p.m.	Closing Remarks

### Wednesday, June 20, 2018: Life Course Sharing

8:30 – 8:45 a.m.	Welcome
8:45 – 9:45 a.m.	Before & Beyond: Preconception, Interconception & Women’s Health Care
9:45 – 10:00 a.m.	Break
10:00 – 11:00 a.m.	Breakout Sessions: Women’s Health Care
11:00 – 11:15 a.m.	Break
11:15 – 12:15 p.m.	Pregnancy, Labor, & Delivery
12:15 – 1:30 p.m.	Lunch Break
1:30 – 2:30 p.m.	Breakout Sessions: Pregnancy, Labor & Delivery
2:30 – 2:45 p.m.	Break
2:45 – 3:45 p.m.	Improving Postpartum Outcomes through Policy, Programs, & Data
3:45 – 4:00 p.m.	Break
4:00 – 5:00 p.m.	Breakout Sessions: Postpartum Period

### Thursday, June 21, 2018: Sparking Innovation

8:45 – 9:00 a.m.	Welcome
9:00 – 10:00 a.m.	Emerging Issues in Maternal Health
10:00 – 10:15 a.m.	Break
10:15 – 11:30 a.m.	Breakout Sessions: Emerging Issues
11:30 – 12:30 p.m.	Lunch Break
12:30 – 1:30 p.m.	Moderator Highlights from Breakout Sessions and Open Forum
1:30 – 3:00 p.m.	Global Delegates’ Perspectives on Improving Maternal Health Outcomes
3:00 – 3:30 p.m.	Summit Closing

# HRSA Maternal Mortality Summit - Technical Report

## Appendix II: Online Summit Resources

- Webcasts can be accessed at <https://www.hrsa.gov/maternal-mortality/2018-summit.html>
- View highlights on YouTube:  
[https://www.youtube.com/watch?v=eOAOTtD8fKs&feature=youtu.be&list=PL5Q6ZzhASkfRqFsq9ICy\\_QDqsmVlefwa](https://www.youtube.com/watch?v=eOAOTtD8fKs&feature=youtu.be&list=PL5Q6ZzhASkfRqFsq9ICy_QDqsmVlefwa)
- Follow discussion on [Twitter using hashtag #HRSAMaternalMortality](#)