

INVITED EDITORIAL

Severe Maternal Morbidity: A Public Health Perspective

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Severe Maternal Morbidity (SMM) includes conditions that are known as “near-death misses” for women during delivery and/or several days following. Excluding blood transfusions, the Centers for Disease Control and Prevention¹ identified 20 conditions that are attributed to SMM. These events usually happen unexpectedly and, in many cases, could be both physically and mentally catastrophic for women and may cause debilitating long-term health impacts. In addition, SMM is a major public health concern in that these instances may also be a prelude to maternal deaths.

The current (2022) SMM rate for Mississippi is 73.5 per 10,000 inpatient delivery hospitalizations, excluding blood transfusions.² This percentage is an increase from four years ago (2019) whereby the SMM rate was 46.4 per 10,000 inpatient delivery hospitalizations, excluding blood transfusions. As the state of Mississippi, birthing facilities, and other healthcare entities continue to research SMM, it is imperative to outline and develop a causation model to determine the origins of SMM while also attempting to decrease the overall number of cases each year if possible.

Questions have been asked and researched in recent years as to whether or not SMM is preventable. To answer these questions, a whole-person approach has to be considered. The whole-person approach in healthcare aligns with identifying [risk] factors that may have impacted a woman’s health before and during pregnancy. These could be in the form of maternal co-morbidities, status of preconception health, and ongoing pre-existing medical conditions that indirectly or directly impact a women’s overall health and well-being. As SMM continues to become a vital part of the healthcare and public health maternal paradigms, collaborative approaches to address it is of the utmost importance. Programs such as the Alliance for Innovation on Maternal Health (AIM) and the Mississippi Perinatal Quality Collaborative³ include activities that provide the necessary supports needed to help decrease SMM in the state. Currently, birthing centers/hospitals participating in the state’s AIM initiative are offered supports to implement four patient safety bundles aimed at decreasing adverse maternal health events. These safety bundles include quality improvement measures for obstetric hemorrhage, severe hypertension, reductions in primary cesareans, and postpartum discharge transition.

As the SMM discussions continue in Mississippi, collaboration with medical and administrative staff in birthing centers, emergency departments, and private physician clinics will become more vital. Staff in the Maternal and Infant Health Bureau at the Mississippi State Department of Health are dedicated to partnering and collaborating with these entities and medical professionals to dig further into SMM causal factors, social determinants of health and precluding medical events to better understand how to prevent and/or decrease them. State-level surveillance for SMM is currently being conducted using inpatient discharge data; however, more in-depth surveillance and reviews are warranted. Surveillance is currently conducted demographically, regionally, and by cost analytics to determine the overall burden of SMM in Mississippi. With increasing ongoing efforts to eliminate health disparities in many areas in public health, the maternal health crisis (national and state) has forged more to be done to identify why these disparities originated and how we can close the gap. Because SMM could easily be a precursor for maternal death, noticing drivers leading up to that point may be challenging to identify, but not impossible. Predictive modeling could also be of great value to attempt to identify potential SMM instances before they actually occur. This modeling would not only prove beneficial for high-risk women, but also for nurses, nurse practitioners, and physicians who carry out the necessary medical procedures for SMM occurrences. To add to the SMM burden, there is an ongoing crisis of dwindling birthing centers and obstetricians/gynecologists (OB/GYNs) particularly in marginalized communities. Even though predictive modeling may not be a perfect solution, it does offer a means to utilizing a high-low indexing methodology to assess women's risks of having an SMM occurrence during delivery and/or immediately thereafter. To construct the best predictive model, at a minimum, the following patient factors should be examined over a period of time:

1. co-morbid conditions (i.e. chronic, weight/BMI, etc.)
2. past and present pregnancy complications (if applicable)
3. social determinants of health
4. maternal demographics

Even though the aforementioned factors are not exhaustive for predictive modeling, they do offer an equipped view of potential risks for women before they deliver.

In conclusion, it takes collaborative efforts to address SMM from a public health lens. The drivers of SMM pose challenges for public health leaders along with the medical community to take a preventative approach to address this issue. This presentation of challenge by no means negates the fact that SMM instances may still occur in Mississippi; however, exploring prevention

approaches before and during pregnancy is a priority to identify efforts to decrease these morbidities. Future state initiatives will consist of continuing to coordinate quality improvement efforts among birthing facilities in Mississippi. Funding for these efforts also includes forming internal teams within birthing facilities to conduct evaluative quality reviews and audits on their SMM cases over a period of time. In utilizing a “Grand Rounds” methodology, medical personnel in birthing centers/hospitals can consult with their peers to identify prevention measures and/or interventions that are unique to their individual facilities. As a part of being an active AIM facility, staff in the Maternal and Infant Health Bureau can provide technical assistance through analytics and cross-tabulated dissections to appropriately view data utilizing SMM ICD-10 and procedure codes. These and similar efforts may be useful to medical personnel for providing a methodology to effectively view patients’ historical and current medical records/charts and assess whether various interventions could have been implemented to avoid a potential SMM event. If staff determine that events were unavoidable, other root causes of SMM events may also be examined. As either of these are determined, public health and medical personnel will become more informed and equipped to address and possibly prevent SMM for future maternal populations in Mississippi.

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