Maternal Health and Safety Initiatives Biennial Report 2022

As Required by

Texas Health and Safety Code,

Sections 34.0156 and 1001.264

December 2022

TEXAS
Health and Human Services

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Table of Contents

Executive Summary

Texas Health and Safety Code, Sections 34.0156 and 1001.264, require the Texas Department of State Health Services (DSHS) to provide an update on required maternal health and safety activities to the Texas Health and Human Services Commission (HHSC) Executive Commissioner and the chairs of the standing committees of the Texas Senate and Texas House of Representatives with primary jurisdiction over public health and human services by December 1 of each even-numbered year.

DSHS conducts multiple public health initiatives to improve maternal outcomes within the Healthy Texas Mothers and Babies (HTMB) framework, including the Texas Maternal Mortality and Morbidity Review Committee and the Texas Collaborative for Healthy Mothers and Babies. HTMB also implements the TexasAIM Program, the High-Risk Maternal Care Coordination Services Program (HRMCCSP) pilot, and the Hear Her Texas statewide maternal health and safety public awareness campaign.

DSHS continues to lead TexasAIM and as of August 2022, 219 hospitals with obstetric services currently participate in the implementation of maternal patient safety bundles. This represents over 98 percent of all hospitals with obstetric services in Texas and covers 99 percent of state births and 10 percent of national births.

Across state fiscal years 2021 and 2022, TexasAIM engaged health care providers to promote maternal health and safety best practices. Findings included in this report show severe maternal morbidity associated with obstetric hemorrhage improvements coinciding with the TexasAIM Plus Obstetric Hemorrhage implementation period. In response to the cumulative impacts on hospital staffing and capacity due to COVID-19, DSHS is enhancing TexasAIM to support continued collaborative learning and maternal health and safety improvement.

DSHS makes the following recommendations to improve the effectiveness of maternal health and safety initiatives:

- Continue support of existing maternal health and safety initiatives such as TexasAIM, the HRMCCSP pilot, and the Hear Her campaign;
- Prioritize the elimination of maternal health disparities;
- Engage health care and health service providers in ambulatory care settings,

emergency medical services, emergency departments, and non-obstetric clinical settings; and

- Support integrated maternal mental and behavioral health, social support services, and other best practices for increasing maternal safety.

1. Introduction

Texas Health and Safety Code, Chapter 34, related to the Texas Maternal Mortality and Morbidity Review Committee (MMMRC), directs DSHS to support Texas health care providers in using best practices to prevent maternal death, serious illness, or injury associated with pregnancy. The statute requires DSHS to report on multiple initiatives regarding implementation, outcomes, and recommendations to the Executive Commissioner of HHSC and members of the Legislature by December 1 of each even-numbered year.

This report summarizes TexasAIM, which uses the national Alliance for Innovation on Maternal Health (AIM) maternal patient safety bundles for obstetric hemorrhage, severe hypertension in pregnancy, and opioid and other substance use disorders.[1,2] Texas chose these three conditions because they are leading contributors to preventable severe maternal morbidity and mortality in our state.[3]

The report also summarizes the development and next steps for implementing the High-Risk Maternal Care Coordination Services Program pilot study. Finally, this report provides information on the Hear Her Texas Maternal Health and Safety campaign.

[1] For more information, visit TexasAIM (dshs.texas.gov/mch/TexasAIM.aspx).
[2] For more information, visit Alliance for Innovation on Maternal Health (saferbirth.org/).
[3] Department of State Health Services and Texas Maternal Mortality and Morbidity Review Committee (2020). *Texas Maternal Mortality and Morbidity Review Committee and Department of State Health Services Joint Biennial Report.* Revised February 2022. dshs.texas.gov/legislative/2020-Reports/DSHS-MMMRC-2020.pdf.

2. Background

Health and Safety Code, Section 34.0156 directs DSHS to create a maternal health and safety initiative to support Texas health care providers using maternal mortality best practices for the prevention of serious illness or injury associated with pregnancy.

Health and Safety Code, Section, 34.01581 directs DSHS to implement similar health and safety initiatives to support health care providers as they incorporate best practices for pregnant and postpartum women with opioid use disorder.

Health and Safety Code, Chapter 1001, Subchapter K directs DSHS to develop, implement, and report progress on the High-Risk Maternal Care Coordination Services Program (HRMCCSP) pilot and:

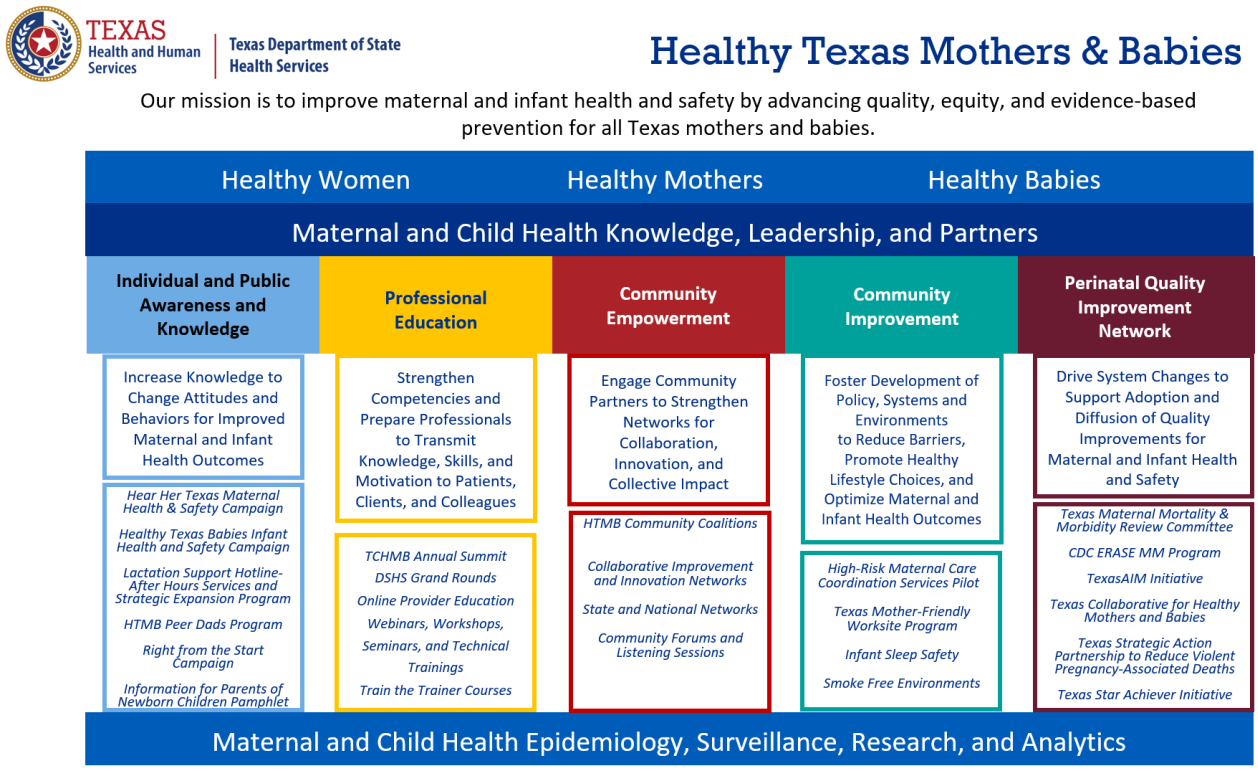
- Assess promotoras or community health workers (CHWs) training courses that focus on women of childbearing age;
- Study existing high-risk maternal care coordination services models;
- Identify, adapt, or create a risk assessment tool to identify pregnant women who are at a higher risk for poor maternal outcomes;
- Develop training courses to prepare CHWs to support women at high risk for poor birth outcomes;
- Identify a pilot site and provide support, resources, technical assistance, training, and guidance to implement the HRMCCSP pilot; and
- Integrate CHW services for women with high-risk pregnancies.

Within the Healthy Texas Mothers and Babies framework, DSHS used the Texas Mortality and Morbidity Review Committee (MMMRC) findings and recommendations to inform the maternal health and safety initiatives outlined in this report. In 2017, DSHS launched TexasAIM in response to an MMMRC recommendation to promote a culture of safety and high reliability in Texas birthing facilities. DSHS identified the national Alliance for Innovation on Maternal Health (AIM) Program as a best practice for improving outcomes related to the most preventable and frequent causes of severe maternal morbidity and mortality. DSHS started TexasAIM to support hospitals with the AIM Obstetric Hemorrhage Bundle, followed by activities to pilot the AIM Obstetric Care for Women with Opioid Use Disorder Bundle and then launched the AIM Severe Hypertension in Pregnancy Bundle in December 2020.

The MMMRC and DSHS Joint 2020 Biennial Report included recommendations to enhance screening and referral for maternal risk conditions, prioritize care coordination for pregnant and postpartum women, and increase maternal health programming to target high-risk populations. In 2020 and 2021, DSHS studied existing CHW and maternal care care-coordination models, trainings, and resources. In 2022, DSHS established partnerships to develop a High-Risk Maternal Care Coordination Program pilot to provide CHW services to women at the greatest risk for poor maternal health outcomes.

3. Maternal Health and Safety Initiatives

DSHS implements multiple public health initiatives to support safer pregnancy, postpartum, and interpregnancy periods for Texas mothers. These initiatives are organized within a framework called Healthy Texas Mothers and Babies (HTMB), which is funded by the Title V Block Grant.[4]



Healthy Texas Mothers and Babies Framework

The core components of the HTMB Framework fall within five categories: 1) Individual and Public Awareness and Knowledge, 2) Professional Education, 3)

[4] As part of the Social Security Act of 1935, Title V is the nation's longest running public health program. Title V is a partnership between the federal government and the states/territories in which funding is used to implement programs to improve the health and well-being of our nation's mothers, children, and families.

Community Empowerment, 4) Community Improvement, and 5) Perinatal Quality Improvement Network.[5] The HTMB framework includes:

Texas Maternal Mortality and Morbidity Review Committee (MMMRC)

Administered by DSHS, Health and Safety Code, Section 34.002, established a 17-member multidisciplinary MMMRC to identify contributing factors and preventability of pregnancy-related deaths through case review. The MMMRC uses case review and statewide data trend findings to develop maternal mortality and morbidity prevention recommendations. On December 1, 2020, DSHS and the MMMRC published the latest MMMRC and DSHS Joint Biennial Report.

Texas Collaborative for Healthy Mothers and Babies (TCHMB)

DSHS funds and supports the TCHMB, the state's perinatal quality collaborative.[6] The TCHMB advances health care quality, equity, and patient safety for all Texas mothers and babies by developing joint quality improvement initiatives, advancing data-driven best practices, and promoting education and training.

During the 2021-22 biennium, the TCHMB incorporated Perinatal Care Region/Regional Advisory Council representation as well as non-voting organizational advisory members into its leadership structure. The additional representation strengthened the structure to increase partner coordination and aligned resources for supporting maternal health and safety improvements. Information about TCHMB committee membership is available at tchmb.org/committees.

The TCHMB also developed a strategic plan to guide perinatal quality collaborative (PQC) activities, facilitated an annual educational conference, and coordinated committee projects and research activities. In 2022, the TCHMB Obstetric Committee planned the Recognition and Response to Postpartum Preeclampsia in the Emergency Department project to reduce maternal morbidity and mortality

[5] The Perinatal Quality Improvement Network is a network of partnerships that coordinate and implement maternal and infant health and safety health care quality improvement initiatives.

[6] A perinatal quality collaborative is a state or multi-state network working to improve the quality of care for mothers and babies. Perinatal quality members identify health care processes that need to be improved and use the best available methods to make changes as quickly as possible. More information can be found at: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pqc.htm.

related to severe hypertension in postpartum patients.[7] Hospital recruitment for the project began in August 2022.

Additional Healthy Texas Mothers and Babies Activities

Additional HTMB activities included:

- Strategic planning coordination with HHSC, including the HHSC Postpartum Depression Strategic Plan and the Hyperemesis Gravidarum Strategic Plan;
- Educational event facilitation such as the 2021 DSHS Grand Rounds Perinatal Mood and Anxiety Disorders Series and the A Call to Action: Improving Maternal Health Outcomes in Texas Speaker Series;
- Breastfeeding support program coordination to increase recommended practices and reduce known breastfeeding barriers in health care, employment, and community settings;
- Maternal and infant health promotion through the HTMB local coalitions and the HTMB Peer Dads Program;[8]
- Participation in the Centers for Disease Control and Prevention's (CDC) Enhancing Reviews and Surveillance to Eliminate Maternal Mortality program to improve maternal mortality case review quality and timeliness; and
- Participation in the U.S. Department of Health and Human Services Office of the Assistant Secretary for Health's State, Local, Territorial, and Tribal Partnership Program to Reduce Maternal Deaths due to Violence program to study prevention opportunities and develop a strategic action plan for reducing maternal deaths caused by homicide and suicide.

[7] More information on the TCHMB Obstetric Committee Recognition and Response to Postpartum Preeclampsia in the Emergency Department project can be found at https://www.tchmb.org/pped.
[8] DSHS funds HTMB community coalitions in Amarillo, Brownsville, Dallas, Laredo, Port Arthur, San Antonio, Smith County, Tarrant County, and Waco/McClennan County. More information is available at dshs.texas.gov/healthytexasbabies/coalitions.

Other DSHS Maternal Health Initiatives

In addition to HTMB, DSHS oversees maternal levels of care designations for hospitals. DSHS works with hospitals, perinatal care regions, and the Perinatal Advisory Council (PAC)[9] to:

- Improve maternal patient care and outcomes;
- Develop hospital requirements for facility designation; and
- Establish regional maternal care coordination.

In 2021, the PAC recommended changes to the Maternal Levels of Care rules to incorporate patient safety practices for placenta accreta spectrum disorder.[10] These rules will be effective in early 2023.

[9] The Perinatal Advisory Council, an HHSC Advisory Committee, develops and recommends criteria for designating neonatal and maternal care levels. More information can be found at Perinatal Advisory Council | Texas Health and Human Services.

[10] Placenta accreta spectrum disorder (PAS) is a complication of pregnancy where the placenta attaches to the wall of the uterus (womb) in an abnormal way. The placenta is the organ that provides oxygen and nutrients to the developing fetus. Normally the placenta attaches quite superficially to the wall of uterus but, in PAS, the placenta adheres or invades in an abnormal way during the first trimester of pregnancy, pushing too deeply into the uterine wall (myometrium).

4. High-Risk Maternal Care Coordination Services Program Pilot

Throughout 2021, DSHS analyzed existing community health worker (CHW) care coordination and maternal health models to adapt for the High-Risk Maternal Care Coordination Services Program (HRMCCSP) pilot. DSHS contracted with two university partners and one local public health district to initiate and implement the two-year pilot from June 2022 to May 2024.

In collaboration with The University of Texas at Austin School of Nursing CHW Institute, DSHS began developing courses for supporting CHWs to provide services for high-risk pregnant and postpartum women.

DSHS partnered with Northeast Texas Public Health District in Smith County (NETHealth) to participate as the pilot site to test, assess, and refine the components of the HRMCCSP using a community-based high-risk care coordination approach.[11] NETHealth is developing partnerships and strengthening service referral systems with local health care providers and community organizations to support high-risk pregnant and postpartum women care coordination. To provide NETHealth with CHW program development technical assistance and training, DSHS hosted a two-day workshop for working with CHWs within multidisciplinary teams, engaging CHWs in reducing health disparities, and engaging stakeholders with lived experience in program design.

In 2022, the University of Texas Health Science Center at Houston Center for Health Promotion and Prevention Research collaborated with NETHealth to begin assessing and identifying available community resources and partnerships to support HRMCCSP implementation.

[11] NETHealth was selected as a partner because of their community's higher than average severe maternal morbidity rate, population statistics, and readiness.

5. Hear Her Texas Campaign

DSHS is developing Hear Her Texas, a maternal health and safety public awareness campaign to:

- Increase awareness about maternal health risks and protective factors;
- Increase awareness, knowledge, and action about preventing maternal mortality and promoting maternal health and safety; and
- Engage stakeholders in promoting maternal patient safety.

The primary audience includes women of childbearing age (ages 18-44) focusing on populations most impacted by severe maternal morbidity and mortality. The objectives for Hear Her Texas include educating and empowering women, their support networks, and their service providers so they know urgent maternal warning signs, how to act with appropriate urgency, and how to advocate for quality care. DSHS aligned this campaign with national efforts, including the Centers for Disease Control and Prevention's (CDC) Hear Her Campaign and the AIM Council on Patient Safety's Urgent Maternal Warning Signs.[12] In October 2021, the campaign launched a social media strategy and website highlighting key messaging about signs and symptoms of serious complications that can happen during and after pregnancy. In the first nine months, Hear Her Texas made over 33 million impressions through the digital media marketing campaign.

In May and June 2022, DSHS conducted market research with Texas women and health care providers to test messaging and concepts to seek input for developing:

- A postpartum status alert system to help providers identify women experiencing postpartum emergencies;
- Health care provider educational resources and job aids about urgent maternal warning signs;
- A patient-held maternal health record; and
- Urgent maternal warning sign icons.

DSHS is completing five maternal morbidity survivor testimonials. DSHS will place the videos on the website and integrate them in planned social media strategy and

[12] For more information, visit Urgent Maternal Warning Signs | AIM (saferbirth.org).

outreach efforts. DSHS is also expanding the campaign content with Texas specific educational resources and toolkits.

6. TexasAIM

DSHS launched TexasAIM in partnership with the national Alliance for Innovation on Maternal Health (AIM) and the Texas Hospital Association to support Texas hospitals in adopting AIM-endorsed maternal safety bundles.[13] Appendix A provides a more detailed overview of TexasAIM.

Participation is voluntary and hospitals may choose to join one of two levels - TexasAIM Basic or TexasAIM Plus - as part of the bundle enrollment process. TexasAIM Plus hospitals receive support and tools for bundle implementation and quality improvement activities through learning collaboratives.[14]

TexasAIM Obstetric Hemorrhage Bundle

Obstetric hemorrhage is the leading cause of maternal mortality worldwide, is a leading contributor to severe maternal morbidity (SMM), and is one of the most preventable causes of maternal death.[15,16] Starting in April 2018, DSHS supported hospitals with the AIM Obstetric Hemorrhage maternal patient safety bundle implementation to reduce the incidence of obstetric hemorrhage-associated SMM. Representing 98 percent of birthing hospitals in Texas, 219 of the 224 hospitals with obstetric services participated in the TexasAIM Obstetric Hemorrhage Bundle. These hospitals serve almost 380,000 women every year, account for more than 99 percent of Texas births and 10 percent of births in the nation. Of the 219 TexasAIM

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[13] Patient safety bundles are a structured way of improving the processes of care and patient outcomes. They are clinical condition-specific and follow an evidence-based, 5R structure, that when performed collectively and reliably have been proven to improve patient outcomes.

[14] A learning collaborative is a systematic approach to process improvement based on the Institute for Healthcare Improvement Break-through Series Collaborative model. During the learning collaborative, organizations test and implement system changes and measure their impact. They share their experiences with peers across organizations to accelerate learning and uptake of best practices.

[15] Committee on Practice Bulletins-Obstetrics. Practice Bulletin No. 183: Postpartum Hemorrhage. Obstet Gynecol. 2017;130(4):e168-e186. doi:10.1097/AOG.0000000000002351.

[16] Examples of diagnoses and complications associated with obstetric hemorrhage that constitute severe maternal morbidity include transfusion of four or more units of blood, return to the operating room for any major procedure, an emergency/unplanned peripartum hysterectomy, uterine artery embolization, and/or admission to an intensive care unit for invasive monitoring or treatment.

hospitals, 181 (83 percent) participated in the TexasAIM Plus Obstetric Hemorrhage Learning Collaborative (Appendix B).

In March 2020, DSHS repurposed TexasAIM Plus activities to support hospital obstetric units' response to COVID-19.[17] In September 2020, TexasAIM Plus resumed regular activities, including monthly action period calls to provide additional coaching, reinforce bundle content and implementation strategies, and share practical examples from participating hospital teams.

Maternal Early Warning System

From June 2018 through June 2020, the Texas Collaboration for Healthy Mothers and Babies (TCHMB) partnered with TexasAIM to develop a protocol to support the timely recognition, diagnosis, and treatment for women developing critical issues known as the maternal early warning system (MEWS) component of the Obstetric Hemorrhage Bundle. Once the protocol was developed, the TCHMB provided MEWS education, implementation materials, and technical assistance to hospital teams throughout the Obstetric Hemorrhage Learning Collaborative.[18] Education included a series of three webinars, a DSHS Grand Rounds Presentation, a MEWS simulation video, and in-person presentations at the Obstetric Hemorrhage learning sessions across the state.

Hospitals reported improvement in standardizing implementation of MEWS criteria and protocols. Through surveys, hospitals reported progress by implementing key MEWS components fully and consistently. From 2019 to 2020:

- The percentage of hospitals reporting they have a set of criteria to define abnormal maternal warning signs increased from 19 percent to 41 percent.
- The percentage of hospitals reporting they have set protocols to prompt a bedside evaluation by a provider increased from 20 percent to 38 percent.
- The percentage of hospitals reporting they have a system to ensure a provider performs a bedside assessment even if the designated provider is unavailable increased from 30 percent to 44 percent.

[17] More details are available in the Texas Maternal Mortality and Morbidity Review Committee and Department of State Health Services 2020 Joint Biennial Report.
[18] Maguire PJ, Power KA, Turner MJ. The maternal early warning criteria: a proposal from the National Partnership for Maternal Safety. Obstet Gynecol. 2015;125(2):493-494. doi:10.1097/AOG.0000000000000660

Though the TCHMB MEWS project concluded in June 2020, TCHMB continues to provide implementation resources through its website. The TCHMB also distributes a MEWS guide to hospitals that includes information about when and how to escalate care.

Obstetric Hemorrhage Process and Outcome Measures

As part of TexasAIM, hospitals voluntarily report bundle-specific process and structure measures in the AIM National Data Center portal. Prior to the COVID-19 pandemic, almost 77 percent of TexasAIM Plus hospitals were reporting regularly.

During the height of the COVID-19 pandemic, many TexasAIM Plus hospitals paused reporting to focus resources on health care services. A total of 37 hospitals continued voluntarily reporting or updated bundle processes or structure measures. As DSHS and TexasAIM hospitals focus on the sustainability phase of this bundle, it is anticipated that hospitals will start submitting and updating measures in the national AIM portal and revisit potential impacts.

Severe Maternal Morbidity Outcomes

DSHS determined the SMM percentage rates among obstetric hemorrhage cases for TexasAIM-enrolled hospitals. DSHS calculated SMM at baseline and the intervention period. Data were analyzed in separate groups, or cohorts, based on the timing of learning sessions to account for different intervention periods. Despite the COVID-19 pandemic and the refocus of TexasAIM learning collaborative activities to support hospitals in their pandemic response efforts, SMM obstetric hemorrhage rates decreased for TexasAIM-enrolled hospitals. The overall SMM rate reduction among obstetric hemorrhage cases for all TexasAIM enrolled hospitals was 8.6 percent.

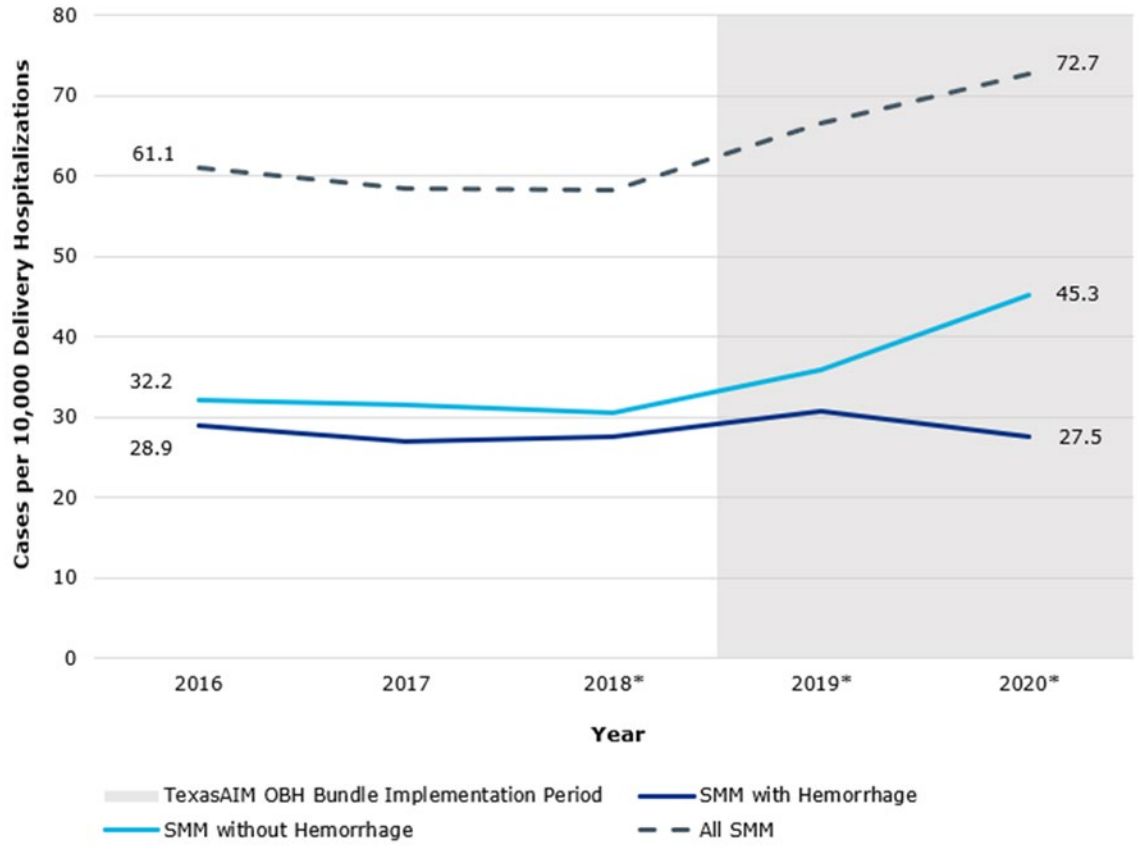
- For Cohorts 1-3, the SMM rate among obstetric hemorrhage cases decreased by 6.2 percent.
- For Cohorts 4-5, the SMM rate among obstetric hemorrhage cases decreased by 11.5 percent.

Statewide Severe Maternal Morbidity Data Trends

DSHS calculated state SMM rates among in-hospital deliveries with obstetric hemorrhage, without obstetric hemorrhage, and overall SMM for each year from 2016-2020.

As shown in Figure 1, both the overall SMM rate and the SMM rate for all conditions not including obstetric hemorrhage increased, with the greatest increases seen from 2019 to 2020. However, the SMM rate involving obstetric hemorrhage decreased during this same time, even during the ongoing COVID-19 pandemic. This SMM with obstetric hemorrhage rate decrease coincides with DSHS TexasAIM Plus implementation.

Figure 1: Texas SMM Among In-Hospital Deliveries with or without Obstetric Hemorrhage per 10,000 Delivery Hospitalizations, 2016-2020

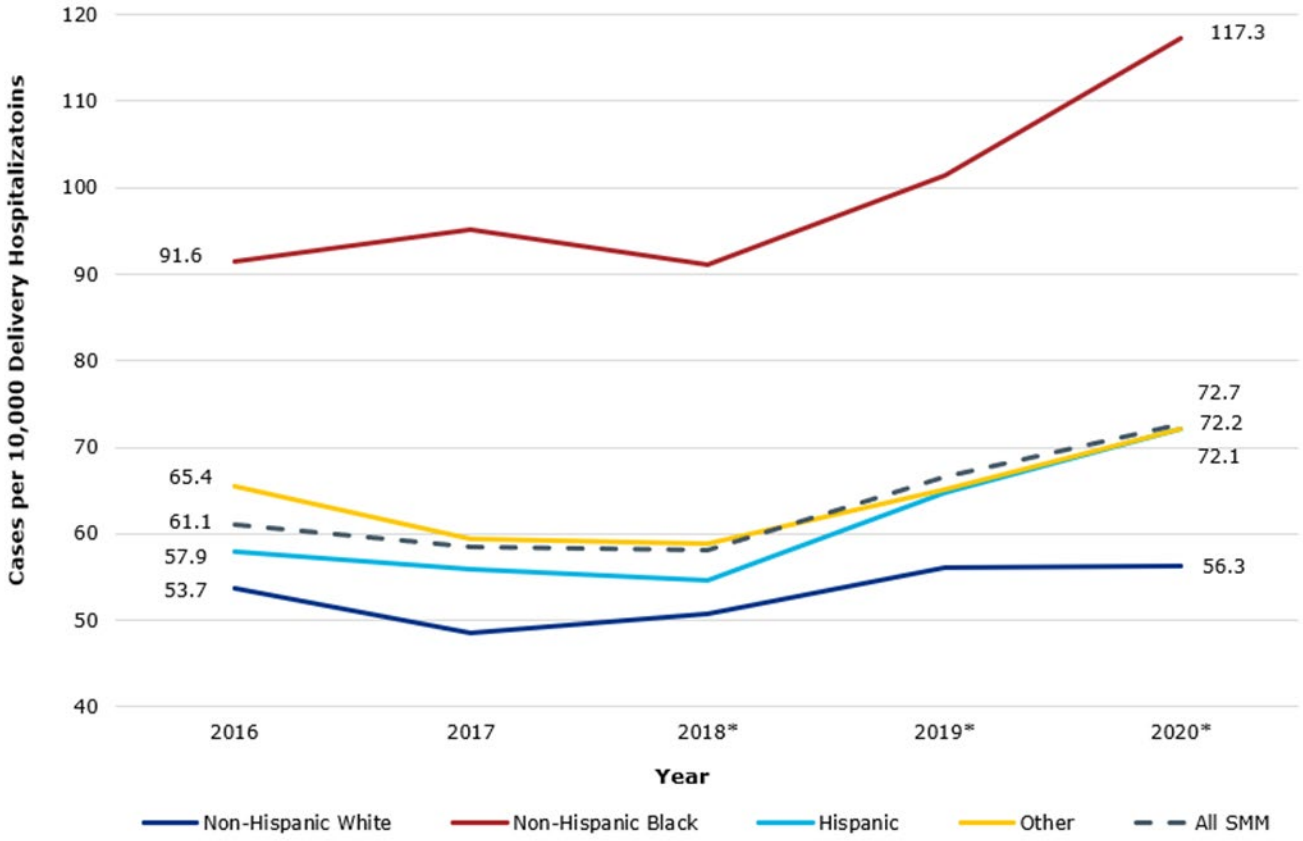


PREPARED BY: Maternal and Child Health Epidemiologists (MCHE), Community Health Improvement (CHI) Division, DSHS. DATA SOURCE: Hospital Inpatient Discharge Research Data File, 2016-2020. Birth Files, 2016-2020. Center for Health Statistics (CHS), DSHS. NOTES: *2018-2020 Birth Files are provisional. SMM was calculated using the Updated AIM SMM Code List, October 2021. The SMM National Workgroup recently advised calculating SMM using SMM indicators while excluding blood transfusion-only cases. Previously reported SMM rates may not be comparable. See Federally Available Data Resource Document. See also, saferbirth.org/aim-data/resources/.

Despite overall improvements in the SMM rate involving obstetric hemorrhage, non-Hispanic black women remained disproportionately impacted as shown in Figure 2 and Figure 3.

Figure 2 shows that from 2019 to 2020 the overall SMM rate among non-Hispanic black women continues to be higher than other races or ethnicities, with an increase of 15.5 percent from 101.6 to 117.3 cases per 10,000 delivery hospitalizations.

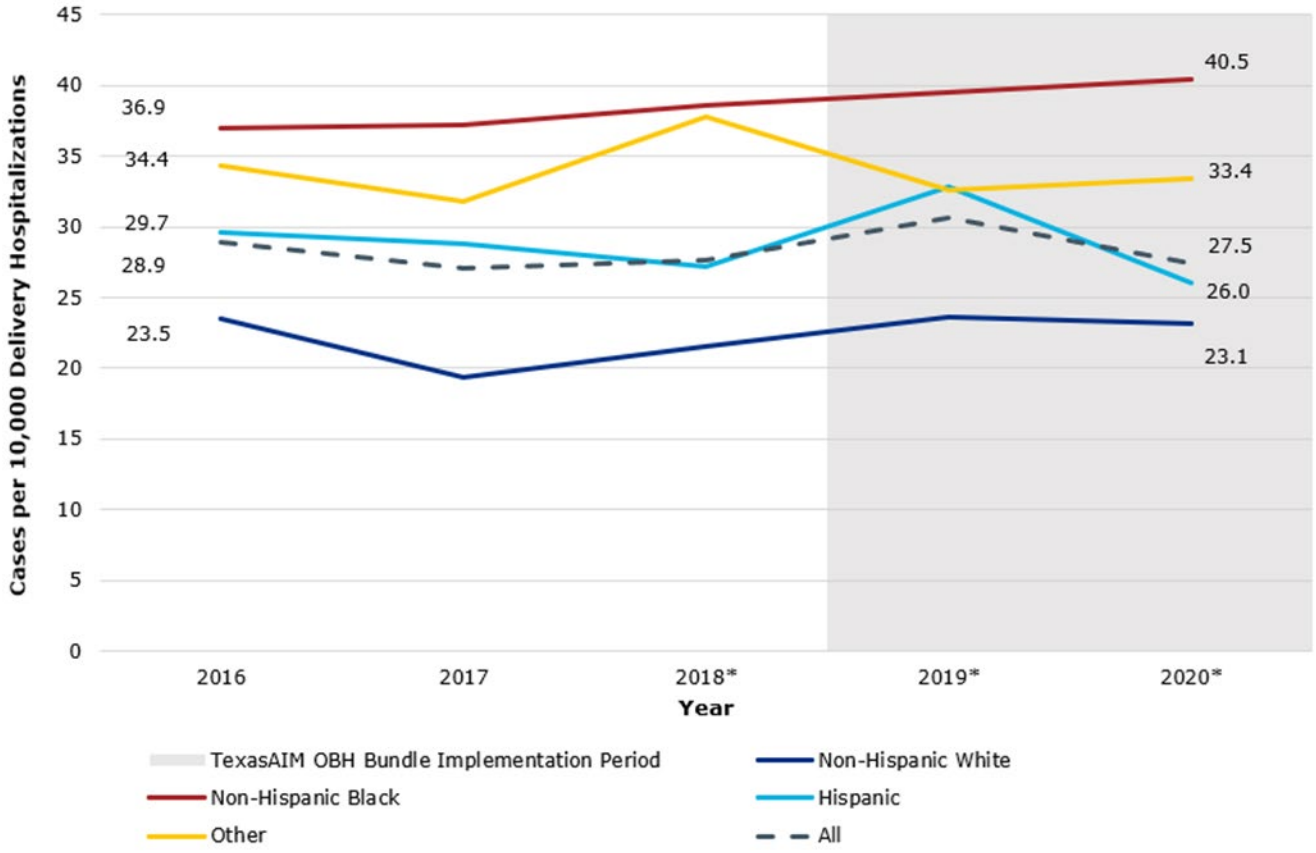
Figure 2: Texas SMM Among In-Hospital Deliveries by Race and Ethnicity, per 10,000 Delivery Hospitalizations, 2016-2020



PREPARED BY: MCHE, CHI Division, DSHS. DATA SOURCE: Hospital Inpatient Discharge Research Data File, 2016-2020. Birth Files, 2016-2020. CHS, DSHS. NOTES: *2018-2020 Birth Files are provisional. SMM was calculated using the Updated AIM SMM Code List, October 2021. The SMM National Workgroup recently advised calculating SMM using SMM indicators while excluding blood transfusion-only cases. Previously reported SMM rates may not be comparable. See Federally Available Data Resource Document. See also, saferbirth.org/aim-data/resources/.

As seen in Figure 3, disparities with SMM associated with obstetric hemorrhage also persisted during this period. However, the SMM with obstetric hemorrhage rate among non-Hispanic black women increased by 3.3 percent during the TexasAIM Obstetric Hemorrhage implementation, which is much slower compared to the overall SMM rate of 15.5 percent. During this same period, Figure 3 also shows the SMM with obstetric hemorrhage rate among Hispanic women decreased by 20.7 percent from 32.8 to 26.0 cases per 10,000 delivery hospitalizations.

Figure 3: Texas SMM Among In-Hospital Deliveries with Obstetric Hemorrhage, by Race and Ethnicity, per 10,000 Delivery Hospitalizations, 2016-2020



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Sustainability

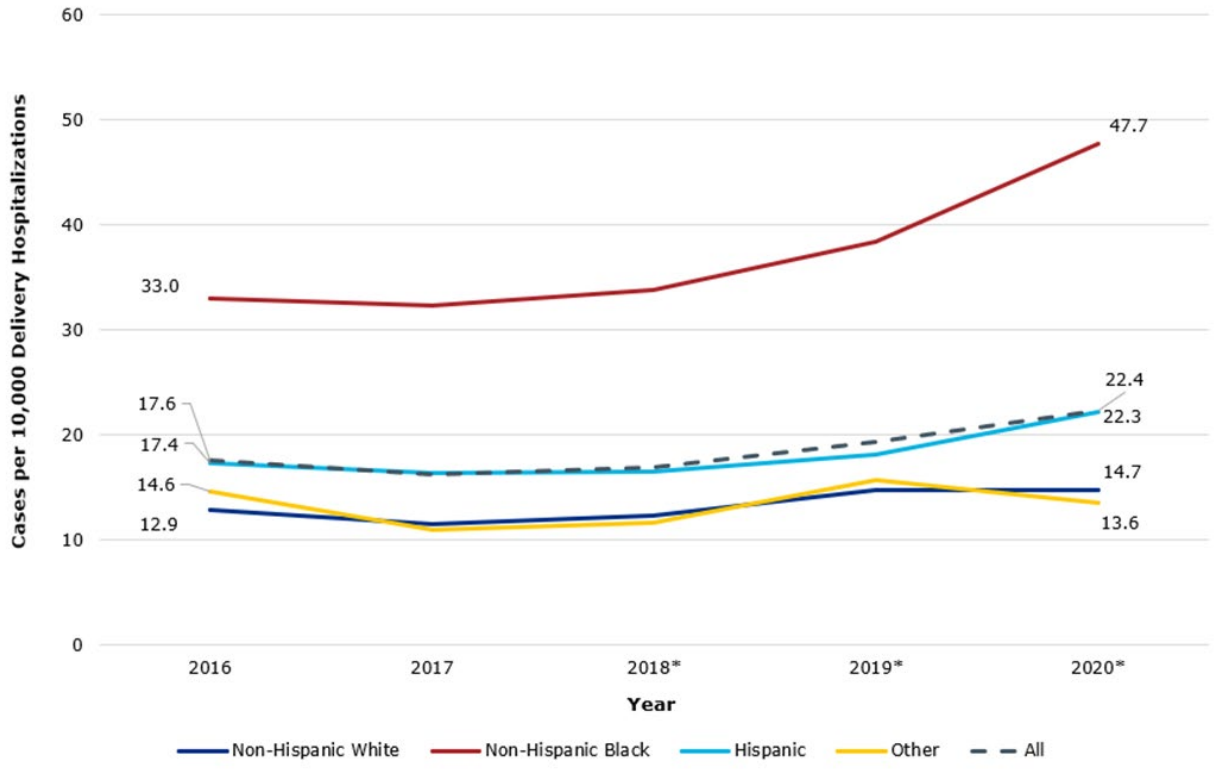
In December 2020, DSHS completed TexasAIM Obstetric Hemorrhage Bundle implementation and moved into bundle sustainability. During the bundle sustainability phase, participating hospitals are encouraged to continue to track quality data, conduct improvement activities, use TexasAIM resources and chat boards, and seek TexasAIM technical assistance as needed until processes are standardized and sustained.

TexasAIM Severe Hypertension in Pregnancy Bundle

While the overall SMM rate involving obstetric hemorrhage decreased, the SMM rates involving preeclampsia (a disorder involving severe hypertension in pregnancy) increased from 2016 through 2020. Preeclampsia-associated SMM rates increased 37 percent between 2017 and 2020, increasing from 16.3 to 22.4 preeclampsia-associated SMM deliveries per 10,000 delivery hospitalizations.

As seen in Figure 4, rates remained stable from 2019 to 2020 among non-Hispanic white populations, decreased in non-Hispanic other populations, and increased among non-Hispanic black and Hispanic populations. In 2020, non-Hispanic black women were disproportionately impacted and experienced preeclampsia-associated SMM at more than twice the rate experienced by Hispanic women and more than three times the rate experienced by non-Hispanic white women.

Figure 4. Rate of Delivery Hospitalizations Involving SMM in Texas Associated with Preeclampsia, by Race and Ethnicity, per 10,000 Delivery Hospitalizations, 2016-2020



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In December 2020, DSHS hosted a virtual summit to recognize the Obstetric Hemorrhage Bundle successes, introduce the Severe Hypertension in Pregnancy Bundle, and provide continuing education. Approximately 600 TexasAIM nurses and physicians participated in the two-day event. Following the summit, DSHS launched TexasAIM Severe Hypertension in Pregnancy Bundle outreach and recruitment. Representing 94 percent of birthing hospitals in Texas, 211 of the 224 hospitals with obstetric services enrolled in the TexasAIM Severe Hypertension in Pregnancy Bundle. These hospitals serve more than 354,000 women every year and account for 95 percent of Texas' births. Of the 211 TexasAIM hospitals, 182 (86 percent) enrolled to participate in the TexasAIM Plus Severe Hypertension in Pregnancy

Learning Collaborative. See Appendix C for a map of participating hospitals and enrollment statistics.

DSHS selected TexasAIM Severe Hypertension in Pregnancy volunteer faculty through a competitive application process based on experience and expertise who provide subject matter expertise and coaching to hospital teams. Faculty also provide input and guidance for developing practice change strategies and resources to support implementation efforts. Appendix C, Table C-3 includes a list of the TexasAIM Severe Hypertension in Pregnancy faculty through 2021.

From January through April 2021, DSHS facilitated four events focused on hospital readiness and capacity to implement the AIM Severe Hypertension in Pregnancy Bundle by providing guidance, templates, and technical assistance. Hospitals developed quality improvement teams, assessed their readiness, conducted targeted chart reviews, and set goals.

In April and May 2021, DSHS and TexasAIM Severe Hypertension in Pregnancy faculty hosted virtual two-day learning sessions for each of the five geographic cohorts. These interactive, collaborative events engaged 600 participants from 164 TexasAIM Plus hospitals. Following the learning session, hospital teams started implementing the Severe Hypertension in Pregnancy Bundle. In June and July 2021, DSHS supported hospitals by hosting monthly calls and collaborative events. Hospital teams reported quarterly data in the national AIM Data Center portal, completed monthly TexasAIM progress reports, and provided feedback about how COVID-19 impacted their hospitals. DSHS reviewed reports to identify common themes, summarized findings guided the programming and technical assistance, and shared this information with hospitals.

In August 2021, at the request of hospitals, DSHS refocused TexasAIM Plus efforts to provide guidance, support, and resources to hospital teams on the Delta COVID-19 variant and corresponding case surges. DSHS conducted weekly calls in August and September 2021 and bi-weekly webinars in October and November 2021. DSHS used various approaches to engage participants, gather feedback, assess needs, and respond to questions. In addition to support calls, DSHS facilitated information and resource sharing among hospitals, developed online information and resources, and produced a bi-weekly electronic newsletter. More than 1,700 health professionals accessed this information.

Statewide Virtual Hypertension Simulation Train the Trainer Course

In summer 2021, as part of the TexasAIM Severe Hypertension in Pregnancy efforts, DSHS coordinated five virtual simulation train-the-trainer course sessions for severe hypertension in pregnancy emergencies. The course was the first known statewide virtual obstetric simulation train-the-trainer event in the country and included 102 hospital teams, composed of over 540 participants. The course prepared hospitals to regularly practice technical skills, teamwork, communication, and debriefs in simulated but realistic conditions to help achieve standardized responses to severe hypertension obstetric emergencies.

TexasAIM Obstetric Care for People with Opioid and Other Substance Use Disorders Innovation and Improvement Learning Collaborative

DSHS engaged ten hospitals to be early adopters and independently pilot the implementation of AIM Obstetric Care for Women with Opioid Use Disorder (OB-OUD) Bundle. In fiscal year 2021, DSHS convened a workgroup to study hospital lessons learned about implementing the AIM OB-OUD Bundle. Using recommendations from the workgroup, DSHS started planning the TexasAIM Opioid and Other Substance Use Disorders (OSUD) Innovation and Improvement Learning Collaborative (IILC). In summer 2021, DSHS secured the pilot hospitals' commitment to participate in the upcoming TexasAIM OSUD IILC.

In October 2021, AIM national retired the OB-OUD Bundle and launched a new substance use disorder bundle, Care for Pregnant and Postpartum People with Substance Use Disorder (CPPSUD). DSHS adapted the OSUD IILC to incorporate the CPPSUD bundle and plans to launch in Spring 2023. DSHS will use lessons learned from the first OSUD IILC hospitals to develop a statewide OSUD implementation support strategy. See Appendix D for a map of the first OSUD IILC hospitals.

TexasAIM Birthing Center Workshop Series

Over the 2021-22 biennium, DSHS planned a TexasAIM Birthing Center Workshop Series to share relevant best practices from the hospital-focused AIM Bundles with

free standing birthing center providers. The six-part series from January 2022 to May 2022 had 91 staff members from 44 licensed birthing centers in attendance.

Next Steps

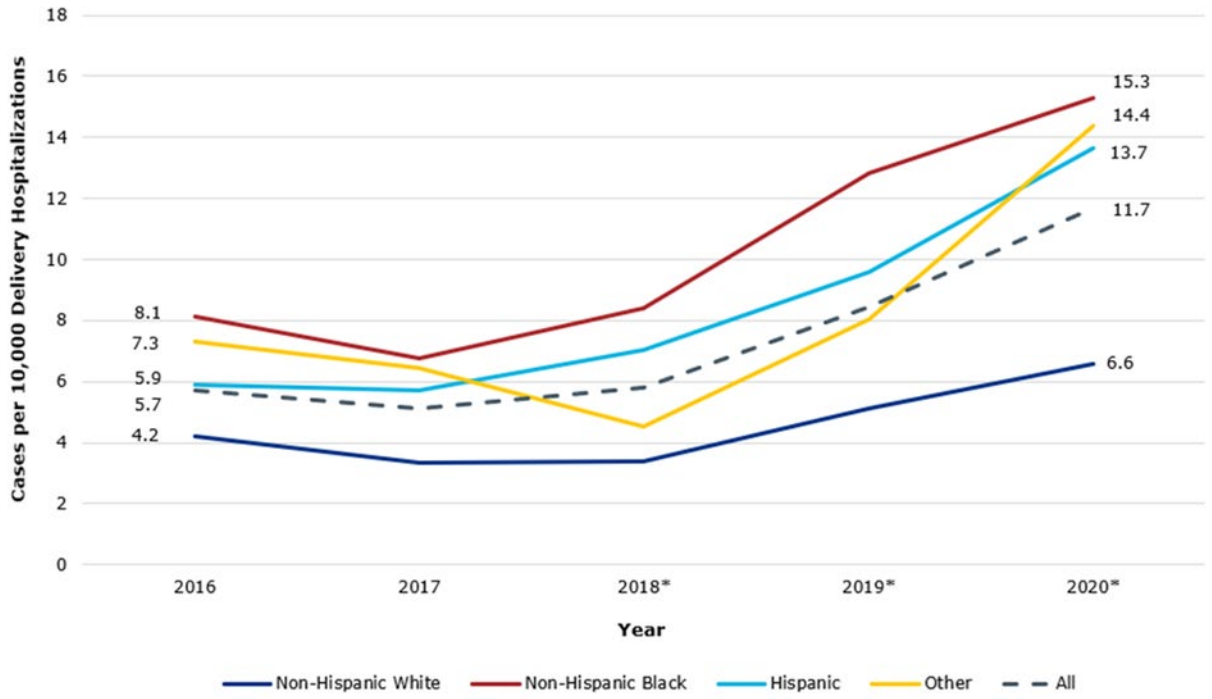
Following the Severe Hypertension in Pregnancy Bundle and the OSUD IILC, DSHS will continue with statewide implementation of the OSUD Bundle. Additionally, TexasAIM anticipates supporting hospitals with a Cardiac Conditions in Obstetrical Care Bundle beginning in 2024 and a Sepsis in Obstetrical Care Bundle in 2026.[19]

Cardiac conditions, including cardiovascular disease and cardiomyopathy, and sepsis are leading causes of pregnancy-related death that are highly preventable with early identification and treatment.

Overall, the sepsis-associated SMM rate more than doubled between 2017 and 2020 (from 5.1 to 11.7 sepsis-associated SMM deliveries per 10,000 delivery hospitalizations). This increase was largely driven by sepsis-associated SMM among non-Hispanic black women, Hispanic women, and women of other races and ethnicities (15.3, 14.4, and 13.7 sepsis-associated SMM deliveries per 10,000 delivery hospitalizations, respectively.) For each of these populations in 2020, the sepsis-associated SMM rate was more than double the rate of non-Hispanic white women (6.6 sepsis-associated SMM deliveries per 10,000 delivery hospitalizations).

[19] AIM national released the Cardiac Conditions in Obstetrical Care Bundle in 2021, and released its most recent Bundle, Sepsis in Obstetrical Care, in 2022.

Figure 5. Rate of Delivery Hospitalizations Involving SMM in Texas Associated with Sepsis, by Race and Ethnicity, per 10,000 Delivery Hospitalizations, 2016-2020



PREPARED BY: MCHE, CHI Division, DSHS. DATA SOURCE: Hospital Inpatient Discharge Research Data File, 2016-2020. Birth Files, 2016-2020. CHS, DSHS. NOTES: *2018-2020 Birth Files are provisional. SMM was calculated using the Updated AIM SMM Code List, October 2021. The SMM National Workgroup recently advised calculating SMM using SMM indicators while excluding blood transfusion-only cases. Previously reported SMM rates may not be comparable. See Federally Available Data Resource Document. See also, saferbirth.org/aim-data/resources/.

7. Recommendations

In accordance with Texas Health and Safety Code, Section 34.0156 and Section 1001.264, DSHS makes the following recommendations to improve the effectiveness of maternal health and safety initiatives.

Continue support of the High-Risk Maternal Care Coordination Services Program (HRMCCSP) Pilot.

DSHS recommends the HRMCCSP pilot continue to develop, test, and sustain a robust high-risk maternal care coordination services program. Pilot continuation will allow DSHS to create community health worker (CHW) educational materials and develop a CHW high-risk maternal care coordination specialty certification process. DSHS anticipates completing the pilot's first phase by September 2023. HRMCCSP pilot evaluation will inform future implementation recommendations.

Continue implementation and promotion of the Hear Her Texas statewide maternal health and safety public awareness campaign.

DSHS recommends promoting the Hear Her Texas campaign to encourage pregnant and postpartum women to voice concerns about their health, know the urgent maternal warning signs, and seek medical help if something does not feel right. DSHS recommends continued support to create new maternal morbidity and mortality prevention messages and strategies for families, providers, and communities.

Continue support for hospital quality improvement through the TexasAIM program.

DSHS recommends continuing hospital support with national AIM patient safety bundle implementation through TexasAIM. Activities should:

- Recognize ongoing impacts to staffing capacity during the COVID-19 pandemic and identify innovative solutions for building and strengthening quality improvement capacity within hospitals, including data capacity to drive improvement;
- Recognize and be responsive to rural hospitals' unique challenges and needs;

- Continue monitoring outcomes and tracking maternal health and safety improvements.

Prioritize the elimination of maternal health disparities.

To help eliminate maternal health disparities, DSHS recommends:

- Engaging people with lived maternal morbidity experience and representatives from communities most impacted by maternal mortality and morbidity throughout planning, developing, and evaluating maternal health and safety initiatives, including the HRMCCSP pilot, Hear Her Texas campaign, and TexasAIM;
- Using and promoting recommended best practices for engaging communities as partners in their health care, including by applying the National Culturally and Linguistically Appropriate Services Standards, shared decision making, and patient centered, trauma-informed care; and
- Incorporating established approaches to support health care organizations to reduce health disparities.[20,21,22,23]

Engage providers in ambulatory care settings, emergency medical services, emergency departments, and non-obstetric clinical settings.

To help improve recognition and response to maternal health emergencies in all places where pregnant and postpartum women seek medical care, DSHS recommends implementing the following strategies across specialties and health care settings that provide services to women of childbearing age:

- Routinely assess pregnancy status to identify patients who are pregnant now or have been pregnant in the past year;

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[20] Wyatt R, Laderman M, Botwinick L, Mate K, Whittington J. *Achieving Health Equity: A Guide for Health Care Organizations*. IHI White Paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2016. (Available at ihi.org)
[21] American Hospital Association. (n.d.). *The health equity roadmap*. Equity. Retrieved August 31, 2022, from equity.aha.org.
[22] The University of Chicago/Robert Wood Johnson Foundation Center for Advancing Health Equity. (n.d.) *The roadmap to reduce disparities.* Available at solvingdisparities.org/tools/roadmap.
[23] More information on National Culturally and Linguistically Appropriate Services Standards at thinkculturalhealth.hhs.gov/clas.

- Recognize urgent maternal warning signs and signs of other urgent conditions that may affect pregnant and postpartum women, including overdose;
- Learn how pregnancy or post-pregnancy status may impact a patient's health status and treatment course;
- Appropriately escalate maternal health emergencies; and
- Consult with obstetric providers to coordinate emergency medical services for pregnant and postpartum women.

Support integrated maternal mental and behavioral health, social support, and other best practices for increasing maternal safety.

To help prevent partner violence related homicides, suicides, and overdose deaths and related maternal injuries, DSHS recommends continuing and expanding efforts to integrate mental and behavioral health, social support services, and other best practices into programs that serve pregnant and postpartum women.

8. Conclusion

The Texas Department of State Health Services (DSHS), in collaboration with partners, continues to conduct maternal health and safety activities.

Since 2018, the TexasAIM initiative provides information, resources, and collaborative learning opportunities to support hospitals implementing the national Alliance for Innovation on Maternal Health (AIM) maternal patient safety bundles. DSHS is planning for the new TexasAIM Plus Severe Hypertension in Pregnancy Learning Collaborative and the Obstetric Care for People with Opioid and Other Substance Use Disorders Innovation and Improvement Learning Collaborative. DSHS is assessing hospital needs and developing TexasAIM enhancements to better support hospitals experiencing staffing shortages, staff burnout, and other ongoing issues due to the COVID-19 pandemic.

DSHS is working with university and local public health partners to test the DSHS High-Risk Maternal Care Coordination Services Program and pilot a high-risk maternal care specialty course. This will prepare community health workers to support care coordination services for pregnant and postpartum women at elevated risk for poor pregnancy outcomes.

DSHS made over 33 million impressions through the first nine months of the Hear Her Texas digital media marketing campaign. New Texas-specific campaign content will continue to reach Texans and engage pregnant and postpartum women, their support networks, providers, and communities in maternal mortality and morbidity prevention activities to promote maternal patient safety in Texas.

List of Acronyms

Acronym	Full Name
5 Rs	Readiness, Recognition and Prevention, Response, Reporting and Systems Learning, and Respectful Care
ACOG	American College of Obstetricians and Gynecologists
AIM	Alliance for Innovation on Maternal Health
CDC	Centers for Disease Control and Prevention
CHW	Community Health Workers
COVID-19	Coronavirus Disease 2019
CPPSUD	Care for Pregnant and Postpartum People with Substance Use Disorder
DSHS	Texas Department of State Health Services
HHSC	Texas Health and Human Services Commission
HRMCCSP	High-Risk Maternal Care Coordination Services Program
HTMB	Healthy Texas Mothers and Babies
HTN	Severe Hypertension in Pregnancy
IHI	Institute for Healthcare Improvement
IILC	Innovation and Improvement Learning Collaborative
MEWS	Maternal Early Warning System
MMMRC	Texas Maternal Mortality and Morbidity Review Committee
NETHealth	Northeast Texas Public Health District

OB	Obstetric
OB-OUD	Obstetric Care for Women with Opioid Use Disorder
OSUD	Obstetric Care for People with Opioid and Other Substance Use Disorders
PAC	Perinatal Advisory Council
PCR	Perinatal Care Region
SMFM	Society for Maternal-Fetal Medicine
SMM	Severe Maternal Morbidity
TCHMB	Texas Collaborative for Healthy Mothers and Babies

Appendix A. TexasAIM Overview

In December 2017, the Department of State Health Services (DSHS) applied to the American College of Obstetricians and Gynecologists (ACOG) Alliance for Innovation on Maternal Health (AIM) Program to be an "AIM State" and was selected as the lead coordinating entity for implementing AIM maternal safety bundles in Texas.[24]

Each bundle organizes recommended health care practices into patient care domains used by AIM to address quality care. These practice domains (also known as the "5 Rs") include Readiness, Recognition and Prevention, Response, Reporting and Systems Learning, and Respectful Care.[25] When implemented together, the practices within the 5 R domains are expected to reduce the incidence of preventable cases of severe maternal morbidity (SMM) and mortality, which are the worst possible outcomes from maternal conditions such as obstetric hemorrhage, severe hypertension in pregnancy, and obstetric care for people with opioid and other substance use disorders (OSUD).[26,27]

In June 2018, DSHS launched TexasAIM as a large-scale quality improvement effort using existing staffing and resources, including Title V Block Grant funding.[28] DSHS partners with ACOG-AIM, the Texas Hospital Association, the Texas Collaborative

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[24] For more information, visit AIM | Alliance For Innovation On Maternal Health (saferbirth.org).

[25] In 2020, AIM began updating all AIM patient safety bundles to incorporate the "5th R", Respectful Care. According to AIM, "The Respectful Care section in each bundle is meant to highlight best practices in offering and providing respectful, equitable, and supportive care to every patient in every setting from every provider."

[26] According to ACOG and the Society for Maternal-Fetal Medicine (SMFM), SMM can be generally thought of as "unintended outcomes of the process of labor and delivery that result in significant short-term or long-term consequences to a woman's health." In the absence of a single, comprehensive definition of SMM, ACOG and SMFM provide guidance and recommendations for health care institutions to screen for SMM and identify opportunities for improvement.

[27] Obstetric Care Consensus No. 5 Summary: Severe Maternal Morbidity: Screening And Review. *Obstet Gynecol*. 2016;128(3):670-671.

[28] As a part of the Social Security Act of 1935, Title V is the nation's longest-running public health program. It is a partnership between the federal government and the states/territories that uses funding to implement programs to improve the health and well-being of our nation's mothers, children, and families.

for Healthy Mothers and Babies (TCHMB), and other key partners to implement TexasAIM.

To address the leading and most preventable causes of SMM and maternal mortality in Texas, TexasAIM began with a focus on AIM's Obstetric Hemorrhage Bundle and added hospital programming support to implement AIM's Severe Hypertension in Pregnancy Bundle and Care for Pregnant and Postpartum People with Substance Use Disorder Bundle through the TexasAIM OSUD initiative.[29,30,31]

Hospital participation in TexasAIM is voluntary. Participating hospitals may choose to join one of two levels of participation: TexasAIM Basic or TexasAIM Plus. Basic level hospitals receive the fundamental tools to adopt AIM bundles. All enrolled hospitals commit to forming a quality improvement team within their hospitals for implementing the bundles, reporting structure and process measures in the AIM National Data Center portal, and participating in TexasAIM surveys. TexasAIM Basic hospitals work independently to adopt AIM bundle practice changes. TexasAIM provides them with access to webinars, annual networking events, and technical assistance upon request.

TexasAIM Plus hospitals complete all the TexasAIM Basic requirements and report on the same quarterly measures but may also report on additional TexasAIM monthly process improvement measures. They also participate in a learning collaborative where they identify goals for improvement and make plans to achieve them. TexasAIM Plus hospitals receive access to quality and process-improvement training and guidance. They have access to shared learning and support from their peers across the state through in-person learning session meetings. During learning session meetings, hospital teams:

- Receive faculty coaching about bundle component details;
- Receive quality improvement advisor coaching;
- Learn from patient representatives about their first-hand experiences with a maternal health emergency within the health care system;

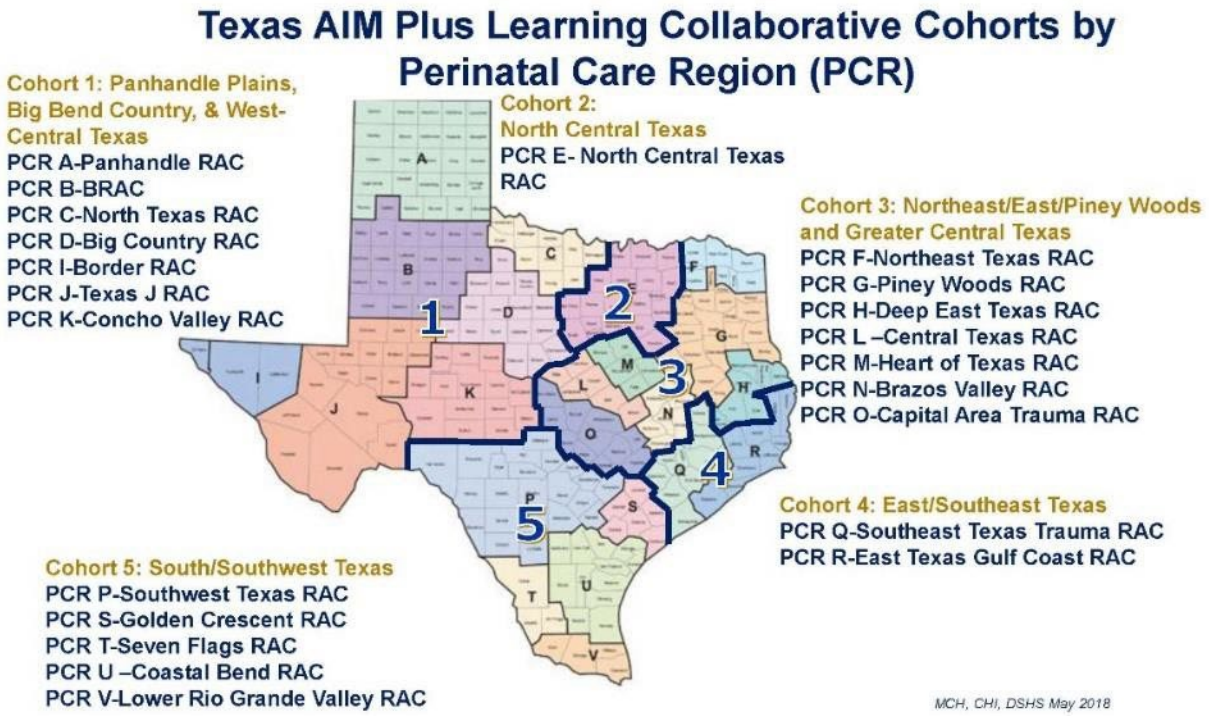
[29] For more information on the Obstetric Hemorrhage Bundle, visit saferbirth.org/psbs/obstetric-hemorrhage/.
[30] For more information on the Severe Hypertension in Pregnancy Bundle, visit saferbirth.org/psbs/severe-hypertension-in-pregnancy/.
[31] For more information on the Care for Pregnant and Postpartum People with Substance Use Disorder Bundle, visit saferbirth.org/psbs/care-for-prgnant-and-postpartum-people-with-substance-use-disorder/.

- Work with team members to establish plans and strategies for testing Bundle implementation changes; and
- Engage in facilitated shared learning activities, simulations, and networking to identify practical bundle implementation approaches and resources.

Between learning session meetings, hospital improvement teams work within their facilities to test patient care practice changes. DSHS facilitates ongoing TexasAIM support through monthly calls, which provide additional coaching, reinforce bundle content and implementation strategies, and share practical examples from participating hospital teams.

TexasAIM Plus hospitals are assigned to one of five geographic cohorts for in-person learning sessions. When determining TexasAIM cohorts, DSHS considered the geographic boundaries of Public Health Regions and Perinatal Care Region (PCR)/Regional Advisory Council territories as well as the number of hospitals per geographic area. Each cohort has 30-50 participating hospitals.

Figure A-1: TexasAIM Plus Cohorts by Perinatal Care Regions



Appendix B. TexasAIM Plus Obstetric Hemorrhage Bundle and Outcomes

Figure B-1. Hospitals Enrolled in the Obstetric Hemorrhage Bundle, December 2020

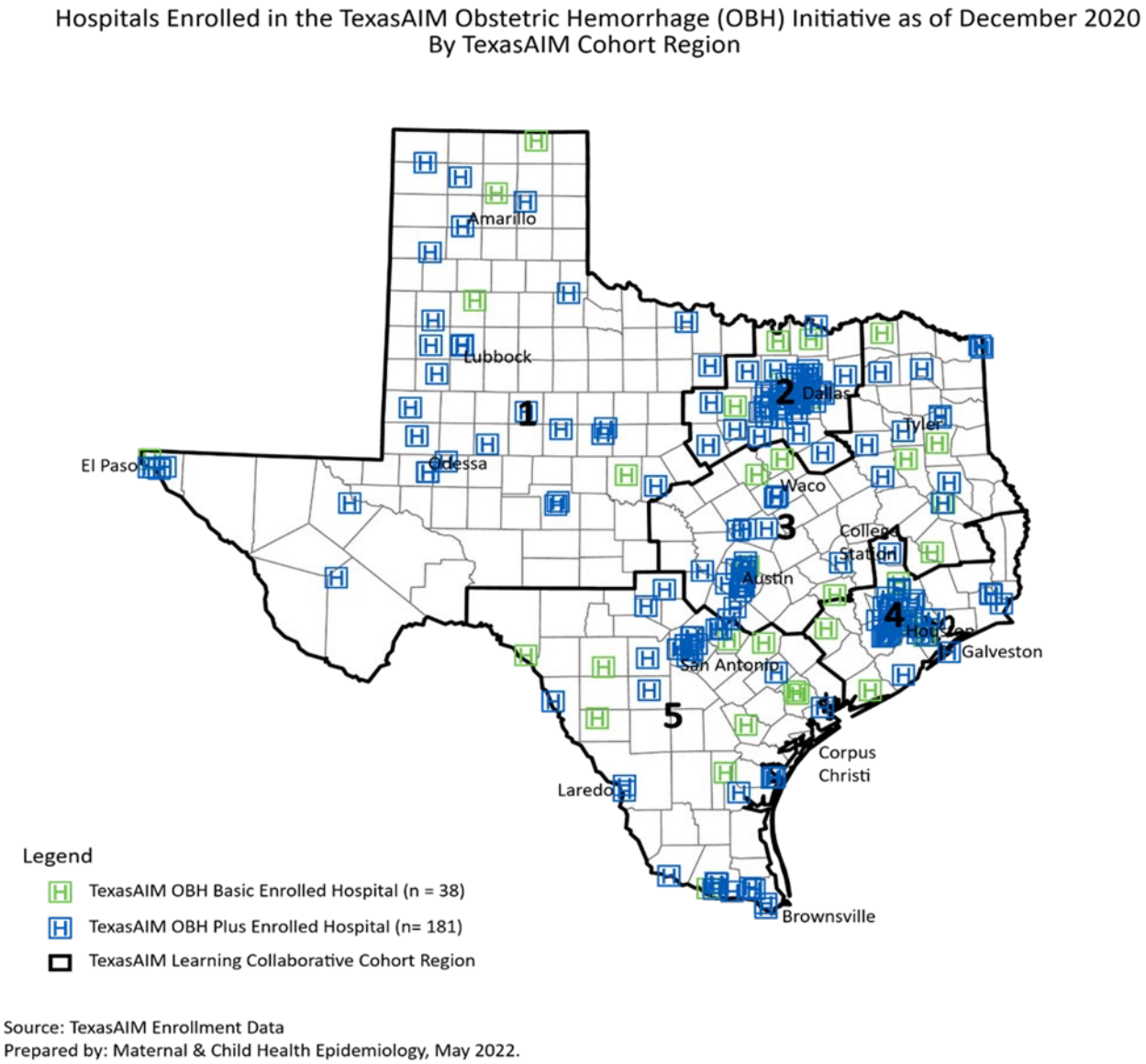
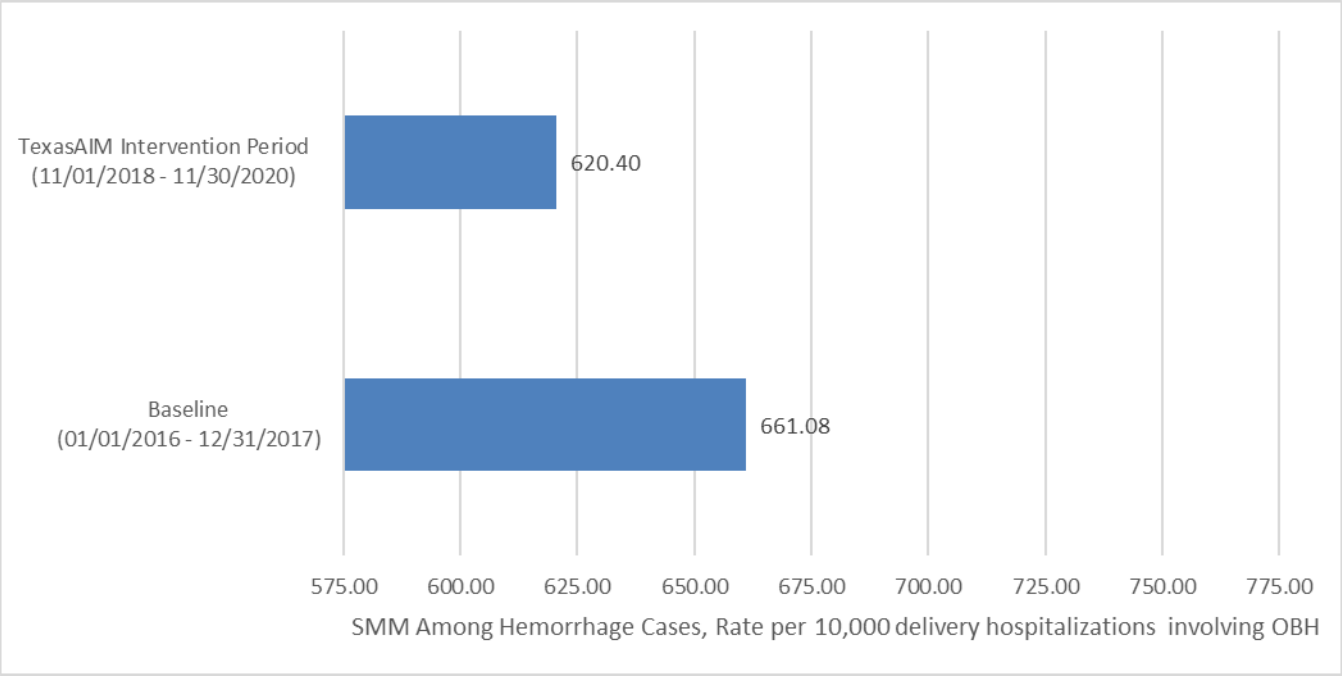


Figure B-2. Severe Maternal Morbidity (SMM) Among Obstetric Hemorrhage Cases per 10,000 In-Hospital Deliveries Involving Obstetric Hemorrhage in TexasAIM Enrolled Hospitals, Cohorts 1-3

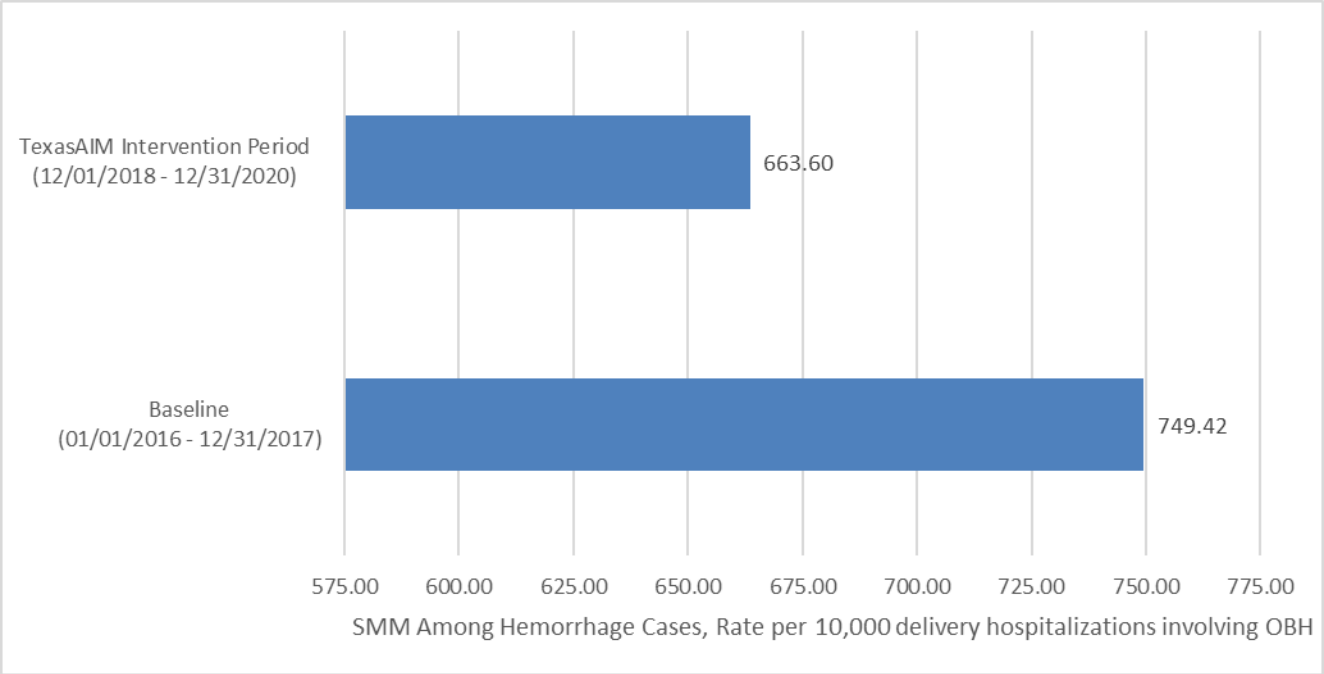
The SMM rate decreased by 6.2 percent from the Baseline to Intervention Period in SMM among Obstetric Hemorrhage cases in Texas AIM enrolled hospitals, cohorts 1-3.



PREPARED BY: Maternal and Child Health Unit (MCHU), Community Health Improvement (CHI) Division, Department of State Health Services (DSHS). ANALYSIS BY: Maternal and Child Health Epidemiologists (MCHE), CHI Division, DSHS. DATA SOURCE: Hospital Inpatient Discharge Research Data File, 2016-2020. Birth Files, 2016-2020. Center for Health Statistics (CHS), DSHS. NOTES: 2018-2020 Birth Files are provisional. SMM was calculated using the Updated Alliance for Innovation on Maternal Health (AIM) SMM Code List, October 2021. The SMM National Workgroup recently advised calculating SMM using SMM indicators while excluding blood transfusion-only cases. Previously reported SMM rates may not be comparable. See Federally Available Data Resource Document. See also, saferbirth.org/aim-data/resources/.

Figure B-3. SMM Among Obstetric Hemorrhage Cases per 10,000 In-Hospital Deliveries Involving Obstetric Hemorrhage in TexasAIM Enrolled Hospitals, Cohorts 4-5

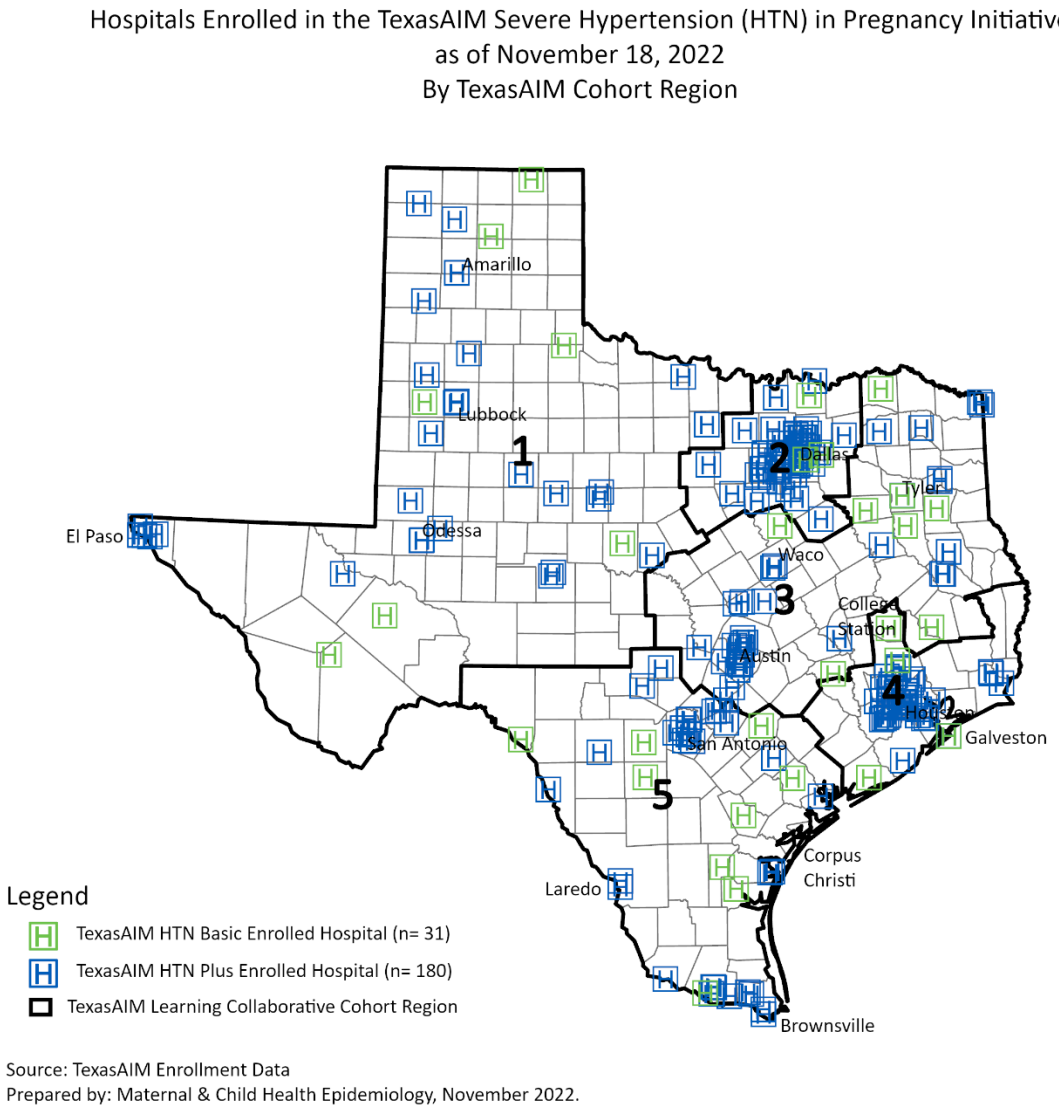
The SMM rate decreased by 11.5 percent from Baseline to Intervention Period in Obstetric Hemorrhage Cases in TexasAIM enrolled hospitals, cohorts 4-5.



PREPARED BY: MCHU, CHI Division, DSHS. ANALYSIS BY: MCHE, CHI Division, DSHS. DATA SOURCE: Hospital Inpatient Discharge Research Data File, 2016-2020. Birth Files, 2016-2020. CHS, DSHS. NOTES: 2018-2020 Birth Files are provisional. SMM was calculated using the Updated AIM SMM Code List, October 2021. The SMM National Workgroup recently advised calculating SMM using SMM indicators while excluding blood transfusion-only cases. Previously reported SMM rates may not be comparable. See Federally Available Data Resource Document. See also, saferbirth.org/aim-data/resources/.

Appendix C. TexasAIM Plus Severe Hypertension in Pregnancy Bundle

Figure C-1. Hospitals Enrolled in the Severe Hypertension in Pregnancy Bundle, November 2022



Source: TexasAIM Enrollment Data
Prepared by: Maternal & Child Health Epidemiology, November 2022.

Table C-1. TexasAIM Severe Hypertension in Pregnancy (HTN) Enrollment Among Hospitals with Maternity Services

TexasAIM Basic Hospitals	31 (15%) of 211 TexasAIM hospitals are enrolled in HTN as Basic
TexasAIM Plus Hospitals	180 (85%) of 211 TexasAIM hospitals are enrolled in HTN as Plus Hospitals
Total TexasAIM Hospitals	211 of 224 hospitals with maternity services (94%) are enrolled in TexasAIM HTN
TexasAIM Rural Hospitals	60 (86%) of rural Texas hospitals are enrolled in TexasAIM HTN (21 Basic, 39 Plus)
TexasAIM Urban Hospitals	151 (98%) of urban Texas hospitals are enrolled in TexasAIM HTN (8 Basic, 143 Plus)
TexasAIM Border Hospitals	26 (96%) of Texas hospitals in border counties are enrolled in TexasAIM HTN (4 Basic, 22 Plus)
TexasAIM Non-Border Hospitals	185 (94%) of Texas hospitals in non-border counties are enrolled in TexasAIM HTN (25 Basic, 160 Plus)

Table C-2. TexasAIM Severe Hypertension in Pregnancy (HTN) Enrollment Statistics by Cohort Region

	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5
Number of Hospitals in the Cohort Region that are Enrolled in TexasAIM HTN	37	49	41	42	42
Percent of Hospitals in the Cohort Region that are Enrolled in TexasAIM HTN	88%	96%	93%	98%	95%
Number and Percent of Participating TexasAIM HTN Hospitals in the Cohort Region that are Enrolled as Plus	31 (84%)	45 (92%)	33 (80%)	38 (90%)	33 (79%)

Table C-3. TexasAIM Plus Severe Hypertension in Pregnancy Learning Collaborative Faculty, 2021

Name and Credentials
Carey Eppes, MD, MPH; TexasAIM Plus Severe Hypertension in Pregnancy Faculty Medical Director
Jamie Morgan, MD; TexasAIM Plus Severe Hypertension in Pregnancy Faculty Deputy Medical Director
Shad Deering, MD, CHSE, COL (ret) USA; Simulation Chair
Sue Butts-Dion; TexasAIM Improvement Advisor
Eleni Tsigas; Patient Advisor
Lisa Bennett, MSN, RN, CNM, NEA-BC
Carroll Deighton, MSN, RNC-OB, C-EFM
Shena Dillon, MD
Rakhi Dimino, MD, MMM, FACOG
Kendra Fohl, MSN, RN, RNC-OB, C-ONQS, CPHQ, CSSBB
Mindy Foster, RN
CheyAnne Harris, MSN, RN, RNC-OB
James Hill, MD, COL (ret) USA
Jennifer Huber, MSN, RN, RNC-OB
Nicole Lee Plenty, MD, MPH
Paula Smith, DO

Name and Credentials
Latricia M Thompson, MD
Brook Thomson, MD
Heather Walker, MSN, RN, RNC-OB, C-EFM, C-ONQS
Lashauntee Wellington, MSN, RN, RNC-OB, C-ONQS

Table C-4. TexasAIM Severe Hypertension in Pregnancy Process (P) and Structure (S) Measures

Measure	Description
P-AIM-1	During this reporting period, (A) the number and (B) the type of obstetrics (OB) drills conducted for any patient safety topic.
P-AIM-2	What cumulative proportion of OB physicians and midwives has completed an education program within the last two years on severe hypertension/preeclampsia unit-standard protocols and measures?
P-AIM-3	What cumulative proportion of OB nurses has completed an education program within the last two years on severe hypertension/preeclampsia unit-standard protocols and measures?
P-AIM-4	What proportion of mothers with acute-onset severe hypertension were treated within one-hour from initial severe range blood pressure with an antihypertensive medication? (For Plus teams, data are stratified by race and ethnicity).
P-TX-3	Among mothers with acute onset severe hypertension with at least one major complication, what proportion of cases included a multidisciplinary team debrief as soon as feasible following the event?
P-TX-4	What proportion of mothers during their birth admission received written or verbal education regarding severe hypertension in pregnancy?

P-TX-5a	What proportion of mothers with acute-onset severe hypertension had a follow-up appointment scheduled for within three to five days after discharge?
P-TX-5b	What proportion of mothers with acute-onset severe hypertension received written or verbal education about their condition and the long-term risks?
S-AIM-1	Has your hospital developed OB specific resources and protocols to support patients, family, and staff through major OB complications?
S-AIM-2	Has your hospital established a system in your hospital to perform regular formal debriefs after cases with major complications? (Major complications will be defined by each facility based on volume, with a minimum being The Joint Commission Severe Maternal Morbidity Criteria).
S-AIM-3	Has your hospital established a process to perform multidisciplinary systems-level reviews on cases of severe maternal morbidity (including, at a minimum, birthing patients admitted to the ICU or receiving ≥ 4 units red blood cell transfusions)? Beginning with data reported for Q2 2021, this metric measures whether a hospital has established a system to do multidisciplinary review of SMM based on The Joint Commission criteria for a sentinel event. Data collected for this metric prior to Q2 2021 measured multidisciplinary case reviews of sentinel events as well as diagnoses of venous thromboembolism.
S-AIM-HTN 5	Were some of the recommended Severe HTN/Preeclampsia Bundle processes (i.e., order sets, tracking tools) integrated into your hospital's electronic health record system?
S-TX-a. Patient and Family Support	Has your hospital developed OB specific resources and protocols to support patients and families throughout severe hypertension/preeclampsia complications?
S-TX-b. Staff Support	Has your hospital developed OB specific resources and protocols to support staff throughout severe hypertension/preeclampsia complications?

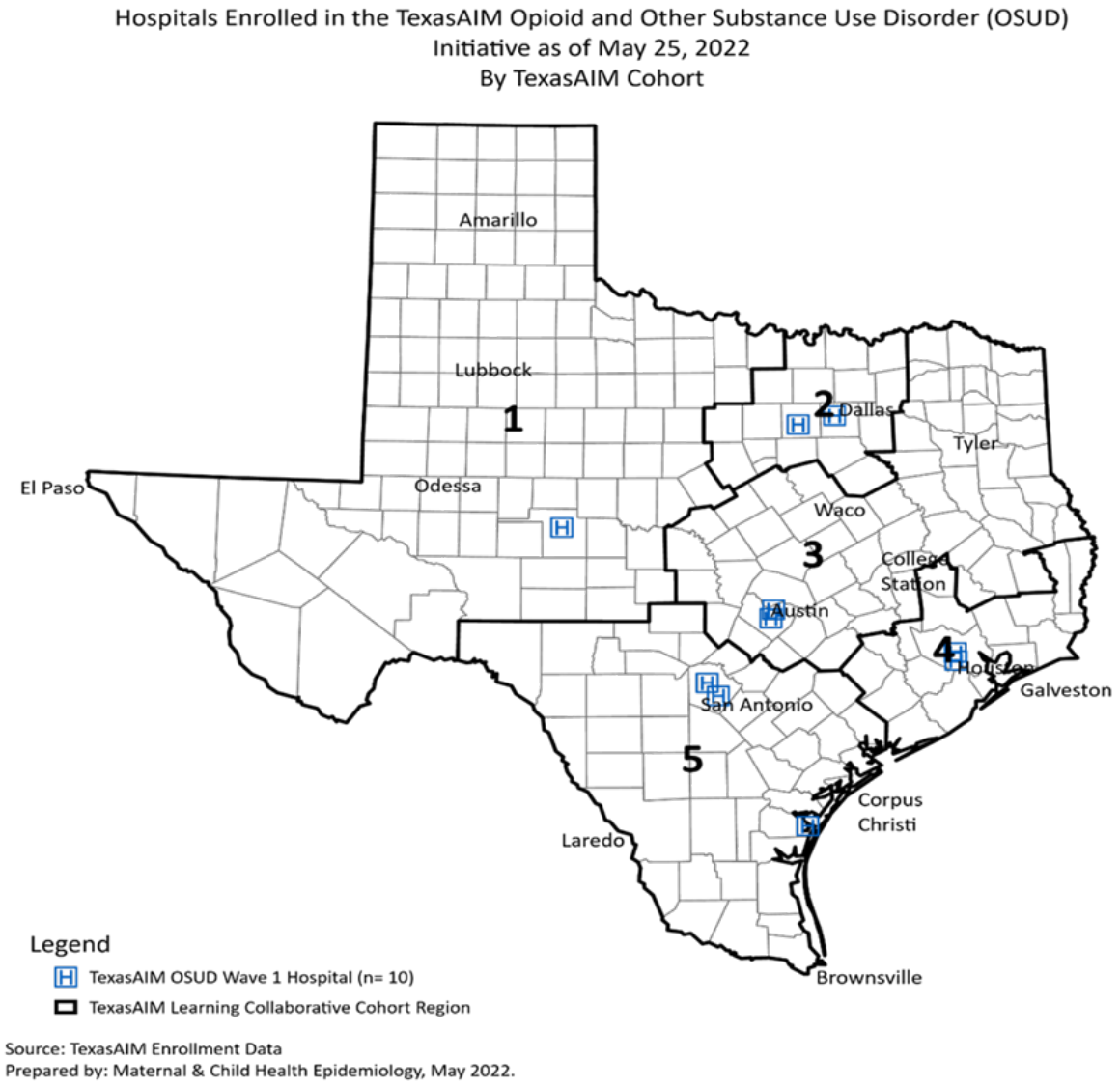
S-TX-c. Culture of Equitable Health Care	Does your hospital foster a culture of equitable health care with systems in place for reporting, response, and learning?
S-TX-d. Culture of Drills	Does your hospital systematically and routinely plan for and conduct unit-based drills–including debrief–related to severe hypertension/preeclampsia?
S-TX-e. Debriefs	Has your hospital established a system to perform regular formal debriefs after severe hypertension/preeclampsia cases with major complications?
S-TX-f. Multidisciplinary Case Review	Has your hospital established a process to perform multidisciplinary systems-level reviews on all cases of severe maternal morbidity?
S-TX-g. Policy and Procedure	Does your hospital have a severe hypertension/preeclampsia policy and procedure that provides a unit-standard approach to measuring blood pressure and providing treatment and medications?
S-TX-h. Emergency Department Staff Education	Does your hospital ensure that emergency department nurses and physicians are educated about severe HTN in pregnancy, maternal hypertension protocols, and unit-based drills with debriefs?
S-TX-i. Hypertension Education For All Patients	Does your hospital have a policy and process to provide preeclampsia education for all patients (not just patients with severe hypertension) including, at a minimum: • Signs and symptoms of severe HTN/preeclampsia during hospitalization that alert the patient to seek immediate care; • Signs and symptoms of severe HTN/preeclampsia after discharge that alert the patient to seek immediate care; and • When to schedule a post discharge follow-up appointment?
S-TX-j. Patient Engagement	Are patients, caregivers, or families actively involved in the design, delivery, and evaluation of health services to improve the quality of care in your hospital?
S-TX-k. EHR Integration-Bundle Processes	Were some of the recommended severe HTN/preeclampsia Bundle processes integrated into your hospital electronic medical records system?

S-TX-I. EHR Integration-Race, Ethnicity and Language Demographic Data	Has your hospital integrated a system to collect accurate and reliable data on the individual patient's race, ethnicity, and preferred spoken and written language into your electronic health record system?
AIM National Outcome Measures-O1	Severe maternal morbidity among all delivery hospitalizations excluding ectopic pregnancies and miscarriages.
AIM National Outcome Measures-O2	Severe maternal morbidity among all delivery hospitalizations excluding ectopic pregnancies and miscarriages (excluding cases with only a transfusion code).
AIM National Outcome Measures-O3	Severe maternal morbidity among preeclampsia cases.
AIM National Outcome Measures-O4	Severe maternal morbidity (excluding cases with only a transfusion code) among preeclampsia cases.
TexasAIM Outcome Measures-O-TX-1	Unit-collected severe maternal morbidity (excluding cases with only a transfusion code) among preeclampsia cases (lead measure)*.

* Data are stratified by race and ethnicity

Appendix D. Obstetric Care for People with Opioid and Other Substance Use Disorders (OSUD) Initiative

Figure D-1. Hospitals Enrolled in the OSUD Initiative, May 2022



PREPARED BY: Maternal and Child Health Epidemiologists (MCHE), Community Health Improvement (CHI) Division, Department of State Health Services (DSHS). DATA SOURCE: Hospital Inpatient Discharge Research Data File, 2016-2020. Birth Files, 2016-2020. Center for Health Statistics (CHS), DSHS. NOTES: 2018-2020 Birth Files are provisional. Severe Maternal Morbidity (SMM) calculated using the Updated Alliance for Innovation on Maternal Health (AIM) SMM Codes List, v08-09-2021. The SMM National Workgroup recently advised calculating SMM using SMM indicators while excluding blood transfusion-only cases. Previously reported SMM rates may not be comparable. See: saferbirth.org/wp-content/uploads/Updated-AIM-SMM-Code-List_10152021.xlsx.