



Maternal Health and Safety Initiatives

**As Required by
Texas Health and Safety Code,
Section 34.0156**



TEXAS
Health and Human
Services

**Texas Department of
State Health Services**

December 2018

Table of Contents

Executive Summary	1
1. Introduction	3
2. Background	4
3. DSHS Maternal Safety Initiatives.....	6
4. TexasAIM	9
Collaboration and Partnerships	9
Participation	10
Implementing the <i>Obstetric Hemorrhage Bundle</i>	11
The <i>Obstetric Care for Women with Opioid Use Disorder Bundle</i> Pilot	16
Sustainability and Future Implementation.....	18
5. Recommendations	19
6. Conclusion	19
List of Acronyms	21
Appendix A. California Maternal Mortality Rate.....	A-1
Appendix B. TexasAIM Obstetric Hemorrhage Measures	B-1
Appendix C. DSHS' Exceptional Item related to TexasAIM	C-1

Executive Summary

[Health and Safety Code, Section 34.0156](#), tasks the Department of State Health Services (DSHS) to report on their efforts in creating a maternal health and safety initiative to promote and facilitate the use of maternal health and safety informational materials among Texas health care providers. DSHS is to submit a summary of maternal health and safety initiative's outcomes and recommendations for improving its effectiveness report to the Executive Commissioner of Health and Human Services Commission (HHSC) by December 1 of each even-numbered year.

DSHS conducts multiple public health initiatives aimed at improving maternal outcomes. DSHS has organized these initiatives within a framework called Healthy Texas Mothers and Babies (HTMB). HTMB activities include facilitating the Maternal Mortality and Morbidity Task Force and the Texas Collaborative for Healthy Mothers and Babies, and implementing the TexasAIM initiative.

DSHS launched the TexasAIM initiative in December 2017. The TexasAIM initiative is a partnership between DSHS, the Alliance for Innovation on Maternal Health, and the Texas Hospital Association to support Texas hospitals in adopting maternal safety bundles. DSHS is starting TexasAIM with the rollout of the *Obstetric Hemorrhage Bundle*, followed by the *Obstetric Care for Women with Opioid Use Disorder Bundle* and the *Severe Hypertension in Pregnancy Bundle*.

As of October 2018, DSHS has recruited 201 hospitals to participate in the TexasAIM *Obstetric Hemorrhage Bundle*. Participating hospitals represent more than 85 percent of all the hospitals with obstetric services in Texas (approximately 84 percent of state births or 8.4 percent of national births). Of the 201 participating hospitals, 163 are participating in the TexasAIM Plus Obstetric Hemorrhage Learning Collaborative. The Learning Collaborative is designed to accelerate implementation through shared learning between hospital improvement teams.

DSHS is partnering with the HHSC Substance Use Disorder Unit to pilot the *Obstetric Care for Women with Opioid Use Disorder Bundle* in ten selected hospitals across the state. DSHS and HHSC plan to begin implementing the bundle statewide in 2020.

DSHS recommends HHSC's continued support of the TexasAIM Initiative to ensure program success.

1. Introduction

Women face many potential health risks during and after pregnancy. Maternal safety is a term used to describe the strategies, practices, and policies that seek to prevent death or serious injury resulting from pregnancy.

[Health and Safety Code, Section 34.0156](#), tasks the Department of State Health Services (DSHS) to develop a maternal health and safety initiative to promote and facilitate the use of maternal health and safety informational materials among Texas health care providers. Materials may include tools and procedures related to best practices in maternal health and safety.

DSHS is to submit this report to the Executive Commissioner of the Health and Human Services Commission (HHSC) no later than December 1 of each even-numbered year. In the report, DSHS must include a summary of their efforts to implement a maternal safety initiative, outcomes, and any recommendations for improving initiative effectiveness.

The purpose of this report is to fulfill the requirements of 34.0156. In this report, DSHS will

- provide information on current DSHS maternal safety initiatives,
- describe the development and execution of the TexasAIM initiative,
- outline future steps in TexasAIM implementation, and
- make recommendations to the HHSC Executive commissions on how to improve initiative effectiveness.

2. Background

In recent years, there has been increased focus on maternal mortality and morbidity in Texas. In response, the Texas Legislature passed [Senate Bill \(SB\) 495, 83rd Texas Legislature, Regular Session, 2013](#) to establish the Maternal Mortality and Morbidity Task Force (MMMTF), with administrative support from the Department of State Health Services (DSHS). MMMTF reviews and studies cases of maternal death and trends in severe maternal morbidity, identifies trends and disparities, reviews best practices, and makes recommendations to reduce the incidence of pregnancy-related death and severe maternal morbidity in Texas.

DSHS has analyzed statewide trends, rates, risk factors, and disparities in maternal deaths and severe maternal morbidity, in alignment with Health and Safety Code, Chapter 34. The 2018 Maternal Mortality and Morbidity Task Force and DSHS Joint Biennial Report, DSHS epidemiologists completed an analysis of confirmed maternal deaths from 2012-2015 and found that cardiac events, hemorrhage, and hypertension/eclampsia were the leading causes of death during pregnancy and in the early postpartum period.¹

The DSHS analysis also found that drug overdose was the leading cause of maternal death during the first year after delivery. Most overdose deaths occurred after 2 months postpartum. Among all overdose deaths, 66 percent (N=42) involved a combination of drugs and 58 percent (N=37) were associated with opioids.

The DSHS analysis of statewide trends, together with findings from the MMMTF's review of maternal death cases, emphasize the need for a maternal health and safety initiative consistent with SB 17. The 2018 Maternal Mortality and Morbidity Task Force and DSHS Joint Biennial Report also recommended actions to "promote a culture of safety and high reliability through implementation of best practices in birthing facilities."²

DSHS examined best practices and programs operating in other states that have reduced rates of the most preventable and leading causes of maternal morbidity

¹ dshs.texas.gov/Legislative/Reports-2018.aspx.

² dshs.texas.gov/Legislative/Reports-2018.aspx.

and mortality, and determined the Alliance for Innovation on Maternal Health (AIM) Program as the most promising approach for Texas.

Since 2014, the Maternal and Child Health Bureau-Health Resource Services Administration has funded AIM. AIM is a national program that helps hospitals, medical staff, and communities use evidence-based strategies, clinical tools, and procedures to improve maternal safety and healthcare quality. Strategies are grouped into AIM Bundles, with each focusing on a specific maternal health and safety topic.

Research has shown that using a collaborative model for implementing AIM Bundles can be effective in significantly reducing rates of severe maternal morbidity.³ States that began participation in AIM in 2015 have begun to report progress in improving maternal health outcomes.⁴ Additionally, California observed a 50 percent decrease in their maternal mortality rate during a period of active learning-collaborative implementation for obstetric hemorrhage and preeclampsia bundles (see [Appendix A](#)).

DSHS has long focused on efforts to reduce maternal mortality and morbidity in Texas. In this report, DSHS will describe the agency's efforts through the Healthy Texas Mothers and Babies framework, with a focus on current activities for statewide AIM Bundle implementation.

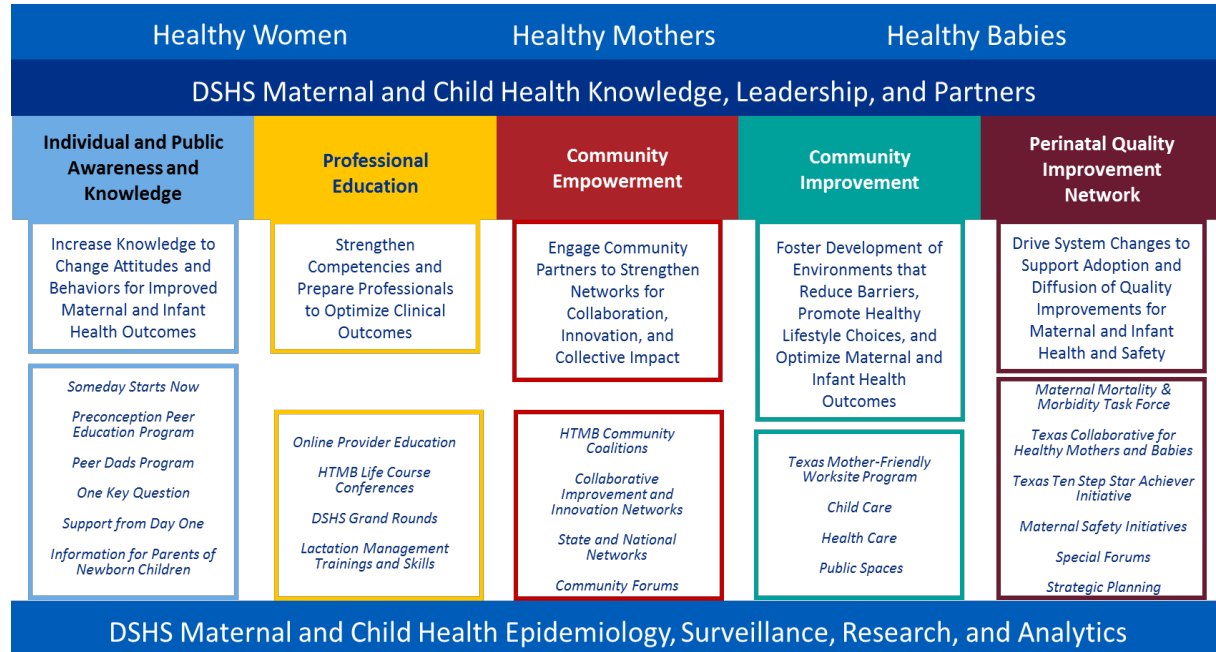
³ Main EK, Cape V, Abreo A, Vasher J, Woods A, Carpenter A, Gould JB. Reduction of severe maternal morbidity from hemorrhage using a state perinatal quality collaborative. *Am J Obstet Gynecol.* 2017;216(3):298.e1-298.e11.

⁴ *Maternal Morbidity & Mortality.* (n.d.) Retrieved from Health Resources & Service Administration: hrsa.gov/maternal-mortality/index.html

3. DSHS Maternal Safety Initiatives

The Department of State Health Services (DSHS) works on multiple public health initiatives aimed at making pregnancy safer for Texas mothers. DSHS organized these initiatives within a framework called Healthy Texas Mothers and Babies (HTMB), which is funded by the Title V Block Grant.⁵ The core components of the HTMB Framework are to 1) increase public awareness and knowledge, 2) provide professional education, 3) empower and improve communities, and 4) establish an ongoing Perinatal Quality Improvement Network (see Figure 2).⁶

Figure 2. Healthy Texas Mothers and Babies Framework



The HTMB Framework

The HTMB framework includes the following activities.

⁵ 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 & well-being of our nation’s mothers, children and families.

⁶ A perinatal quality improvement network is a state or multi-state network of teams working to improve the quality of care for mothers and babies.

Maternal Mortality and Morbidity Task Force

[Health and Safety Code, Section 34.002](#) established the MMMTF. The 17-member multidisciplinary Task Force, administered by DSHS, reviews and studies cases of maternal death and trends in severe maternal morbidity, identifies trends and disparities, reviews best practices, and makes recommendations to reduce the incidence of pregnancy-related death and severe maternal morbidity in Texas. DSHS and the Task Force published the Maternal Mortality and Morbidity Task Force and Department of State Health Services Joint Biennial Report on September 1, 2018.⁷

Texas Collaborative for Healthy Mothers and Babies (TCHMB)

DSHS facilitates the TCHMB, the state’s perinatal quality collaborative. The TCHMB seeks to advance health care quality and patient safety for all Texas mothers and babies, through the collaboration of health and community stakeholders in the development of joint quality improvement initiatives, the advancement of data-driven best practices, and the promotion of education and training.

TCHMB goals include reducing preterm birth and infant mortality, improving and reducing disparities in the health outcomes of mothers and babies, reducing maternal mortality and severe maternal morbidity, increasing involvement of fathers and families, and improving women’s health throughout the life cycle. The TCHMB Executive Committee includes multi-disciplinary health professionals and representatives of the March of Dimes, DSHS, Health and Human Services Commission (HHSC), and the Department of Family and Protective Services.

Maternal Morbidity and Mortality Forum

On September 30, 2017, DSHS, in coordination with HHSC and the Texas Medical Association, facilitated a Maternal Morbidity and Mortality Forum to bring together multi-disciplinary professionals interested in reducing maternal mortality in Texas. During the forum, DSHS provided education on the issue and formed workgroups to create action plans for evidence-based initiatives throughout the state.

⁷ dshs.texas.gov/Legislative/Reports-2018.aspx.

Additional HTMB Activities

DSHS is also involved in the following maternal safety activities as a part of the HTMB framework.

- Promoting online provider-education modules that provide health care professionals with knowledge and resources to improve the health of women before and during pregnancy.
- Facilitating the DSHS/HHSC Maternal Mortality and Morbidity Workgroup that includes leadership from DSHS Community Health Improvement, HHSC Intellectual and Developmental Disabilities & Behavioral Health Services, HHSC Medicaid & CHIP Services, and HHSC Developmental & Independence Services.
- Coordinating a multi-component program of breastfeeding support to increase uptake of recommended practices and reduce known barriers to breastfeeding in healthcare, employment, and community settings.
- Providing preconception health and life planning tools through activities such as Someday Starts Now, the Preconception Peer Education program, and Healthy Texas Mothers and Babies local coalitions.
- Implementing maternal safety bundles through the TexasAIM Initiative.

4. TexasAIM

The Department of State Health Services (DSHS) launched the TexasAIM initiative in December 2017. The TexasAIM initiative is a partnership between DSHS, the Alliance for Innovation on Maternal Health (AIM), and the Texas Hospital Association (THA) to support Texas hospitals in adopting AIM-endorsed maternal safety bundles. DSHS' TexasAIM initiative is addressing leading causes of maternal death in Texas. As such, DSHS is starting TexasAIM with the *Obstetric Hemorrhage Bundle*, followed by the *Obstetric Care for Women with Opioid Use Disorder Bundle* and the *Severe Hypertension in Pregnancy Bundle*.

The goals of the TexasAIM initiative are to

- achieve participation from more than 75 percent of Texas hospitals with obstetric services;
- engage 50 percent or more participating hospitals with obstetric services in TexasAIM Plus Learning Collaboratives;
- support hospitals with obstetric services as they implement AIM bundles; and
- foster partnerships to develop and align infrastructure and resources to support TexasAIM.

Collaboration and Partnerships

DSHS convened the TexasAIM Implementation Workgroup in January 2018 to guide and facilitate the initiative. The workgroup 1) provides health systems expertise and facilitates linkages throughout the implementation process; 2) promotes recruitment and continued engagement of TexasAIM participants; and 3) participates in monthly workgroup calls. The workgroup includes representatives of the Maternal Mortality and Morbidity Task Force (MMMTF), the Perinatal Advisory Council, the American College of Obstetricians and Gynecologists, the Consortium of Texas Certified Nurse Midwives, Texas Collaborative for Healthy Mothers and Babies (TCHMB), the Texas Hospital Association (THA), the Texas Medical Association, the Texas Nursing Association, and other key partners.

DSHS partners with THA to implement TexasAIM. Through its clinical initiatives program, THA provides additional technical assistance and support for TexasAIM participants. THA also conducts initiative-wide webinars and hosts a data portal for the additional hospital measures. DSHS also works with the TCHMB to implement

the Maternal Early Warning Systems component of the *Obstetric Hemorrhage Bundle*. These components are described later in the report.

The Health and Human Services Commission (HHSC) is a vital partner, specifically the Health Development and Independence Services department, the Medicaid and CHIP Services department, and the Intellectual and Development Disabilities and Behavioral Health Services department. HHSC representatives actively participate on the TexasAIM Implementation Workgroup, recruited TexasAIM participants, and plan future partner activities.

DSHS also collaborates with HHSC's Delivery System Reform Incentive Payment (DSRIP) program. DSRIP provides incentive payments to Texas hospitals, physician practices, community mental health centers and local health departments for investments in delivery system reforms.

Under DSRIP, HHSC has developed targeted Measure Bundles where hospital and physician practices will earn DSRIP incentive payments based on their performance on the measures in their selected Measure Bundle(s). One of the Measure Bundles that DSRIP hospitals and physician practices may select is a bundle related to improved maternal care. Participation in TexasAIM is a component of the Improved Maternal Care Measure Bundle. Twenty-four hospitals are participating in TexasAIM because they selected this Measure Bundle under DSRIP.

Participation

Hospital participation in TexasAIM is voluntary. Hospitals can join the initiative at either the Basic or Plus level based on their desired level of involvement.

Hospitals that participate at Basic level receive the fundamental tools and support to adopt AIM bundles. These hospitals complete an intake assessment, form a quality improvement team, and report measures to the TexasAIM data portal. Basic participants also have access to quality improvement webinars, networking events, and technical assistance.

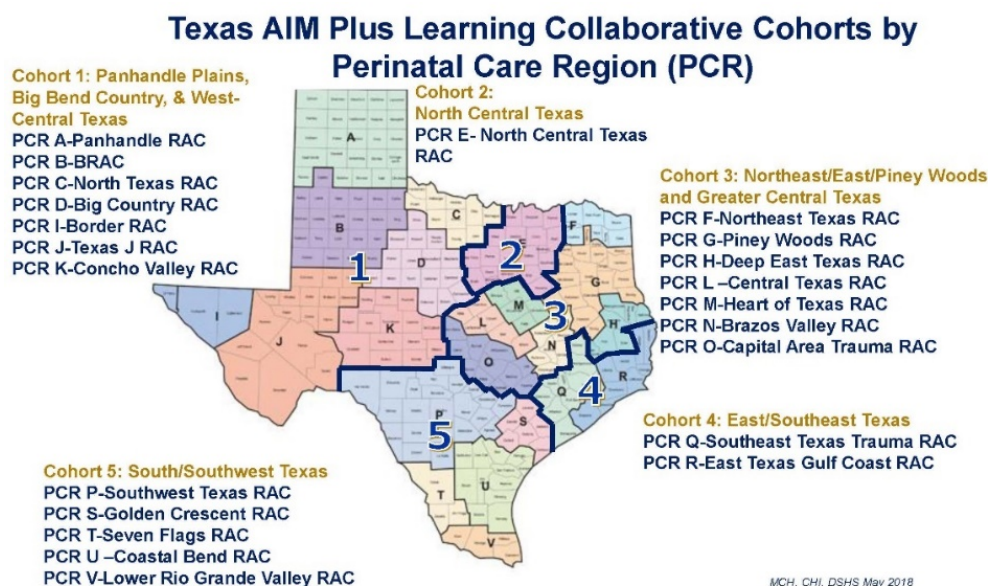
Hospitals at the Plus level receive enhanced technical assistance and participate as part of a Learning Collaborative.⁸ In the Learning Collaborative, hospitals receive

⁸ A Learning Collaborative is a systematic approach to process improvement based on the Institute for Healthcare Improvement Break-through Series Collaborative model. During the Collaborative, organizations will test and

specialized quality-improvement training from experts through in-person meetings, individualized coaching, peer-to-peer mentoring, and onsite technical assistance visits. Hospitals also identify goals and make plans to achieve them.

TexasAIM Plus hospitals are assigned to one of five geographic cohorts for in-person Learning Sessions. DSHS based cohorts on Public Health Service regions, Regional Advisory Council Perinatal Care Region territories, and enrollment (See Figure 3). Each cohort has approximately 30-40 participating hospitals.

Figure 3. TexasAIM Plus Learning Collaborative Cohorts by Perinatal Care Region



Hospitals join by completing an enrollment form. On the form, hospitals provide basic hospital information, identify their multi-disciplinary team, and select their participation level. The hospital’s chief executive officer must sign the enrollment form. The form can be found on the TexasAIM website at dshs.texas.gov/mch/texasaim/.

Implementing the *Obstetric Hemorrhage Bundle*

DSHS chose to start with the *Obstetric Hemorrhage Bundle* because hemorrhage is one of the most preventable causes of maternal death. In conversations with other

implement system changes and measure their impact. They will share their experiences to accelerate learning and broader implementation of best practices.

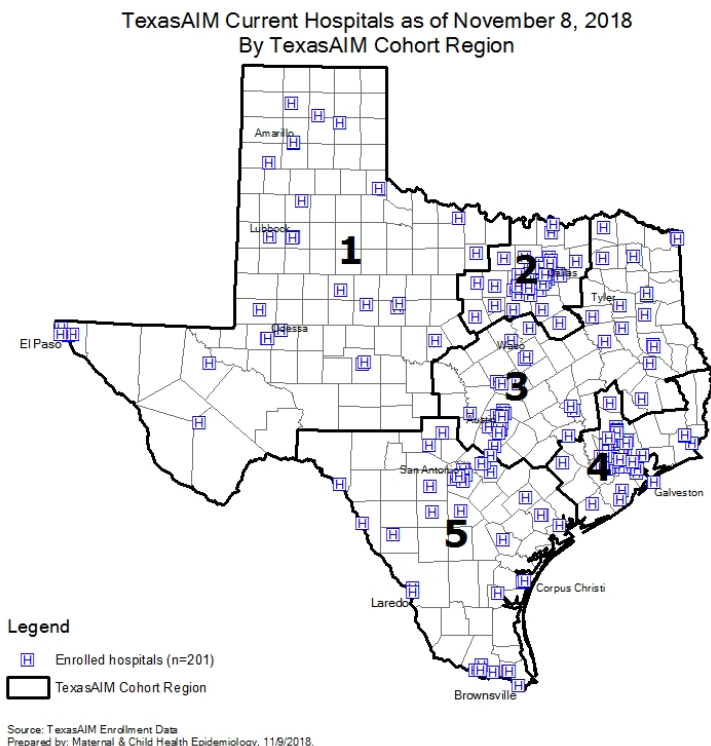
states, DSHS found that many saw success starting with the *Obstetric Hemorrhage Bundle*.

Recruitment

DSHS began recruiting hospitals in March 2018. DSHS hosted multiple informational webinars, sent emails and letters to hospital staff, and reached out to hospital executives.

As of November 8, 2018, DSHS has recruited 201 hospitals to participate in the *TexasAIM Obstetric Hemorrhage Bundle*. Participating hospitals represent more than 85 percent of all the hospitals with obstetric services in Texas, approximately 84 percent of the state births, and 8.4 percent of the national births. Of the 201 participating hospitals, 163 (81 percent) are participating at the Plus level. A list of participating hospitals can be found at dshs.texas.gov/mch/texasaim/. Figure 4 is a map of all participating hospitals.

Figure 4. TexasAIM Current Hospitals as of November 8, 2018 by TexasAIM Cohort Region



Data Collection

Participating hospitals are required to complete an intake assessment, as well as submit process, structure, and outcome measures. TexasAIM Plus hospitals also submit quality improvement measures.

TexasAIM Intake Assessment

DSHS developed the assessment in partnership with AIM National, TCHMB, THA, and University of Texas Population Health. The assessment consists of 34 questions on specific processes and policies for obstetric care. DSHS uses assessment responses to better support the needs and efforts of participating hospitals. DSHS will use a version of the assessment each year as another way to track hospital progress. As of September 30, 2018, 162 hospitals completed the intake assessment. The TCHMB analyzed data from the assessment and presented the findings to participating hospitals and key stakeholders.

Process, Structure, and Outcome Measures

AIM National operates a secure benchmarking and reporting registry, the AIM Data Center, for participating states to track process, structure, and outcome measures. DSHS utilizes the AIM Data Center for process, structure, and outcome measures because it meets DSHS operational requirements. With the AIM Data Center, hospitals can track their improvement and compare progress against similar, unidentified, Texas hospitals.

All participating hospitals submit process and structure measures quarterly to the AIM Data Center. Structure measures are one-time measures used to track hospital practices. Process measures record change over time through tracking activities. DSHS estimates data input to take 15 minutes per quarter. October 2018 was the first quarter of data submission.

DSHS collects outcome measures (hospital information on birth events). DSHS obtains outcome measure information through the Texas Hospital Inpatient Discharge Data File. DSHS collects this information under [Texas Health and Safety Code, Chapter 108](#) and [25 Texas Administrative Code, Section 421.1- 421.9](#). DSHS will submit the most currently available measures to the AIM Data Center on a quarterly basis. Data from the Public Use Data File are typically available approximately nine months after the end of each quarter, resulting in a three- to

four-quarter lag in available of data. DSHS will also submit annual outcome measures stratified by race/ethnicity.

Participating hospitals will be able to see their own hospital-identified data, as well as de-identified information from other hospitals to help them evaluate their performance. The process, structure, and outcome measures that will be collected for the Obstetric Hemorrhage Bundle are listed in [Appendix B](#).

TexasAIM Plus Additional Measures

To support hospitals with quality improvement and to provide more targeted technical assistance, THA will collect five additional quality improvement measures from TexasAIM Plus hospitals on a monthly basis through THA's data portal. DSHS will phase in the collection of these additional measures after the first learning sessions have concluded. The additional TexasAIM Plus quality improvement measures are listed in [Appendix B](#).

Activities

As of December 2018, DSHS hosted the TexasAIM Leadership Summit and Orientation, conducted a series of quality improvement webinars, and facilitated an in-person Learning Session meeting for each of the five TexasAIM Plus Learning Collaborative Cohorts.

DSHS held the TexasAIM Leadership Summit and Orientation June 4th, 2018, to kick-off the TexasAIM initiative with participating hospitals. At least one representative from over 150 enrolled hospitals attended the Summit. Representatives from the TexasAIM Implementation Workgroup, Maternal Mortality and Morbidity Task Force, Texas Collaborative for Healthy Mothers and Babies, Regional Advisory Councils, and national and state representatives of the American Congress of Obstetricians and Gynecologists also attended. Attendees learned from AIM experts from both in and outside the state, heard the stories of mothers and fathers who have experiences maternal mortality and morbidity, and taught each other how to enact change through TexasAIM.

DSHS also hosted the following monthly webinars with TexasAIM hospitals.

- TexasAIM Summit Make-Up Webinar - reviewed the TexasAIM Leadership Summit and Orientation on June 4th for hospitals and team members unable to attend.

- Gearing up for TexasAIM, Pre-work Webinar - reviewed TexasAIM Plus pre-work assignments.
- TexasAIM Data Collection and Basecamp Webinar - discussed how to access the TexasAIM Data portal and Basecamp.
- Quality Improvement Basics - introduced quality improvement techniques and strategies that can be used to implement the AIM Hemorrhage bundle.

Throughout November and December, DSHS traveled to five cohort locations to host the first TexasAIM Plus Learning Sessions. Learning Sessions are in-person meetings that create a space for hospitals to discuss their challenges and work together to find solutions. During the two-day Learning Sessions, hospitals

- were presented with the rationale for AIM Obstetric Hemorrhage Bundle components;
- applied improvement techniques to facilitate change within their hospital to promote maternal safety;
- used self-assessment data to prioritize activities; and
- developed initial improvement strategies to begin after the Learning Session.

Maternal Early Warning Systems Component

DSHS is partnering with TCHMB to implement a Maternal Early Warning Systems (MEWS) component of the Obstetric Hemorrhage Bundle. The MEWS initiative supports hospitals adopt an evidence-based protocol that will facilitate timely recognition, diagnosis, and treatment of developing critical illness in pregnant women to prevent death and injury. Essential components of an early warning system include: 1) maternal early warning criteria that prompt reporting to a clinician; and 2) an effective escalation process that prompts bedside evaluation by a clinician. DSHS will also use the MEWS component during the implementation of the *Severe Hypertension in Pregnancy Bundle*.

TCHMB hosted an *Introduction to Maternal Early Warning System (MEWS)* webinar for all TexasAIM participants. The webinar introduced MEWS as a vital component of the TexasAIM initiative and described two Texas hospitals' experiences with implementing MEWS.

Birthing Center Component

DSHS is developing a pilot project to support a small group of Texas Birthing Centers in implementing the *Obstetric Hemorrhage Bundle* because birthing centers deliver services unique from birthing hospitals, and require a unique

implementation strategy. From this pilot, DSHS plans to create a targeted TexasAIM implementation strategy that enhances the existing processes and data measures that Birthing Centers already perform. The pilot will focus on MEWS, including best practices and communication strategies for coordinating transfer of patients. DSHS' first goal is to select "Champion" Birthing Centers, who will develop and test effective TexasAIM programming.

The Obstetric Care for Women with Opioid Use Disorder Bundle Pilot

Unlike other AIM bundles that have been implemented in several states, the *Obstetric Care for Women with Opioid Use Disorder Bundle* is new and untested. In the past year, DSHS partnered with other states and AIM National to develop and finalize the bundle for release. The bundle also contains a unique need to partner with outpatient providers, which is not present in the other AIM bundles.

AIM National finalized and launched the bundle in August 2018. DSHS and HHSC's Substance Use Disorder Unit will pilot the bundle in ten selected hospitals across the state.

The goals of the *Obstetric Care for Women with Opioid Use Disorder Bundle* Pilot are to

- improve identification and care of women with opioid use disorder through screening and linkage to care;
- optimize medical care of pregnant women with opioid use disorder;
- increase access to medication-assisted treatment for pregnant and postpartum women with opioid use disorder;
- prevent opioid use disorder by reducing the number of opioids prescribed for deliveries; and
- optimize the care of opioid-exposed newborns by improving maternal engagement in infant management.

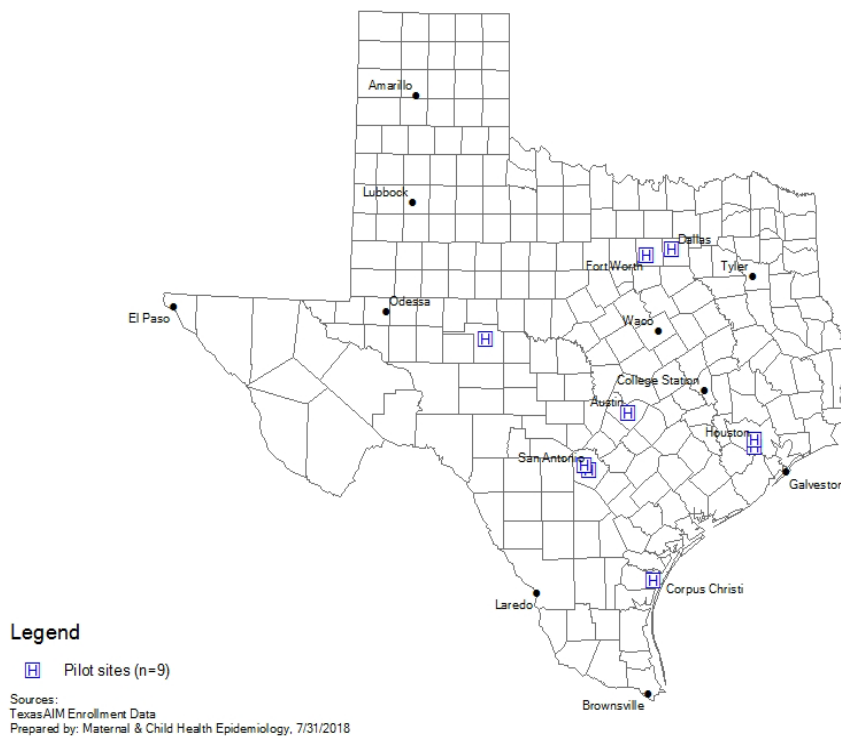
Recruitment

DSHS and HHSC targeted recruitment for this pilot to hospitals that have experience with implementing maternal opioid use disorder and Neonatal Abstinence Syndrome (NAS) activities, as well as hospitals with different outpatient provider infrastructures and partnerships. DSHS also ensured that both urban and

rural hospitals of different sizes were given the opportunity to participate (see figure 5).

Figure 5. Hospitals Participating in Obstetric Care for Women with Opioid Use Disorder Pilot Map

TexasAIM Opioid Bundle Pilot Sites as of July 25, 2018



Activities

Pilot hospitals are currently engaged in pre-work, which include identifying partners, assembling their project teams, and completing other tasks needed to test the bundle. AIM National plans to start national implementation with participating states to pilot the bundle in Fall 2018. DSHS plans to convene the pilot teams for an expert panel event by Spring of 2019, and to launch the first learning collaborative of the *Obstetric Care for Women with Opioid Use Disorder* Bundle for interested TexasAIM hospitals beginning in 2020.

Sustainability and Future Implementation

Statewide implementation of TexasAIM is a large undertaking that will continue to expand as hospitals engage in full-scale implementation and as more bundles are launched. While DSHS has been able to recruit participating hospitals and begin implementation of the *Obstetric Hemorrhage Bundle* with limited resources and staff, continuing to operate in this capacity as the program expands is not sustainable.

Though the Learning Collaborative portion of each bundle lasts 18-24 months, activities such as data entry, monitoring, analysis, and technical assistance will need to be ongoing. DSHS will also need to perform continuous statewide high-risk trend analysis to inform future bundle selection. DSHS will need additional resources to continue these processes as TexasAIM starts to identify and implement multiple bundles, beyond the three initially identified. Bundles will need to be implemented in a timely manner to reduce preventable severe maternal mortality and morbidity throughout Texas.

DSHS must identify additional resources to ensure statewide implementation of the *Obstetric Care for Women with Opioid Use Disorder Bundle* and the *Severe Hypertension in Pregnancy Bundle*. If DSHS is unable to secure additional resources, future TexasAIM implementation plans will be scaled down. Staff will not be able to effectively communicate with participating hospitals, develop future bundle programming, implement multiple bundles in a timely manner, or support hospitals post Learning-collaborative. This scenario could lead to participating hospitals leaving the initiative and decrease TexasAIM's overall effectiveness.

To sustain TexasAIM, and successfully implement multiple bundles in the future, DSHS is requesting additional resources through the Texas Legislature as an exceptional item. The exceptional item can be found in [Appendix C](#).

5. Recommendations

To guarantee effectiveness, DSHS recommends HHSC's continued support of the TexasAIM Initiative. Activities to support the initiative include the following.

Continuing to include TexasAIM as a component of HHSC' Delivery System Reform Incentive Payment (DSRIP) program.

DSRIP provides a unique opportunity for hospitals because it allows participating hospitals to receive compensation for quality improvement initiatives, including TexasAIM. TexasAIM can be used as a measure to promote long-term engagement and facility level quality improvement.

Promoting TexasAIM implementation and successes among external partners.

External partners play a vital role in TexasAIM's hospital recruitment and retention, and subject matter expertise. The promotion of TexasAIM among external partner will increase the agency's capacity and success of this initiative.

Investigating opportunities to alleviate barriers hospitals face in participating in TexasAIM.

DSHS staff are still identifying barriers that prevent hospitals from participating in TexasAIM. Once these barriers are identified, DSHS will work with HHSC to mitigate or resolve issues to increase hospitals participation.

Exploring opportunities for partnerships between DSHS and HHSC.

TexasAIM is built on partnerships, especially those between DSHS and HHSC. Additional opportunities for partnerships, such as information sharing, will inform program planning and future bundle selection.

6. Conclusion

The Department of State Health Services (DSHS), in collaboration with partners throughout Texas, has implemented multiple initiatives through their Healthy Texas Mothers and Babies (HTMB) Framework to improve maternal health and safety. One initiative in this framework is TexasAIM.

TexasAIM is a partnership between DSHS, the Alliance for Innovation on Maternal Health (AIM), and the Texas Hospital Association (THA) to support Texas hospitals adopt AIM-endorsed maternal safety bundles. TexasAIM is beginning with the *Obstetric Hemorrhage Bundle*, followed by the *Obstetric Care for Women with Opioid Use Disorder Bundle* and the *Severe Hypertension in Pregnancy Bundle*.

In carrying out the TexasAIM initiative, DSHS will

- achieve participation from more than 75 percent of Texas hospitals with obstetric services;
- engage 50 percent or more participating hospitals with obstetric services in TexasAIM Plus;
- support hospitals with obstetric services as they implement AIM bundles; and
- foster partnerships to develop and align infrastructure and resources to support TexasAIM.

As of December 2018, DSHS has hosted the TexasAIM Leadership Summit and Orientation, conducted quality improvement webinars, and facilitated in-person Learning Sessions for each of the five TexasAIM Plus Cohorts.

To guarantee effectiveness, DSHS recommends HHSC's continued support of the TexasAIM initiative. Activities to support the initiative include:

- continuing to include TexasAIM as a component of HHSC's Delivery System Reform Incentive Payment (DSRIP) program;
- promoting TexasAIM implementation and successes among external partners;
- investigating opportunities to alleviate barriers that hospitals have to participating in TexasAIM; and
- exploring opportunities for partnerships between DSHS and HHSC.

List of Acronyms

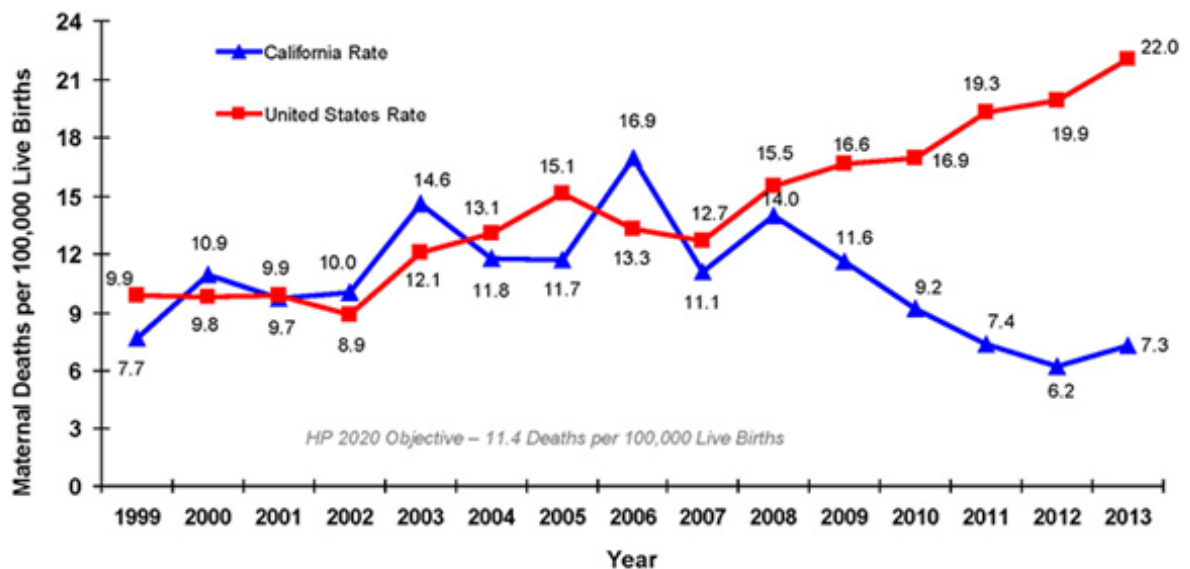
Acronym	Full Name
AIM	The Alliance for Innovation on Maternal Health
DSHS	Department of State Health Services
DSRIP	Delivery System Reform Incentive Payment
HHSC	Health and Human Services Commission
HTMB	Healthy Texas Mothers and Babies
MMMTF	Maternal Mortality and Morbidity Task Force
NAS	Neonatal Abstinence Syndrome
TCHMB	Texas Collaborative for Healthy Texas Mothers and Babies
THA	Texas Hospital Association
SB	Senate Bill

Appendix A. California Maternal Mortality Rate

Figure 1. California maternal mortality rate per 100,000 live births, 1999-2013



Maternal Mortality Rate, California and United States; 1999-2013



Source: Main EK. Reducing Maternal Mortality and Severe Maternal Morbidity Through State-based Quality Improvement Initiatives. Clin Obstet Gynecol. 2018;61(2):319-331.p 326. DATA SOURCE: State of California, Department of Public Health: Maternal Mortality (deaths during pregnancy or ≤ 42 d postpartum) was calculated using ICD-10 cause of death classification (codes A34, O00-O95, O98-O99).

Appendix B. TexasAIM Obstetric Hemorrhage Measures

Table 1: TexasAIM Obstetric Hemorrhage Measures

Measure	Description
Structure 1: Patient, Family & Staff Support	Has your hospital developed OB specific resources and protocols to support patients, family and staff through major OB complications?
Structure 2: Debriefs	Has your hospital established a system to preform regular formal debriefs after cases with major complications?
Structure 3: Multidisciplinary Case Reviews	Has your hospital established a process to perform multidisciplinary systems-level review on all cases of severe maternal morbidity?
Structure 4: Hemorrhage Cart	Does your hospital have OB hemorrhage supplies readily available, typically in a cart or mobile box?
Structure 5: Unit Policy and Procedure	Does your hospital have an OB hemorrhage policy and procedure that provides a unit-standard approach using a stage-based management plan with checklists?
Structure 6: EHR Integration	Were some of the recommended OB hemorrhage bundle processes integrated into your hospital EMR system?
Process 1: Unit Drills	P1a: How many OB drills were performed on your unit for any maternal safety topic? P1b: What were covered in the OB drills?
Process 2: Provider Education	P2a: What cumulative proportion of OB physicians and midwives has completed an education program on OB Hemorrhage? P2b: What cumulative proportion of OB physicians and midwives has completed an education program on OB Hemorrhage bundle elements and the unit-standard protocol?
Process 3: Nursing Education	P3a: What cumulative proportion of OB nurses had completed an education program on OB Hemorrhage? P3b: What cumulative proportion of OB nurses has completed an education program on OB hemorrhage bundle elements and the unit-standard protocol?

Measure	Description
Process 4: Risk Assessment	What cumulative proportion of mothers had a hemorrhage risk assessment with risk level assigned, performed at least once between admission and birth and shared among the team?
Process 5: Quantified Blood Loss	What proportion of mothers had measurement of blood loss from birth through the recovery period using quantitative and cumulative techniques?
TexasAIM Plus Measure 1	What cumulative proportion of mothers had a hemorrhage risk assessment with risk level assigned, performed at least once between admission and birth and shared among the team?
TexasAIM Plus Measure 2	For what cumulative proportion of hemorrhage cases with greater than 1,000 cc blood loss was a debrief session held and documented?
TexasAIM Plus Measure 3	For what cumulative proportion of hemorrhage cases with greater than 1,000 cc blood loss was a hand off report assessing for cumulative blood loss held and documented between labor and delivery and postpartum medical and nursing staff?
TexasAIM Plus Measure 4	What cumulative proportion of mothers had documented abnormal parameters per unit protocol and, among those, how many had appropriate escalation?
TexasAIM Plus Measure 5	How many units of blood product were transfused for maternal hemorrhage during the birth hospitalization per 1,000 mothers?

Appendix C. DSHS' Exceptional Item related to TexasAIM

Exceptional Item 4: Combat Maternal Mortality and Morbidity in Texas

FY 2020	FY 2021	Biennial Total	FTEs
\$3.5 M	\$3.5 M	\$7.0 M	8

Purpose: To build upon current efforts that help prevent the incidence of maternal mortality and morbidity among Texas women.

Background: Over the past two years, the Department of State Health Services (DSHS), in accordance with legislative direction, has been working with a wide variety of partners to address maternal mortality and morbidity in the state. An important component of this has been DSHS efforts to better classify the causes and contributing factors that lead to maternal deaths and complications.

Notably, per S.B. 17, 85th Legislature, First Called Session, 2017, DSHS has rolled out the TexasAIM program; a partnership with hospitals to promote evidence-based practices to prevent and respond to pregnancy complications. In the coming years, these efforts will help address episodes of hemorrhage that occur in the hospital, as well as severe hypertension and opioid use disorder during pregnancy.

While these efforts are well underway, data reveals additional prevention opportunities for improving maternal health outcomes and decreasing maternal mortality and morbidity. Both prenatally and at the time of delivery, opportunities exist for provider identification of high-risk factors, including chronic conditions, associated with an increased risk of maternal death.

DSHS requests funding to increase current TexasAIM efforts, to build public awareness about preventive measures, and to pilot programming to address

high risk factors and appropriate care coordination for woman of childbearing age.

Exceptional Item Details: This exceptional item would provide \$7.0 Million in General Revenue and 8 full time equivalent employees (FTEs) over the fiscal year 2020-2021 biennium to build on current efforts to improve maternal health outcomes in Texas.

- *Implement Maternal Safety Initiatives Statewide:* \$2.5M and 6 FTEs to promote and implement new TexasAIM maternal safety bundles statewide.

To combat maternal mortality and morbidity, DSHS is implementing TexasAIM, a statewide maternal safety initiative using the Alliance for Innovation in Maternal Health (AIM) Maternal Safety Bundles, in hospital and provider settings. DSHS will also provide stipends to hospitals who may need additional equipment and resources to fully implement AIM.

DSHS plans to implement expand upon maternal safety initiatives in response to evolving data and recommendations from entities such as the Maternal Mortality and Morbidity Task Force. However, DSHS does not have sufficient capacity or the necessary resources to effectively build on existing efforts without additional support.

Recognizing the opportunities ahead, DSHS is seeking funds to

- Ensure that maternal health programming is effective and outcomes oriented through additional training, staff, and data analysis; and
 - Provide a stipend to qualified hospitals so they can effectively participate in the TexasAIM program.
- *Implement a High Risk Care Coordination Pilot for Women of Childbearing Age:* \$3.5M and 2 FTEs to implement a pilot program which identifies or creates high-risk assessment tools, Community Health Worker (CHW) training modules, and provider education to ensure that women who have high risk factors are identified, receive appropriate communication of the risks, and are guided by a trained CHW who facilitates comprehensive coordination of care, including appropriate education on chronic disease risk factors, health care referrals, and continuity of care.

DSHS seeks funding to:

- Conduct a statewide assessment on current CHW training courses and create a high risk factor suite of trainings for CHWs that target women of childbearing age.
- Identify, adapt or create a risk assessment tool that accurately identifies medical, environmental, and psychosocial risk factors including behavioral health conditions such as depression and substance use disorder which will be conducted routinely and as part of prenatal care.
- Create and conduct provider education and promotion on the need for high-risk assessments and the assessment tool, as well as promote AIM Maternal Safety Bundles that deal with postpartum case basics for maternal safety in the ambulatory care setting (From Birth to the Comprehensive Postpartum Visit, and Transition from Maternity to Well-Women Care).
- *Increase Public Awareness and Prevention Activities:* \$1M to enhance provider and community understanding about maternal health risk factors, and preventive measures that can ensure that both mother and baby have the healthiest possible outcomes.