Statewide Initiatives to Improve Quality of Maternal Health Care

As Required by

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Executive Summary

Senate Bill (S.B.) 750, 86th Legislature, Regular Session, 2019, Section 3 requires the Texas Health and Human Services Commission (HHSC) to develop or enhance statewide initiatives to improve the quality of maternal health care services, specify initiatives contracted managed care organizations (MCOs) must implement to improve quality of maternal health care in Texas, and submit a report to the legislature summarizing progress. The bill also encourages MCOs to incorporate their own initiatives to improve maternal healthcare services.

S.B. 750 lists potential topics the initiatives may address, including prenatal and postpartum care rates, maternal health disparities for minority and high-risk women, social determinants of health (SDOH), or other agency priorities.

HHSC staff conducted a comprehensive environmental scan, including interviews with other states, and participated in an Innovation Accelerator Program (IAP) with the Centers for Medicare & Medicaid Services (CMS) on maternal mortality and severe maternal morbidity to determine effective initiatives. Based on this research and currently available data, HHSC is moving forward with the following statewide managed care initiatives to improve the quality of maternal health care services:

- Implementing new Pregnancy-Associated Outcome Measures,
- Assessing changes to MCO performance thresholds for prenatal appointment availability studies, and
- Implementing prenatal or postpartum performance improvement projects (PIPs) for minority or high-risk women.

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1. Introduction

Maternal mortality (MM) and severe maternal morbidity (SMM) continue to be a concern, both in Texas and nationally. National studies indicate inequities in maternal health outcomes are evident among under-insured and publicly-insured women; particularly among racial/ethnic minorities, women living in rural areas where availability of obstetric-gynecological (OB-GYN) care is low, and women living in poverty. These trends have prompted efforts by policymakers and other stakeholders to address maternal health in state Medicaid programs. In Texas, state legislative initiatives address maternal health in Medicaid, including directives included in S.B. 750.

S.B. 750, Section 3 requires HHSC to develop or enhance statewide initiatives to improve the quality of maternal health care services and outcomes for women in this state. HHSC shall specify the initiatives that each contracted MCO must incorporate in the organizations’ managed care plans. The initiatives may address:

- Prenatal and postpartum care rates;
- Maternal health disparities that exist for minority women and other high-risk populations of women in Texas;
- SDOH; or
- Other HHSC priorities.

MCOs may implement additional initiatives to improve the quality of maternal health care services for women enrolled in their plans.

This report details efforts to identify and implement important maternal healthcare initiatives in managed care to improve the lives of Texas Medicaid members.
2. Background

State Landscape

Medicaid covers 4.3 million Texans, and 33 percent are in the 15-64 age groups that include women of childbearing ages. Medicaid pays for more than half (53 percent) of Texas births and plays a critical role in reducing rates of maternal mortality and morbidity.x

A 2018 Joint Report by the Maternal Mortality and Morbidity Task Force (MMMTF) (since renamed as the Maternal Mortality and Morbidity Review Committee) found that 68.5 percent of maternal deaths in 2012 were among women with Medicaid coverage at delivery. According to the Texas Maternal Mortality and Morbidity Review Committee definitions, maternal morbidity is a pregnancy-related health condition occurring during pregnancy, labor, or delivery or within one year of delivery or end of pregnancy. Similarly, SMM is a maternal morbidity that constitutes a life-threatening condition.xi The Healthy Texas Mothers and Babies Data Book indicates that the SMM rate in Texas remains relatively stable since 2009.xii

The top causes of maternal death in Texas between 2012 and 2015 were drug overdose, cardiac events, homicide, suicide, and infection/sepsis.xiii The Joint Report and the Texas Department of State Health Services (DSHS) found that African-American women had the greatest risk for maternal death in 2012, and this increased risk existed regardless of income, education, marital status or other health conditions.xiv Also in 2018, a report by the Texas External Quality Review Organization (EQRO) found higher rates of SMM and hemorrhage among black women, consistent with findings from the MMMTF-DSHS 2018 report.xv A 2019 report found that African Americans are disproportionately affected by SDOH such as housing, food insecurity, and education, and low access to health insurance in Texas.xvi Moreover, the toll of ongoing stress is especially harmful to birth outcomes in African-American families.

Texas Quality Initiatives

HHSC uses quality measures to assess MCO performance in providing services to improve birth outcomes including: prenatal and postpartum care, low birthweight, potentially preventable complications, and access to contraception. These metrics are reported by program, MCO, and service area on the Texas Healthcare Learning Collaborative portal. Table 1 describes the maternal health quality measures and
how they are used to improve outcomes. Each quality initiative uses multiple measures that pull from a diverse data set to ensure MCOs are held accountable.

Table 1: Maternal Health Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
<th>Use</th>
</tr>
</thead>
</table>
| Prenatal and Postpartum Care² (Healthcare Effectiveness Data and Information Set) | Two sub-measures:  
  ● Timeliness of Prenatal Care - The percentage of deliveries that received a prenatal care visit as a member of the MCO in the first trimester, on the enrollment start date or within 42 days of enrollment.  
  ● Postpartum Care - The percentage of deliveries that had a postpartum visit on or between 21 and 56 days after delivery. | STAR MCO report cards  
  2018 STAR P4Q At-Risk Measure  
  2018-2019 Performance Improvement Projects (PIPs)  
  CMS Core Measure reporting |
| Low Birthweight (Centers for Disease Control and Prevention) | The percentage of live births that weighed less than 2,500 grams | 2018-2019 and 2020 STAR P4Q Bonus Pool measure CMS Core Measure reporting |
| Potentially preventable complications (3M potentially preventable events) | An in-hospital complication—not present on admission—that might result from insufficient care or treatment rather than from natural progression of the underlying disease. Complications for obstetric reasons can be identified. | 2018-2019 and 2020 STAR+PLUS P4Q Bonus Pool measure |

² The National Committee for Quality Assurance (NCQA) has changed this measure for HEDIS 2020 (calendar year 2019) in the following significant ways:  
  ● Postpartum care now includes visits that occur on or between 7 and 84 days after delivery (old specifications counted visits on or between 21 and 56 days)  
  ● Timeliness of prenatal care now includes prenatal care visits that occurred before enrollment in the MCO  
  ● The continuous enrollment criteria changed from 56 days to 60 days after delivery  
  ● The types of visits that can be counted have been changed
<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical Cancer Screening (Healthcare Effectiveness Data and Information Set)</td>
<td>The percentage of women 21 to 64 years of age who were screened for cervical cancer using either of the following criteria:  ● Women age 21 to 64 who had a cervical cytology performed every three years  ● Women age 30 to 64 who had a cervical cytology/human papillomavirus (HPV) co-testing performed every five years</td>
<td>2018-2019 and 2020 STAR+PLUS P4Q at-risk measure</td>
</tr>
<tr>
<td>Contraceptive care - All women (Centers for Disease Control and Prevention)</td>
<td>Among women ages 15 to 44 at risk of unintended pregnancy, the percentage that: Were provided a most effective or moderately effective method of contraception. Were provided a long-acting reversible method of contraception (LARC).</td>
<td>CMS Core Measure reporting</td>
</tr>
<tr>
<td>Contraceptive care – postpartum (Centers for Disease Control and Prevention)</td>
<td>Among women ages 15 to 44 who had a live birth, the percentage that:  ● Were provided a most effective or moderately effective method of contraception within 3 and 60 days of delivery.  ● Were provided a long-acting reversible method of contraception (LARC) within 3 and 60 days of delivery.</td>
<td>CMS Core Measure reporting</td>
</tr>
</tbody>
</table>

**Appointment Availability Study**

Title 4, [Texas Government Code, Section 533.0063](https://www.gpo.gov/fdsys/cgi-bin/getdoc?dbname=usfr&docid=fr2008-312.pdf) directed HHSC to establish and implement a process for direct monitoring of a STAR or CHIP MCO’s provider network, including the length of time a recipient must wait between scheduling an appointment with a provider and receiving treatment from the provider. To fulfill this direction, HHSC and Texas’ EQRO conduct appointment availability studies which use a “mystery shopper” methodology to examine member experience in scheduling appointments. As part of this study, appointment wait-times are evaluated by MCO for routine prenatal care, high-risk prenatal care, and prenatal care for a new member in the third trimester. MCOs who do not meet appointment availability standards are subject to corrective action plans.

**Performance Improvement Projects**

To ensure compliance with [Title 42, Code of Federal Regulations, Section 438.330](https://www.gpo.gov/fdsys/cgi-bin/getdoc?dbname=usfr&docid=fr2008-312.pdf), HHSC requires that MCOs conduct two, two-year PIPs per program. One of these
PIPs must be completed in collaboration with another MCO, a Delivery System Reform Incentive Payment provider, or a community-based organization. One of the 2018 PIP topics for all STAR plans, STAR Health, and three STAR+PLUS plans was improving the timeliness of prenatal care and/or the rate of postpartum care, while the other PIP topics focused on children. HHSC encouraged MCOs to address a subtopic or subpopulation with their PIPs. Subtopics and subpopulations for 2018 PIPs included: women with or at risk of depression, pregnant women with substance use disorders, and improving care for African American women. These PIPs were implemented January 1, 2018 and concluded December 31, 2019. Final reports of these PIPs should be available at the end of 2020. More information about current PIPs can be found on the HHSC website.

**Medical Pay-for-Quality Program**

The Pay-for-Quality (P4Q) program creates financial incentives and disincentives for MCOs based on their performance on a set of quality measures. A percentage of a MCO’s capitation is at-risk based on their performance on a number of key metrics, including prenatal and postpartum care for STAR in 2018. A low birth weight measure is also part of 2018 and 2019 STAR P4Q program but does not carry financial risk to health plans.

HHSC removed the prenatal and postpartum care measure from the 2019 STAR At-Risk measures and made it a bonus pool measure for STAR in 2020 because of changes to the measure specifications. Bonus pool measures allow health plans to earn additional funds without financial risk. This allows HHSC to account for the impact to the program of the specification changes while continuing to measure the MCOs’ performance related to prenatal and postpartum care and drive toward improvements.

**Texas Senate Bill 17**

As required by Section 8, S.B. 17, 85th Legislature, First Called Session, 2017, HHSC studied the feasibility of adding the Alliance for Innovation on Maternal Health (AIM) maternal safety bundles as an indicator of quality for HHSC’s data and medical assistance quality-based payment purposes. HHSC commissioned the EQRO to conduct a report to examine ways to leverage current data to assess maternal morbidity. The AIM measures are designed for a hospital setting and were deemed inappropriate to apply at the MCO level. The 2018 S.B. 17 report indicated that the AIM maternal morbidity measures may be useful as a baseline for developing an approach to evaluate maternal health outcomes at the MCO level. Based on these findings, HHSC commissioned a set of Pregnancy-Associated Outcome Measures discussed below in initiatives.
**3. Statewide Initiatives**

HHSC conducted an environmental scan of other states addressing prenatal and postpartum care rates, maternal health disparities, and SDOH. Most states that have implemented maternal health initiatives on prenatal and postpartum care rates also extended Medicaid coverage for pregnant women, and therefore target the post-partum period that is not covered in Texas Medicaid. These states implemented initiatives focused on follow-up for chronic conditions, postpartum depression, and substance use issues. Additionally, some states have used general revenue funds to encourage MCO activities in addressing SDOH. Many of these activities focused on SDOH and maternal health disparities are in their infancy and do not yet have any significant results.

Texas is on the forefront of quality performance measurement in SMM, as no other state has yet to develop a way to measure SMM at the MCO level. Texas will continue to monitor the progress of other states’ initiatives and look for ways to incorporate lessons learned into managed care, as appropriate.

In coordination with DSHS, external partners and stakeholders, and informed by participation in the CMS Medicaid Innovation Accelerator Program (IAP), HHSC is implementing the following initiatives responsive to the requirements of S.B. 750.

**Pregnancy-Associated Outcome Measures**

**Measures**

HHSC is implementing three custom measures inspired by the AIM bundles. While DSHS’ TexasAIM initiative is geared toward hospitals, these measures focus on MCOs. There are no national measures addressing SMM at this time, and research conducted by the Texas EQRO has indicated appropriate prenatal care has a significant impact on hemorrhage and preeclampsia rates. The measures capture:

- The proportion of SMM cases among all deliveries.
- The proportion of SMM cases among deliveries having hemorrhage.
- The proportion of SMM cases among deliveries with preeclampsia.

HHSC presented these measures to the DSHS/HHSC Women and Children Health Collaborative, the HHSC Value-Based Payment Quality Improvement Advisory Committee, the Texas Collaborative for Healthy Mothers and Babies, and the Maternal Mortality and Morbidity Review Committee for feedback. Additionally,
HHSC solicited public comment on these measures from October 2019 to April 2020.

Feedback was overwhelmingly positive, with the main criticism focused on including transfusions in these measures. Transfusion is the most common indication of maternal delivery complication. In a majority of cases, it is the only indicator. While the implications can be serious, when considering severe morbidity, excluding transfusions can provide a clearer picture of other conditions and events contributing to SMM. HHSC has addressed this issue by including sub measures for each measure that removes transfusions.

**Technical Assistance**

In March 2020, HHSC was selected to participate in the CMS Medicaid IAP Technical Assistance to Reduce MM and SMM.

This IAP sought to help Medicaid agencies develop effective and sustainable partnerships, build technical expertise in using data on MM and SMM, and identify actionable insights from data. Texas was one of seven states selected to receive targeted technical assistance for up to six months. In addition to HHSC, the Texas team included DSHS, the Texas Children’s Health Plan, and the Texas EQRO. Federal regulations require that each state Medicaid agency must contract with an EQRO to provide an annual external independent review of quality outcomes, timeliness of services, and access to services provided by Medicaid MCOs and dental maintenance organizations (DMOs). The Texas EQRO is the Institute for Child Health Policy at the University of Florida.

The Texas team revised the SMM measure specifications based on recommendations provided by the IAP coach team’s measurement subject matter expert (SME), who has over 15 years of progressive experience in health services research, covering a wide range of health sectors, with a focus on the development of comparative quality information. For reference, these specifications are included in Appendix A: Technical Specifications for Pregnancy-Associated Outcome Measures.

**Reporting**

The Pregnancy Associated Outcome Measures will be added to the Texas Healthcare Learning Collaborative portal\(^3\) in 2021 and considered for the medical Pay-for-Quality program.

\(^3\) [https://thlcportal.com/](https://thlcportal.com/)
Performance Improvement Projects (PIPs)

The Texas Medicaid and CHIP EQRO evaluates PIPs from each MCO and DMO in accordance with state and federal regulations. Projects must be designed to achieve significant improvement, sustained over time, in health outcomes and enrollee satisfaction.

PIPs are an integral part of Texas Medicaid's 1115 waiver quality improvement strategy. The Balanced Budget Act of 1997 requires all states with Medicaid managed care to ensure MCOs and DMOs conduct PIPs.

To select the PIP topics, HHSC works with the EQRO to review MCO and DMO performance on quality measures and identify areas needing improvement. MCOs and DMOs are required to begin a two-year PIP each year for each Medicaid managed care program. As a result, plans have at least two PIPs in progress in any given year, and some plans may have many PIPs running concurrently.

At least one PIP must be conducted in collaboration with another MCO, DMO, Delivery System Reform Incentive Payment provider, or community-based organization. Collaborative PIPs address joint interventions, including member and provider communications and other strategies which may have a greater system-wide impact.

MCOs and DMOs must submit a PIP plan, annual progress reports, and a final report, all of which are evaluated by the EQRO. Beginning with the 2019 PIPs, MCOs and DMOs that do not submit their PIPs in accordance with contractual requirements will be subject to contract remedies, including corrective action plans and liquidated damages.

Prenatal and Postpartum PIPs

The 2018 PIP topic for all STAR plans, STAR Health, and three STAR+PLUS plans was improving the timeliness of prenatal care and/or the rate of postpartum care for minorities. These PIPs were implemented January 1, 2018, and concluded December 31, 2019, with final reports due in late 2020.

HHSC will require MCOs to share lessons learned, successes, and failures on the PIPs that targeted prenatal and postpartum care rates for minorities by Spring 2021. Additionally, HHSC will provide MCOs with national resources, interventions, and best practices.
The 2022 PIPs will focus on SDOH for pregnant members and reducing health disparities. In addition, MCOs with low prenatal and postpartum care rates will be required to target improvement on these measures in their 2022 PIPs.

**Prenatal Appointment Availability Study Thresholds**

The Medicaid managed care contracts require that all members have access to all covered services on a timely basis, consistent with medically appropriate guidelines and accepted practice parameters. Refer to Table 2 for the appointment availability standards by type of care.

Table 2. Appointment Standards Defined in the Texas Medicaid Managed Care Contracts

<table>
<thead>
<tr>
<th>Type of Care</th>
<th>Time to Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent Care (child and adult)</td>
<td>Within twenty-four (24) hours</td>
</tr>
<tr>
<td>Routine Primary Care (child and adult)</td>
<td>Within fourteen (14) calendar days</td>
</tr>
<tr>
<td>Preventive Health Services for New Child Members</td>
<td>No later than ninety (90) calendar days of enrollment</td>
</tr>
<tr>
<td>Initial Outpatient Behavioral Health Visits (child and adult)</td>
<td>Within fourteen (14) calendar days</td>
</tr>
<tr>
<td>Preventive Health Services for Adults</td>
<td>Within ninety (90) calendar days</td>
</tr>
<tr>
<td>Prenatal Care (not high-risk)</td>
<td>Within fourteen (14) calendar days</td>
</tr>
<tr>
<td>Prenatal Care (high-risk)</td>
<td>Within five (5) calendar days</td>
</tr>
<tr>
<td>Prenatal Care (new member in 3rd trimester)</td>
<td>Within five (5) calendar days</td>
</tr>
<tr>
<td>Vision Care (ophthalmology, therapeutic optometry)</td>
<td>None indicated (“Access without primary care provider referral”)</td>
</tr>
</tbody>
</table>

Since 2015, HHSC has been evaluating the length of time a recipient must wait between scheduling an appointment with a provider and receiving treatment through the Appointment Availability studies. The Texas Medicaid and CHIP EQRO conducts appointment availability studies for behavioral health, prenatal, primary care, and vision providers. The studies use direct “mystery shopper” calls to an MCOs’ enrolled providers to assess whether MCOs provide Texas Medicaid members timely appointments.
**Increased Prenatal Appointment Availability Thresholds**

HHSC evaluated MCOs’ compliance with OB/GYN prenatal appointment standards in 2015, 2016, 2018, and 2020. The prenatal appointment availability standards and performance thresholds are outlined below. HHSC uses the performance thresholds for contract oversight. MCOs with performance below the threshold are subject to contract remedies, including corrective action plans and liquidated damages. These thresholds have been the same since 2015.

Although not all MCOs are meeting the current thresholds, HHSC is assessing changes to the standards for compliance with prenatal care appointment timelines. Table 3: Prenatal Appointment Availability Thresholds

<table>
<thead>
<tr>
<th>Level/Type of Care</th>
<th>Standard: Time to Treatment (Calendar Days)</th>
<th>Current Threshold</th>
<th>Providers Meeting Current Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Risk Pregnancies</td>
<td>Within 14 calendar days</td>
<td>85%</td>
<td>73%</td>
</tr>
<tr>
<td>High-Risk Pregnancies</td>
<td>Within 5 calendar days</td>
<td>51%</td>
<td>28%</td>
</tr>
<tr>
<td>New Members in the Third Trimester</td>
<td>Within 5 calendar days</td>
<td>51%</td>
<td>58%</td>
</tr>
</tbody>
</table>

The proposed thresholds were developed based on MCOs’ historic performance and in consideration of this vulnerable risk group.
4. Conclusion

HHSC is committed to improving the quality of maternal health care in Texas Medicaid. Implementing the new Pregnancy-Associated Outcome Measures, assessing changes to the prenatal appointment availability thresholds, and requiring prenatal and postpartum PIPs for minority and high-risk pregnancies will contribute to improved maternal healthcare for women in Texas Medicaid.
# List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIM</td>
<td>The Alliance for Innovation on Maternal Health</td>
</tr>
<tr>
<td>CHIP</td>
<td>Children’s Health Insurance Program</td>
</tr>
<tr>
<td>CMS</td>
<td>Centers for Medicare &amp; Medicaid Services</td>
</tr>
<tr>
<td>DMO</td>
<td>Dental Maintenance Organization</td>
</tr>
<tr>
<td>DSHS</td>
<td>Texas Department of State Health Services</td>
</tr>
<tr>
<td>EQRO</td>
<td>External Quality Review Organization</td>
</tr>
<tr>
<td>HHSC</td>
<td>Health &amp; Human Services Commission</td>
</tr>
<tr>
<td>IAP</td>
<td>Innovation Accelerator Program</td>
</tr>
<tr>
<td>ICHP</td>
<td>The Institute for Child Health Policy</td>
</tr>
<tr>
<td>MCO</td>
<td>Managed Care Organization</td>
</tr>
<tr>
<td>MM</td>
<td>Maternal Mortality</td>
</tr>
<tr>
<td>MMMTF</td>
<td>Texas Maternal Mortality and Morbidity Task Force</td>
</tr>
<tr>
<td>OB-GYN</td>
<td>Obstetric-Gynecological</td>
</tr>
<tr>
<td>P4Q</td>
<td>Pay for Quality</td>
</tr>
<tr>
<td>PIPs</td>
<td>Performance Improvement Projects</td>
</tr>
<tr>
<td>S.B.</td>
<td>Senate Bill</td>
</tr>
<tr>
<td>SDOH</td>
<td>Social Determinants of Health</td>
</tr>
<tr>
<td>SME</td>
<td>Subject Matter Expert</td>
</tr>
<tr>
<td>SMM</td>
<td>Severe Maternal Morbidity</td>
</tr>
<tr>
<td>STAR</td>
<td>State of Texas Access Reform</td>
</tr>
</tbody>
</table>
Appendix A. Technical Specifications for Pregnancy-Associated Outcome Measures

SEVERE MATERNAL MORBIDITY UPDATED AUGUST 2020

DESCRIPTION
The percentage of deliveries associated with Severe Maternal Morbidity (SMM). Six rates are reported (2 rates for each of 3 denominator groups):

- SMM Among All Deliveries (2 rates)
  - All SMM
  - SMM excluding cases identified only by transfusion
- SMM Among Deliveries with Hemorrhage (2 rates)
  - All SMM
  - SMM excluding cases identified only by transfusion
- SMM Among Deliveries with Preeclampsia
  - All SMM
  - SMM excluding cases identified only by transfusion

Definitions for delivery, denominator groups, and SMM follow those in AIM4 Maternal Safety Bundles.

DEFINITIONS

Delivery Encounter: Paid institutional encounter with any diagnosis or procedure codes in the AIM Denominator – Birth Admit Codes list

Delivery Date: The encounter service start date for the delivery encounter is used as the delivery date.

Multiple deliveries: Births from one pregnancy are counted in one delivery. Multiple deliveries should only be counted for a woman when they are separated by at least seven months.

Delivery Interval: The time in months from a delivery date to a previous delivery date for a woman.

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4 The Alliance for Innovation on Maternal Health (AIM) provided this information on outcome measures in the Patient Safety Bundles for Obstetric Hemorrhage and Severe Hypertension/Preeclampsia. https://safehealthcareforeverywoman.org/patient-safety-bundles/#tab-maternal
**Required Delivery Gap:** The delivery interval between multiple eligible delivery encounters for a woman must be at least seven months (following requirements in the Texas Medicaid Provider Procedures Manual\(^{vii}\)).

**Perinatal Period:** Seven days prior to the delivery date through 42 days after the delivery date.

**Perinatal Encounters:** All paid encounters during the perinatal period (institutional and professional) contribute to identification of denominator exclusions, denominator groups, and numerators.

**ELIGIBLE DELIVERIES**

Eligible deliveries are identified using the diagnosis or procedure codes in the AIM Denominator – Birth Admit Codes list and the AIM Denominator – Exclusions list.

Follow these steps below to identify eligible deliveries.

1. Identify delivery encounters with delivery date on or between June 1 of the year prior to the measurement year and December 31 of the measurement year (the measurement year plus a seven-month lookback period to confirm a preceding delivery gap).
2. Exclude delivery encounters from step 1 having any associated perinatal encounter with diagnosis or procedure codes in the AIM Denominator – Exclusion list. *Note: Perinatal encounters for delivery encounters in step 1 can include service dates from May 25 of the year prior to the measurement year through February 11 of the year following the measurement year.*
3. Calculate delivery intervals for women with multiple delivery encounters after step 2.
4. Exclude delivery encounters with delivery intervals less than the required delivery gap.
5. From remaining delivery encounters after step 4, select only those with delivery date during the measurement year.

**DENOMINATOR GROUPS**

Rates are calculated for three denominator groups selected from the eligible deliveries.

**All Deliveries:** All eligible deliveries in the measurement year (after denominator exclusions and delivery gap exclusions).
**Deliveries with Hemorrhage:** From the All deliveries denominator group, select those with any perinatal encounter having any diagnosis or procedure codes in the AIM Denominator – Hemorrhage list.

*Transfusion should not be used as the only identification of hemorrhage in the case of Sickle Cell diagnosis (Sickle Cell diagnoses for this exclusion are also found in Transfusion is in both the hemorrhage denominator and all SMM numerator definitions.)*

**Deliveries with Preeclampsia:** From the All deliveries denominator group, select those with any perinatal encounter having a diagnosis or procedure codes in the AIM Denominator – Preeclampsia list.

**NUMERATORS**

For each denominator group, rates are calculated for all cases of SMM, and for cases of SMM excluding those identified only by transfusion.

*Transfusion is in both the hemorrhage denominator and all SMM numerator definitions. Transfusion is frequently the only SMM identifier for deliveries in all the denominator groups.*

**All SMM:** Among the selected delivery group, those with any perinatal encounter having a diagnosis or procedure codes in the AIM Numerator Codes xviii list.

**SMM Excluding Transfusion Only (SMM ExTrx):** Starting with the deliveries among the All SMM numerator, exclude those ONLY identified for the numerator with a procedure code in the Blood products transfusion indicator list.

**RATE CALCULATION**

Rates are the percentage of denominator deliveries also meeting the numerator definition.

<table>
<thead>
<tr>
<th>Reported Rate</th>
<th>Denominator Group</th>
<th>Numerator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall – SMM Among All Deliveries</td>
<td>All Deliveries</td>
<td>All SMMs</td>
</tr>
<tr>
<td>SMM ExTrx Among All Deliveries</td>
<td>All Deliveries</td>
<td>SMM Excluding Transfusion Only</td>
</tr>
<tr>
<td>SMM Among Deliveries with Hemorrhage</td>
<td>Deliveries with Hemorrhage</td>
<td>All SMMs</td>
</tr>
<tr>
<td>Reported Rate</td>
<td>Denominator Group</td>
<td>Numerator</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>---------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>SMM ExTrx Among Deliveries with Hemorrhage</td>
<td>Deliveries with Hemorrhage</td>
<td>SMM Excluding Transfusion Only</td>
</tr>
<tr>
<td>SMM Among Deliveries with Preeclampsia</td>
<td>Deliveries with Preeclampsia</td>
<td>All SMMs</td>
</tr>
<tr>
<td>SMM ExTrx Among Deliveries with Preeclampsia</td>
<td>Deliveries with Preeclampsia</td>
<td>SMM Excluding Transfusion Only</td>
</tr>
</tbody>
</table>
Appendix B. References


viii. ACOG. 2014. Health Disparities in Rural Women. ACOG Committee Opinion, Number 586, February 2014. Available at: https://www.acog.org/-


xi. Texas Health and Safety Code, Section 34.001, related to Texas Maternal Mortality and Morbidity Review Committee definitions

xii. 2019 Healthy Texas Mothers and Babies Data Book, p. 50.


