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Medical Center

extending Maternal Care After Pregnancy (eMCAP):

An Initiative to Address Health Care Disparities and Enhance Access to Care After Delivery

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Disclosures

- No personal disclosures or conflicts of interest.
- The eMCAP program is a partnership sponsored by Parkland Health and UT Southwestern Department of Obstetrics and Gynecology.
- Community-based partnerships established through Parkland Health.
- Dallas Healthy Start participating in eMCAP program.
- Hamon Charitable Foundation has provided donation to support the eMCAP program.
- University of Texas Southwestern Medical Center's Program for the Development and Evaluation of Model Community Health Initiatives in Dallas (PDEMCHID) awarded to eMCAP program.
- Support from HHS Racial Equity in Postpartum Care Challenge.

Objectives

1. Explain the characteristics of the collective responses to maternal mortality crisis.

2. Review findings from Texas Maternal Mortality Review Committees from 2018, 2020, and now 2022.

3. Describe a demonstration project targeting an underserved community for postpartum care.

Causes of maternal death in the United States

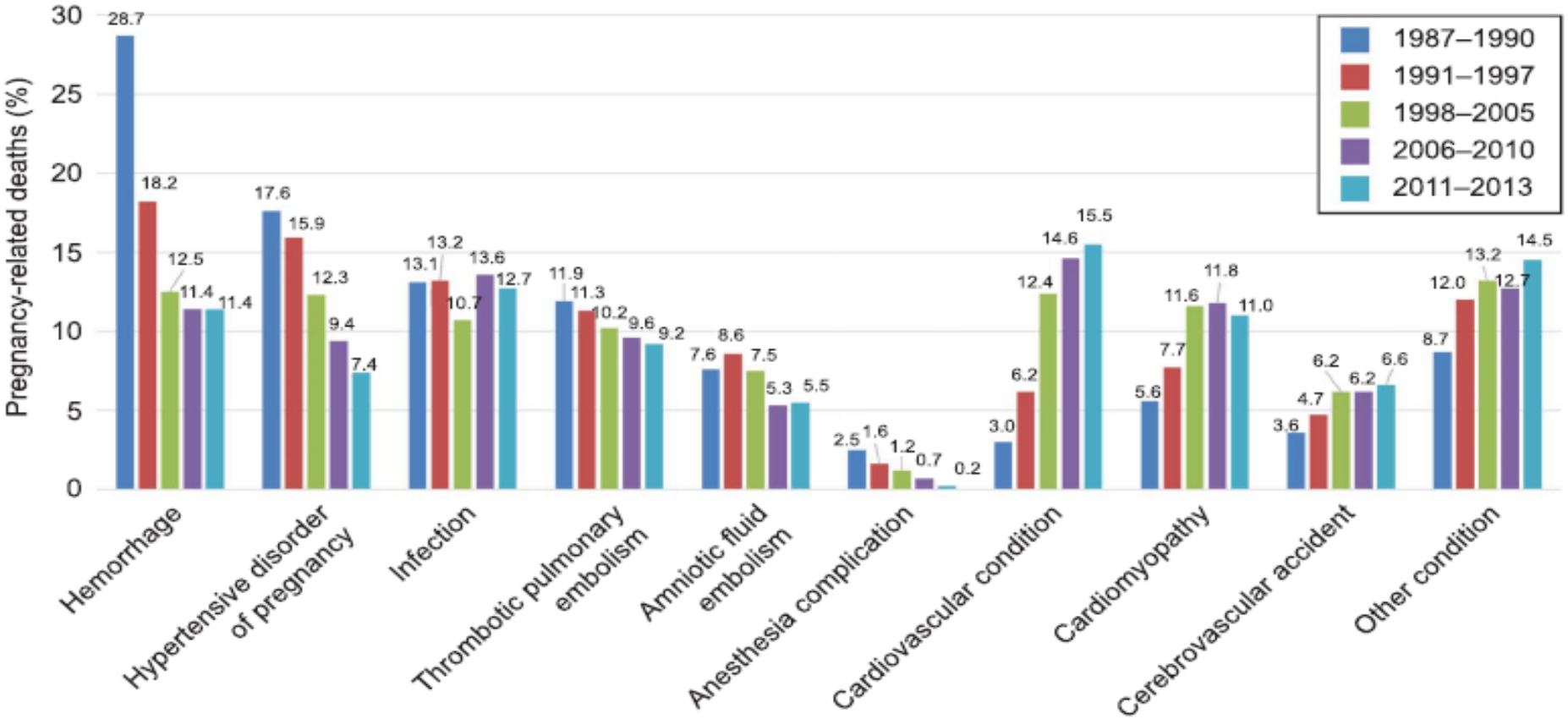

Figure 2. Population-level, cause-specific proportionate pregnancy-related mortality for 1987–1990, 1991–1997, 1998–2005, 2006–2010, and 2011–2013. Results are population-level and can be compared as absolute values.

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Creanga AA, et al. Obstet Gynecol. 2017

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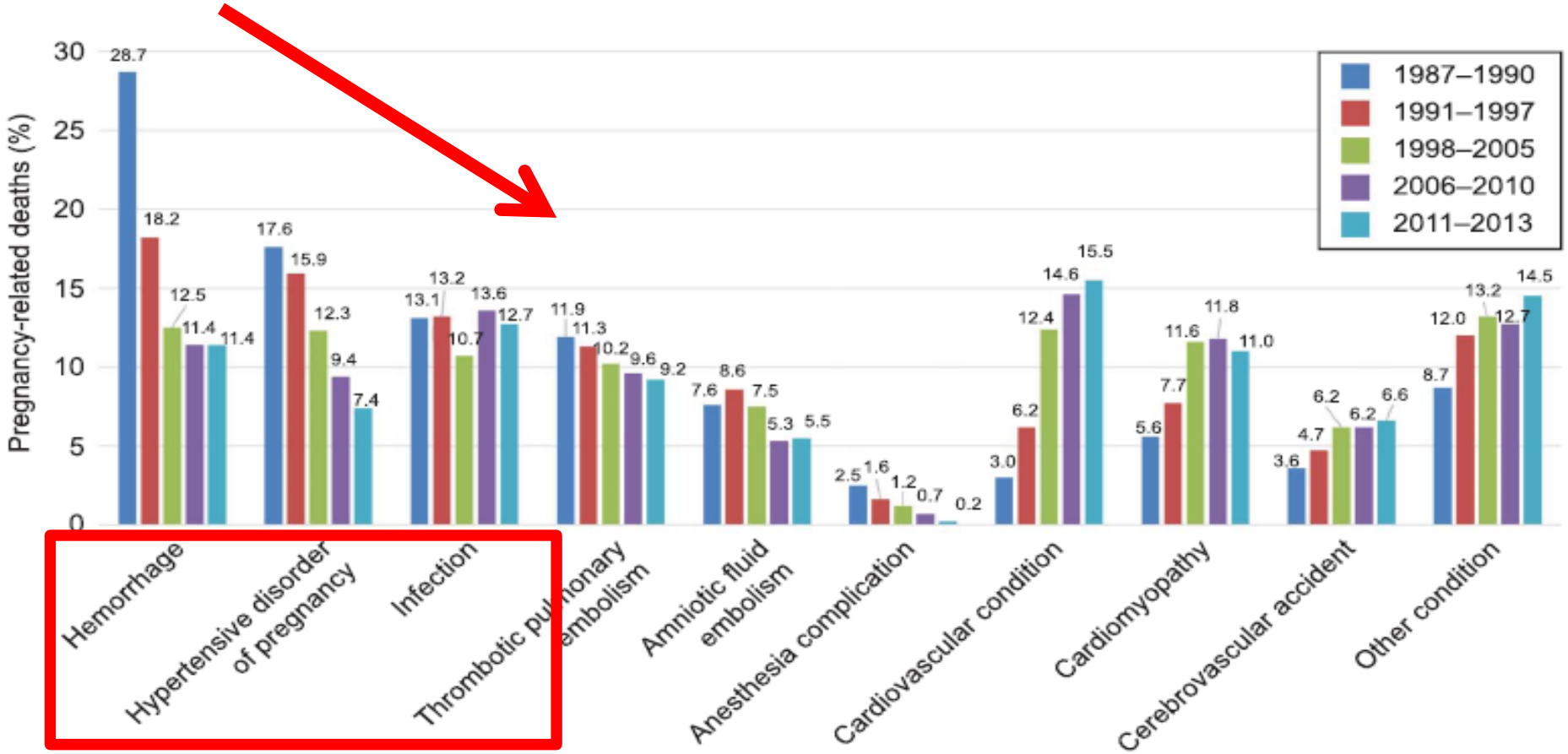

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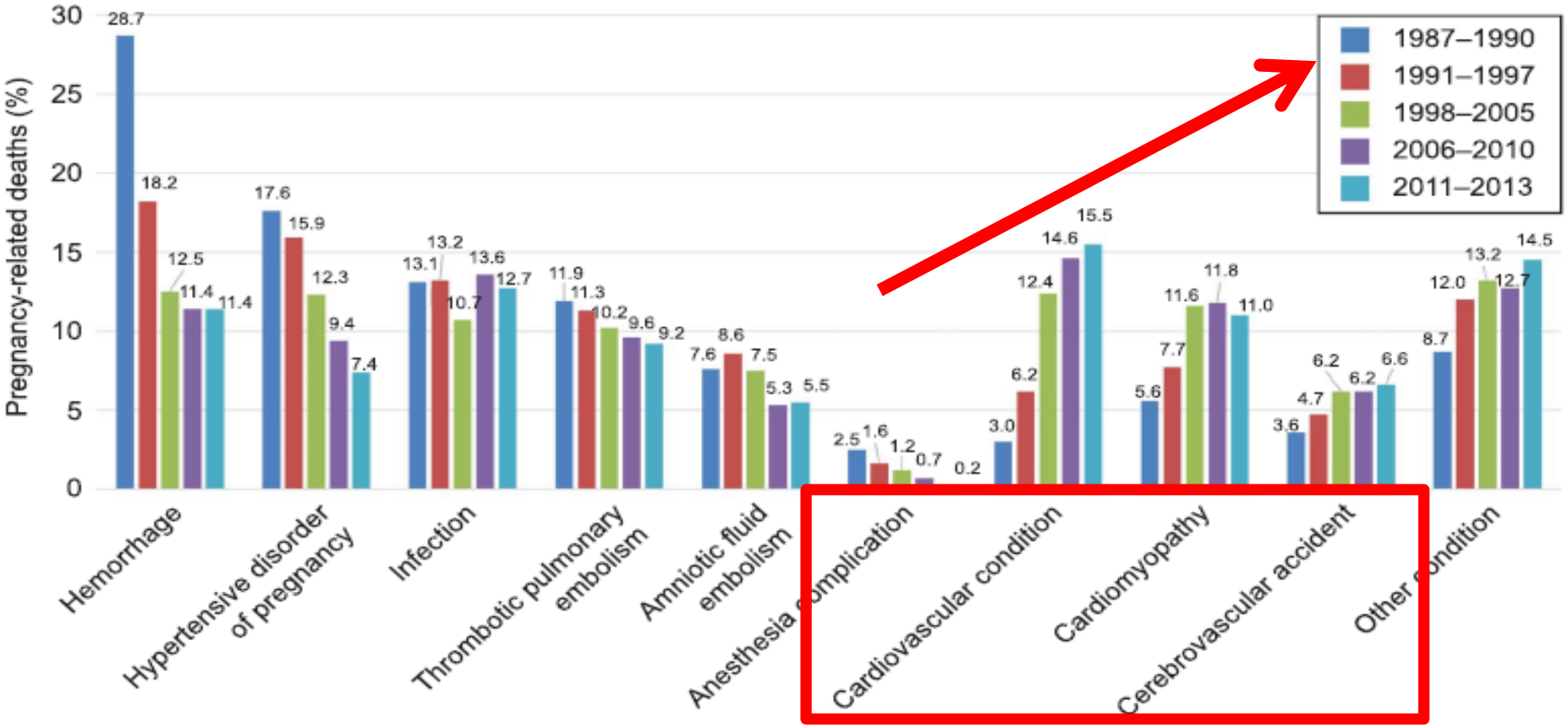

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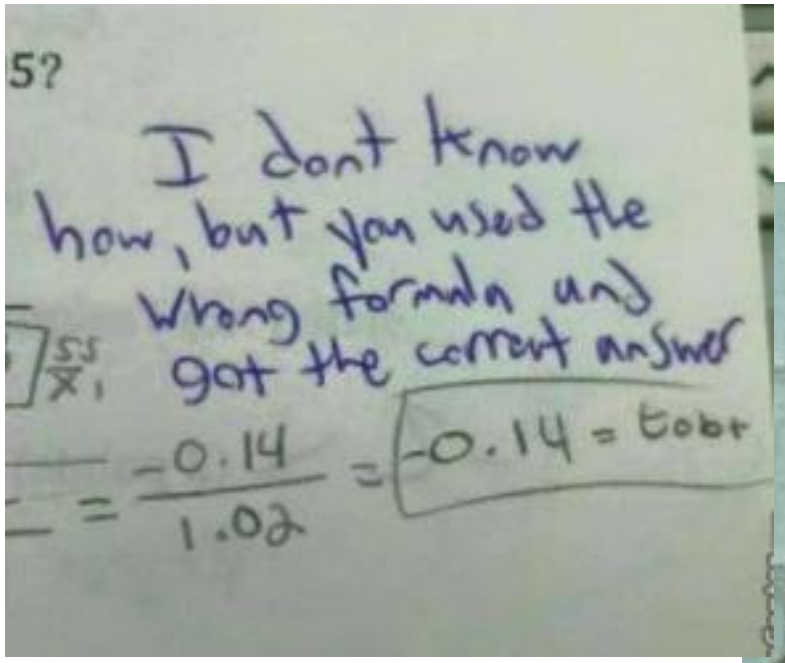
Correct answer but with wrong logic?



Correct answer but with wrong logic?

Maternal mortality in the United States

Original Research

Pregnancy-Related Mortality in the United States, 2011–2013

Andreea A. Creanga, MD, PhD, Carla Syverson, CNM, MN, Kristi Seed, BSc, and William M. Callaghan, MD, MPH

OBJECTIVE: To update national population-level pregnancy-related mortality estimates and examine characteristics and causes of pregnancy-related deaths in the United States during 2011–2013.

METHODS: We conducted an observational study using population-based data from the Pregnancy Mortality Surveillance System to calculate pregnancy-related mortality ratios by year, age group, and race–ethnicity groups. We explored 10 cause-of-death categories by pregnancy outcome during 2011–2013 and compared their distribution with those in our earlier reports since 1987.

RESULTS: The 2011–2013 pregnancy-related mortality ratio was 17.0 deaths per 100,000 live births. Pregnancy-related mortality ratios increased with maternal age, and racial–ethnic disparities persisted with non-Hispanic black women having a 3.4 times higher mortality ratio than non-Hispanic white women. Among causes of pregnancy-related deaths, the following groups contributed more than 10%: cardiovascular conditions ranked first (15.5%) followed by other medical conditions often reflecting pre-existing illnesses (14.5%), infection (12.7%), hemorrhage (11.4%), and cardiomyopathy (11.0%). Relative to the most recent report of Pregnancy Mortality Surveillance System data for 2006–2010, the distribution of cause-of-death categories did not change considerably. However, compared with serial reports before 2006–2010, the contribution of hemorrhage, hypertensive disorders of pregnancy, and anesthesia complications declined, whereas that of cardiovascular and other medical conditions increased (population-level percentage comparison).

CONCLUSION: The pregnancy-related mortality ratio and the distribution of the main causes of pregnancy-related mortality have been relatively stable in recent years.

(Obstet Gynecol 2017;130:366–73)
DOI: 10.1097/AOG.0000000000002114

The risk of death during and shortly after pregnancy from pregnancy-related causes has not declined in the United States for more than 25 years.[1] Data from the Centers for Disease Control and Prevention's (CDC) Pregnancy Mortality Surveillance System show that the pregnancy-related mortality ratio has increased from approximately 10 deaths per 100,000 live births in the early 1990s to 16 deaths per 100,000 live births for the aggregate period 2006–2010.[2] The same data document important, persistent racial–ethnic disparities in pregnancy-related mortality for greater than 20 years and suggest a continuing increasing contribution of chronic diseases, particularly cardiovascular disease, to mortality.[2] Reasons for the reported increase in pregnancy-related mortality are not entirely clear, although improvements in the identification of these events–use of data linkages and of a pregnancy question (ie, checkbox) on the 2003 U.S. standard death certificate–were shown to have an important contribution (Creanga AA, Callaghan WM. Recent increases in the U.S. maternal mortality rate: disentangling trends from measurement issues [letter]. Obstet Gynecol 2017;129:206–7).[3,4]

To provide the most recent national, population-level information regarding overall pregnancy-related mortality, causes of death, and populations at risk, we examine pregnancy-related mortality in the United States

From the Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia; and the Department of International Health, Johns Hopkins Bloomberg School of Public Health, and the Department of Gynecology and Obstetrics, Johns Hopkins School of Medicine, Baltimore, Maryland.

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Each author has indicated that he or she has met the journal's requirements for authorship.

Corresponding author: Andreea A. Creanga, MD, PhD, Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, 4770 Buford Highway, NE, Mail Stop K-23, Atlanta, GA 30341-3717; email: acreanga@cdc.gov.

Financial Disclosure
The authors did not report any potential conflicts of interest.

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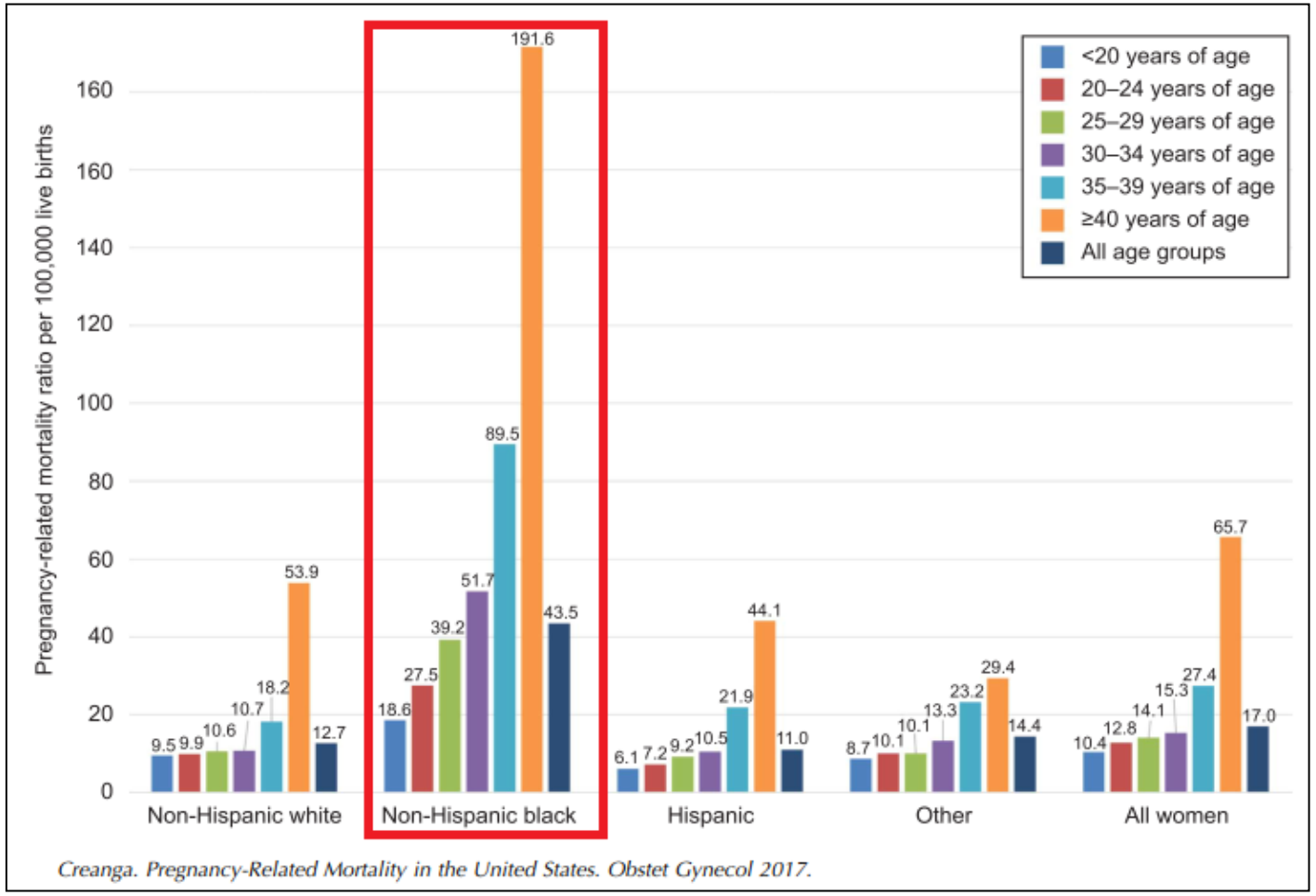

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Prompted national response to maternal mortality

The NEW ENGLAND JOURNAL of MEDICINE

Perspective

NOVEMBER 1, 2018

What We Can Do about Maternal Mortality — And How to Do It Quickly

Susan Mann, M.D., Lisa M. Hollier, M.D., Kimberlee McKay, M.D., and Haywood Brown, M.D.

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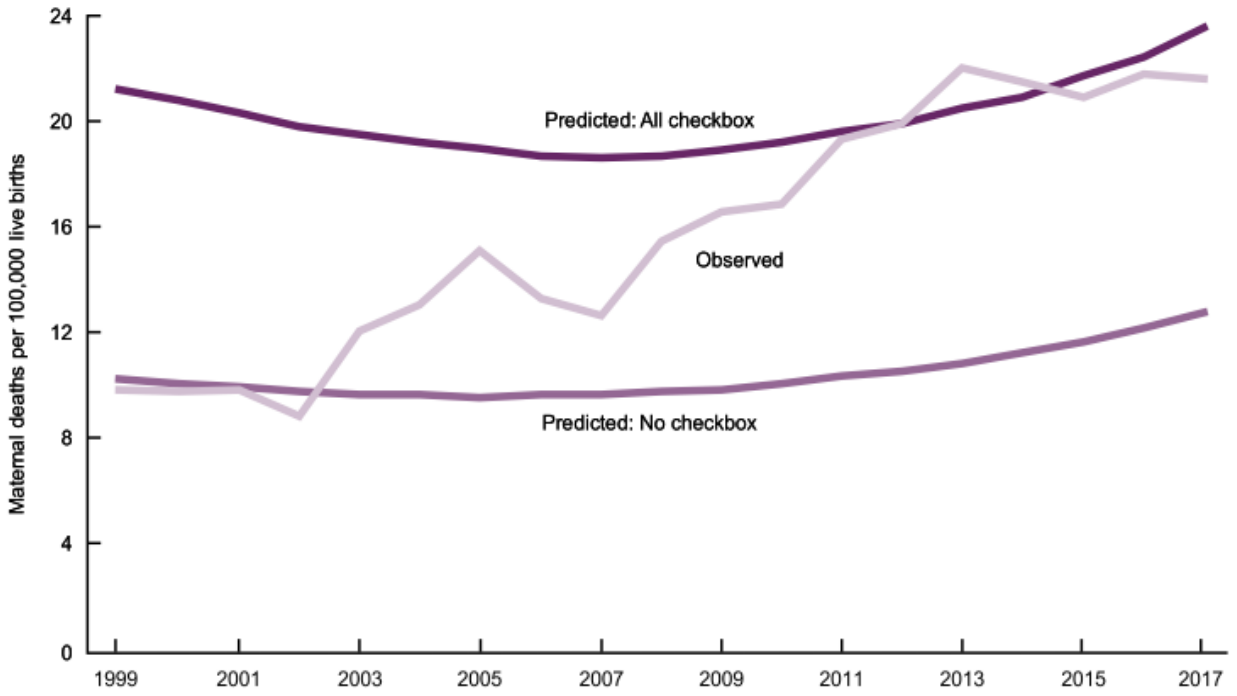
1. Recognized challenges with data

Figure 6. Observed and predicted maternal mortality rates: United States, 1999–2017



NOTE: Models were adjusted for age group, race and Hispanic origin, and state of occurrence, and included interactions between these factors and year as well as revision status.
SOURCE: NCHS, National Vital Statistics System.

Rossen LM, et al. Vital Health Stat. 2020

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1. **Recognized challenges with data**
2. **Maternal levels of care (regionalization)**

Mann S, et al. NEJM. 2018

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Maternal levels of care

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

Society for Maternal-Fetal Medicine

OBSTETRIC CARE CONSENSUS

Levels of Maternal Care

Number 9
(Replaces Obstetric Care Consensus Number 2, February 2015)

The American Association of Birth Centers; the American College of Nurse-Midwives; the Association of Women's Health, Obstetric and Neonatal Nurses; the Commission for the Accreditation of Birth Centers; and the Society for Obstetric Anesthesia and Perinatology endorse this document. The American Academy of Family Physicians and the American Hospital Association support this document. The American Society of Anesthesiologists has reviewed this document. This document was developed jointly by the American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine in collaboration with Sarah J. Kilpatrick, MD, PhD; M. Kathryn Menard, MD, MPH; Christopher M. Zahn, MD; and the Centers for Disease Control and Prevention's representative William M. Callaghan, MD, MPH. The findings, conclusions, and views in this Obstetric Care Consensus do not necessarily represent the official position of the Centers for Disease Control and Prevention or the U.S. government.

ABSTRACT: Maternal mortality and severe maternal morbidity, particularly among women of color, have increased in the United States. The leading medical causes of maternal mortality include cardiovascular disease, infection, and common obstetric complications such as hemorrhage, and vary by timing relative to the end of pregnancy. Although specific modifications in the clinical management of some of these conditions have been instituted, more can be done to improve the system of care for high-risk women at facility and population levels. The goal of levels of maternal care is to reduce maternal morbidity and mortality, including existing disparities, by encouraging the growth and maturation of systems for the provision of risk-appropriate care specific to maternal health needs. To standardize a complete and integrated system of perinatal regionalization and risk-appropriate maternal care, this classification system establishes levels of maternal care that pertain to basic care (level I), specialty care (level II), subspecialty care (level III), and regional perinatal health care centers (level IV). The determination of the appropriate level of care to be provided by a given facility should be guided by regional and state health care entities, national accreditation and professional organization guidelines, identified regional perinatal health care service needs, and regional resources. State and regional authorities should work together with the multiple institutions within a region, and with the input from their obstetric care providers, to determine the appropriate coordinated system of care and to implement policies that promote and support a regionalized system of care. These relationships enhance the ability of women to give birth safely in their communities while providing support for circumstances when higher level resources are needed. This document is a revision of the original 2015 Levels of Maternal Care Obstetric Care Consensus, which has been revised primarily to clarify terminology and to include more recent data based on published literature and feedback from levels of maternal care implementation.

Purpose

1. To reaffirm the need for levels of maternal care, as initially presented in the 2015 Obstetric Care Consensus, which includes uniform definitions, a standardized description of maternity facility capabilities and personnel, and a framework for integrated systems that addresses maternal health needs.
2. To reaffirm that the goal of levels of maternal care is to reduce maternal morbidity and mortality, including existing disparities, by encouraging the growth and maturation of systems for the provision of risk-appropriate care specific to maternal health needs. Central to systems is the development of collaborative relationships between hospitals of differing levels of maternal care in proximate regions, which ensures that every maternity hospital has the personnel and resources to care for unexpected obstetric emergencies, that risk assessment is judiciously applied, and that consultation and referral are readily available when high-risk care is needed. These relationships enhance the ability of women to give birth safely in their communities while providing support for circumstances when higher level resources are needed.

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EMS and Trauma Systems

- Applications and Forms
- Rules
- Contact Us
- Data Sources for EMS Trauma Systems
- EMS/Trauma Systems Interactive Map

Maternal Levels of Care Designation

SIGN UP FOR EMAIL UPDATES

In 2013, House Bill 15 was passed during the 83rd Legislature, Regular Session. The purpose of the bill was to develop initial rules for level of care designations for hospitals that provide maternal services. The hospital level of care designations for maternal care rules went into effect on March 1, 2018.

Obstetric Care Consensus. No. 9. ACOG, SMFM. 2019
Texas Department of State Health Services.

Maternal levels of care prompted improvements in care: leverage electronic record

CLINICAL EVALUATION & IMPROVEMENT

childbearing

Development of a Quality Indicator to Measure Urgent Requests to the Bedside

Phyllis Dyess-Nugent, Jennifer Bouzid, Alycia Roberson, Marjorie Quint-Bouzid & David B. Nelson

ABSTRACT

Objective: To develop a quality indicator describing the response time to an urgent request for a physician to the bedside of a pregnant or postpartum woman and to identify opportunities for improvement in care timeliness for women with worsening serious clinical conditions.

Design: Evidence-based quality improvement project using the Iowa Model–Revised framework to develop a maternal care quality indicator.

Setting: Labor and delivery, antepartum, and mother/baby units in a large urban safety-net hospital preparing for a state level of maternal care designation survey.

Participants: All nurses and physicians caring for hospitalized pregnant and postpartum women participated in implementation.

Intervention/Measurements: Physician response time was measured as the elapsed time from a nurse's urgent request for a physician and the presence of a physician at the bedside of a woman in one of the identified units, as recorded in the electronic health record.

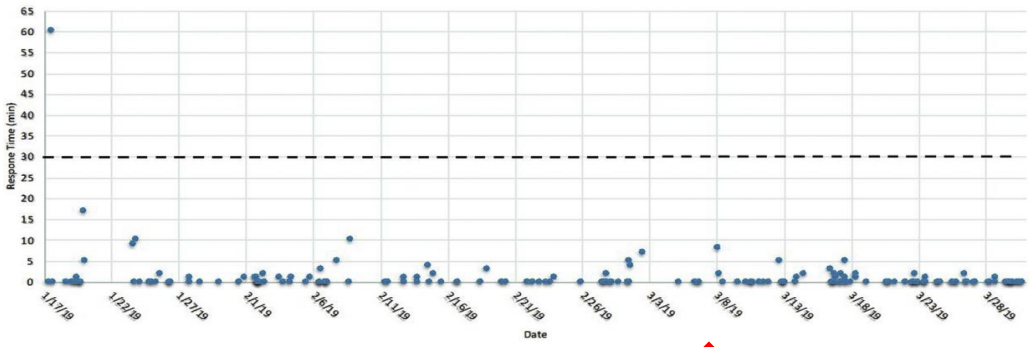
Results: Physician response time to an urgent request to the bedside was documented 179 times during the first 3 months after implementation. Physician presence at the bedside within 30 minutes of a request was recorded in more than 99% of these events.

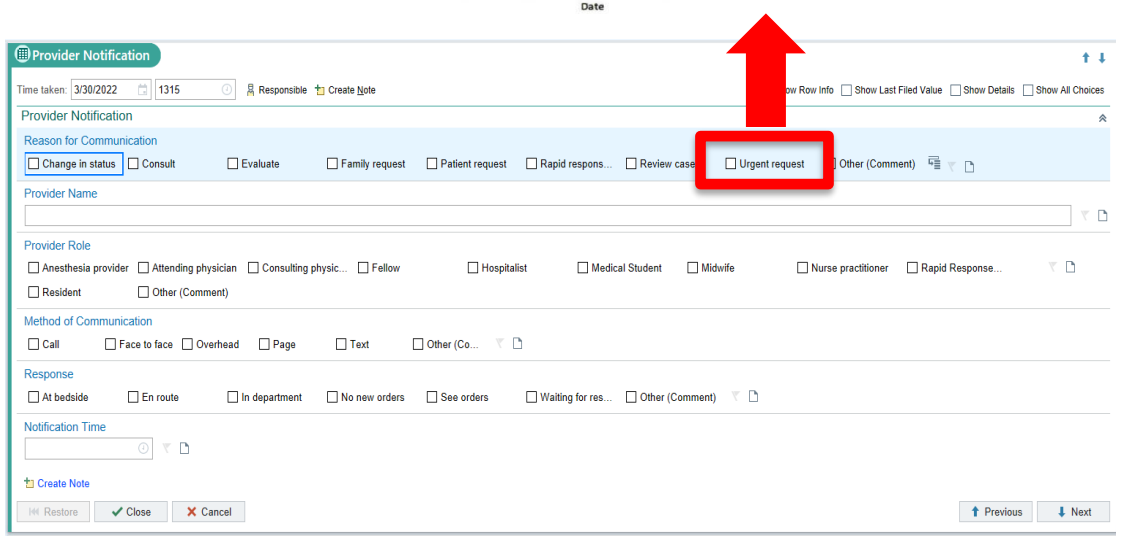
Conclusion: Physicians' responses to early warning signs within our facility were timely and within the parameters established by the Texas state-mandated criteria for a Level IV maternal care hospital. Response time as documented in the electronic health record provides an important quality indicator of maternal care in the inpatient setting.

doi: 10.1016/j.nwh.2020.09.003 Accepted September 2020

KEYWORDS: early warning, electronic health record, evidence-based practice, maternal, obstetric, peripartum, pregnancy, quality improvement

PHYSICIAN RESPONSE TIMES TO URGENT REQUESTS TO THE BEDSIDE DURING THE FIRST 3 MONTHS





Dyess-Nugent P, et al. Nurs Womens Health. 2020

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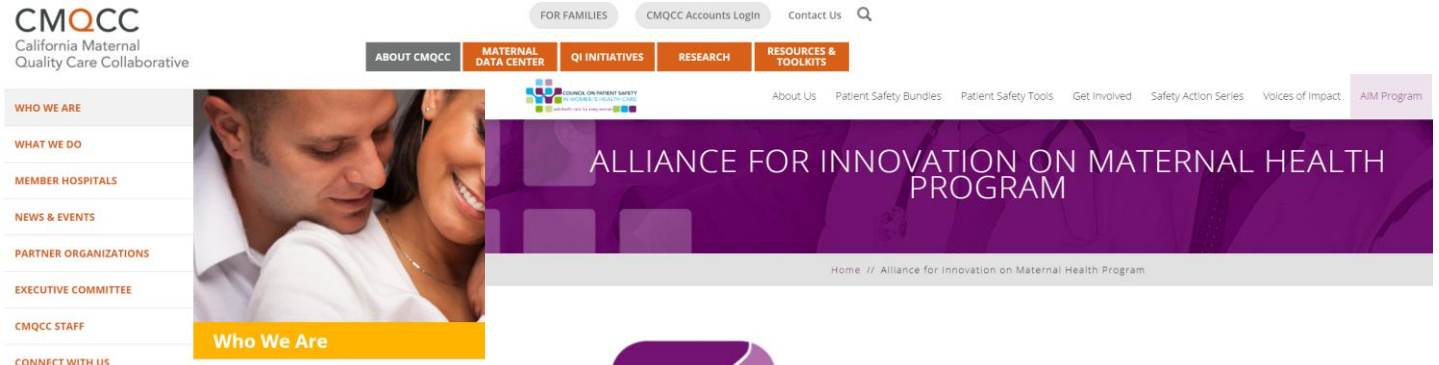

ALLIANCE FOR INNOVATION ON MATERNAL HEALTH AIM

https://www.cmqcc.org/who-we-are
https://safehealthcareforeverywoman.org/aim-program/
Mann S, et al. NEJM. 2018

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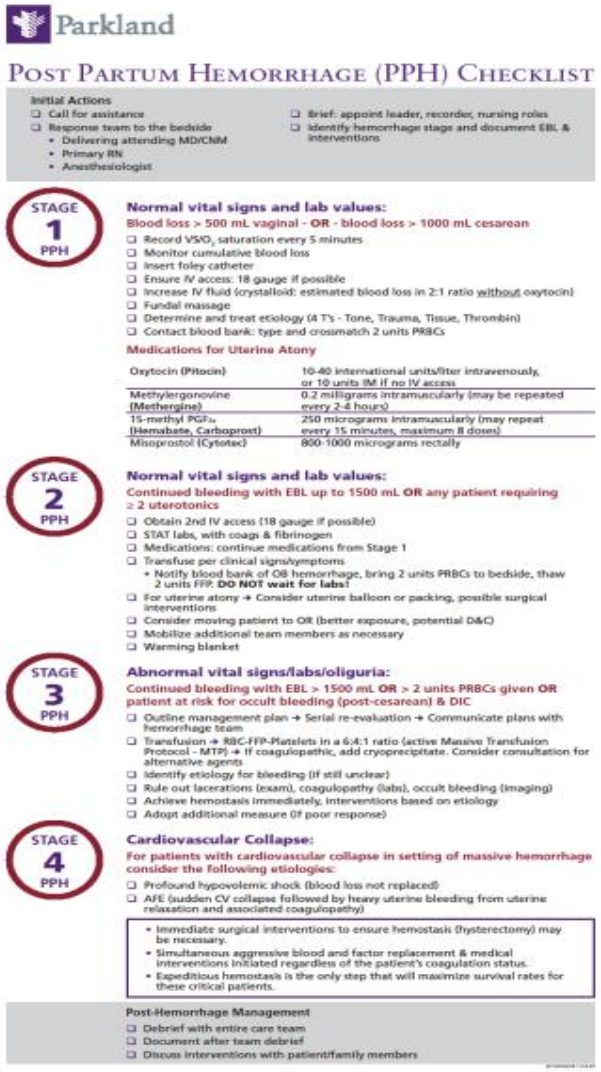
Texas AIM prompting meaningful changes locally for improved care

- Ordered Hemorrhage Cart with supplies, checklist and instructions
- Adding hemorrhage risk assessment to the EMR
- Implementing unit-standard, stage-based obstetric hemorrhage emergency management plan with checklist through simulations with staff and hemorrhage carts
- Created a PPH Huddle Form to be completed after a patient receives Mass Transfusion Protocol (MTP)
- QI projects underway to monitor outcomes



Parkland

POST PARTUM HEMORRHAGE (PPH) CHECKLIST

Initial Actions
- ❑ Call for assistance
- ❑ Response team to the bedside
  - Delivering attending MD/CNM
  - Primary RN
  - Anesthesiologist
- ❑ Brief: appoint leader, recorder, nursing roles
- ❑ Identify hemorrhage stage and document EBL & interventions

STAGE 1 PPH

Normal vital signs and lab values:

Blood loss > 500 mL vaginal - OR - blood loss > 1000 mL cesarean
- ❑ Record VS/O$_2$ saturation every 5 minutes
- ❑ Monitor cumulative blood loss
- ❑ Insert foley catheter
- ❑ Ensure IV access: 18 gauge if possible
- ❑ Increase IV fluid (crystalloid: estimated blood loss in 2:1 ratio without oxytocin)
- ❑ Fundal massage
- ❑ Determine and treat etiology (4 T's - Tone, Trauma, Tissue, Thrombin)
- ❑ Contact blood bank: type and crossmatch 2 units PRBCs

Medications for Uterine Atony

Oxytocin (Pitocin)	10-40 international units/liter intravenously, or 10 units IM if no IV access
Methylergonovine (Methergine)	0.2 milligrams intramuscularly (may be repeated every 2-4 hours)
15-methyl PGF$_{2\alpha}$ (Hemabate, Carboprost)	250 micrograms intramuscularly (may repeat every 15 minutes, maximum 8 doses)
Misoprostol (Cytotec)	800-1000 micrograms rectally

STAGE 2 PPH

Normal vital signs and lab values:

Continued bleeding with EBL up to 1500 mL OR any patient requiring ≥ 2 uterotonics
- ❑ Obtain 2nd IV access (18 gauge if possible)
- ❑ STAT labs, with coags & fibrinogen
- ❑ Medications: continue medications from Stage 1
- ❑ Transfuse per clinical signs/symptoms
  - Notify blood bank of OB hemorrhage, bring 2 units PRBCs to bedside, thaw 2 units FFP. **DO NOT wait for labs!**
- ❑ For uterine atony → Consider uterine balloon or packing, possible surgical interventions
- ❑ Consider moving patient to OR (better exposure, potential D&C)
- ❑ Mobilize additional team members as necessary
- ❑ Warming blanket

STAGE 3 PPH

Abnormal vital signs/labs/oliguria:

Continued bleeding with EBL > 1500 mL OR > 2 units PRBCs given OR patient at risk for occult bleeding (post-cesarean) & DIC
- ❑ Outline management plan → Serial re-evaluation → Communicate plans with hemorrhage team
- ❑ Transfusion → RBC-FFP-Platelets in a 6:4:1 ratio (active Massive Transfusion Protocol - MTP) → If coagulopathic, add cryoprecipitate. Consider consultation for alternative agents
- ❑ Identify etiology for bleeding (if still unclear)
- ❑ Rule out lacerations (exam), coagulopathy (labs), occult bleeding (imaging)
- ❑ Achieve hemostasis immediately, interventions based on etiology
- ❑ Adopt additional measure (if poor response)

STAGE 4 PPH

Cardiovascular Collapse:

For patients with cardiovascular collapse in setting of massive hemorrhage consider the following etiologies:
- ❑ Profound hypovolemic shock (blood loss not replaced)
- ❑ AFE (sudden CV collapse followed by heavy uterine bleeding from uterine relaxation and associated coagulopathy)

- Immediate surgical interventions to ensure hemostasis (hysterectomy) may be necessary.
- Simultaneous aggressive blood and factor replacement & medical interventions initiated regardless of the patient's coagulation status.
- Expeditious hemostasis is the only step that will maximize survival rates for these critical patients.

Post-Hemorrhage Management
- ❑ Debrief with entire care team
- ❑ Document after team debrief
- ❑ Discuss interventions with patient/family members

State-based collaboratives dovetail with TJC standards launched July 2020: Hemorrhage and Hypertension

R³ Report | Requirement, Rationale, Reference

A complimentary publication of The Joint Commission

Issue 24, August 21, 2019

Published for Joint Commission-accredited organizations and interested health care professionals, *R3 Report* provides the rationale and references that The Joint Commission employs in the development of new requirements. While the standards manuals also may provide a rationale, *R3 Report* goes into more depth, providing a rationale statement for each element of performance (EP). The references provide the evidence that supports the requirement. *R3 Report* may be reproduced if credited to The Joint Commission. Sign up for email delivery.

Provision of Care, Treatment, and Services standards for maternal safety

Effective July 1, 2020, 13 new elements of performance (EPs) will be applicable to Joint Commission-accredited hospitals. These new requirements are within the Provision of Care, Treatment, and Services (PC) chapter at PC.06.01.01 and PC.06.03.01 and are designed to improve the quality and safety of care provided to women during all stages of pregnancy and postpartum. The United States ranks 65th among industrialized nations in terms of maternal death.[1] Because of worsening maternal morbidity and mortality, The Joint Commission evaluated expert literature to determine what areas held the most potential impact. The literature review revealed that prevention, early recognition, and timely treatment for maternal hemorrhage and severe hypertension/preeclampsia had the highest impact in states working on decreasing maternal complications. This approach was supported by a technical advisory panel assembled by The Joint Commission, resulting in the development of EPs that focus on these complications.

Engagement with stakeholders, customers, and experts

In addition to an extensive literature review and public field review, The Joint Commission obtained expert guidance from the following groups:

- Technical Advisory Panel (TAP) of subject matter experts from various health care and academic organizations and professional associations from the maternal health field.
- Standards Review Panel (SRP) comprised of clinicians and administrators who provided a "boots on the ground" point of view and insights into the practical application of the proposed standards.

The prepublication version of the maternal safety standards will be available online until June 30, 2020. After July 1, 2020, please access the new requirements in the E-dition or standards manual.

Prompted national response to maternal mortality

The NEW ENGLAND JOURNAL of MEDICINE

Perspective
NOVEMBER 1, 2018

What We Can Do about Maternal Mortality — And How to Do It Quickly

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Women in the United States are more likely to die from childbirth- or pregnancy-related causes than women in any other high-income country, and black women die at a rate three to four times that of white women. Increasing maternal mortality is a tragedy, and though multiple factors contribute to the risk of maternal death, national and state reviews have identified the most preventable contributors. The Centers for Disease Control and Prevention (CDC) defines a pregnancy-related death as "the death of a woman during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy." Three types of complications the CDC identifies as the most common potentially preventable are postpartum hemorrhage, severe hypertension, and venous thromboembolism.[1]

So how can the health care community reverse the devastating trend in pregnancy-related deaths? We recommend four actions that can be adopted by every hospital providing obstetrical care, regardless of its size.

First, hospitals can expand their focus on the preventable causes of obstetrical complications and related death. The Alliance for Innovation on Maternal Health (AIM) — a collaboration led by the American College of Obstetricians and Gynecologists (ACOG) and involving 30 other organizations representing the spectrum of women's health care[2] — created several "bundles" of best practices for improving safety in maternity care, to help clinicians, the obstetrical team, and facilities consistently manage the care of high-risk pregnant women, including those with the three most common preventable complications identified by the CDC. We recommend implementation

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4. Team "huddles" for complex cases (e.g Placenta accreta spectrum disorder)

Mann S, et al. NEJM. 2018

UTSouthwestern Medical Center

Placenta Accreta Spectrum Disorder

Predicting Placenta Accreta Spectrum

Validation of the Placenta Accreta Index

Sarah K. Happe, MD, Casey S. Yule, MD, Catherine Y. Spong, MD, C. Edward Wells, MD, Jodi S. Dashe, MD, Elysia Moschos, MD, Martha W. F. Rac, MD, Donald D. McIntire, PhD, Diane M. Twickler, MD

Objectives—The placenta accreta spectrum (PAS) incidence has risen substantially over the past century, paralleling a rise in cesarean delivery (CD) rates. Prenatal diagnosis of PAS improves maternal outcomes. The Placenta Accreta Index (PAI) is a standardized approach to prenatal diagnosis of PAS incorporating clinical risk and ultrasound (US) findings suggestive of placental invasion. We sought to validate the PAI for prediction of PAS in pregnancies with prior CD.

Methods—This work was a retrospective cohort study of pregnancies with 1 or more prior CDs that received a US diagnosis of placenta previa or low-lying placenta in the third trimester. Images of third-trimester US with a complete placental evaluation were read by 2 blinded physicians, and the PAI was applied. Surgical outcomes and pathologic findings were reviewed. Placenta accreta spectrum was diagnosed if clinical evidence of invasion was seen at time of delivery or if any placental invasion was identified histologically. International Federation of Gynecology and Obstetrics criteria were used.

Results—A total of 194 women met inclusion criteria. Cesarean hysterectomy was performed in 92 (47%), CD in 97 (50%), and vaginal delivery in 5 (3%). Of those who underwent hysterectomy, PAS was histologically confirmed in 79 (85%) pregnancies. Of the remaining 13 who underwent hysterectomy, all met International Federation of Gynecology and Obstetrics grade 1 clinical criteria for PAS. With a threshold of greater than 4, the PAI has a sensitivity of 87%, specificity of 77%, positive predictive value of 72%, and negative predictive value of 90% for PAS diagnosis.

Conclusions—Contemporaneous application of the PAI, a standardized approach to US diagnosis, is useful in the prenatal prediction of PAS.

Key Words—morbidly adherent placenta; placenta accreta; Placenta Accreta Index; placenta accreta spectrum; placenta increta; placenta percreta

Received July 11, 2020, from the Department of Obstetrics and Gynecology, University of Texas Southwestern Medical Center, Dallas, Texas, USA (S.K.H., C.S.Y., C.Y.S., C.E.W., J.S.D., E.M., D.D.M., D.M.T.); Department of Radiology, University of Texas Southwestern Medical Center, Dallas, Texas, USA (D.M.T.); and Department of Obstetrics and Gynecology, Baylor College of Medicine, Houston, Texas, USA (M.W.F.R.). Manuscript accepted for publication September 15, 2020.

This work was presented as a poster at the 40th Annual Meeting of the Society for Maternal-Fetal Medicine; February 3–8, 2020; Grapevine, Texas. All of the authors of this article have reported no disclosures.

Address correspondence to Casey S. Yule, MD, Department of Obstetrics and Gynecology, University of Texas Southwestern Medical Center, 5323 Harry Hines Blvd, Dallas, TX 75390-9032, USA.

E-mail: casey.yule@utsouthwestern.edu

Abbreviations

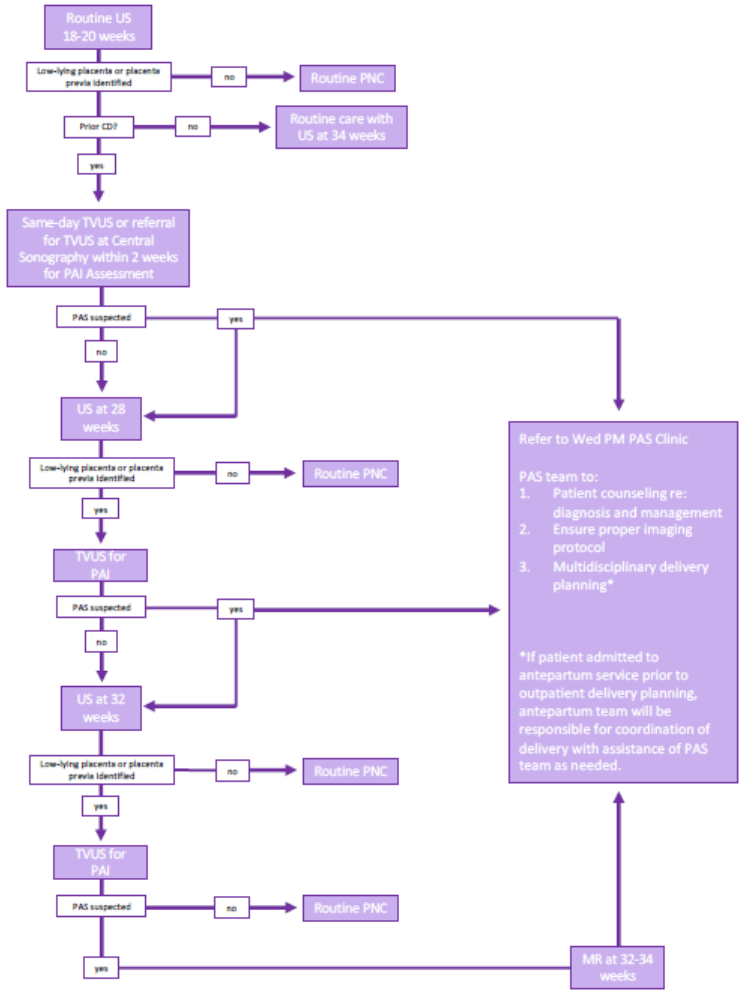
2D, 2-dimensional; 3D, 3-dimensional; AUC, area under the curve; CD, cesarean delivery; FIGO, International Federation of Gynecology and Obstetrics; NPV, negative predictive value; PAI, Placenta Accreta Index; PAS, placenta accreta spectrum; PPV, positive predictive value; US, ultrasound

doi:10.1002/jum.15530

Placenta accreta spectrum (PAS) is a life-threatening obstetric complication that occurs when the placenta abnormally attaches to or invades the myometrium. Once rare, PAS now complicates as many as 1 per 300 pregnancies.[1–3] The substantial rise in the incidence of placental invasion over the past century parallels the rise in cesarean deliveries (CDs), a known risk factor for development of PAS. The etiology of PAS remains controversial, with recent evidence suggestive of uterine dehiscence as the cause, rather than placental invasion.[4] The terminology may not be at odds but, rather, may reflect the complex relationship between uterine scar tissue and rapidly growing trophoblastic tissue. Compared to intrapartum diagnosis,

Happe SK et al. JUM 2020

Pathway for evaluation, diagnosis, and management of placenta accreta spectrum disorders



Bill Text: TX HB1164 | 2021-2022 | 87th Legislature

Texas House Bill 1164

TX State Legislature page for HB1164

Summary | Sponsors | **Texts** | Votes | Research | Comments | **Track**

Introduced | Comm Sub | Engrossed | Comm Sub | Enrolled

NOTE: There are more recent revisions of this legislation. Read Latest Draft

Bill Title: Relating to patient safety practices regarding placenta accreta spectrum disorder.

Spectrum: Slight Partisan Bill (Democrat 7-3)

Status: *(Passed)* 2021-06-15 - Effective on 9/1/21 [HB1164 Detail]

Download: Texas-2021-HB1164-Introduced.html

Effective

1 Sept 2021 Texas State Law!!!

Folded into Maternal Levels of Care designation

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5. Simulation

Mann S, et al. NEJM. 2018

UTSouthwestern Medical Center

Simulation

SMFM Papers ajog.org

Does simulation improve clinical performance in management of postpartum hemorrhage?

Shena J. Dillon, MD; Whitney Kleinmann, MD; Yevgenia Fomina, MD; Bethany Werner, MD; Steven Schultz, PharmD, MBA; Shannon Klucsarits, MD; Wilmer Moreno, MD; Alexandra Butsko, BSN, RN, RNC-OB; Donald D. McIntire, PhD; David B. Nelson, MD

BACKGROUND: Although simulation is now widely used to improve teamwork and communication, data demonstrating improvement in clinical outcomes are limited.

OBJECTIVE: This study aimed to examine the clinical performance and outcomes associated with postpartum hemorrhage because of uterine atony following the implementation of a multidisciplinary simulation program.

STUDY DESIGN: This was a prospective observational study of response to postpartum hemorrhage because of uterine atony in an academic medical center before (epoch 1: July 2017–June 2018) and after (epoch 2: July 2019–June 2020) implementing a multidisciplinary simulation program. A total of 22 postpartum hemorrhage simulations were performed from July 2018 to June 2019 involving more than 300 nursing, obstetrical, and anesthesia providers. The simulation program focused on managing postpartum hemorrhage events and improving teamwork and communication of the multidisciplinary teams. To evaluate the clinical effectiveness of the simulation program, the primary outcome was response to postpartum hemorrhage defined as the time from the administration of uterotonic medications to transfusion of the first unit of blood in the first 12 hours following delivery, comparing epoch 2 to epoch 1 following the implementation of a simulation program. Statistical analysis included the use of the Pearson chi-square test, Wilcoxon rank-sum test, Hodges-Lehmann statistic for differences, and bootstrap methods with a P value of $<.05$ considered significant.

RESULTS: Between July 1, 2017, and June 30, 2018, there were 12,305 patients who delivered, of which 495 patients (4%) required transfusion. Between July 1, 2019, and June 30, 2020, there were 12,414 patients who delivered, of which 480 patients (4%) required transfusion. When isolating cases of postpartum hemorrhage because of uterine atony in both transfused groups, there were 157 women in the presimulation group (epoch 1) and 165 women in the postsimulation group (epoch 2), respectively. There was no difference in age, race, parity, or perinatal outcomes between the 2 epochs. Women in epoch 2 began receiving blood products significantly earlier in the first 12 hours following delivery compared with women in epoch 1 (51 [range, 28–125] minutes vs 102 [range, 32–320] minutes; $P=.005$). In addition, there was a significantly decreased variation in the time from the administration of uterotonic medications to transfusion of blood in epoch 2 ($P=.035$). Furthermore, women in epoch 2 had significantly lower estimated blood loss than women in epoch 1 (1250 [range, 1000–1750] mL vs 1500 [range, 1000–2000] mL; $P=.032$).

CONCLUSION: The implementation of a multidisciplinary simulation program at a large academic center focusing on the management of postpartum hemorrhage was associated with an improved clinical response. Specifically, there were significantly faster times from the administration of uterotonic medications to transfusion of blood, decreased variance in the time from the administration of uterotonic medications to transfusion of blood, and lower estimated blood loss following the implementation of a simulation program. Because delay in treatment is a major cause of preventable maternal death in obstetrical hemorrhage, the results in our study provided clinical evidence that a simulation program may improve patient outcomes in such emergencies.

Key words: blood loss, clinical outcomes, estimated blood loss, multidisciplinary, postpartum hemorrhage, pregnancy, simulation, transfusion, uterotonic

Introduction

Hemorrhage continues to be one of the leading causes of severe maternal morbidity and mortality for women in the United States and worldwide.[1,2] Following national attention on maternal mortality, the Alliance for Innovation on Maternal Health (AIM) developed several safety bundles that hospitals could implement to address maternal mortality and morbidity, which included a hemorrhage bundle.[3] The development of safety bundles, along with the Preventing Maternal Deaths Act of 2018, prompted several states to form Maternal Mortality and Morbidity Review committees to assess which bundles were likely to make the most impact on their state's maternal morbidity and mortality rates.[4,5] When California reviewed their maternal mortality cases, they found that 95% of deaths due to hemorrhage had some chance of being prevented and 70% of deaths due to hemorrhage had a good to strong chance of being prevented.[6] When analyzing potential pitfalls, they found delay in diagnosis and delay in treatment as 2 of the most common problems that led to mismanagement of hemorrhage. Similarly, the state of Texas formed a Maternal Mortality and Morbidity Task Force and found that hemorrhage was 1 of the top 3 preventable causes of death in women in Texas from 2012 to 2015.[7] More than 50% of deaths due to hemorrhage among these women were classified as being somewhat likely or very likely to have been prevented, and they found similar causes of

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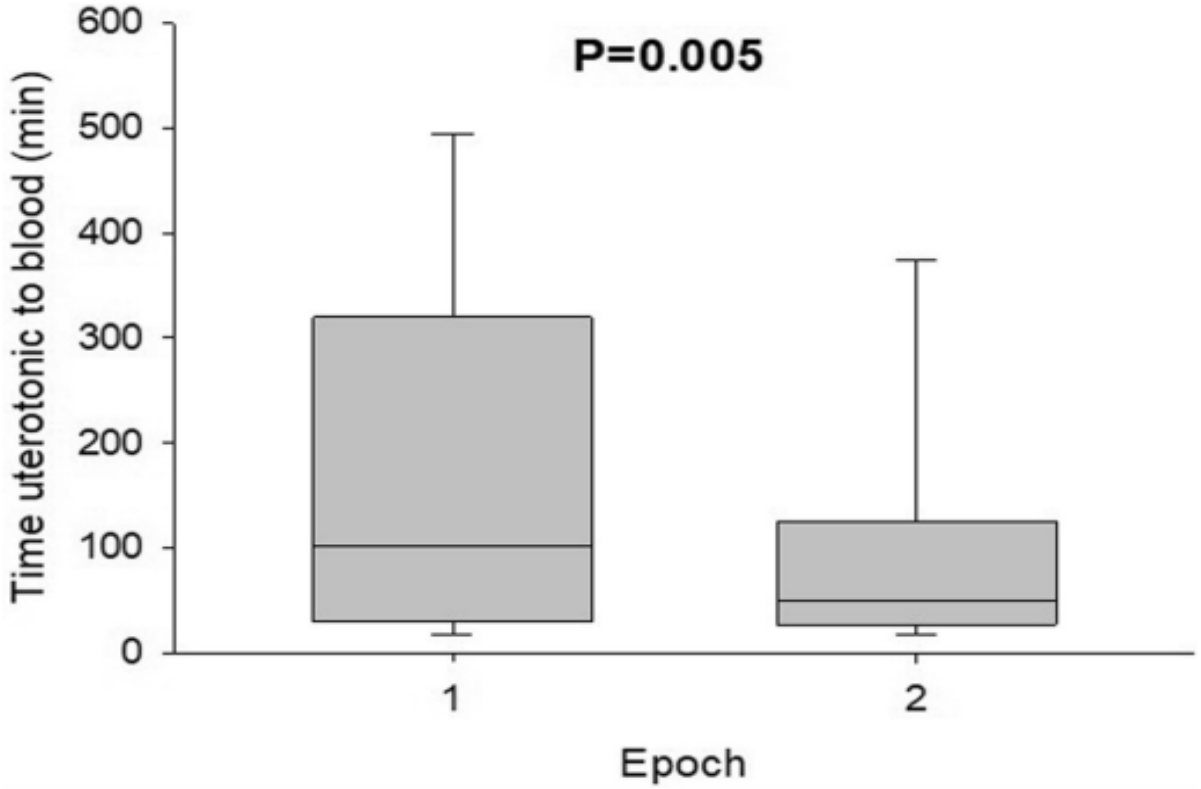
FIGURE 2
Time from administration of uterotonic to transfusion by epoch



Dillon et al. Postpartum hemorrhage simulation. Am J Obstet Gynecol 2021.

Dillon SJ et al. Am J Obstet Gynecol 2021

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6. Preventing maternal deaths act

Mann S, et al. NEJM. 2018

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2018 Preventing Maternal Deaths Act

ECONOMY NATIONAL SECURITY BUDGET IMMIGRATION CORONAVIRUS.GOV

STATEMENTS & RELEASES

Bill Announcement

Issued on: **December 21, 2018**

H.R. 1318, the "Preventing Maternal Deaths Act of 2017," which reauthorizes, amend, and expand the Safe Motherhood initiative within the Centers for Disease Control and Prevention, including authorizing support for State and tribal Maternal Mortality Review Committees that meet certain requirements;

HOUSE COMMITTEE ON
ENERGY & COMMERCE
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ABOUT E&C | SUBCOMMITTEES | COMMITTEE ACTIVITY | NEWSROOM | SUBSCRIBE

HEARING ON "IMPROVING MATERNAL HEALTH: LEGISLATION TO ADVANCE PREVENTION EFFORTS AND ACCESS TO CARE"

Date: Tuesday, September 10, 2019 - 10:00am
Location: 2123 Rayburn House Office Building
Subcommittees: Health (116th Congress)

The Subcommittee on Health of the Committee
Tuesday, September 10, 2019, at 10:00 a.m. in t
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Whitehouse.gov

2018 Preventing Maternal Deaths Act

ECONOMY NATIONAL SECURITY BUDGET IMMIGRATION CORONAVIRUS.GOV

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Maternal Mortality Review Committees

TEXAS Health and Human Services | Texas Department of State Health Services

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Maternal Mortality and Morbidity Review Committee

Background and Purpose

The Maternal Mortality and Morbidity Task Force was created by Senate Bill 495, 83rd Legislature, Regular Session, 2013, which added Texas Health and Safety Code Chapter 34. Maternal Mortality and Morbidity Task Force. The name of the Task Force was changed to the Texas Maternal Mortality and Morbidity Review Committee by Senate Bill 750, 86th Legislature, Regular Session, 2019 in alignment with the federal Preventing Maternal Deaths Act of 2018. Later in 2019, the review committee was awarded Center for Disease Control and Prevention funding for the for the Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) Program.

The multidisciplinary review committee within the Department of State Health Services (DSHS) will study maternal mortality and morbidity. The review committee:

- studies and reviews cases of pregnancy-related deaths and trends in severe maternal morbidity,
- determines the feasibility of the review committee studying cases of severe maternal morbidity, and
- makes recommendations to help reduce the incidence of pregnancy-related deaths and severe maternal morbidity in Texas.

https://www.dshs.texas.gov/mch/Maternal-Mortality-and-Morbidity-Review-Committee.aspx

Maternal Mortality Review Committees

State	Percentage of Population That Is Rural*	Year Established	Year Legislated
Alabama*	41.0	2018	2018
Alaska*	34.0	1989	n/a
Arizona	10.2	2011	2011
Arkansas*	43.8	n/a	n/a
California	5.0	2006	n/a
Colorado	13.8	1993	n/a
Connecticut	12.0	2015	2018
Delaware	16.7	2011	2008
District of Columbia	0.0	2018	2018
Florida	8.8	1996	n/a
Georgia	24.9	2012	2014
Hawaii	8.1	2016	2016
Idaho	29.4	2007	2007
Illinois	11.5	2000/2016[i]	n/a
Indiana	27.6	2018	2018
Iowa*	36.0	1952	n/a[j]
Kansas	25.8	2018	2018
Kentucky*	41.6	1995[k]	2018
Louisiana	26.8	1992	2018
Maine*	61.3	2005	2005
Maryland	12.8	2000	2000
Massachusetts	8.0	1997	n/a
Michigan	25.4	1950	n/a
Minnesota	26.7	2012	n/a
Mississippi*	50.6	2017	2017
Missouri	29.6	2011	n/a
Montana*	44.1	2013	2013
Nebraska	26.9	2013	2013
Nevada	5.8	n/a	n/a
New Hampshire*	39.7	2013	2010
New Jersey	5.3	1932	n/a
New Mexico	22.6	1993	n/a
New York	12.1	2010	n/a
North Carolina*	33.9	2015	2015
North Dakota*	40.1	n/a	n/a
Ohio	22.1	2010	n/a
Oklahoma*	33.8	2009	n/a
Oregon	19.0	2018	2018
Pennsylvania	21.3	2018	2018
Rhode Island	9.3	1931	n/a
South Carolina*	33.7	2016	2016
South Dakota*	43.3	n/a	n/a
Tennessee*	33.6	2017	2016
Texas	15.3	2014	2013
Utah	9.4	1995	n/a
Vermont*	61.1	2011	2011
Virginia	24.5	2002	n/a
Washington	15.9	2016	2016
West Virginia*	51.3	2008	2008
Wisconsin	29.8	1997	n/a
Wyoming*	35.2	n/a	n/a

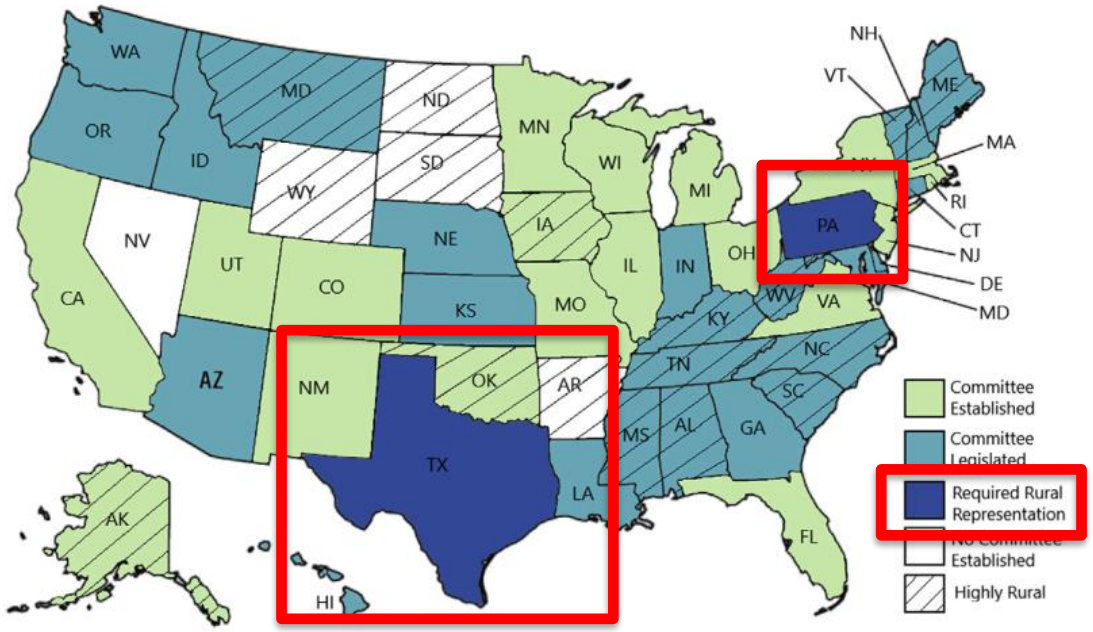

Figure 3. Highly rural states* and the status of state and the District of Columbia Maternal Mortality Review Committees in the United States, as of December 2018. *Highly rural states defined as those with 30% or more of the population residing in rural communities, as of 2010 Decennial Census, U.S. Census Bureau (U.S. Census Bureau, 2018).

Kozhimannil KB, et al. Women's Health Issues. 2019

Maternal Mortality Review Committees in Texas

Maternal Mortality and Morbidity Task Force and Department of State Health Services Joint Biennial Report

As Required by

Chapter 34, Texas Health and Safety Code, Section 34.015

Maternal Mortality and Morbidity Task Force

September 2018

TEXAS Health and Human Services

Texas Maternal Mortality and Morbidity Review Committee and Department of State Health Services Joint Biennial Report

As Required by

Texas Health and Safety Code, Section 34.015

Maternal Mortality and Morbidity Review Committee

September 2020

TEXAS Health and Human Services

Texas Department of State Health Services

Texas Maternal Mortality and Morbidity Review Committee and Department of State Health Services Joint Biennial Report 2022

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December 2022

This report covers a partial cohort for maternal deaths that occurred in 2019. DSHS will issue an update to the report following final analysis of the 2019 cohort.

TEXAS Health and Human Services

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Texas Maternal Mortality and Morbidity Task Force Report, 2018, 2020, 2022

Maternal Mortality Review Committees in Texas

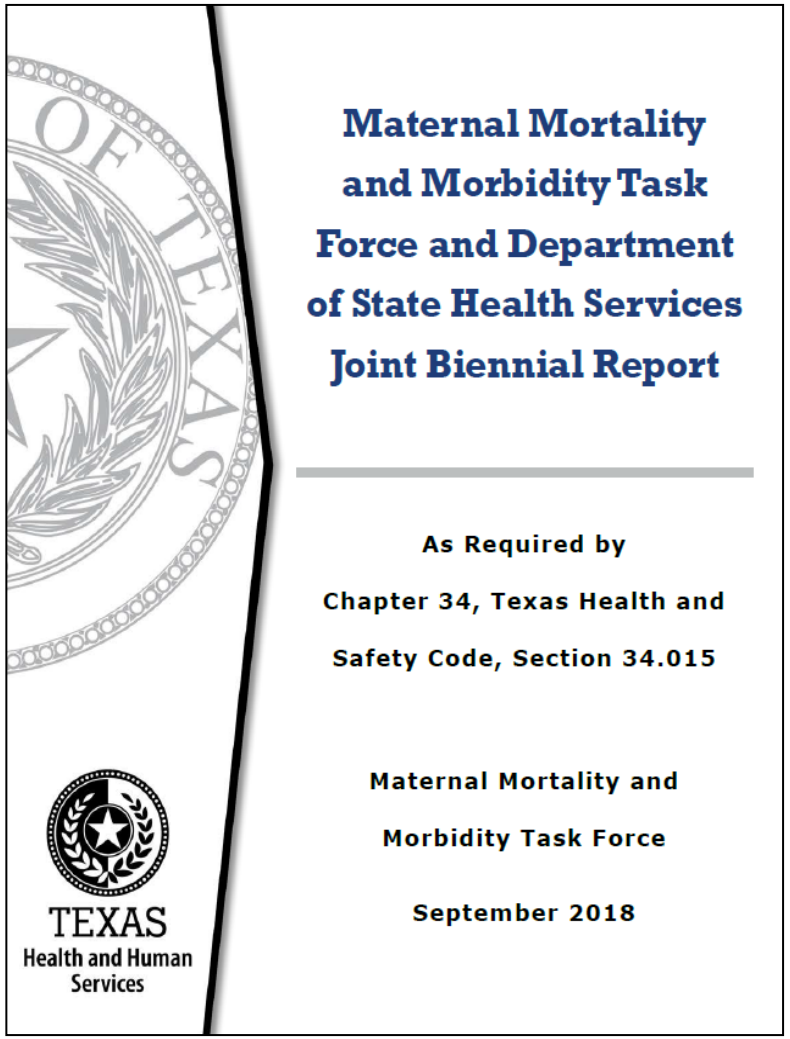

Table C1. Maternal Death by Cause and Timing of Death, Texas, 2012-2015

Cause of Death	TIMING OF DEATH					
	While Pregnant	0-7 Days Postpartum	8-42 Days Postpartum	43-60 Days Postpartum	61+ Days Postpartum	TOTAL
Drug Overdose	0	3	7	5	49	**64**
Other Causes	5	5	6	3	44	**63**
Cardiac Event	2	12	9	5	27	**55**
Homicide	2	1	5	2	32	**42**
Infection/Sepsis	1	3	14	3	11	**32**
Suicide	0	1	2	2	28	**33**
Cerebrovascular Event	0	8	9	1	9	**27**
Hemorrhage	3	12	2	0	3	**20**
Hypertension/Eclampsia	0	7	4	0	7	**18**
Pulmonary Embolism	2	3	4	2	2	**13**
Amniotic Embolism	1	9	0	0	0	**10**
Substance Use Sequelae (e.g., liver cirrhosis)	0	0	2	0	3	**5**
TOTAL	**16**	**64**	**64**	**23**	**215**	**382**

PREPARED BY: Maternal & Child Health Epidemiology, Division for Community Health Improvement, DSHS.

DATA SOURCES: 2012-2015 Death Files, 2011-2015 Live Birth and Fetal Death Files. Center for Health Statistics, DSHS.

NOTES: Maternal deaths were confirmed by matching each woman's death record with a birth or fetal death within 365 days. Deaths due to cancer or motor vehicle crashes were excluded from these analyses. Timing of death was determined using a combination of pregnancy status on the death record and days elapsed between delivery and death. If a woman was identified as pregnant at time of death and 0 days elapsed between delivery and death, then this was counted as death while pregnant. All other deaths were identified as postpartum maternal deaths, and were further categorized based on the number of days

Texas Maternal Mortality and Morbidity Task Force Report, 2018

Maternal Mortality Review Committees findings are similar elsewhere

Expert Reviews ajog.org

Maternal self-harm deaths: an unrecognized and preventable outcome

Check for updates

Kimberly Mangla, MD; M. Camille Hoffman, MD, MSCS; Caroline Trumpff, PhD; Sinclaire O'Grady, BA; Catherine Monk, PhD

Maternal mortality continues to be a public health priority in national and international communities. Maternal death rates secondary to medical illnesses such as cardiovascular disease, preeclampsia, and postpartum hemorrhage are well documented. The rates of maternal death secondary to self-harm, including suicide and overdose, have been omitted from published rates of maternal mortality, despite growing attention to the prevalence of perinatal mood disorders, estimated at up to 15% of pregnant and postpartum women in the United States. Underlying psychiatric disorder, including depression, is consistently identified as a risk factor in substance abuse and suicide. The rate of opioid-associated morbidity and mortality has recently been deemed a national crisis. Pregnancy does not protect against these risks, and the postpartum period has been identified as a particularly vulnerable time. The lack of consistent and inclusive data on self-harm deaths in the pregnancy-postpartum period is alarming. This review will identify barriers to reporting and ascertainment of maternal suicide and overdose deaths, summarize geographic-specific data available, address potential social and psychological biases that have led to neglect of the topic of maternal self-harm deaths, and suggest recommendations that incorporate the whole woman in prenatal care and thus prevention of this devastating outcome.

Key words: maternal morbidity, maternal mortality, maternal self-harm, maternal suicide, neonatal abstinence syndrome, postpartum suicide, pregnancy opiate prescriptions, pregnancy opiates, pregnancy substance abuse, pregnancy suicide

Maternal mortality, death during pregnancy or the postpartum period, is a barometer of a population's health, with decreasing national rates correlating with advancing medical progress. In contrast to reductions in pregnancy and postpartum-associated deaths around the world, one recent study reported a 26% overall increase in maternal mortality across 48 US states between 2000 and 2014.[1]

The uptick in the US maternal mortality rate is explained by shifts in medical diseases and improved ascertainment. Yet across the United States, ascertainment approaches to maternal death typically do not count those associated with behavioral health problems such as suicide and overdose, two of the leading causes of death worldwide for women of childbearing age.[2]

In the United States, there has been a consistent rise in opiate use, misuse, and death, including among pregnant and postpartum women.[3] This review covers the neglected topic of maternal death from self-harm, in particular suicide and overdose, specifically the following: (1) the challenges in obtaining reliable epidemiological statistics on maternal mortality via self-harm; (2) current data on the rates of maternal self-harm deaths and their antecedents, including those associated with the US opioid epidemic; (3) speculation as to the factors rendering maternal mortality via self-harm a silenced public health issue; and (4) recommendations for improved prevention of self-harm maternal mortality.

From the Departments of Psychiatry (Dr Mangla) and Obstetrics and Gynecology (Dr Monk and Ms O'Grady) and Division of Behavioral Medicine, Department of Psychiatry (Drs Trumpff and Monk), Columbia University Medical Center, New York, NY; Department of Obstetrics and Gynecology, University of Colorado School of Medicine/Denver Health and Hospital Authority, Denver, Colorado (Dr Hoffman); and New York State Psychiatric Institute, New York, NY (Dr Monk).

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The authors report no conflict of interest.

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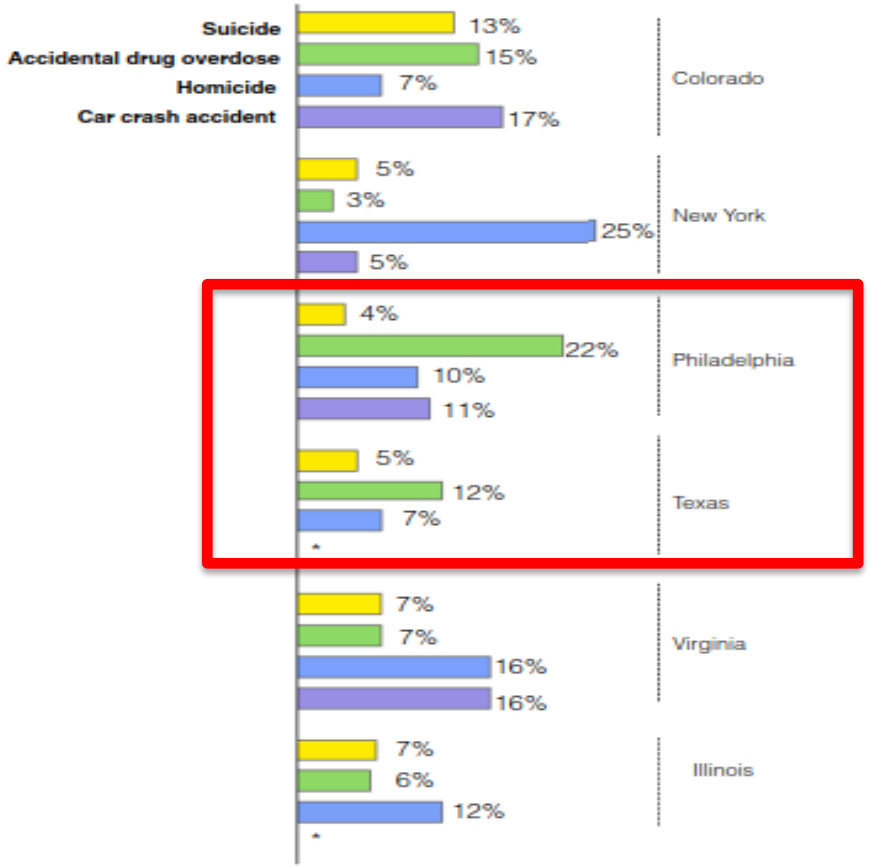
Epidemiology

The US maternal mortality rate secondary to overdose or suicide is unclear, with trends in rates over time even less so.[4] This is due to changes in reporting methodologies and differences in the inclusion criteria as well as accuracy and availability of data collection across states. Currently the Centers for Disease Control and Prevention (CDC) defines maternal mortality as the death of a woman while pregnant or within 1 year of pregnancy termination, regardless of duration, from any cause related to or aggravated by pregnancy or its management, but not from accidental or incidental causes.[5]

This definition of maternal mortality has shifted over the years with respect to timing. Between 1979 and 1999, the *International Classification of Diseases* (ICD), ninth revision, included deaths during pregnancy and the puerperium, a term including only up to 42 days postpartum by which time a woman's physiology was believed to return to normal, an approach underscoring the dismissal of brain-behavior etiology in maternal mortality.[6,7]

A recent population-based report demonstrated the peak incidence of maternal self-harm–related death is between 9 and 12 months postpartum, supporting efforts to extend the time period inclusive of pregnancy-related deaths.[8] The CDC relied and continues

FIGURE 1
Summary of state-based reports rate of maternal death



Summary of state-based reports rate of maternal death linked to self-harm, homicide, or car accidents. Data were collected in the state of Colorado (n = 211) in 2004–2012,[17] New York (n = 293) in 1987–1991,[56] Philadelphia in 2010–2014 (n = 85),[20] Texas (n = 189) in 2011–2012,[16] Virginia (n = 309) in 1999–2005,[18] and Illinois (n = 742) in 2002–2013.[21] *Asterisk* indicaties that data are not available.

Mangla. Maternal suicide and opiate overdose. Am J Obstet Gynecol 2019.

Mangla K, et al. AJOG. 2019

UTSouthwestern Medical Center

Maternal Mortality Review Committees findings are similar elsewhere

THE JOURNAL OF MATERNAL-FETAL & NEONATAL MEDICINE
https://doi.org/10.1080/14767058.2019.1687678

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OTHER

Check for updates

Challenges and opportunities to understand, discuss, and decrease maternal mortality rates in the United States. The New Jersey experience

Joseph Apuzzio[a], Lisa Gittens-Williams[a], Damali Campbell[a] and Robyn D'Oria[b]

[a]Department of Obstetrics, Gynecology & Women's Health, Rutgers New Jersey Medical School, Newark, NJ, USA; [b]Central Jersey Family Healthcare Consortium, North Brunswick, NJ, USA

ABSTRACT
Maternal mortality improvement depends on the proper classification used in defining maternal deaths. Since there are several definitions of maternal deaths depending upon the proximate cause of the death, if the death is related to the physiologic changes during pregnancy or not and the timing of the death, some opportunities for improvement may be missed to decrease the overall maternal mortality rate in the USA if the correct definition is not utilized appropriately.

ARTICLE HISTORY
Received 30 July 2019
Revised 22 October 2019
Accepted 28 October 2019

KEYWORDS
Definitions; maternal mortality; pregnancy-related; pregnancy-associated; prevention; maternal morbidity

The New Jersey maternal mortality review team (MMRT) reviews all maternal deaths within 1 year of a pregnancy event. Upon review, it is determined if the death was pregnancy-related or not-related and recommendations for improvement are made

Currently, about 27 states have MMRT. Many states do not. The reporting process from each state is not standardized and the data not uniform.

The Centers for Disease Control and Prevention (CDC) recognizes that the information about maternal mortality in the USA is imperfect. Imperfect data gives flawed conclusions. So what's the answer? The answer is that there needs to be a uniform process in the USA whereby each state reports maternal mortality using the same standard definitions using the same case review form and report in a standardized fashion.

The definitions below must be understood, recognized, and used by all parties involved in reporting cases. Therefore an understanding of the definitions of maternal mortality is critically important.

A *pregnancy-related* death is one that occurs due t
a complication of pregnancy or related to the physi
logic changes of pregnancy.

A *pregnancy-associated* death may be due to c
accident, drug overdose, and others.

The usual approach to improving maternal mortali
rates is to concentrate on *pregnancy-related* deaths u
to 42 d after delivery. However, are not maternal deat

after 42 d from birth or pregnancy-associated deaths not as important to deal with as well? A review of the last report of the New Jersey MMRT reveals that almost 50% of pregnancy-related deaths occur after 42 d.

The New Jersey MMRT believes that any maternal death including those up to 364 d after delivery should be reviewed, cause of the death identified and recommendations for improvement in maternity care or other determinants of health should be sought. The committee is committed to improving maternity care for all causes of maternal deaths.

A review of the 25 cases in the year 2018 revealed that only one death was considered pregnancy-related, 4 the cause was undetermined and 20 were pregnancy-associated but not related. The one death that was pregnancy-related was a case of postpartum hemorrhage that was deemed preventable. The proximate cause of the 20 pregnancy-associated cases was three suicide, three homicide, five drug overdose, 3 motor vehicle accidents, 2 cardiac, infection 2, seizures 1, renal

related, some certainly were preventable. There should be recommendations for improvement and resources provided to decrease these maternal deaths. Programs and resources should be dedicated to suicide prevention, domestic violence, drug abuse, auto safety, and the long term medical management of chronic medical diseases with perhaps a "medical home" for the patient.

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Apuzzio J, et al. J Mat Fet Neo Med. 2019

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ORIGINAL ARTICLE

Check for updates

Two decades of interventions in New York State to reduce maternal mortality: a systematic review

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[a]NYU Langone Health, New York, NY, USA; [b]Weill Cornell Medical College, Cornell University, New York, NY, USA; [c]Saving Mothers, New York, NY, USA; [d]Maternal Fetal Medicine Associates PLLC, New York, NY, USA

ABSTRACT
Objective: To perform a systematic review of interventions to reduce maternal mortality in New York.
Study design: We conducted a systematic review of literature published between 2000 and January 2019 reporting interventions to reduce maternal mortality in New York using PubMed and search terms: pregnancy-related death or maternal mortality OR maternal death AND New York. Eight hundred and ninety-three articles were reviewed by title, content, and focus on New York interventions or policies. Ten met inclusion criteria. A second review of the Safe Motherhood Initiative (SMI) identified an additional six articles.
Results: Nine articles described hospital-based initiatives; one described a community-based initiative. No prospective randomized controlled trials in a nonsimulated setting were identified. Several articles described SMI bundles; one tested simulated checklist implementation. Three presented results of bundle implementation but did not significantly impact measured maternal mortality and/or morbidity. The single community-based initiative provided doulas to low-

difference in cesarean deliveries compared to other women in the community.
Conclusion: Current hospital-based interventions have not reduced maternal mortality in New York. The single community-based intervention identified reduced adverse birth outcomes. Continued concern about maternal mortality in New York suggests community-based approaches should be considered to affect change in conjunction with longer term hospital-based interventions.

ARTICLE HISTORY
Received 16 July 2019
Revised 11 October 2019
Accepted 25 October 2019

KEYWORDS
Community-based; interventions; maternal death; maternal mortality; Safe Motherhood Initiative

Introduction

On the global stage, the United States has a remarkably high burden of maternal mortality, or pregnancy-related deaths, among economically similar nations [1]. A pregnancy-related death has been defined by the Centers for Disease Control and Prevention as a woman's death while pregnant or within one year of being pregnant for any reason related to the pregnancy [2]. In the most recent global report in 2015, the United States placed 46th among all countries ranked [1]. From 2011 to 2015, the US maternal mortality ratio was 20.7 deaths per 100 000 live births [3], and recently published data from 2013 to 2017 suggests the US maternal mortality ratio from that period was 29.6 [4]. When US maternal mortality is viewed state by state, New York maternal mortality remains in the bottom half of all 50 states, ranking 30th (lower ranking indicates higher mortality) from 2011 to 2015 [3] and 23rd from 2013 to 2017 [4]. Between 2012 and 2016, the state had a maternal mortality rate of 19.2 per 100,000 live births [5]; other values suggest it was 20.6 between 2011 and 2015 [3] and 25.5 from 2013 to 2017 [4]. The leading causes of pregnancy-related death in New York between 2012 and 2013 included embolism (29%), hemorrhage (17.7%), infection (14.5%), and cardiomyopathy (11.3%) [6]. In New York, most (66.1%) pregnancy-related deaths between 2012 and 2013 involved cesarean deliveries, and 9.7% of pregnancy-related deaths occurred before delivery [6].

There are significant racial and regional disparities in pregnancy-related deaths in New York. In one review, the statewide maternal mortality ratio for black non-Hispanic women was four times greater than that of white women [7]; other studies similarly showed that black women died of pregnancy-related causes at higher rates [8], and that black race can be considered a risk factor for maternal mortality [9]. In addition, Hispanic ethnicity has been considered a risk factor [9]. These racial and ethnic variables may be the strongest risk factors for maternal death [9]. Such disparities

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Ricklan SJ et al. J Mat Fet Neo Med. 2019

Maternal Mortality Review Committees in Texas, 2018

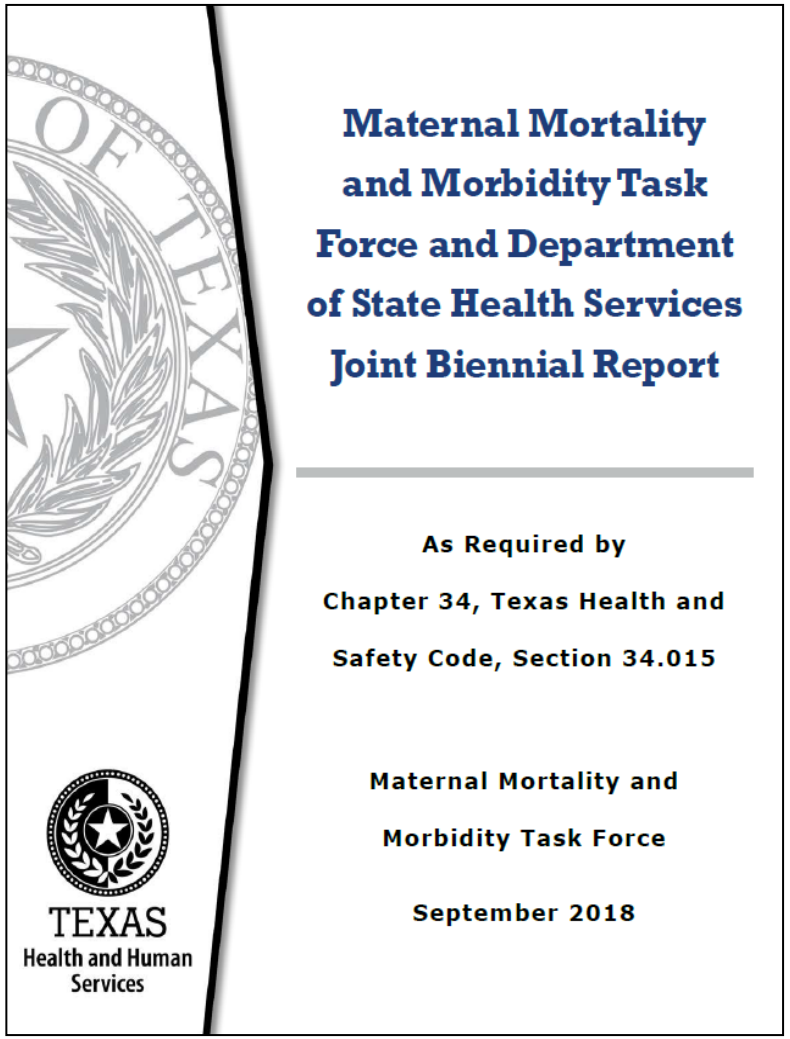

Table C1. Maternal Death by Cause and Timing of Death, Texas, 2012-2015

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PREPARED BY: Maternal & Child Health Epidemiolog Improvement, DSHS.

6 weeks-1 year

DATA SOURCES: 2012-2015 Death Files, 2011-2015 Live Birth and Fetal Death Files. Center for Health Statistics, DSHS.

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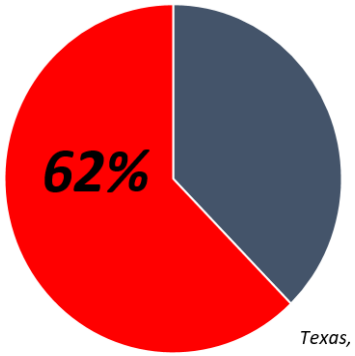
Timing of death after delivery



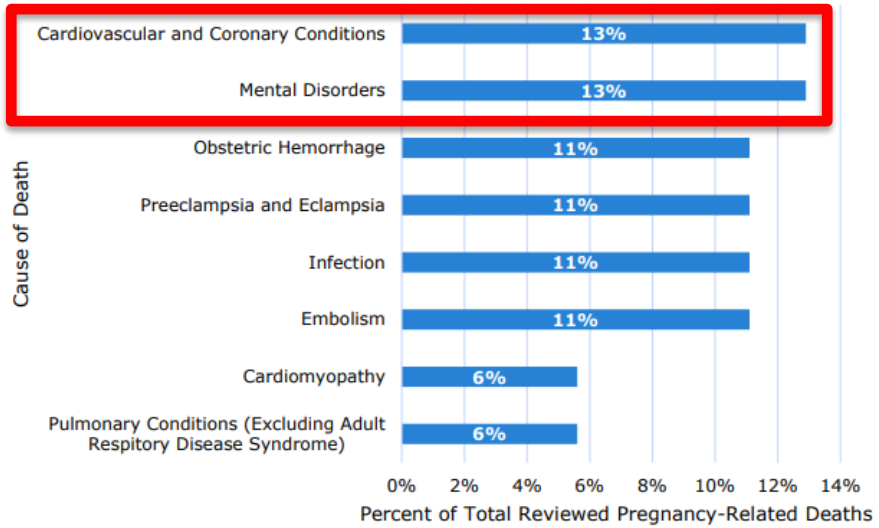
Texas, 2012-2015

Texas Maternal Mortality and Morbidity Task Force Report, 2018

Maternal Mortality Review Committees in Texas, 2020

Within Texas reported in 2020, 71% of deaths occur postpartum!!!

Chart F-1: Leading Underlying Causes of Reviewed Pregnancy-Related Deaths, Texas, 2013 (N=44 of 54 Reviewed Pregnancy-Related Deaths)

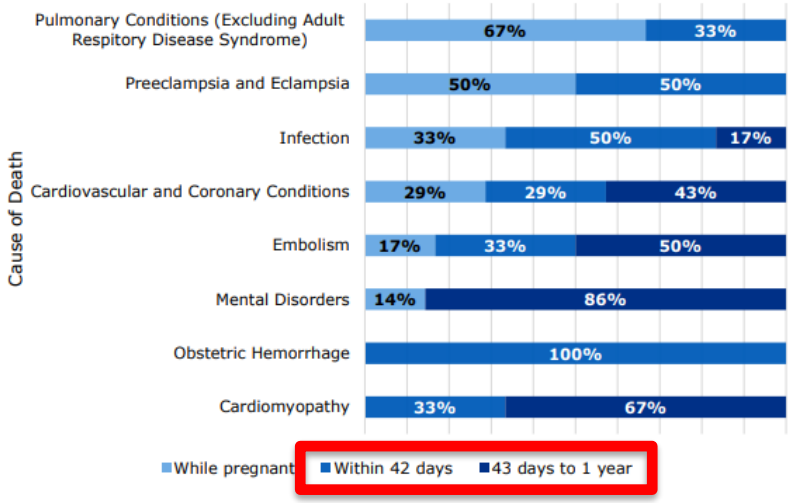


PREPARED BY: Healthy Texas Mothers and Babies Branch, Maternal & Child Health Unit, Division for Community Health Improvement, the Department of State Health Services (DSHS).

DATA SOURCE: 2013 Death Files, DSHS

NOTES: Amniotic fluid embolism is not included in the embolism grouping due to differences in etiology and opportunities for prevention. Mental disorders include deaths to suicide, overdose, poisoning, and unintentional injuries determined by the MMMRC to be related to a mental disorder.

Chart F-2: Top Underlying Causes of Reviewed Pregnancy-Related Deaths by Timing of Death in Relation to Pregnancy, Texas 2013 (N=44 of 54 Reviewed Pregnancy-Related Deaths)



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DATA SOURCE: 2013 Death Files, DSHS

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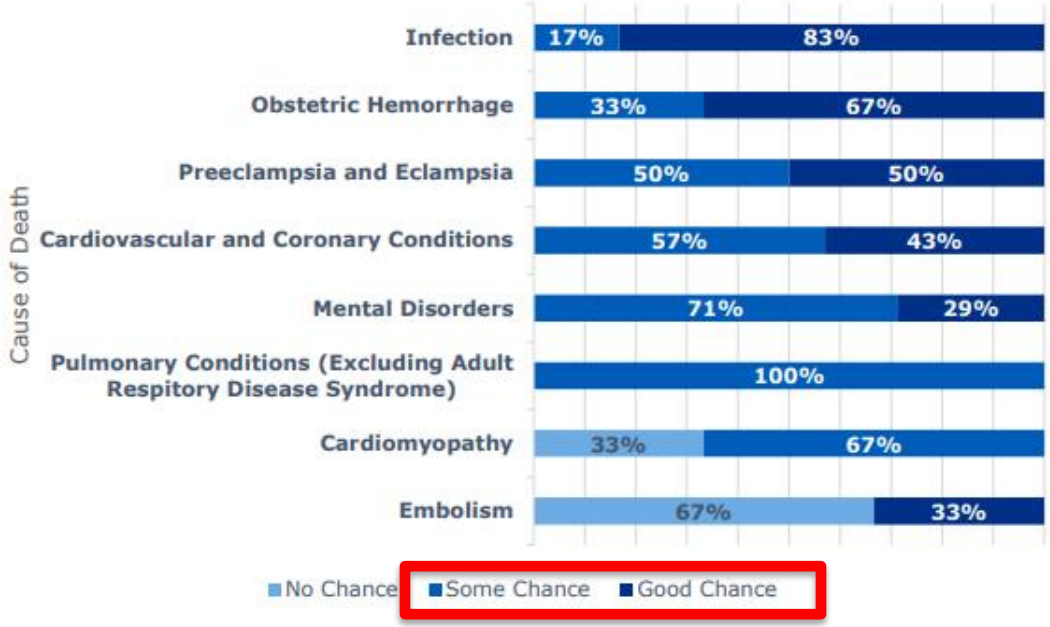
Texas Maternal Mortality and Morbidity Task Force Report, 2020

Maternal Mortality Review Committees in Texas, 2020

Chart F-3: Degree of Preventability for Top Underlying Causes of Reviewed Pregnancy-Related Deaths by Rating of Chance to Alter Outcome, Texas, 2013 (N=44 of 54 Reviewed Pregnancy-Related Deaths)



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Texas Maternal Mortality and Morbidity Task Force Report, 2020

Maternal Mortality Review Committees in 36 other states…

Pregnancy-Related Deaths: Data from Maternal Mortality Review Committees in 36 US States, 2017–2019

MMRIA MATERNAL MORTALITY REVIEW INFORMATION APP

Susanna Trost, MPH; Jennifer Beauregard, MPH, PhD; Gyan Chandra, MS, MBA; Fanny Njie, MPH; Jasmine Berry, MPH; Alyssa Harvey, BS; David A. Goodman, MS, PhD

Key Findings

- Pregnancy-related deaths occurred during pregnancy, delivery, and up to a year postpartum.
- The leading cause of pregnancy-related death varied by race and ethnicity.
- Over 80% of pregnancy-related deaths were determined to be preventable.

Maternal Mortality Review Committees (MMRCs) are multidisciplinary committees that convene at the state or local level to comprehensively review deaths during or within a year of pregnancy (pregnancy-associated deaths). MMRCs have access to clinical and nonclinical information (e.g., vital records, medical records, social service records) to more fully understand the circumstances surrounding each death, determine whether the death was pregnancy-related, and develop recommendations for action to prevent similar deaths in the future.

Data on 1,018 pregnancy-related deaths among residents of 36 states from 2017–2019 were shared with CDC through the Maternal Mortality Review Information Application (MMRIA).

Table 1. Characteristics of pregnancy-related deaths, data from Maternal Mortality Review Committees in 36 US States, 2017–2019 (N=1,018)*

	N	%
Race and ethnicity		
Hispanic	144	14.4
non-Hispanic American Indian or Alaska Native	9	0.9
non-Hispanic Asian	34	3.4
non-Hispanic Black	315	31.4
non-Hispanic Native Hawaiian and Other Pacific Islander	6	0.6
non-Hispanic White	467	46.6
non-Hispanic other/multiple races	27	2.7
Age at death (years)		
15–19	29	2.9
20–24	155	15.3
25–29	227	22.4
30–34	297	29.3
35–39	225	22.2
40–44	70	6.9
≥45	10	1.0
Education		
12th grade or less; no diploma	135	13.7
High school graduate or GED completed	396	40.1
Some college credit, but no degree	192	19.4
Associate or bachelor's degree	218	22.1
Advanced degree	47	4.8

*Race or ethnicity was missing for 16 (1.6%) pregnancy-related deaths; age was missing for 5 (0.5%) pregnancy-related deaths; education was missing for 30 (2.9%) pregnancy-related deaths.

National Center for Chronic Disease Prevention and Health Promotion
Division of Reproductive Health

CDC

Among pregnancy-related deaths with information on place of last residence **82% of decedents lived in urban** counties.

Table 3. Distribution of pregnancy-related deaths by timing of death in relation to pregnancy, data from Maternal Mortality Review Committees in 36 US states, 2017–2019*

	N	%
During pregnancy	216	21.6
Day of delivery	132	13.2
1–6 days postpartum	120	12.0
7–42 days postpartum	233	23.3
43–365 days postpartum	301	30.0

Specific timing information is missing (n=2) or *unknown* (n=14) for 16 (1.6%) pregnancy-related deaths.

65% of deaths occurred AFTER delivery

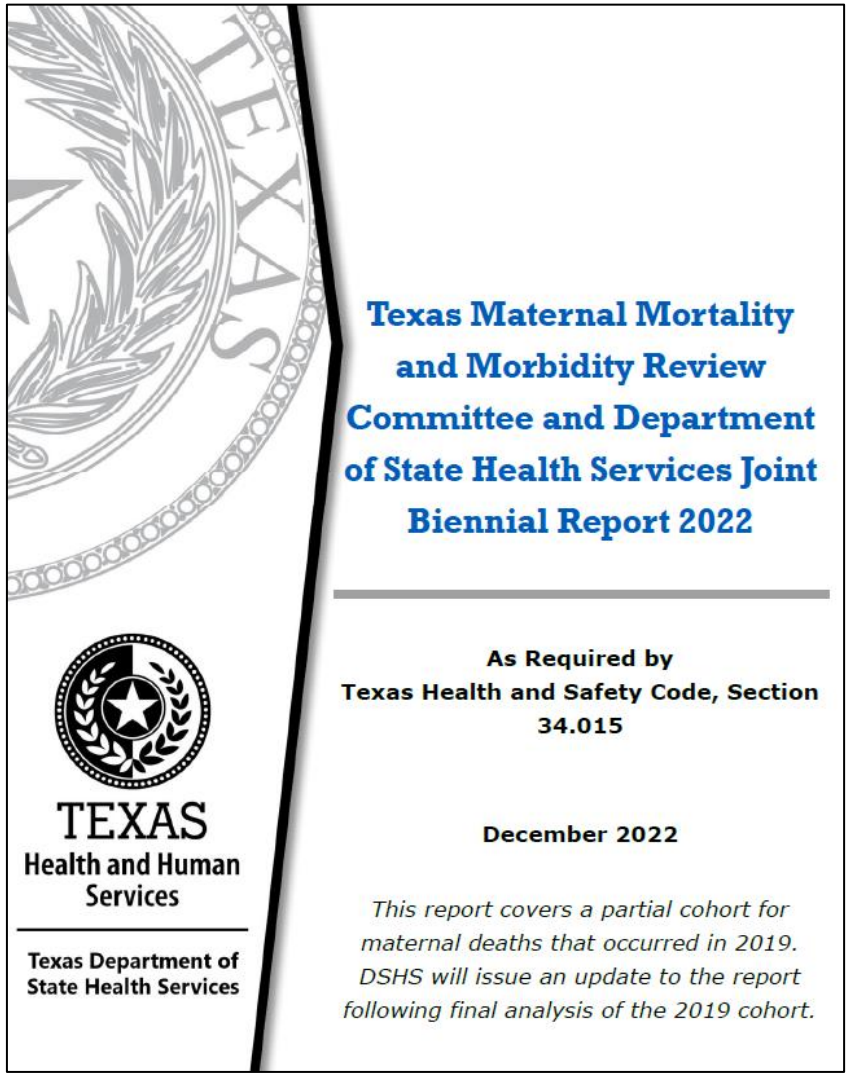
Table 6. Percentage of pregnancy-related deaths determined by MMRCs to be preventable, data from Maternal Mortality Review Committees in 36 US states, 2017–2019*

	n	%
Preventable	839	84.2
Not Preventable	157	15.8

*A preventability determination was missing (n=4) or unable to be determined (n=18) for a total of 22 (2.2%) pregnancy-related deaths.

Trost SL, et al. Pregnancy-Related Deaths: Data from Maternal Mortality Review Committees in 36 US States, 2017–2019. ***Oct 2022***

Maternal Mortality Review Committees in Texas, 2022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In recognition of the importance of more contemporary case review and CDC grant requirements, DSHS started case identification and facilitated reviews for the 2019 case cohort. DSHS continued to identify pregnancy-associated death cases and calculate enhanced maternal mortality ratios for deaths occurring during the intervening years (2014-2018).

From March 2021 to June 2022, the MMMRC **reviewed 118 of 141 provisionally identified 2019 cohort cases**. From these cases, the MMMRC determined **52 of the reviewed cases were pregnancy-related**. The findings and recommendations in this report are derived from the 52 cases and analyses of statewide trends, rates, and disparities.

The 118 pregnancy-associated death cases reviewed by the MMMRC resulted in 6,162 years of potential life lost by the women who died and left an estimated 184 living children forever impacted by the loss of their mothers.

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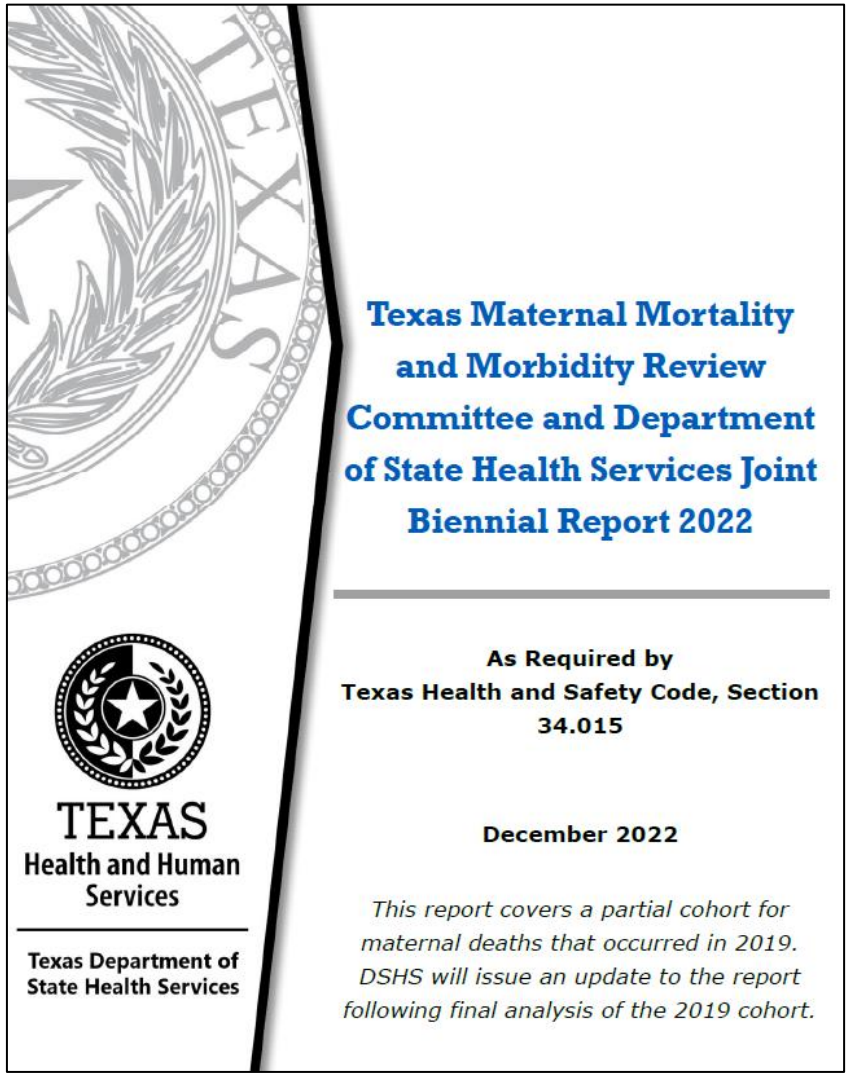
Maternal Mortality Review Committees in Texas, 2022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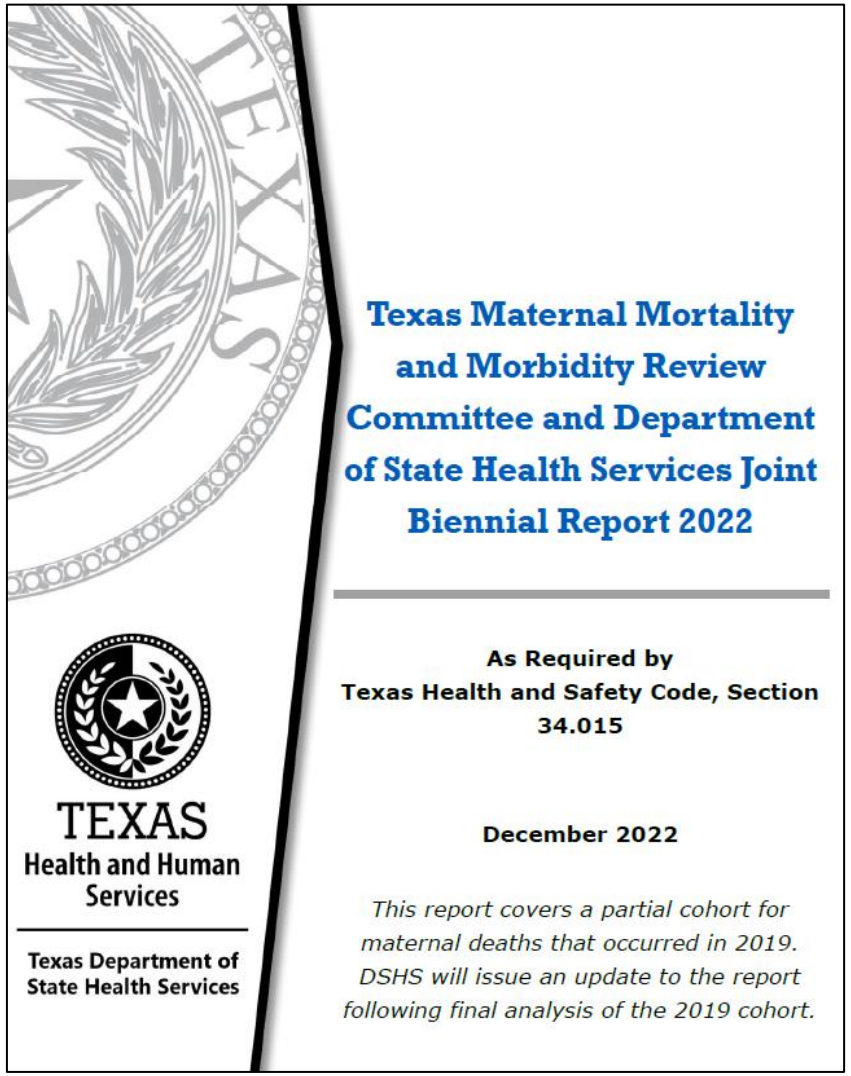
Texas Department of State Health Services

Finding #1 – **44 percent** of the reviewed pregnancy-associated deaths from the 2019 case cohort are pregnancy-related.

Again, we need good data…

Texas Maternal Mortality and Morbidity Task Force Report, 2022

Maternal Mortality Review Committees in Texas, 2022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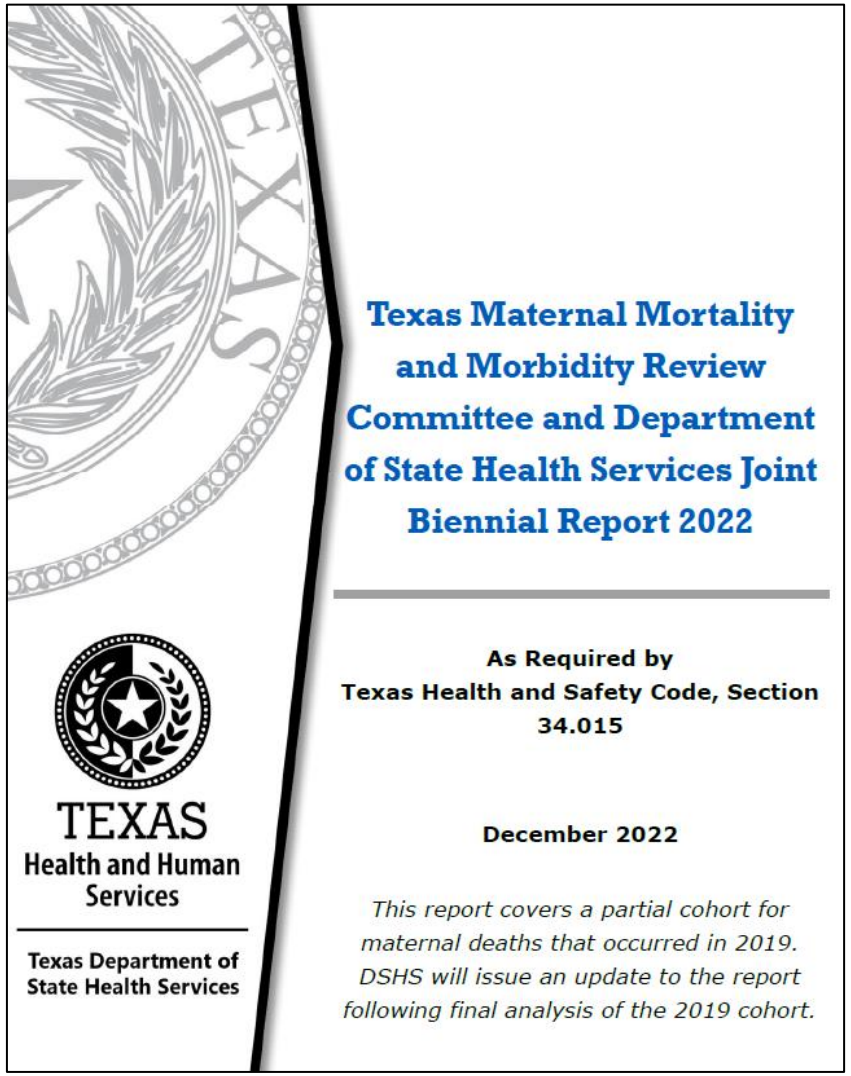
Finding #1 – 44 percent of the reviewed pregnancy-associated deaths from the 2019 case cohort are pregnancy-related.

Finding #2 – Most pregnancy-related deaths were preventable. **90%!**

Texas Maternal Mortality and Morbidity Task Force Report, 2022

Maternal Mortality Review Committees in Texas, 2022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As Required by Texas Health and Safety Code, Section 34.015

December 2022

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Texas Department of State Health Services

Finding #1 – 44 percent of the reviewed pregnancy-associated deaths from the 2019 case cohort are pregnancy-related.

Finding #2 – Most pregnancy-related deaths were preventable.

Finding #3 –Six underlying causes of death accounted for 79 percent of all reviewed 2019 case cohort pregnancy-related death.

Underlying Cause of Death as determined by MMMRC*	Cases (Count)	Cases (Percent)	Contributing Factors (Count)	Contributing Factors (Average)
Hemorrhage (Excludes Aneurysms or Cerebrovascular Accident)	13	25%	103	7.9
Mental Health Conditions	9	17%	76	8.4
Embolism - Thrombotic (Non-Cerebral)	6	12%	70	11.7
Injury	5	10%	27	5.4
Cardiovascular Conditions	4	8%	36	9.0
Infection	4	8%	32	8.0
Cancer	3	6%	4	1.3
Cardiomyopathy	3	6%	26	8.7
Total	**51**		**390*** **	**7.6** **

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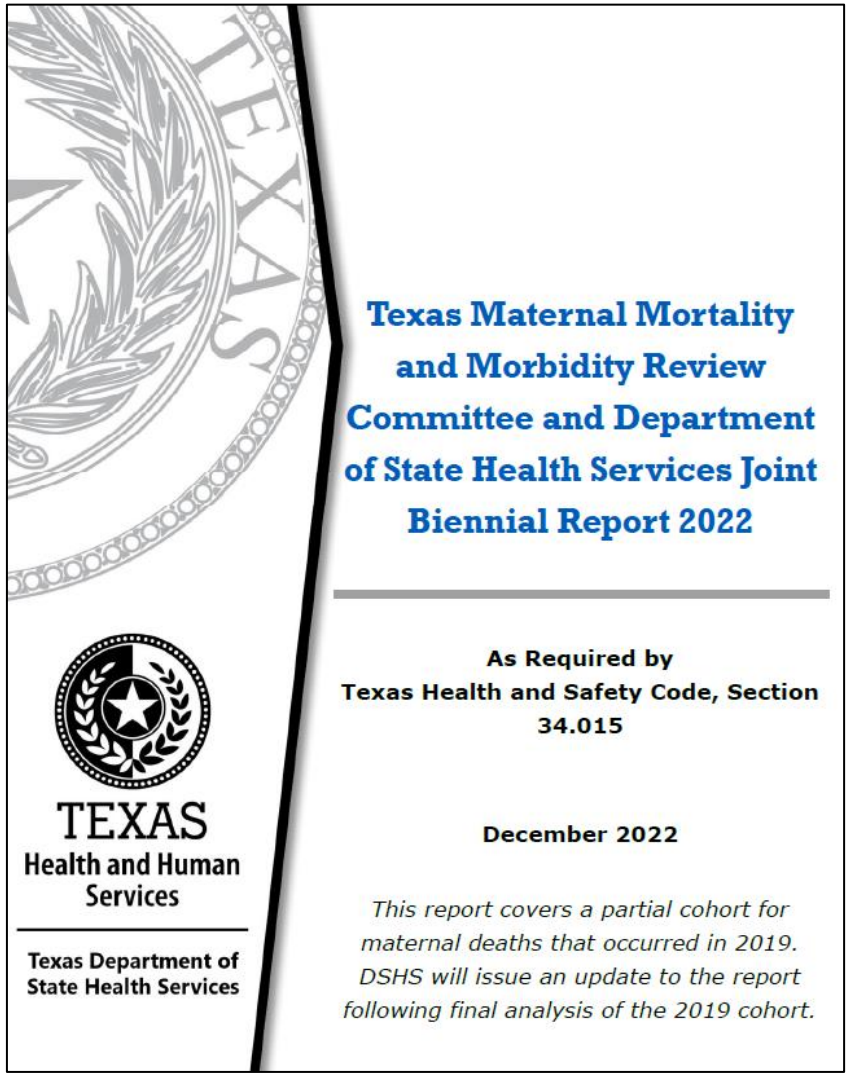
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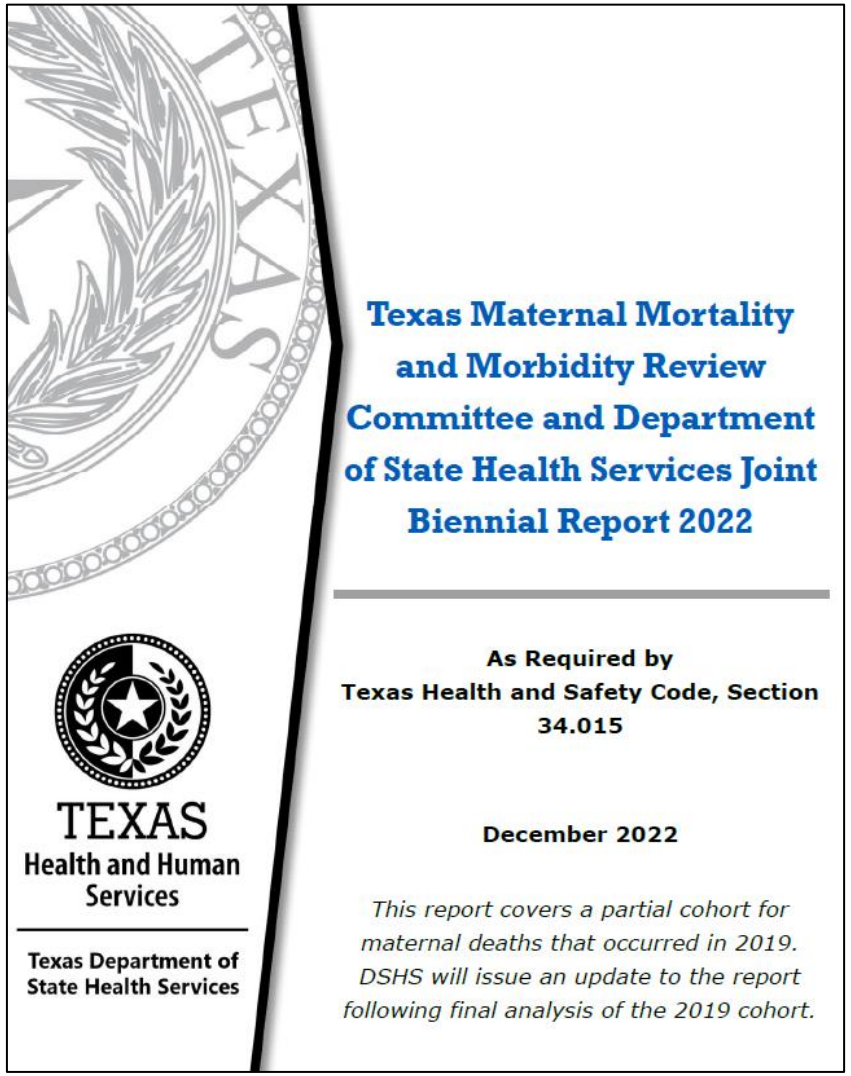
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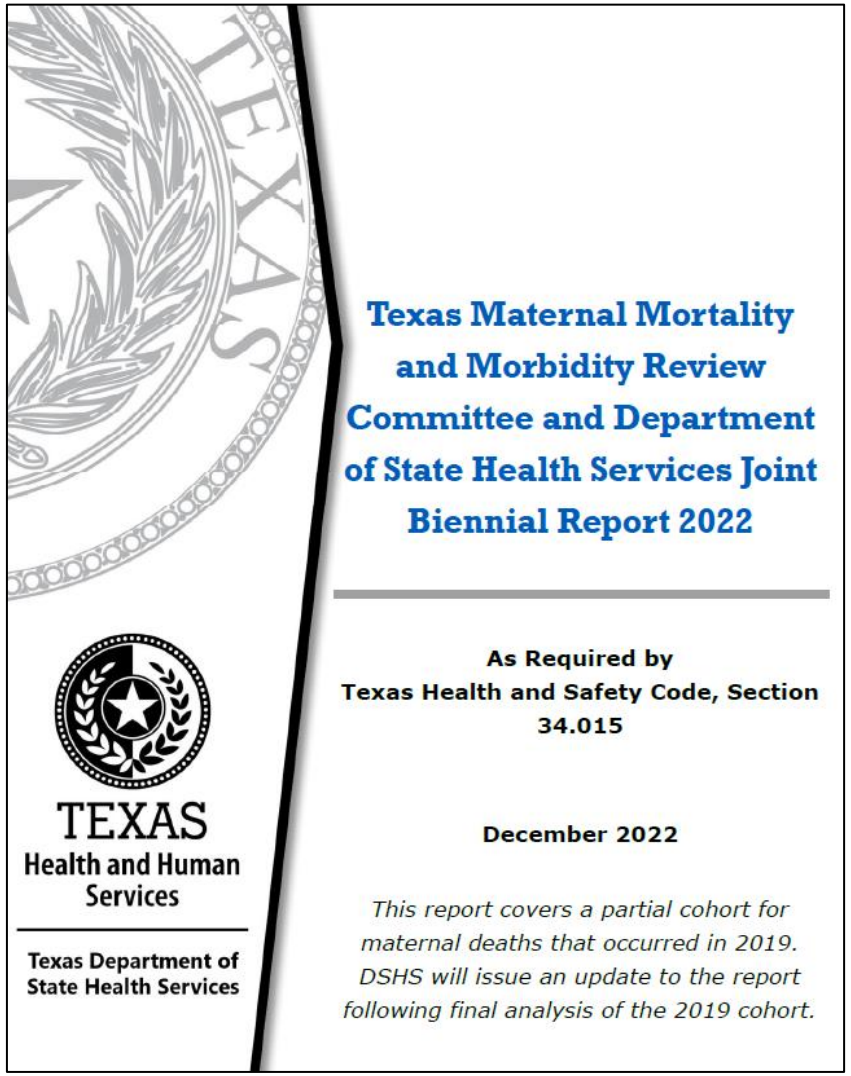
Finding #4 – Multiple underlying causes contributed to reviewed pregnancy-related deaths caused by obstetric hemorrhage.

Finding #5 – Obesity, mental disorders, discrimination, and substance use disorder each contributed to pregnancy-related death.

- Obesity 21%
- Mental health 21%
- Discrimination 12%
- Substance use disorder 8%

Texas Maternal Mortality and Morbidity Task Force Report, 2022

Maternal Mortality Review Committees in Texas, 2022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Finding #4 – Multiple underlying causes contributed to reviewed pregnancy-related deaths caused by obstetric hemorrhage.

Finding #5 – Obesity, mental disorders, discrimination, and substance use disorder each contributed to pregnancy-related death.

Finding #6 – Violence contributed to pregnancy-related death. Violent pregnancy-related deaths with a manner of death of suicide or homicide represented **27 percent** of pregnancy-related death. **Partners** were most likely to be perpetrators of homicide among reviewed homicide cases.

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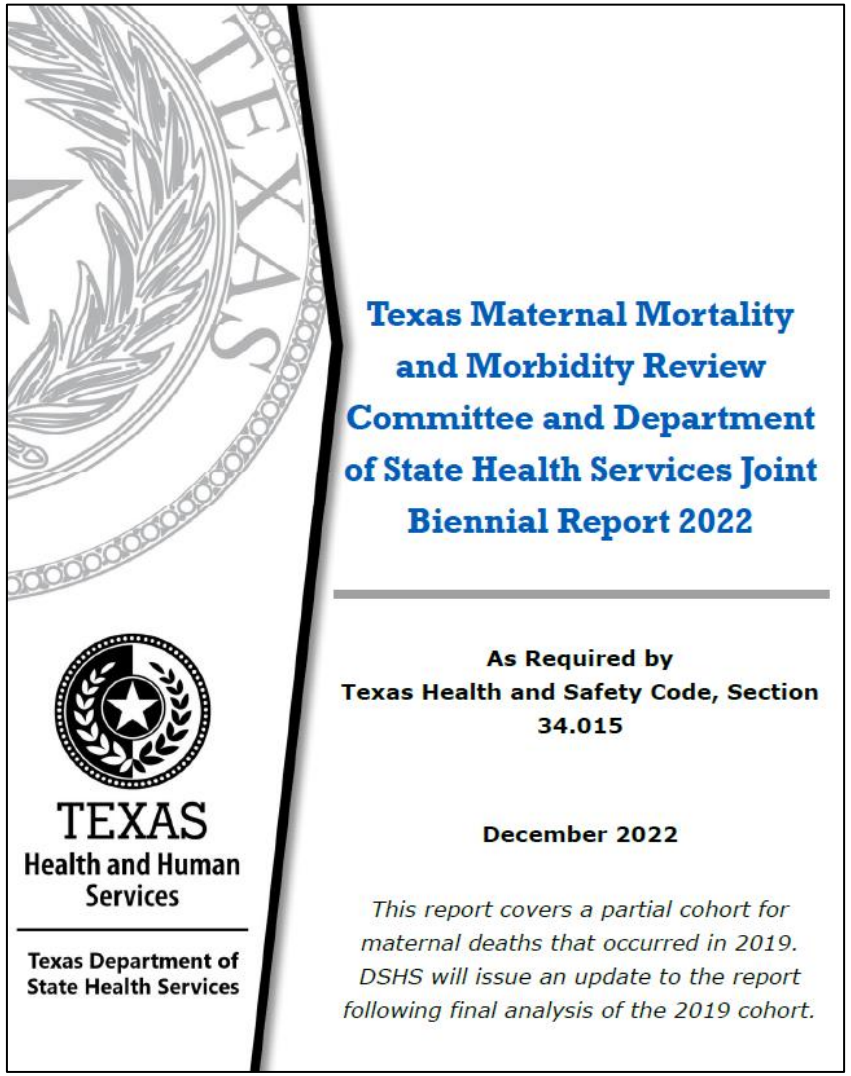

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Finding #7 – A complex interaction of factors and characteristics contribute to preventable death.

The MMMRC identified **390 factors** that contributed to the 2019 preventable pregnancy-related cases (N=47), an average of **8.3 contributing factors per case**. These factors help cause or aggravate the conditions or events leading up to and surrounding the death of a woman during her pregnancy or up to one year of the end of her pregnancy. Contributing factors are categorized within domains that indicate targeted prevention action levels. Identified contributing factors for preventable pregnancy-related death were distributed among the patient and family (29 percent), provider (30 percent), facility (14 percent), systems of care (12 percent), and community (15 percent) domains.

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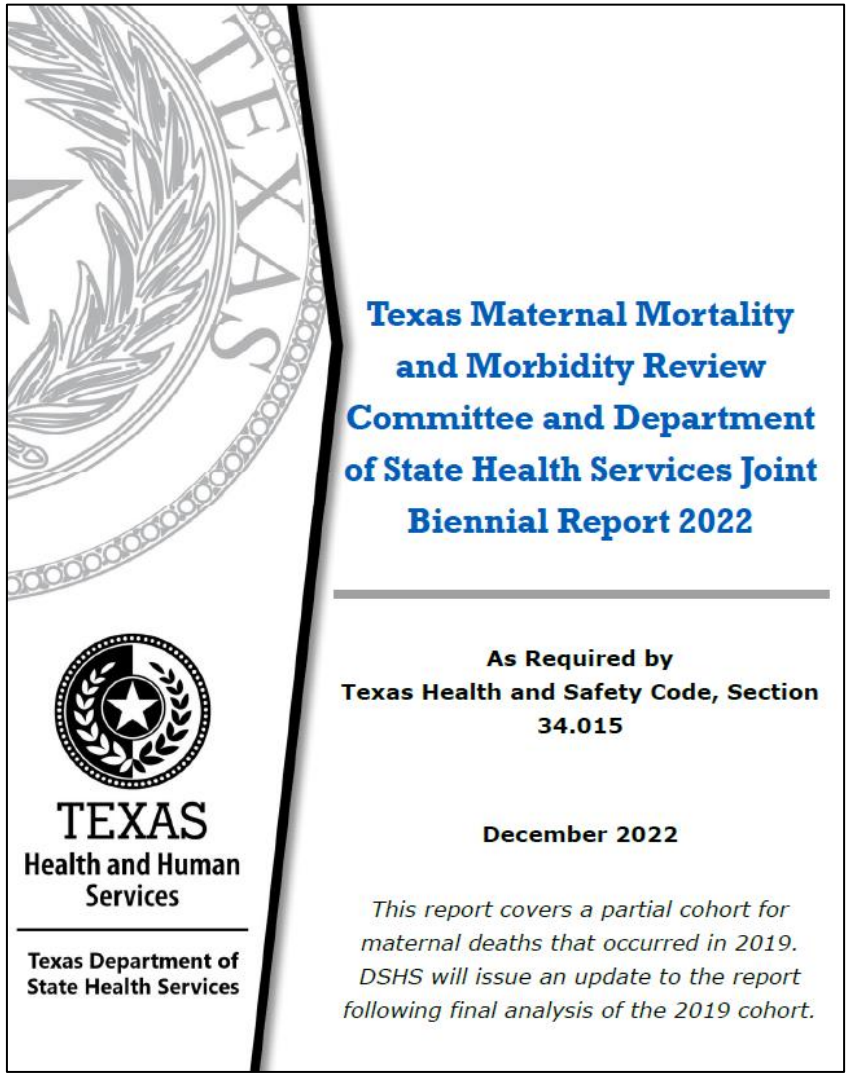
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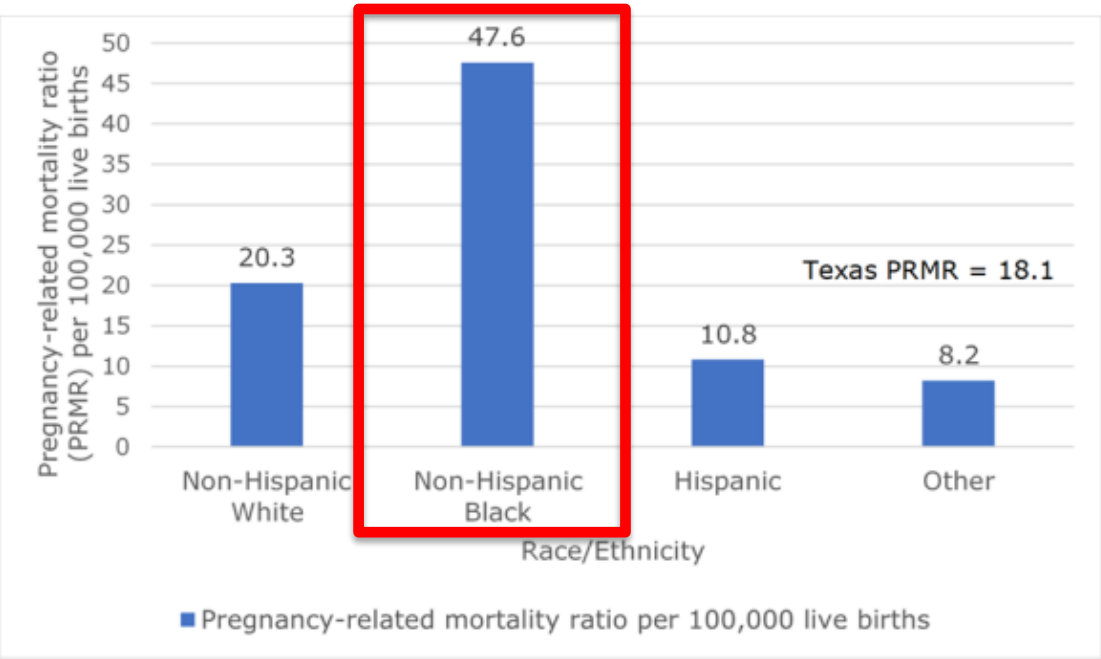
Finding #8 – Disparities persist in maternal mortality with Non-Hispanic Black women being most disproportionately impacted.

Figure E-1. PRMR by Race and Ethnicity, Texas, 2013



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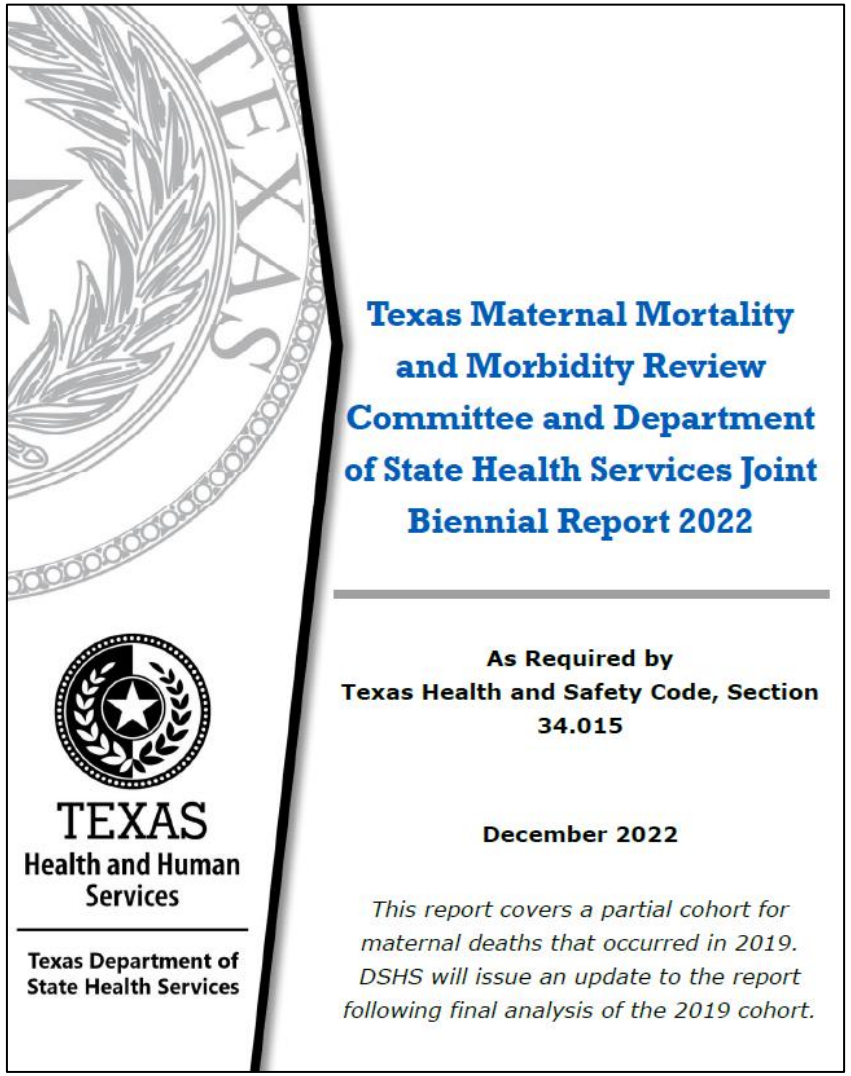
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Finding #8 – Disparities persist in maternal mortality with Non-Hispanic Black women being most disproportionately impacted.

Finding #9 – The enhanced maternal mortality ratio remained relatively stable from 2013-2017.

- 2013: 18.9 maternal deaths/100,000 live births
- 2014: 20.7 maternal deaths/100,000 live births
- 2015: 18.3 maternal deaths/100,000 live births
- 2016: 20.7 maternal deaths/100,000 live births
- 2017: 20.2 maternal deaths/100,000 live births

Texas Maternal Mortality and Morbidity Task Force Report, 2022

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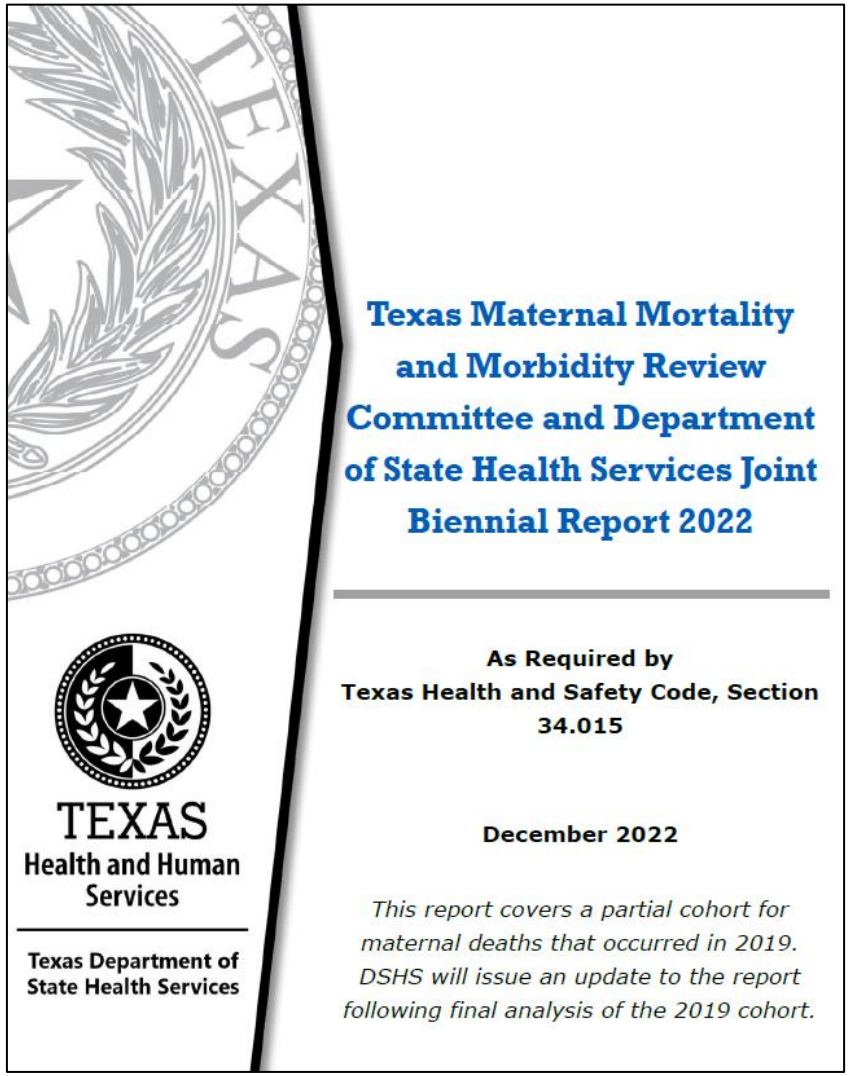
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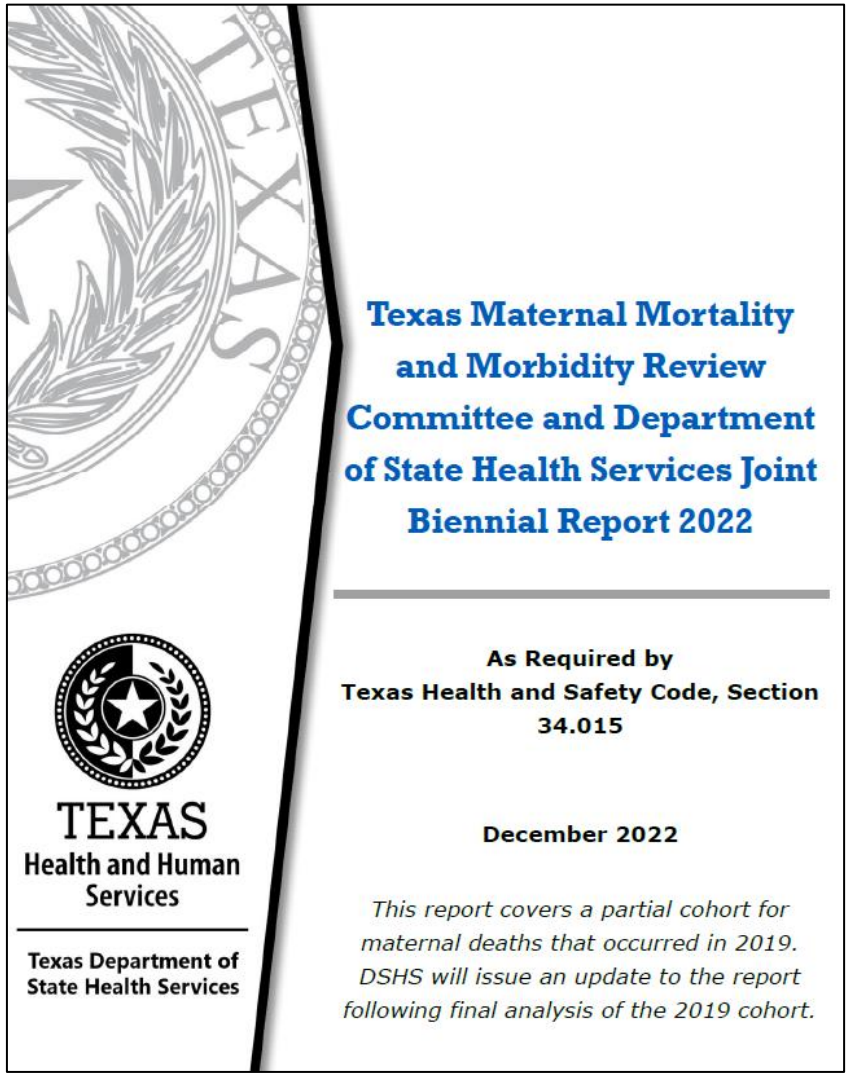

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Texas Maternal Mortality and Morbidity Review Committee and Department of State Health Services Joint Biennial Report 2022

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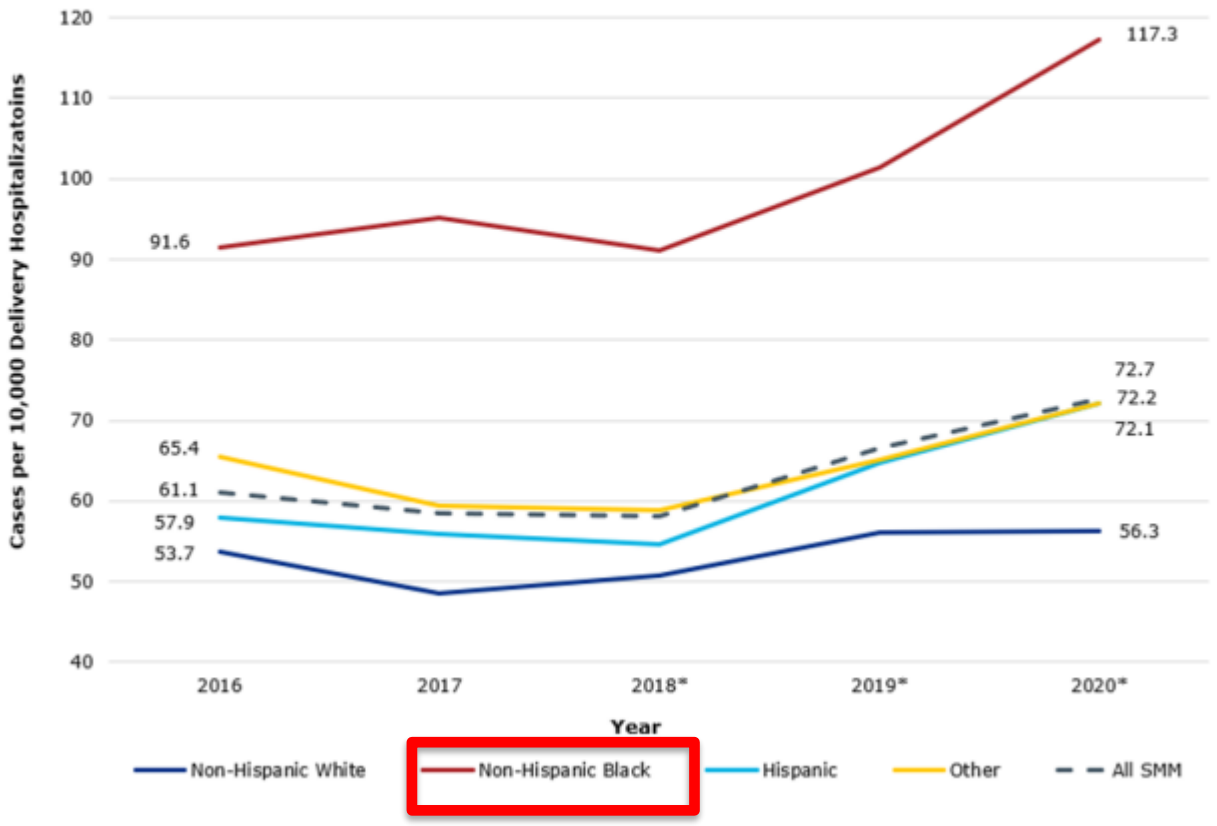
Figure G-1. Rate of Delivery Hospitalizations Involving Severe Maternal Morbidity (SMM) in Texas per 10,000 Delivery Hospitalizations by Race and Ethnicity, 2016-2020



Texas Maternal Mortality and Morbidity Task Force Report, 2022

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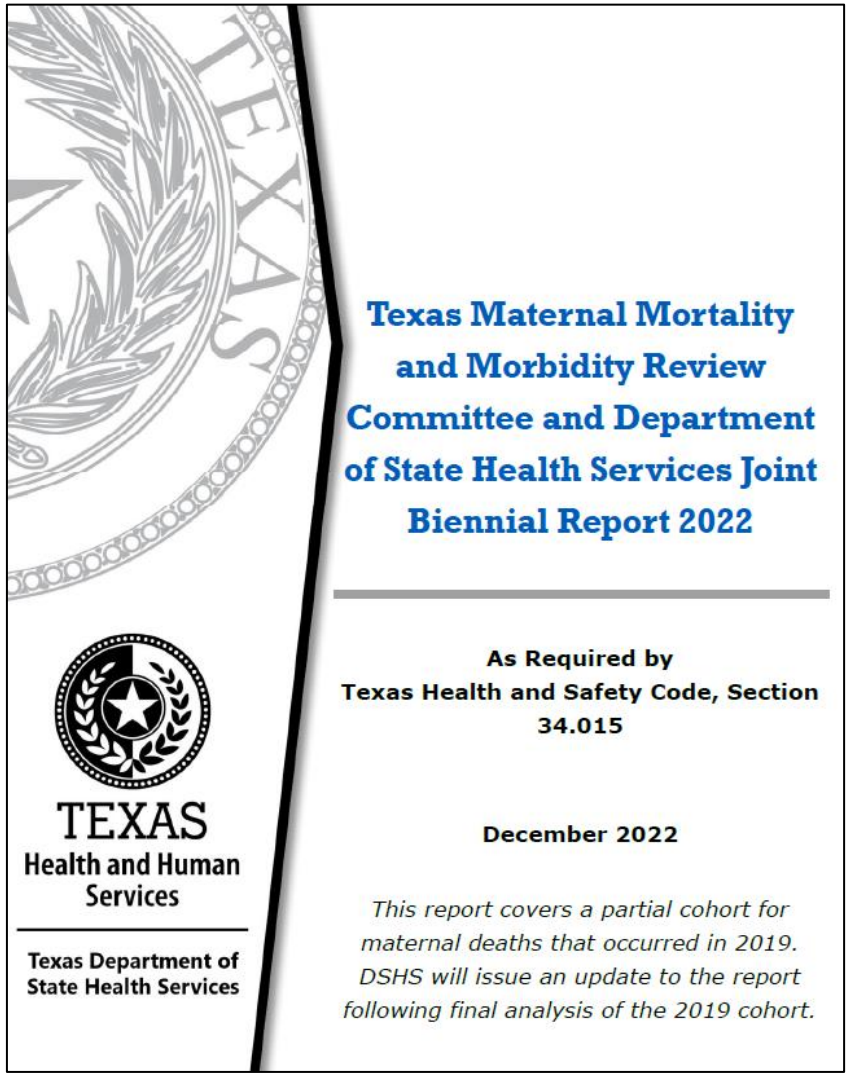
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Finding #10 – From 2016-2020, demographic and geographic disparities in severe maternal morbidity rates related to in-hospital deliveries persist.

Finding #11 – Overall severe maternal morbidity rates show improvement in obstetric hemorrhage delivery hospitalizations while sepsis and preeclampsia rates increased. Disparities in severe maternal morbidity still persist for Non-Hispanic Black women.

Texas Maternal Mortality and Morbidity Task Force Report, 2022

Maternal Mortality Review Committees in Texas, 2022

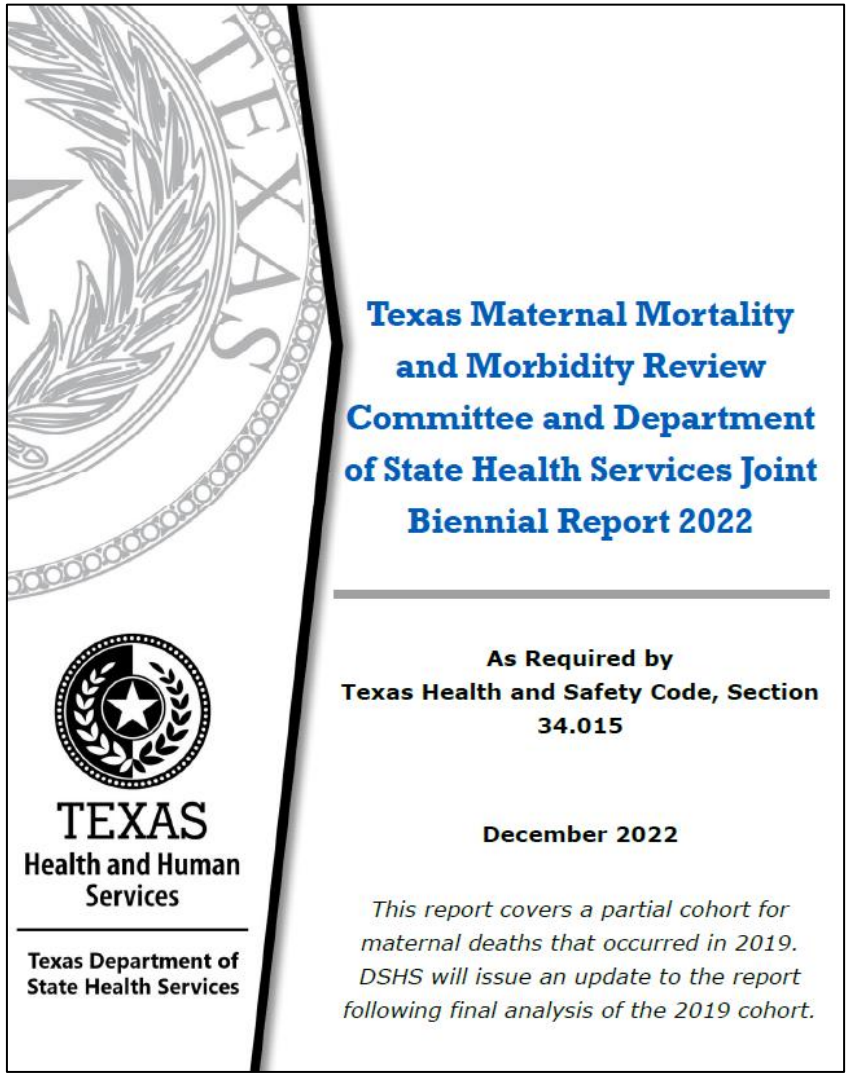

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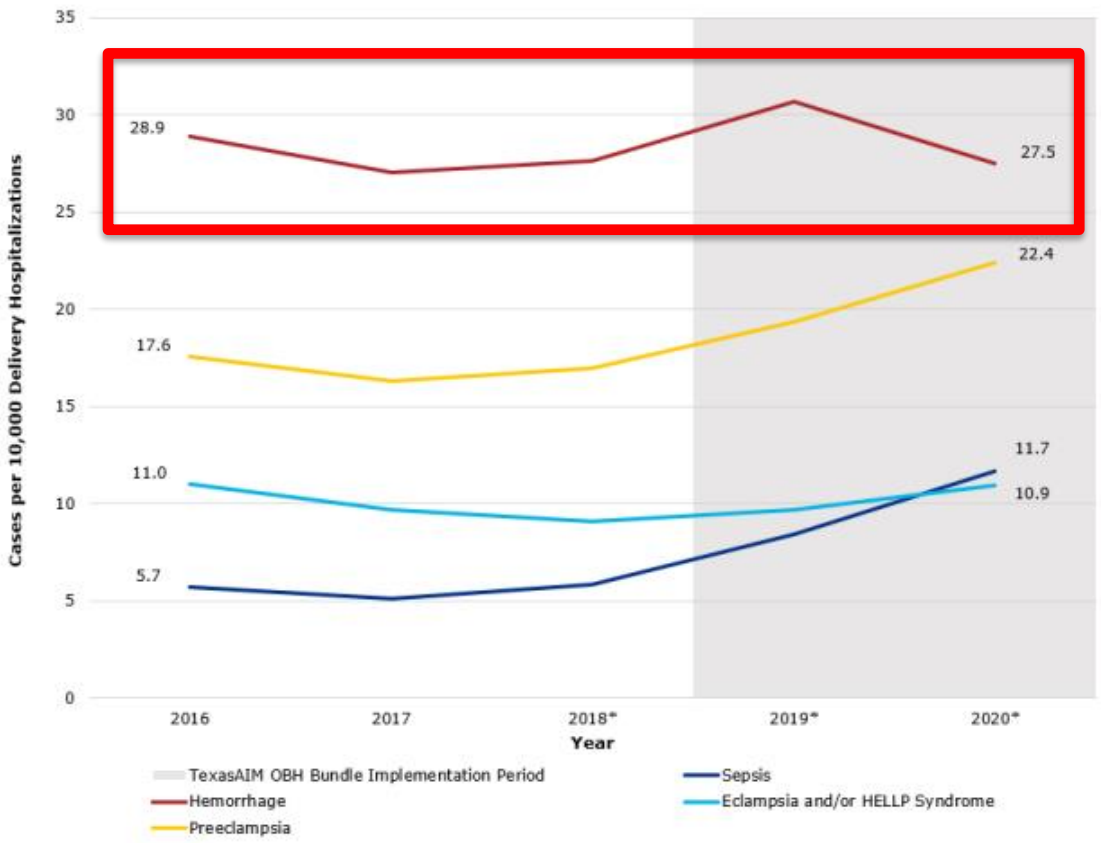
Figure G-4. Rate of Delivery Hospitalizations Involving Severe Maternal Morbidity (SMM) in Texas per 10,000 Delivery Hospitalizations by SMM Indicator, 2016-2020



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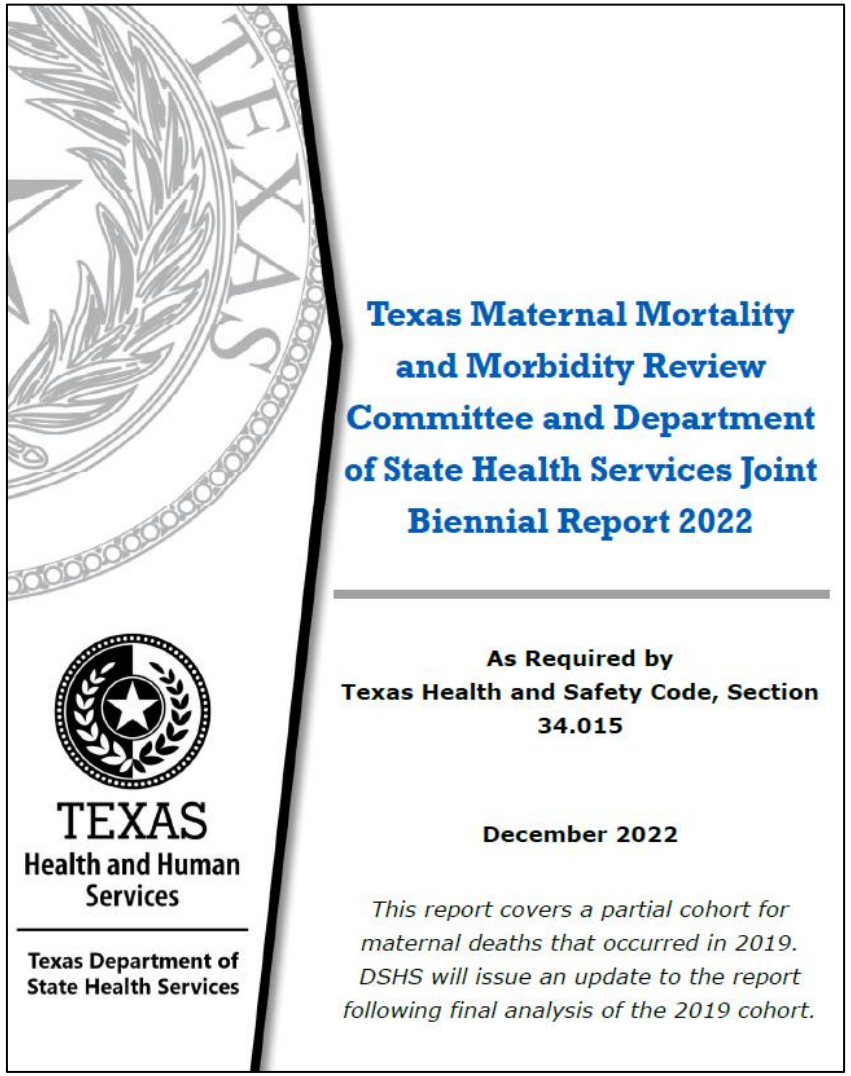

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Finding #10 – From 2016-2020, demographic and geographic disparities in severe maternal morbidity rates related to in-hospital deliveries persist.

Finding #11 – Overall severe maternal morbidity rates show improvement in obstetric hemorrhage.

Finding #12 – Beginning in April 2020, severe maternal morbidity associated with COVID-19 appeared to show disproportionate impacts to Hispanic women

Texas Maternal Mortality and Morbidity Task Force Report, 2022

Maternal Mortality Review Committees in Texas, 2022

RECOMMENDATIONS

1. Increase **access** to comprehensive health services during pregnancy, the **year after pregnancy**, and throughout the preconception and inter-pregnancy periods to facilitate continuity of care, implement effective care transitions, promote safe birth spacing, and improve lifelong health of women.
2. Engage **Black communities** and those that support them in the development of maternal and women's health programs.
3. Implement statewide maternal health and safety initiatives and incorporate **health equity** principles to reduce maternal mortality, morbidity, and health disparities.
4. Increase public awareness and **community engagement** to foster a culture of maternal health, safety, and disease prevention.
5. Improve integrated **behavioral health care access** from preconception throughout postpartum for women with mental health and substance use disorders.
6. Improve statewide infrastructure and programs to **address violence** and intimate partner violence at state and community levels.
7. Foster safe and **supportive community environments** to help women achieve their full health potential.
8. Support emergency and maternal health **service coordination** and implement evidence-based, **standardized protocols** to prevent, identify, and manage obstetric and postpartum emergencies.
9. **Improve postpartum care management** including education and health care coordination for those with mental health and/or high-risk medical conditions.
10. Prioritize **continuing education, diversification, and increasing capacity** of the maternal health workforce.
11. Apply continuous process improvement strategies for maternal mortality review protocols to support and increase case review capacity, quality, and recommendation development.

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Texas Maternal Mortality and Morbidity Task Force Report, 2022

Importance of postpartum care ("the fourth trimester")

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG COMMITTEE OPINION

Number 736 • May 2018 (Replaces Committee Opinion Number 666, June 2016)

Presidential Task Force on Redefining the Postpartum Visit
Committee on Obstetric Practice

The Academy of Breastfeeding Medicine, the American College of Nurse-Midwives, the National Association of Nurse Practitioners in Women's Health, the Society for Academic Specialists in General Obstetrics and Gynecology, and the Society for Maternal-Fetal Medicine endorse this document. This Committee Opinion was developed by the American College of Obstetricians and Gynecologists' Presidential Task Force on Redefining the Postpartum Visit and the Committee on Obstetric Practice in collaboration with task force members Alison Stuebe, MD, MSc; Tamika Auguste, MD; and Martha Gulati, MD, MS.

Optimizing Postpartum Care

ABSTRACT: The weeks following birth are a critical period for a woman and her infant, setting the stage for long-term health and well-being. To optimize the health of women and infants, postpartum care should become an ongoing process, rather than a single encounter, with services and support tailored to each woman's individual needs. It is recommended that all women have contact with their obstetrician–gynecologists or other obstetric care providers within the first 3 weeks postpartum. This initial assessment should be followed up with ongoing care as needed, concluding with a comprehensive postpartum visit no later than 12 weeks after birth. The comprehensive postpartum visit should include a full assessment of physical, social, and psychological well-being, including the following domains: mood and emotional well-being; infant care and feeding; sexuality, contraception, and birth spacing; sleep and fatigue; physical recovery from birth; chronic disease management; and health maintenance. Women with chronic medical conditions such as hypertensive disorders, obesity, diabetes, thyroid disorders, renal disease, and mood disorders should be counseled regarding the importance of timely follow-up with their obstetrician–gynecologists or primary care providers for ongoing coordination of care. During the postpartum period, the woman and her obstetrician–gynecologist or other obstetric care provider should identify the health care provider who will assume primary responsibility for her ongoing care in her primary medical home. Optimizing care and support for postpartum families will require policy changes. Changes in the scope of postpartum care should be facilitated by reimbursement policies that support postpartum care as an ongoing process, rather than an isolated visit. Obstetrician–gynecologists and other obstetric care providers should be in the forefront of policy efforts to enable all women to recover from birth and nurture their infants. This Committee Opinion has been revised to reinforce the importance of the "fourth trimester" and to propose a new paradigm for postpartum care.

Recommendations and Conclusions

The American College of Obstetricians and Gynecologists makes the following recommendations and conclusions:

- To optimize the health of women and infants, postpartum care should become an ongoing process, rather than a single encounter, with services and support tailored to each woman's individual needs.
- Anticipatory guidance should begin during pregnancy with development of a postpartum care plan that addresses the transition to parenthood and well-woman care.
- Prenatal discussions should include the woman's reproductive life plans, including desire for and timing of any future pregnancies. A woman's future pregnancy intentions provide a context for shared decision-making regarding contraceptive options.
- All women should ideally have contact with a maternal care provider within the first 3 weeks postpartum. This initial assessment should be followed up with ongoing care as needed, concluding with a comprehensive postpartum visit no later than 12 weeks after birth.

The Fourth Trimester of Pregnancy: Committing to Maternal Health and Well-Being Postpartum

BRIDGET SPELKE, MD; ERIKA WERNER, MD, MS

ABSTRACT

The postpartum period is a time of significant challenge and need as women adapt to hormonal and physical changes, recover from delivery, experience shifting family responsibilities, and endure sleep deprivation, all while caring for and nourishing their newborn.[1-4] It is also a period of significant maternal health risk. Recent data on U.S. maternal mortality indicate a shift in the timing of maternal deaths over the past 10 years, with the majority of maternal deaths now occurring postpartum, from one day to one year after delivery.[5,6] Postpartum care also marks a period of transition, as women shift from pregnancy-centered care to interpregnancy and primary care, yet current systems of care are marked by poor coordination of care between providers and patient care settings.[4,7] Suboptimal postpartum follow-up is particularly worrisome for women with chronic health conditions or pregnancy complications who face both short- and long-term health risks.[8,9] Given known challenges and medical risks, the single, 6-week postpartum visit women receive is woefully inadequate in addressing maternal health needs. Postpartum visits often fail to address the unique postpartum needs identified by mothers[1,3,4], inadequately connect women with primary care services, and have low attendance.[1,7] Recognition of these unmet needs of "the Fourth Trimester" have led national organizations, including the American College of Obstetricians and Gynecologists (ACOG), to call for a restructuring of postpartum care to reduce postpartum and long-term morbidity and improve postpartum well-being.[2,7,10] Rhode Island has several recent initiatives with the potential to improve outcomes for mother-baby dyads including the Baby Friendly Hospital Initiative (BFHI), the provision of long-acting reversible contraception (LARC) immediately postpartum, and the addition of HPV immunization postpartum. These initiatives remove barriers of access to care and provide vital women's health services prior to discharge. The Fourth Trimester provides a rich opportunity for maternal risk reduction and health promotion at a time when women are motivated and engaged with health care.

ADDRESSING MATERNAL RISK POSTPARTUM

Maternal mortality in the United States is increasing and more than doubled from 1982 to 2012.[5,6] Over this same period, the causes and timing of pregnancy-related deaths have shifted; deaths due to maternal hemorrhage and infection, which typically occur at the time of delivery, have proportionally decreased, while deaths from cardiovascular disease, which can result in more distant postpartum deaths, have increased.[11] Postpartum deaths, which includes deaths between 1 day and 1 year after birth, represent more than half of all maternal deaths, and underscore the significant health risks faced by postpartum women.[5,6] Though maternal deaths remain rare, 65,000 women experience severe maternal morbidity annually in United States, which increasingly occurs postpartum and is due to chronic medical conditions.[11] Both maternal morbidity and mortality affect minorities disproportionately; black women experience maternal mortality 3-4 times more frequently than white women and experience severe maternal morbidity two times more frequently.[5,12-14] Rising rates of postpartum morbidity suggest that women face significant unmet medical needs after delivery and has led to a renewed focus on care in the fourth trimester.[1,2,7,10,15]

A central role for postpartum care is maternal health risk reduction, both in the immediate postpartum period and long-term, yet the ability of current postpartum services to improve maternal outcomes is limited by only a single dedicated visit. Both providers and patients report that current postpartum visit schedules are inadequate.[1,3,4] Towards the end of pregnancy, women are routinely seen in the office weekly, and more often if the pregnancy is complicated. In contrast, most women are seen only once in the first-year postpartum and not until 6 weeks after delivery. This gap in care is not biologically logical nor practical from a public health perspective. Newborns are seen within days of discharge from the hospital because of the physiologic changes that occur in the first few weeks of life. Similar changes are occurring to the postpartum woman, yet no similar appointments occur. Furthermore, even the currently recommended appointments are not always used. While increasing attendance at postpartum visits is a goal of Healthy People 2020, between 10 and 40% of women do not attend a postpartum visit 4-12 weeks after delivery[7] with lower attendance rates reported among women in low-resource settings, contributing to health disparities.[8,9,16]

ACOG Com Opin No 736. 2018

Spelke B, Werner E. Rhode Island Medical J. 2018

UTSouthwestern Medical Center

2019 Dallas County Community Health Needs Assessment (CHNA)

EXECUTIVE SUMMARY

Parkland Health & Hospital System (Parkland) and the Dallas County Health and Human Services (DCHHS) undertook a joint Community Health Needs Assessment (CHNA) in adherence to the Patient Protection and Affordable Care Act (ACA) and as part of the accreditation process for public health departments. In accordance with the ACA, the CHNA's report was accepted by Parkland's Board of Managers on September 18, 2019.

The overarching goal of this CHNA was to identify the geographic areas and populations that experience the most significant health disparities including, racial and ethnical minorities, low social economic populations, underserved population, those with chronic disease and those with infectious disease.

The methodology framework used for this CHNA includes: Public Health Practice, Community Based Participatory Research, Strategic Planning as well as qualitative and quantitative data analysis. The data used for this report was gathered from an array of data sources and from a series of focus groups conducted throughout Dallas County.

The following provides an overview of the key finding that emerged from this CHNA.

Findings:

Access to Care:

- Health Insurance Coverage: There is high uninsured rate in Dallas County and high a high volume uninsured hospital discharges, particularly in Parkland. Of note, Dallas County has one of the highest uninsured rates among all urban counties in the nation—higher than both Harris County, Texas and Bexar County, Texas
- Behavioral Health: Dallas County does not have enough behavioral health capacity to support the high demand for those services. Navigating the health system in Dallas County is difficult for those with behavioral health needs and there is a lack of integration between behavioral health and physical health. According to input provided by focus group participants, the demand for behavioral health services for school children, youth, and seniors is concerning.
- Health Literacy: Provider and patient feedback from focus groups indicates there is a general lack of understanding of how to obtain/use health coverage, navigate the health system and adhere to treatment plans and provider instructions, which are often not culturally or linguistically accessible to the patient. There is an overall concern with the degree to which Dallas County residents, particularly racial and ethnic minorities and those living in southeast area of the County, have the capacity to obtain, communicate, process and understand information pertaining to health and health services.
- Cultural Competency: The ever-increasing diversity of Dallas County requires greater resources devoted to cultural competency including the establishment of best practices.

Health Disparities:

- There are significant health disparities by race and ethnicity and by geographic location within the county. African American and people living in ZIP Codes located in Southeast Dallas continue to experience the highest burden of disease and mortality.

Special Populations

- The demand for health services for homeless and elderly individuals continues to grow as these populations increase in numbers.
- Assessing the health status for Lesbian, Gay, Bisexual and Transgender individuals remains a challenge due to limited data pertaining to sexual orientation and gender identity (SOGI) data.

Chronic Conditions

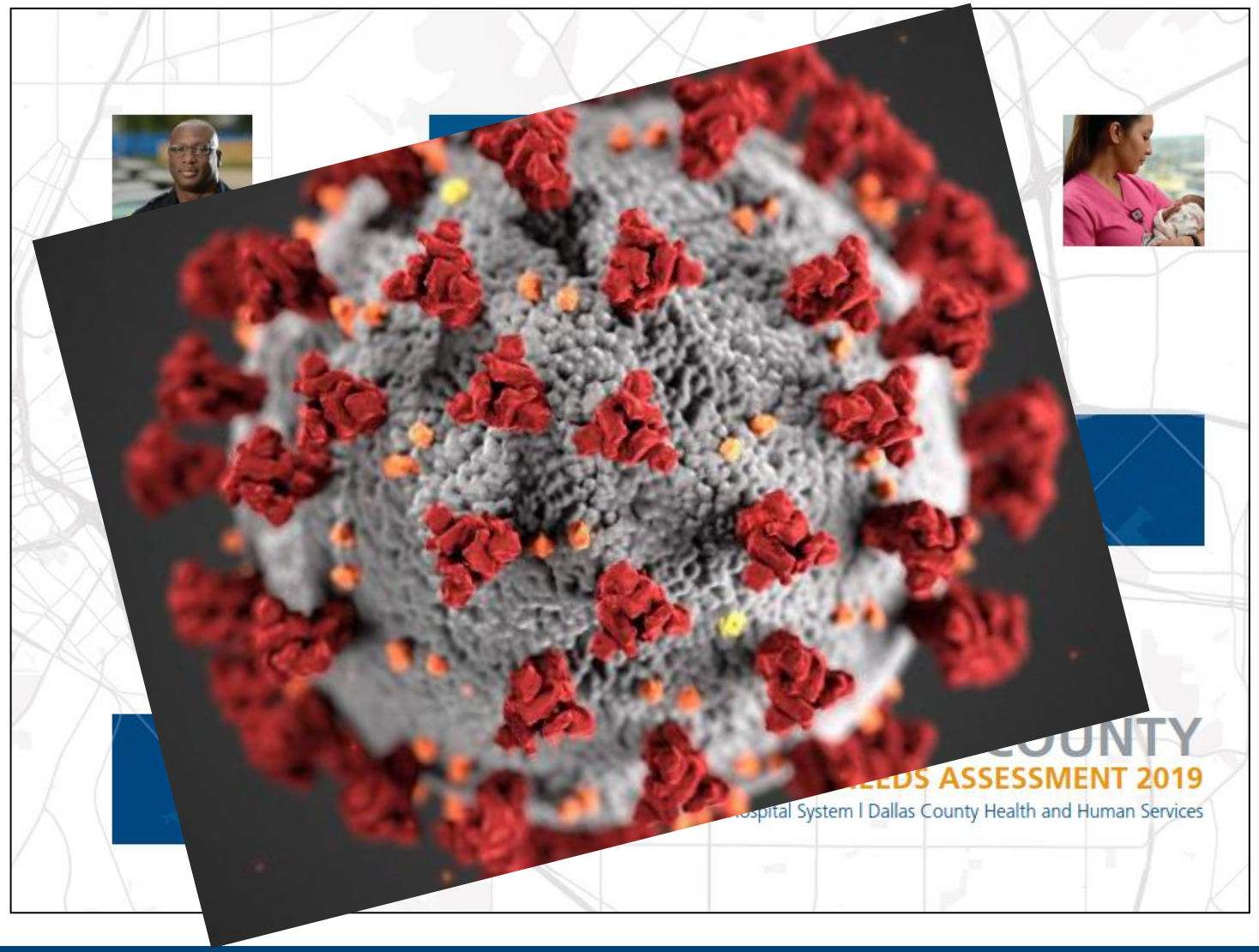
- Hypertension, diabetes, asthma, chronic kidney disease and chronic heart failure, which are related to tobacco use, poor nutrition and lack of physical activity are the leading causes of death and contributors of a high volume of inpatient hospitalizations.

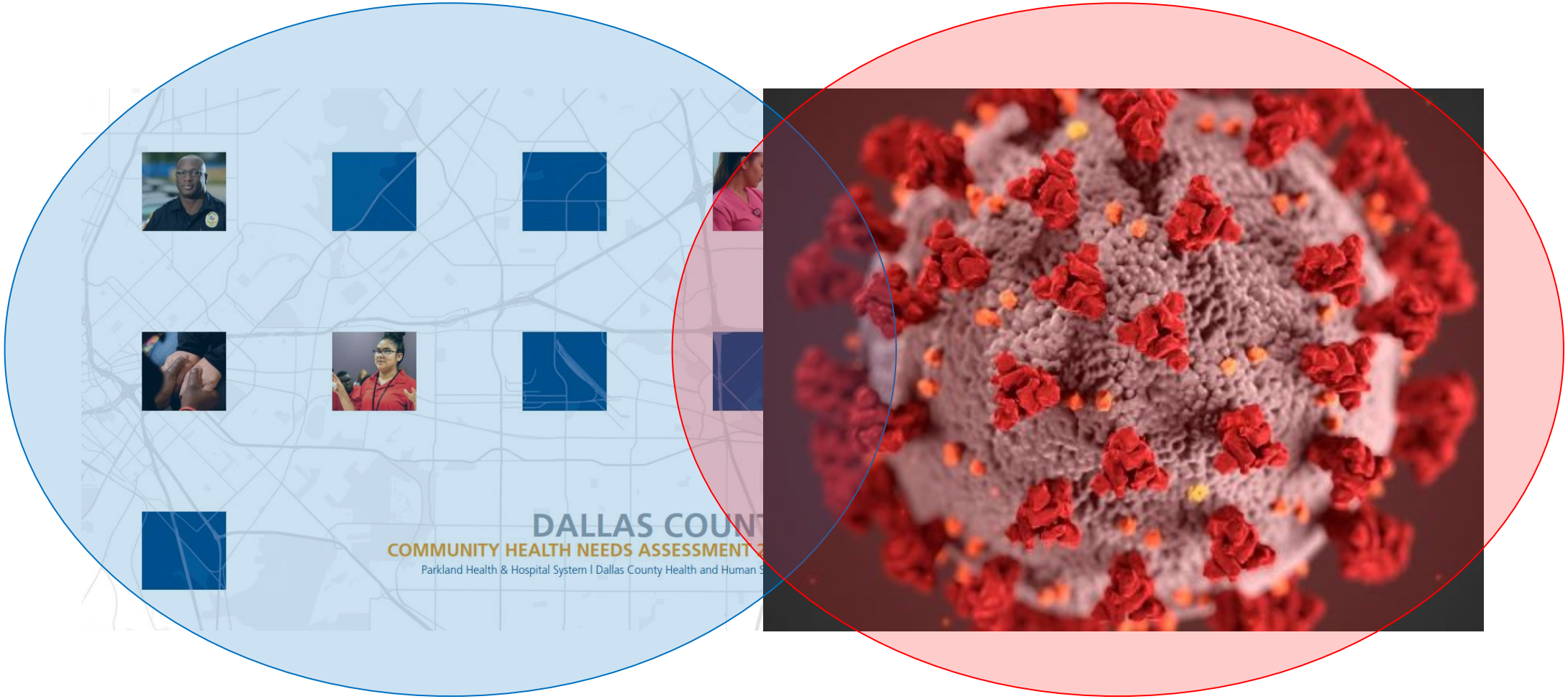
Infectious Diseases

- The increasing number of Sexually Transmitted Diseases, cases in Dallas County is a significant problem

2019 Dallas County Community Health Needs Assessment (CHNA)

2019 Dallas County Community Health Needs Assessment (CHNA)

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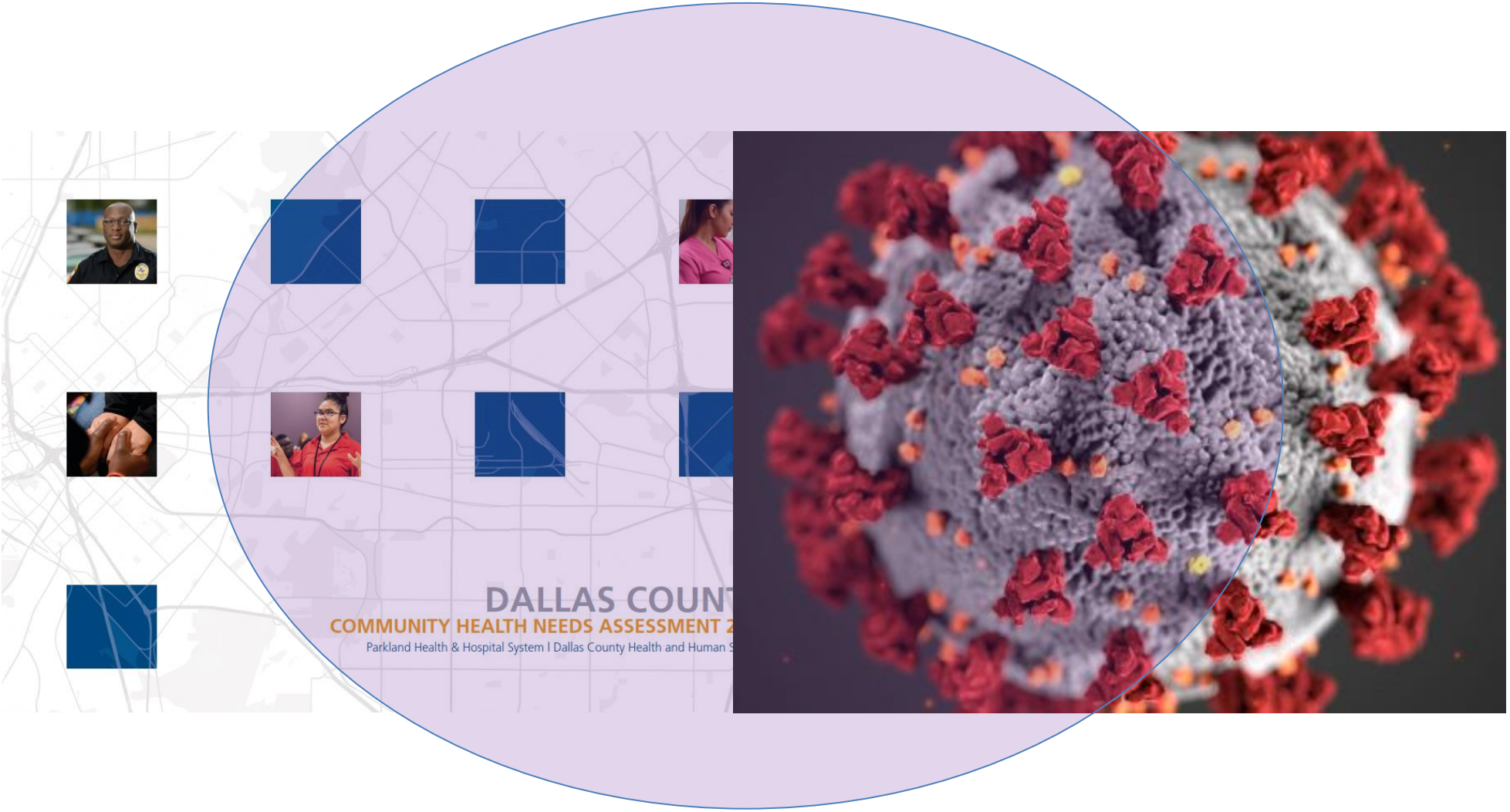
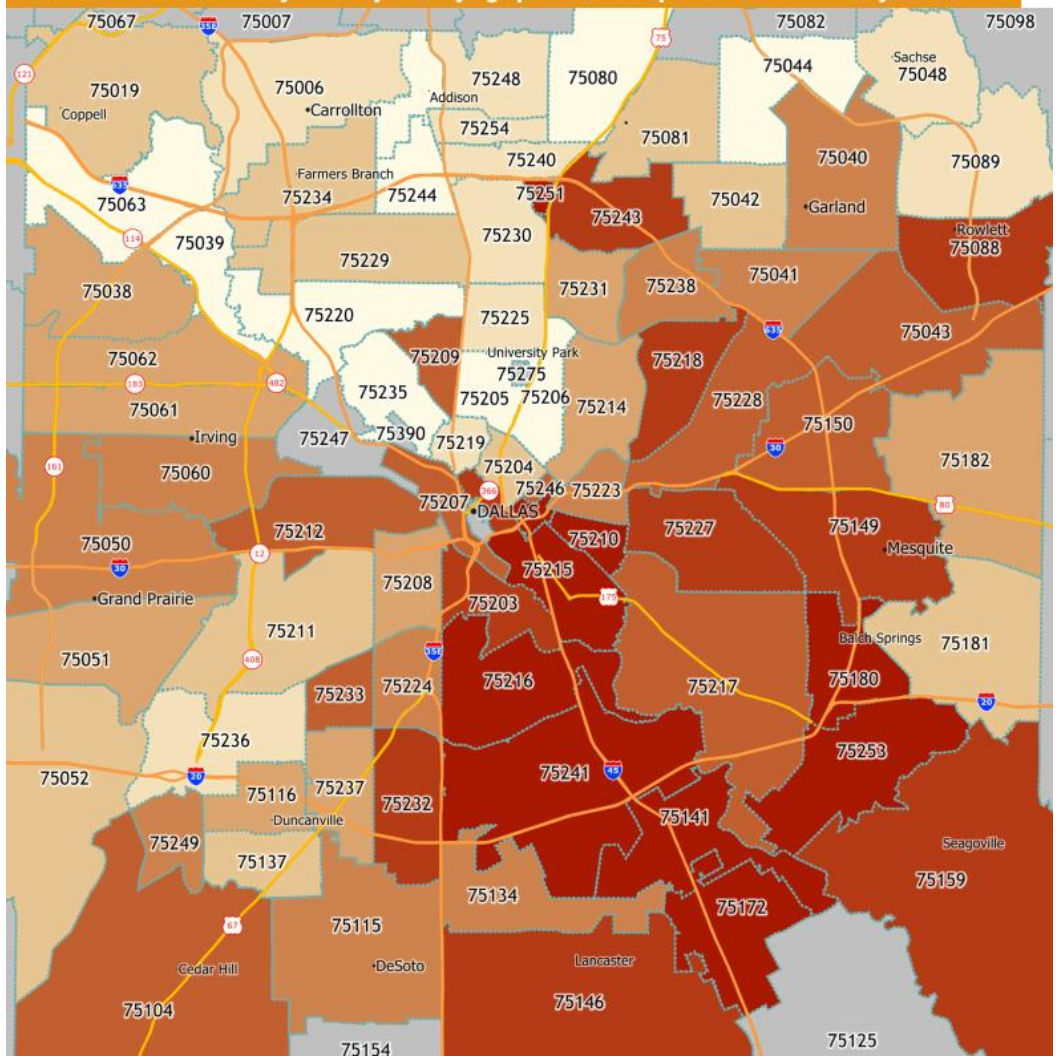
Parkland Health & Hospital System I Dallas County Health and Human

Many similarities related to our local community needs, disparities in care



All-Cause Mortality Rate, 2012-2016

FIGURE 19. All-Cause Mortality Rate Adjusted by Age per 100,000 Population, Dallas County, 2012 – 2016



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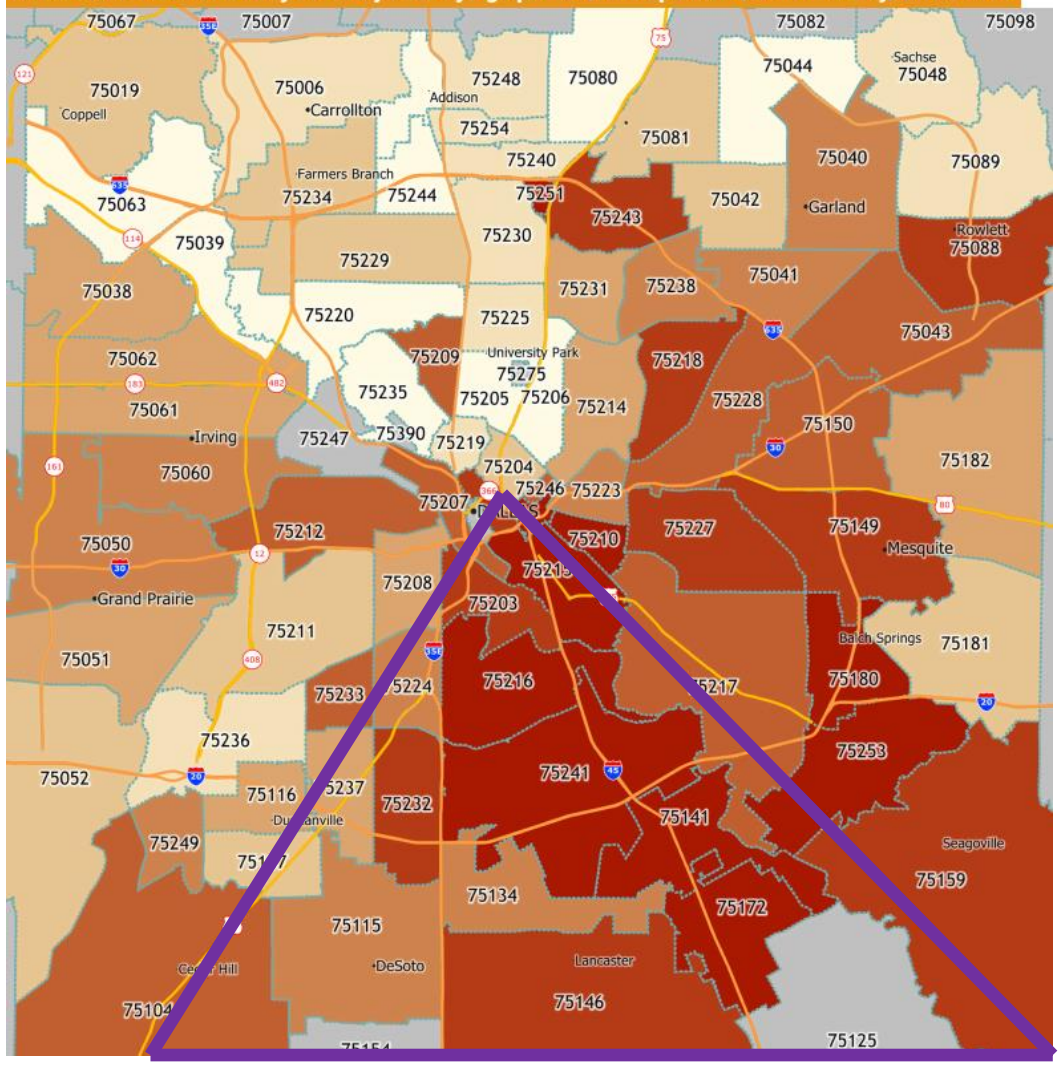
All-Cause Mortality Rate, 2012-2016

FIGURE 19. All-Cause Mortality Rate Adjusted by Age per 100,000 Population, Dallas County, 2012 – 2016



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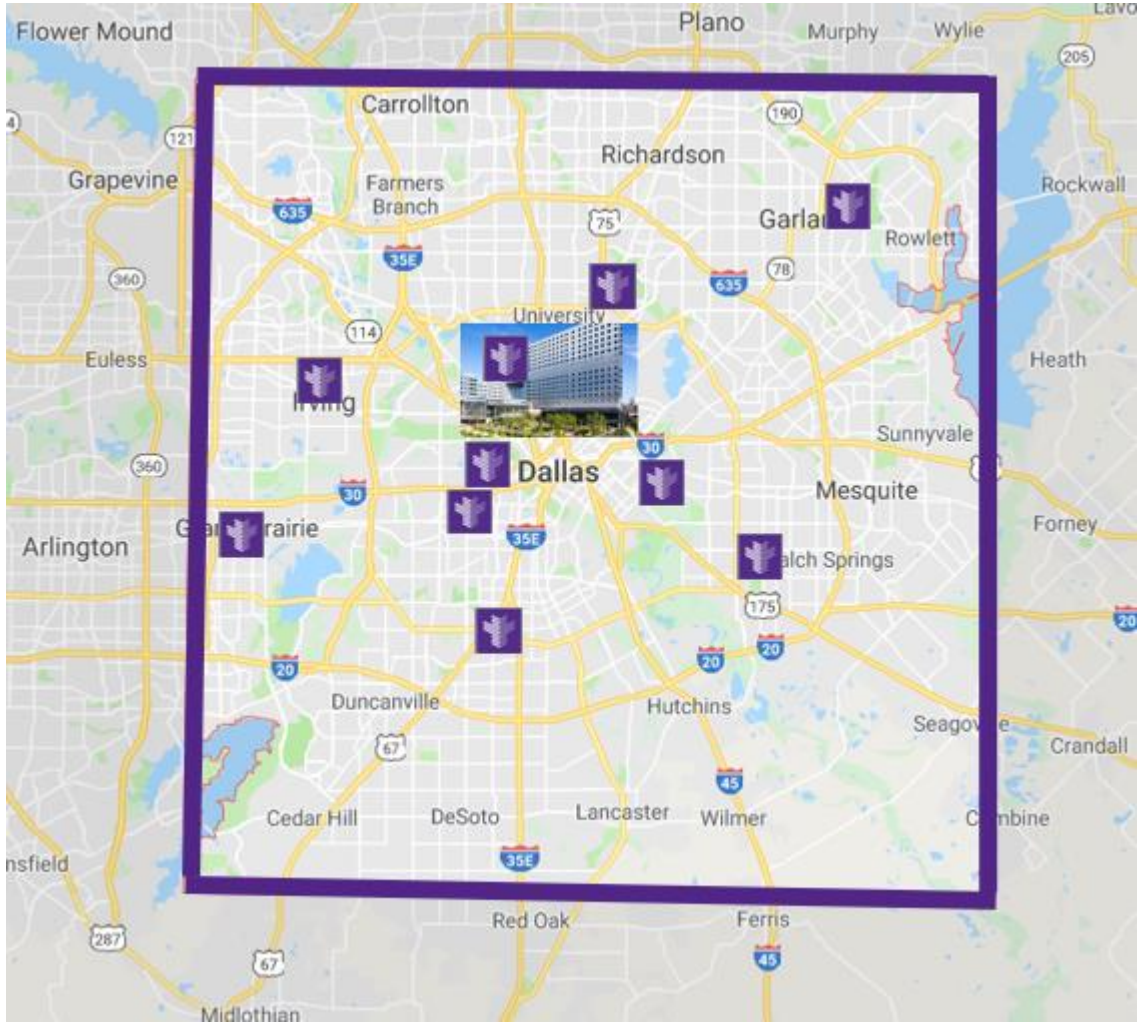
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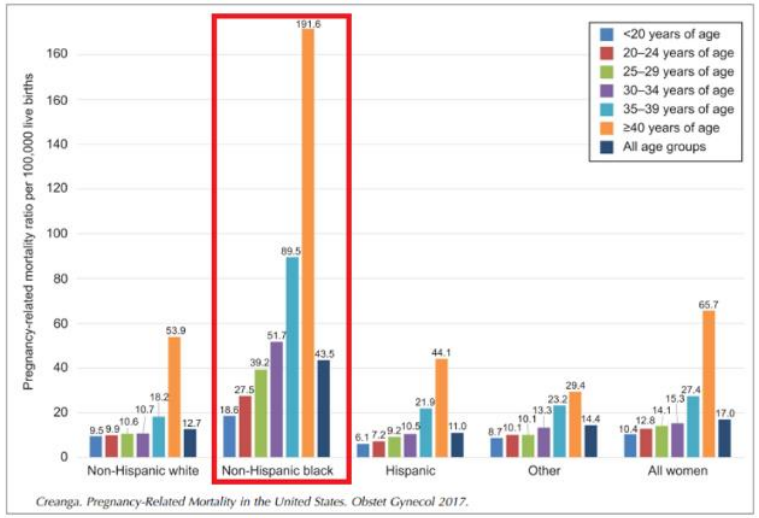

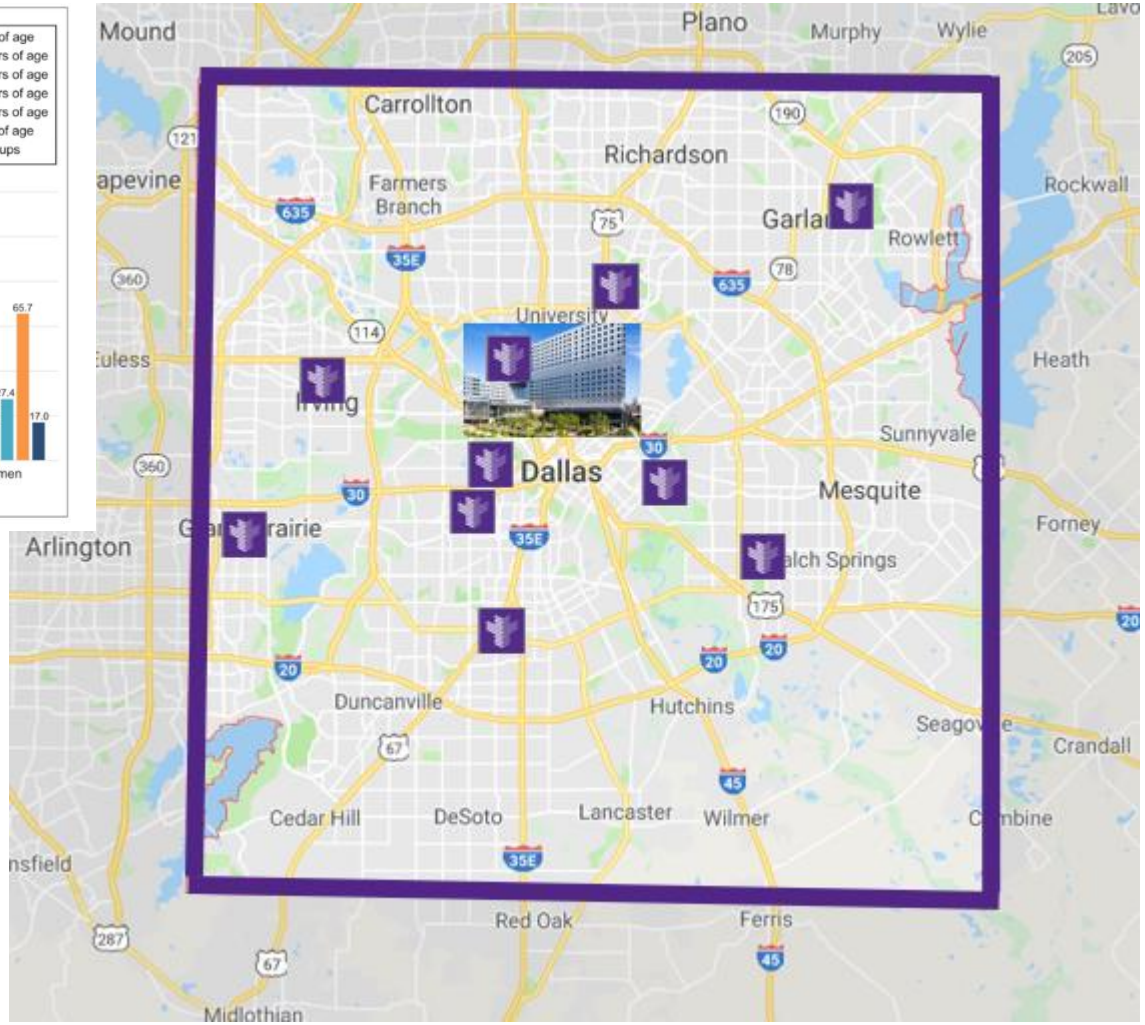

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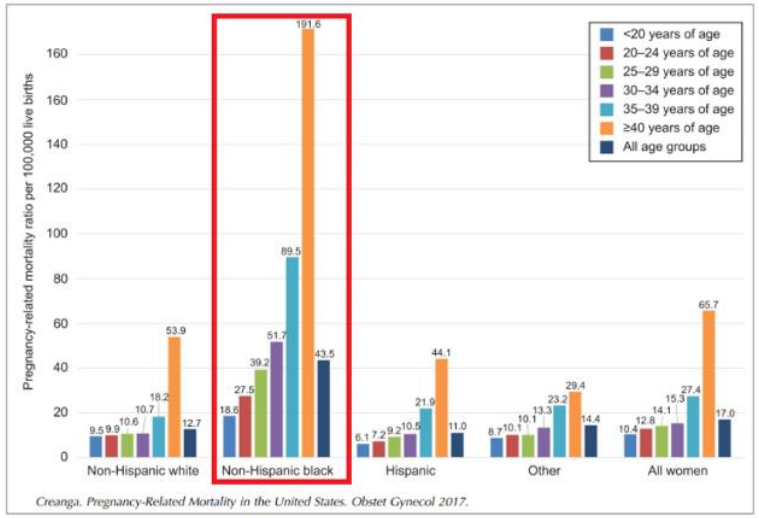
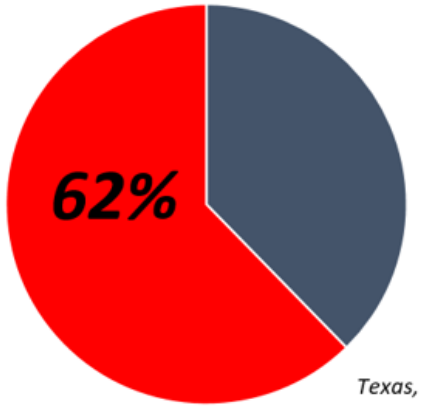
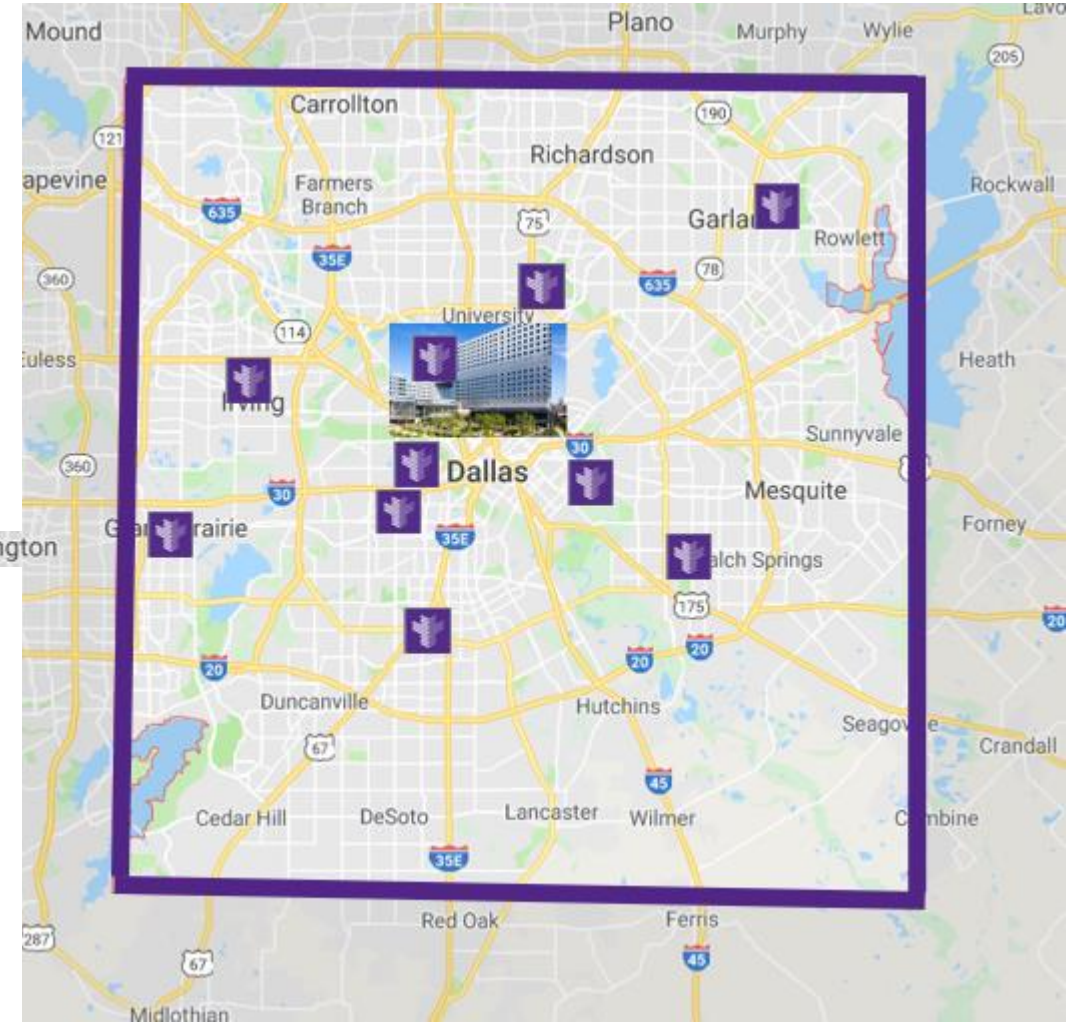


Timing of death after delivery



Texas, 2012-2015



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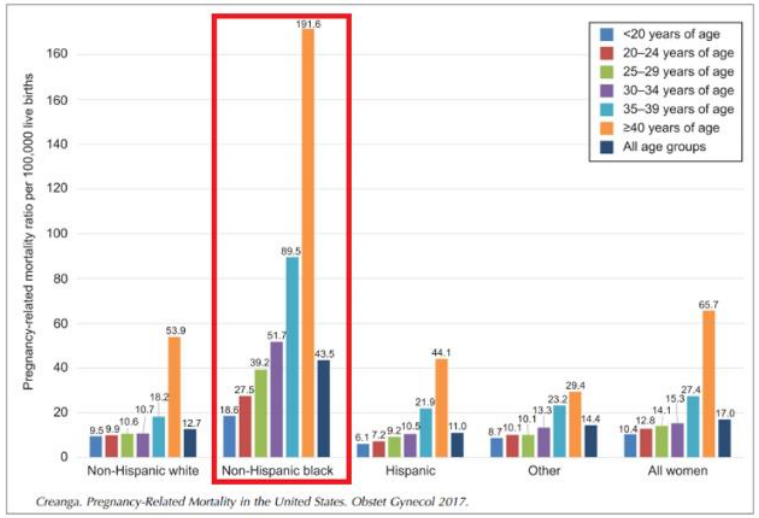
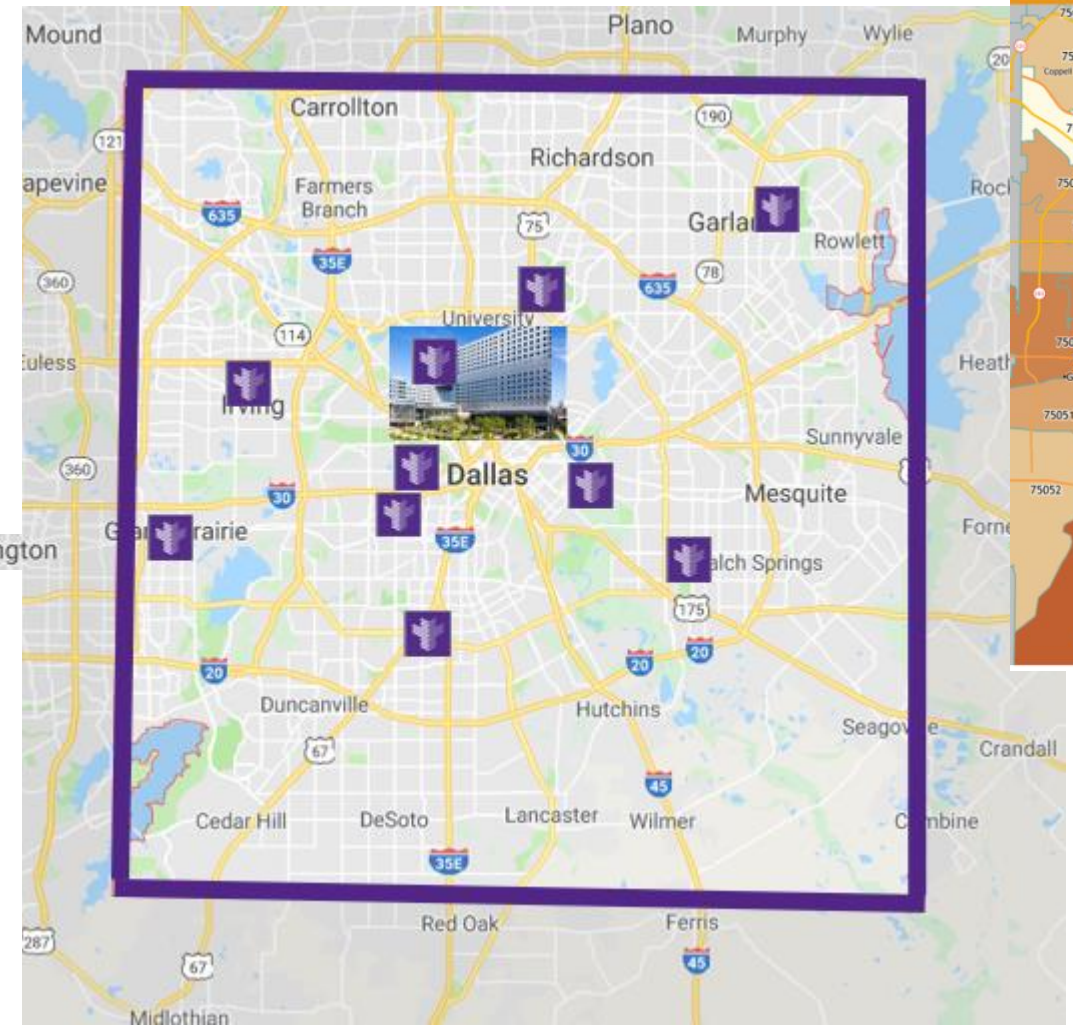
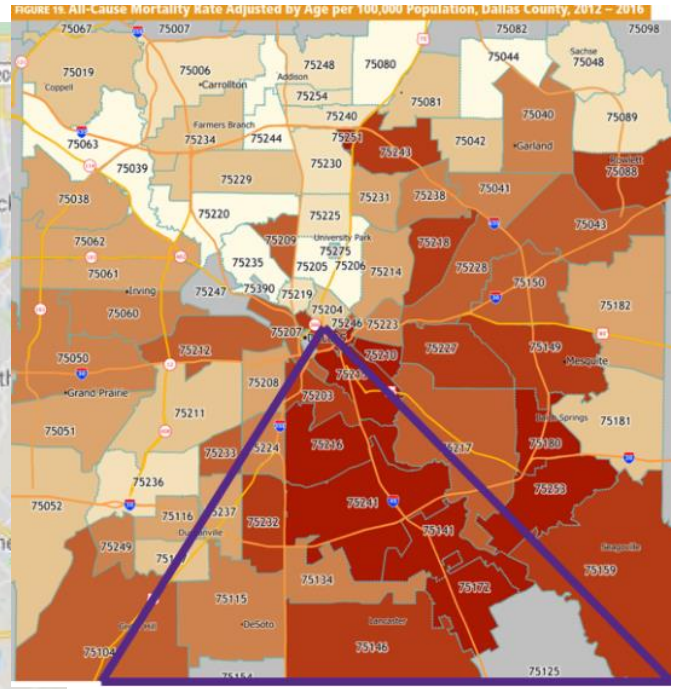
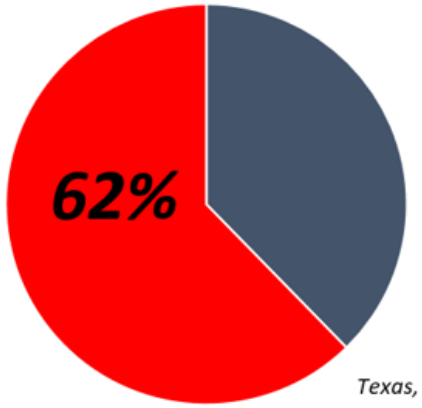






Timing of death after delivery



Texas, 2012-2015

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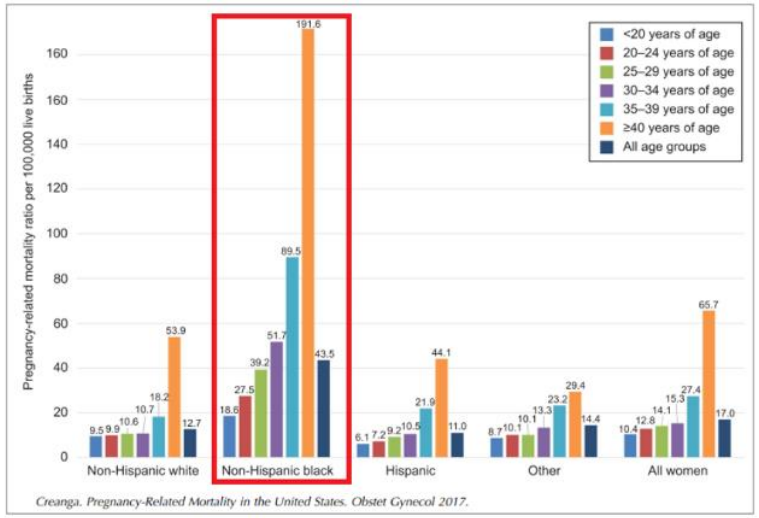

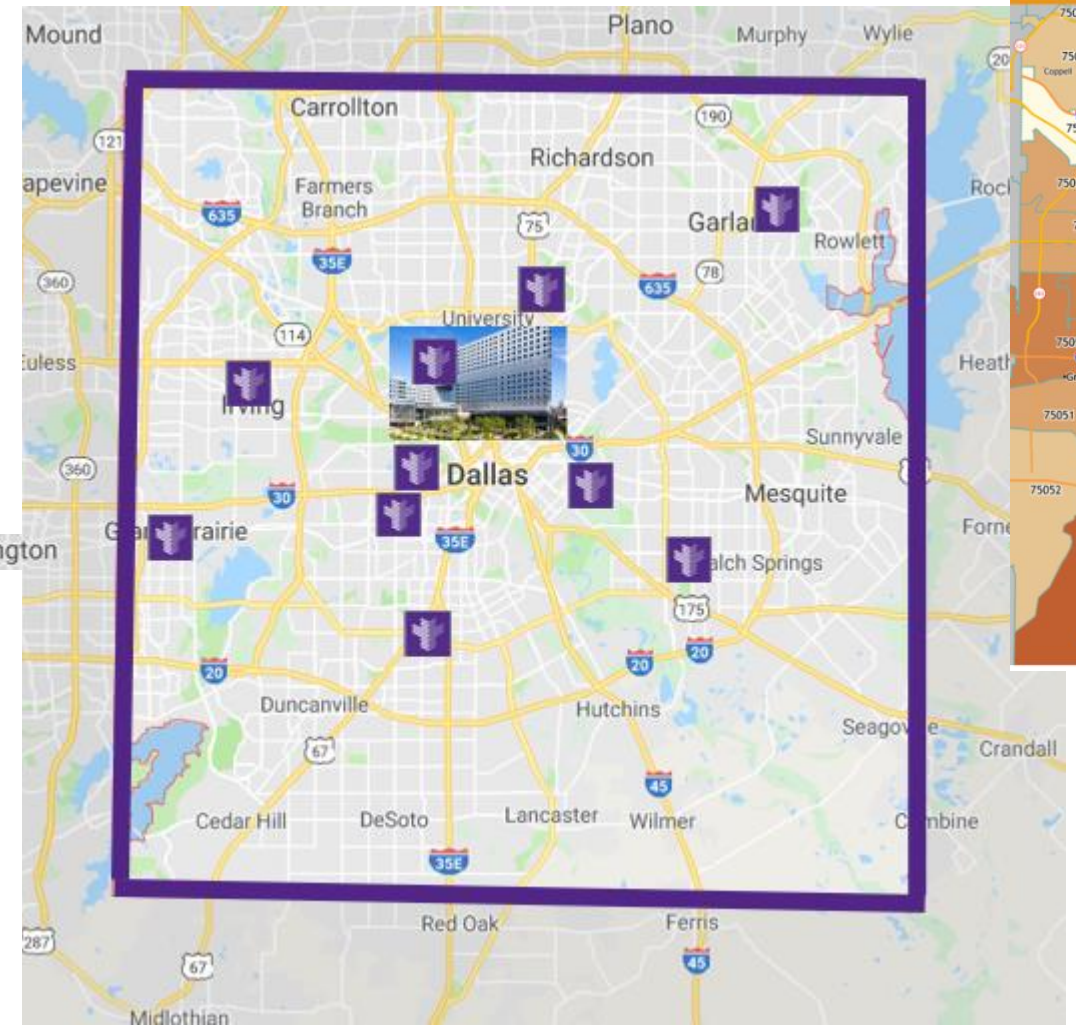

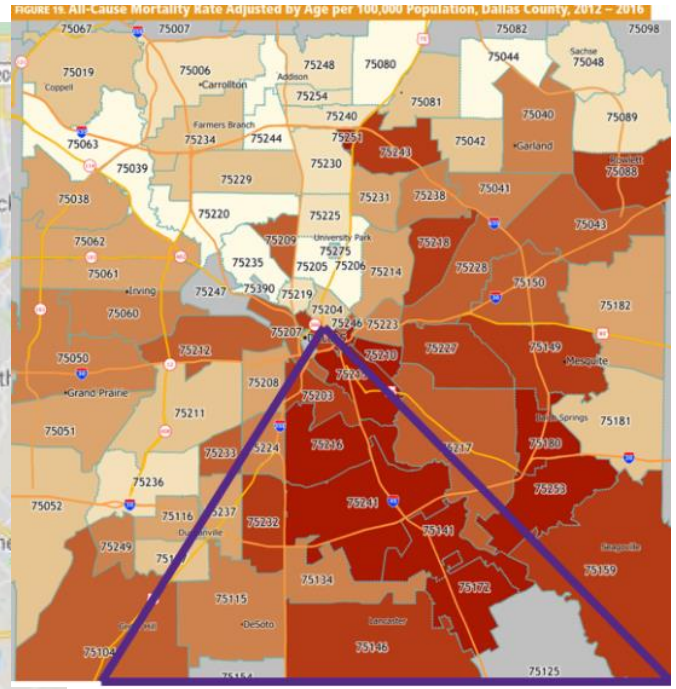

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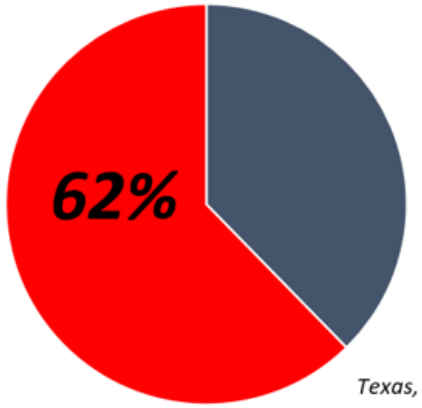

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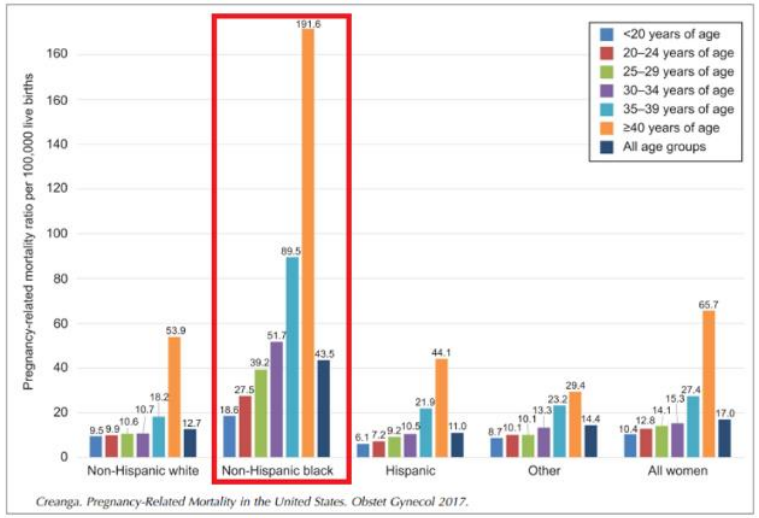

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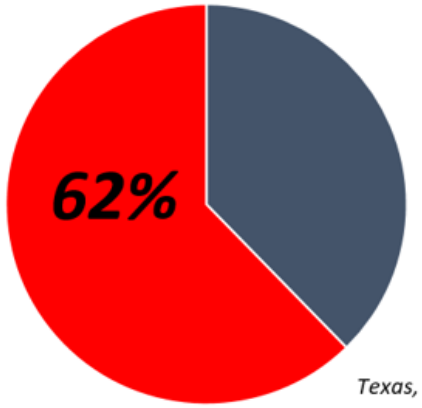
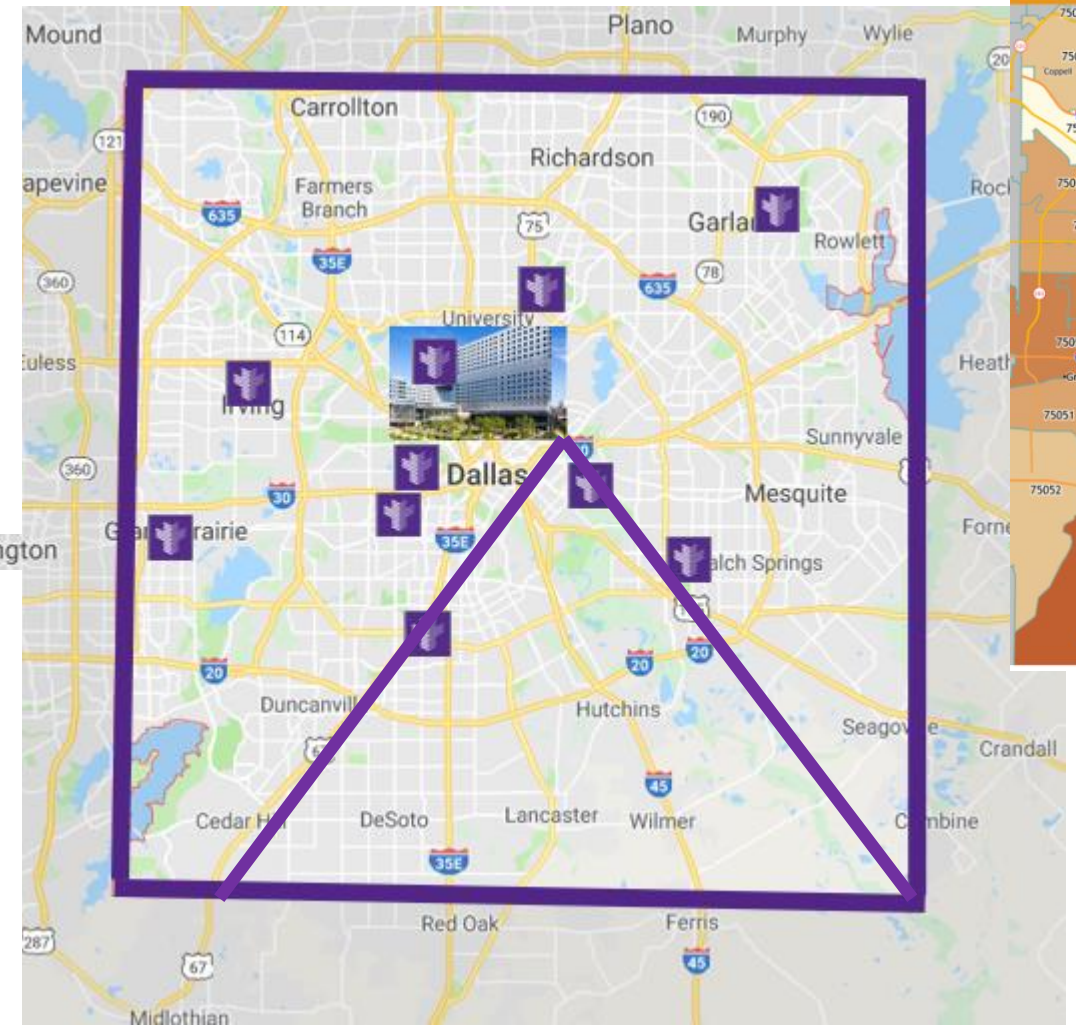
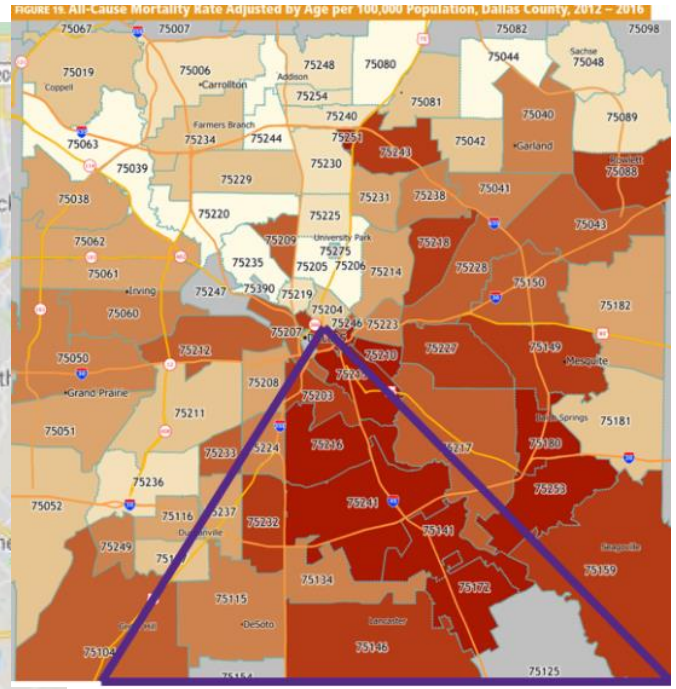
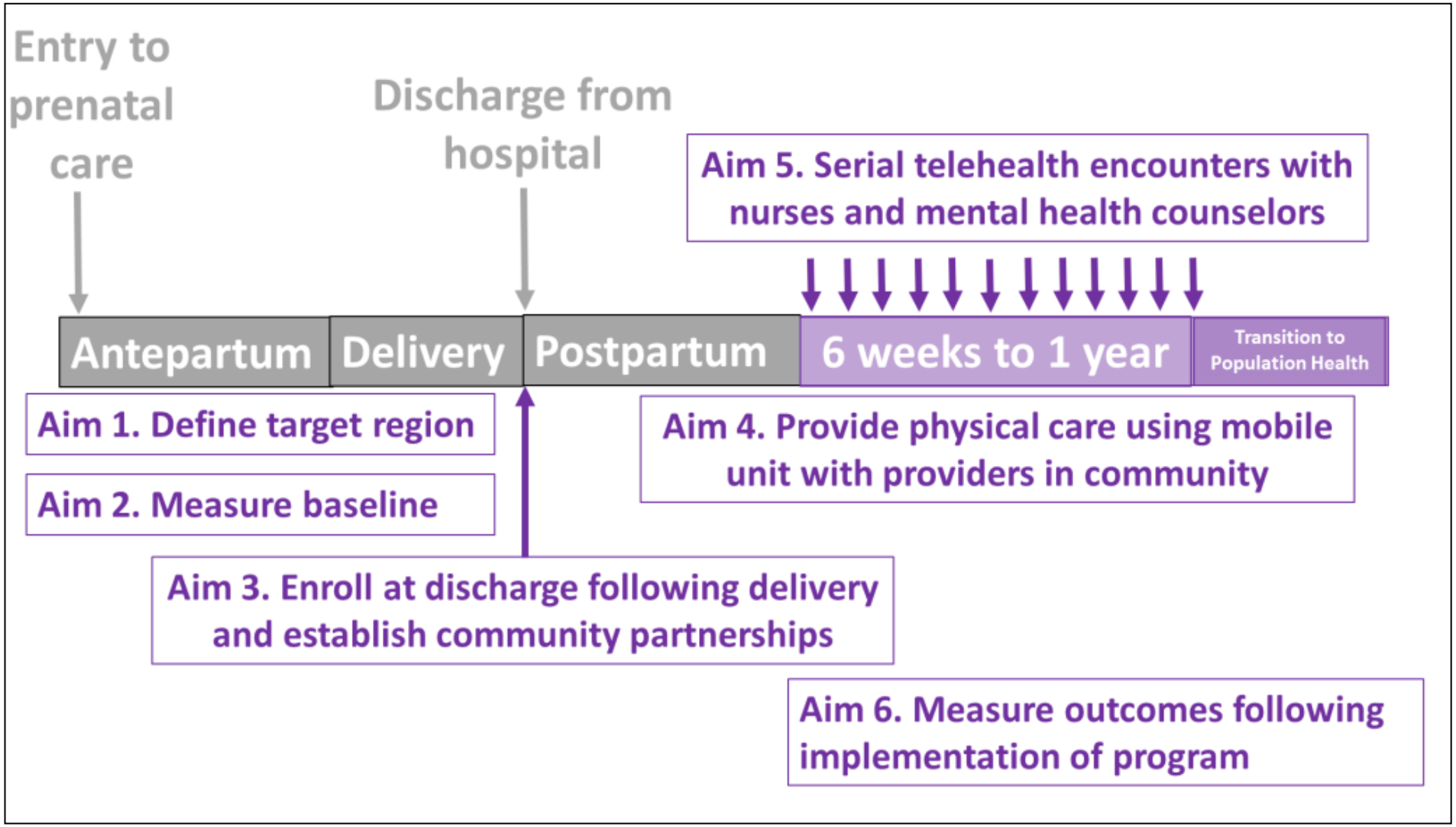


Texas, 2012-2015

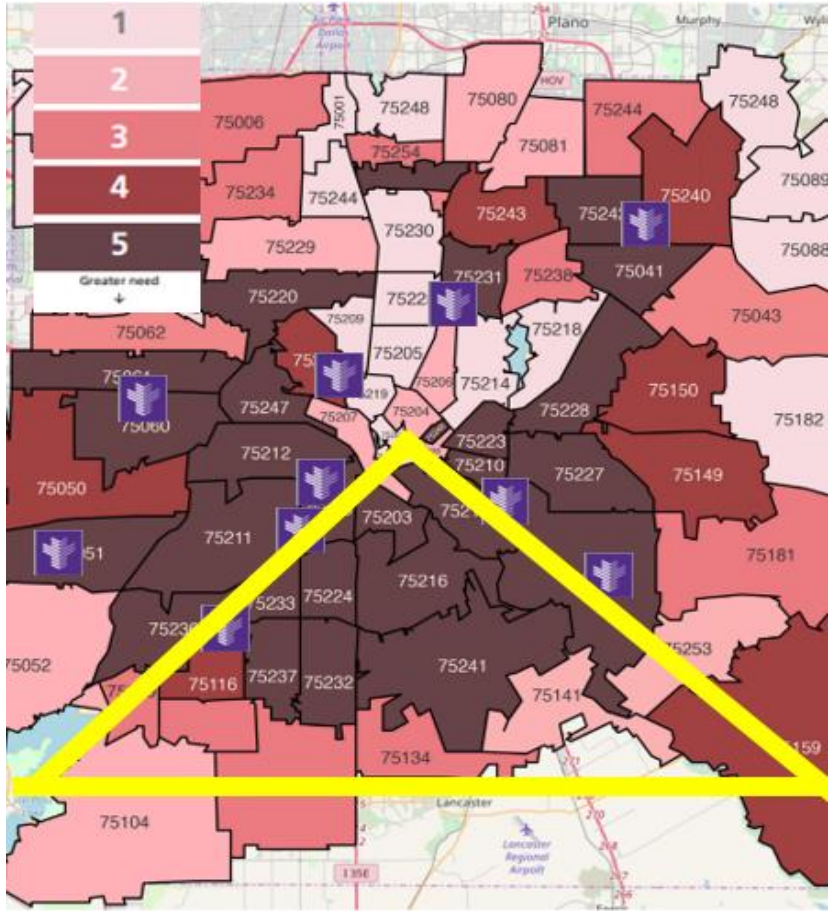


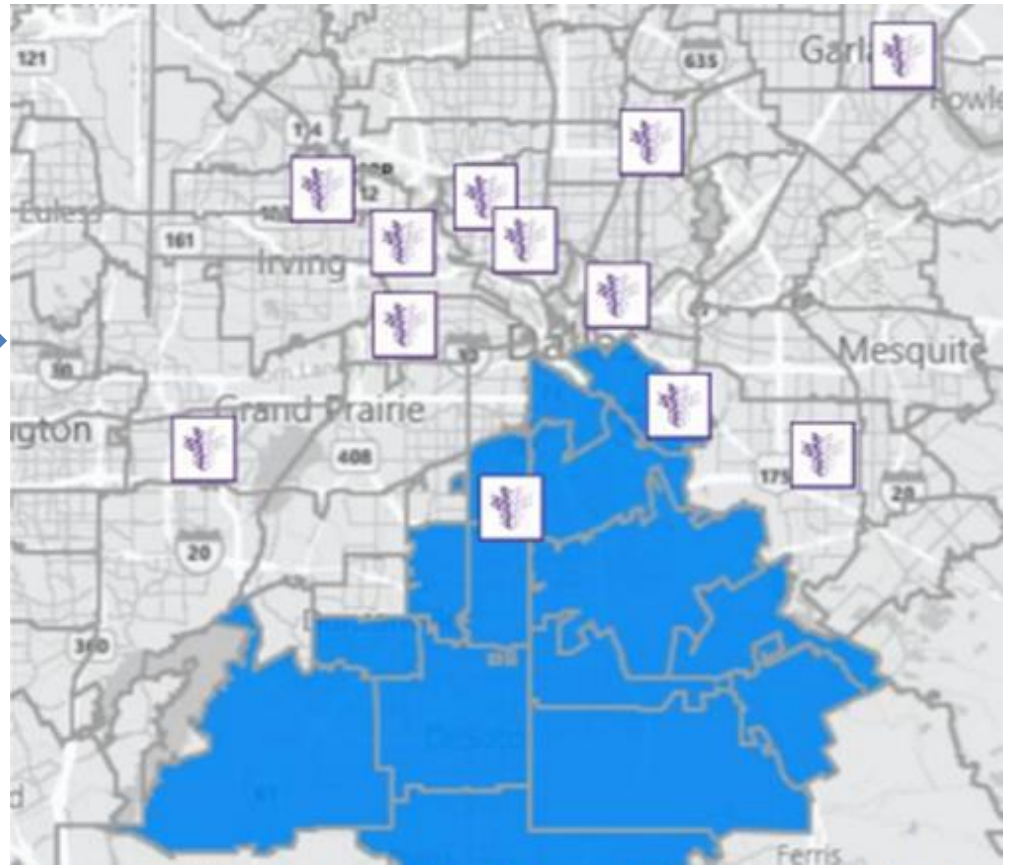


Putting all this together…



CHNA Target Region





2019 Dallas County Community Health Needs Assessment (CHNA)

CHNA Target Region: IDENTIFY YOUR TARGET REGION

Perinatal Outcomes among Women Identified by a Community Health Needs Assessment

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David B. Nelson, MD[1,2]

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Am J Perinatol

Abstract

Objective The aim of the study is to compare perinatal outcomes for women with greater social needs, as identified by the Community Health Needs Assessment, to those of women living in other areas of the county.

Study Design This was a retrospective cohort study of pregnant women delivering at a large inner-city county hospital. Perinatal outcomes were analyzed for women living within a target area with substantial health disparities and social needs, and compared with those women living outside the target area. Statistical analysis included student's *t*-test, Chi square, and logistic regression.

Results Between January 2015 and July 2020, 66,936 women delivered at Parkland hospital. Of these, 7,585 (11%) resided within the target area. These women were younger (26.8 ± 6.5 vs. 27.9 ± 6.4 years, $p < 0.001$), more likely to be black (37 vs. 13%, $p < 0.001$), and had a higher body mass index or BMI (33.3 ± 7.0 vs. 32.6 ± 6.4 kg/m^2, $p < 0.001$). All women were likely to access prenatal care, with 7,320 (96.5%) in the target area and 57,677 (97.2%) outside the area attending at least one visit. Adverse perinatal outcomes were increased for women living within the target area, which persisted after adjustment for age, race, and BMI. This included an increased risk of preeclampsia (adjusted risk ratio [aRR] 1.1, 95% confidence interval or CI [1.03, 1.2]) and abruption (aRR 1.3, 95% CI [1.1, 1.7]), as well as preterm birth before both 34 weeks (aRR 1.3, 95% CI [1.2, 1.5]) and 28 weeks (aRR 1.3, 95% CI [1.02,1.7]). It follows that neonatal ICU admission (aRR 2.1, 95% CI [1.3, 3.4]) and neonatal death (aRR 1.2, 95% CI [1.1, 1.3]) were increased within the target area. Interestingly, rate of postpartum visit attendance was higher in the target area (57 vs. 48%), $p < 0.001$.

Conclusion Even among vulnerable populations, women in areas with worse health disparities and social needs are at greater risk of adverse perinatal outcomes. Efforts to achieve health equity will need to address social disparities.

Keywords
- perinatal outcomes
- social determinants
- health disparities
- pregnancy
- preterm birth
- preeclampsia

Key Points
- At a county hospital 97% of women accessed prenatal care.
- Greater social needs were associated with adverse perinatal outcomes.
- Differences persisted with adjustment for age, race, and BMI.

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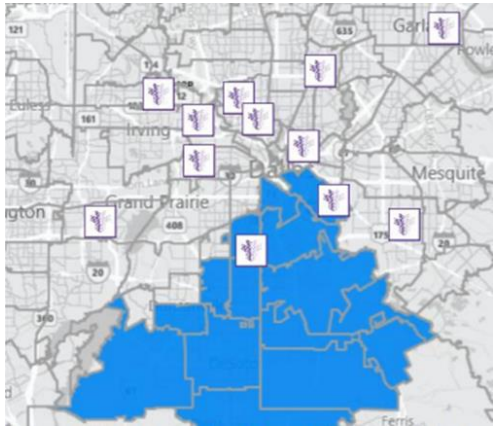
Table 1 Maternal characteristics

	Within CHNA Target area ($N = 7,585$)	Outside CHNA Target area ($N = 59,351$)	-Value
Maternal age (years)	26.8 ± 6.5	27.9 + 6.4	<0.001
Race/Ethnicity	*p*		<0.001
Black	2,790 (37)	7,767 (13)	
White	153 (2)	1,933 (3)	
Hispanic	4,590 (61)	47,310 (80)	
Other	52 (1)	2,341 (4)	
Nulliparous	2,236 (29)	17,288 (29)	0.5
Body mass index (kg/m^2)	33.3 ± 7.0	32.6 ± 6.4	<0.001
Number of prenatal visits	9.1 ± 4.1	9.4 ± 3.9	<0.001
Chronic hypertension	533 (7.0)	2,288 (3.9)	<0.001
Gestational diabetes mellitus	494 (6.5%)	4,310 (7.3%)	0.02
Pregestational diabetes mellitus	186 (2.5%)	989 (1.7%)	<0.001

Note: Data expressed as *n* (%) or mean ± SD.



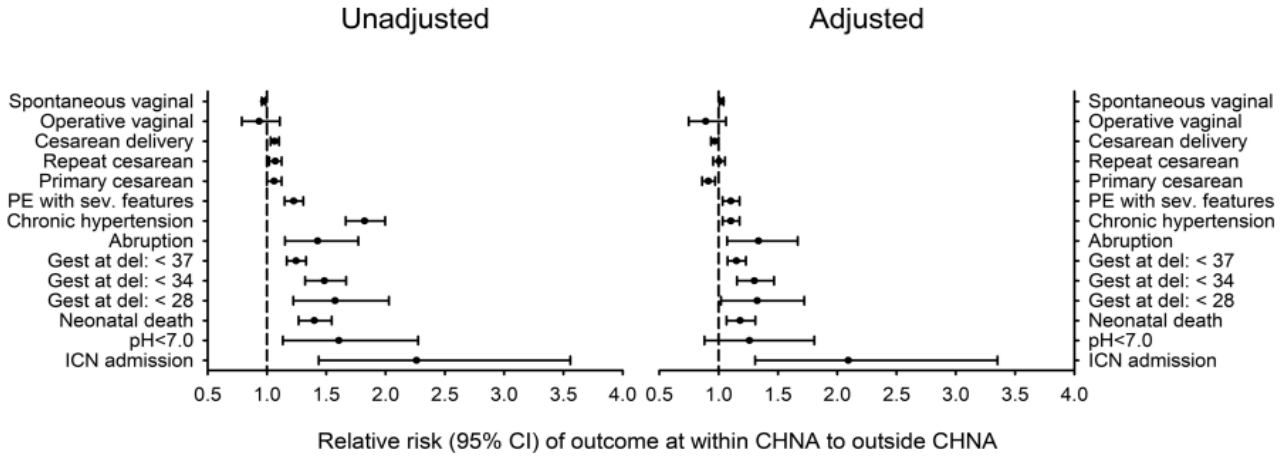


Fig. 1 Relative risk of adverse perinatal outcomes for women residing within the target area, as compared with those women delivering at Parkland and residing outside the area. gest at del, gestational age at delivery; PE with sev features, preeclampsia with severe features.

Duryea EL et al. Am J Perinatol. 2021

CHNA Target Region for non-Hispanic Black pregnant patients

Perinatal outcomes amongst Black women living in areas of high social needs

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University of Texas Southwestern Medical Center, Dallas, Texas

Abstract

Objective: Because black women have higher health disparity and adverse pregnancy outcomes with unclear etiology, we hypothesized that black women living in a geographic area with greater social needs would have worse outcomes compared to those living outside this area.

Study Design: This was a retrospective cohort study of Black women delivering infants at a large inner-city safety net county hospital. Perinatal outcomes of women living within a target region of ten zip codes, identified during a recent CHNA, were compared to those of women living outside the target region. Analyses included student's t-test, chi square, and logistic and binomial regression, with p<0.05 significant.

Results: Between January 2011 through December 2020, 9,579 non-Hispanic Black women delivered at our hospital. Of these, 2,741 (28.6%) resided in the CHNA target region. The women in the target region were younger (25.7+5.9 vs 28.4+6.2 yrs, p<.001) and had a higher BMI (33.9+8.3 vs 33.0+7.4 kg/m2, p <.001). Women in the target region attended their first prenatal visit at an earlier gestational age (14.3(10.0,22.0) vs 15.6(10.4,24.1) wks, p<.001), and 96% participated in prenatal care prior to delivery in both groups. Women in the target region were less likely to have diabetes but more likely to have either chronic or gestational hypertension (Table 1). The rate of stillbirth, preterm birth, and other complications of prematurity were higher in the target region (Table 2). When outcomes were adjusted for maternal age these differences remained significant. A composite including stillbirth, neonatal death, 5 minute Apgar <4, pH <7.0, and grade 3 or 4 intraventricular hemorrhage occurred in 80 (3%) pregnancies in the target region compared to 158 (2%) from other regions, with an adjusted RR of 1.39 (1.05, 1.84).

Conclusions: Black women living in areas with high social needs have significantly higher rates of stillbirth, prematurity, and its attendant sequelae compared to those living outside the target region. Evaluation of social determinants of health will likely provide insight into the origin of these differences.

Background

- Disparities in maternal morbidity and mortality exist in the United States, with black women more likely to experience adverse pregnancy outcomes along with higher rates of severe maternal morbidity and mortality.
- Parkland Health and Hospital System conducted a Community Health Needs Assessment (CHNA) in 2019 to identify populations within Dallas County with substantial health disparities, in order to better target the delivery of services
- Access to care, for non-pregnant patients, was found to be a large issue with a great number of patients in the region uninsured.
- Previously, women living in zip codes located in southern Dallas County were found to have a higher burden of adverse perinatal outcomes.
- It was unknown if black women living within the zip codes identified by the CHNA were at increased risks for pregnancy complications.

Objectives

- To compare perinatal outcomes for black women living in areas identified by a CHNA to have higher social needs to those black women living in regions of the county outside of the target CHNA area.

Materials and Methods

- Retrospective cohort study of women delivering at Parkland Hospital, a county hospital serving the vulnerable women of Dallas, Texas
- Approved by the UT Southwestern Institutional Review Board
- Analysis of sociodemographic disparities via zip codes was performed by a CHNA, with ten zip codes identified as the areas of highest disparity (Figure 1).
- Demographics and perinatal outcomes were obtained from an obstetrical quality database, extracted by research nurses.
- Obstetric complications examined were preeclampsia, abruption, and preterm birth.
- Neonatal outcomes studied were arterial cord pH <7, NICU admission and neonatal death.
- Outcomes for black women within the zip codes identified in the CHNA were compared to black women living outside of the target region.
- Statistical analysis included student's t-test, chi square, and logistic regression. Adjustment was performed for age.

Results

- Between January 2011 through December 2020, 9,579 non-Hispanic Black women delivered at Parkland Hospital, and of these, 2,741 (28.6%) non-Hispanic Black women resided in the CHNA target region.
- As shown in Table 1, women in the target region were younger and had a higher body mass index at delivery.
- Women in the target region attended their first prenatal visit at an earlier gestational age (14.3 [10.0,22.0] versus 15.6[10.4,24.1] weeks, p<.001), and 96% participated in prenatal care prior to delivery in both groups.
- Women in the target region were less likely to have diabetes but more likely to have either chronic or gestational hypertension (Table 1).
- The rate of stillbirth, preterm birth, and other complications of prematurity were higher in the target region (Table 2).
- When outcomes were adjusted for maternal age these differences remained significant (Figure 2).
- A composite including stillbirth, neonatal death, 5 minute Apgar <4, pH <7.0, and grade 3 or 4 intraventricular hemorrhage occurred in 80 (3%) pregnancies in the target region compared to 158 (2%) from other regions, with an adjusted RR of 1.39 (1.05, 1.84).

Conclusions

- Black women living in areas with high social needs have significantly higher rates of stillbirth, prematurity, and its attendant sequelae compared to those living outside the target region.
- Evaluation of social determinants of health will likely provide insight into the origin of these differences.

Tables and Figures

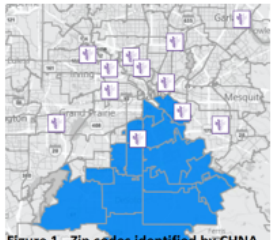


Figure 1 - Zip codes identified by CHNA and location of Parkland prenatal clinics

Table 1
Maternal characteristics of Black women in and outside the target CHNA region

Characteristic	Target Region N = 2741	Outside Region N = 6838	P-value	RR (95% CI) Unadjusted	RR (95% CI) Adjusted*
Maternal age, years	**25.7 ± 5.9**	**28.4 ± 6.2**	**<0.001**		
Nulliparity	957 (35)	2334 (34)	0.467		
BMI at delivery, kg/m²	**33.9 ± 8.3**	**33.0 ± 7.4**	**<0.001**		
Diabetes	164 (6.0)	494 (7.2)	0.030	**0.83 (0.70,0.98)**	1.06 (0.89, 1.26)
Gestational	101 (3.7)	365 (5.3)	<0.001	**0.69 (0.56,0.86)**	0.89 (0.71, 1.11)
Pregestational	63 (2.3)	129 (1.9)	0.194	1.22 (0.90,1.64)	**1.53 (1.13, 2.06)**
Hypertension					
Gestational	788 (29)	1742 (25)	0.001	**1.13 (1.05,1.21)**	**1.14 (1.06, 1.23)**
Chronic	320 (12)	563 (8)	<0.001	**1.42 (1.25,1.61)**	**1.78 (1.56, 2.02)**
Severe preeclampsia	455 (17)	996 (15)	0.012	**1.14 (1.03,1.26)**	**1.16 (1.05, 1.29)**

Data presented as mean ± SD or N(%)
*Adjusted for maternal age

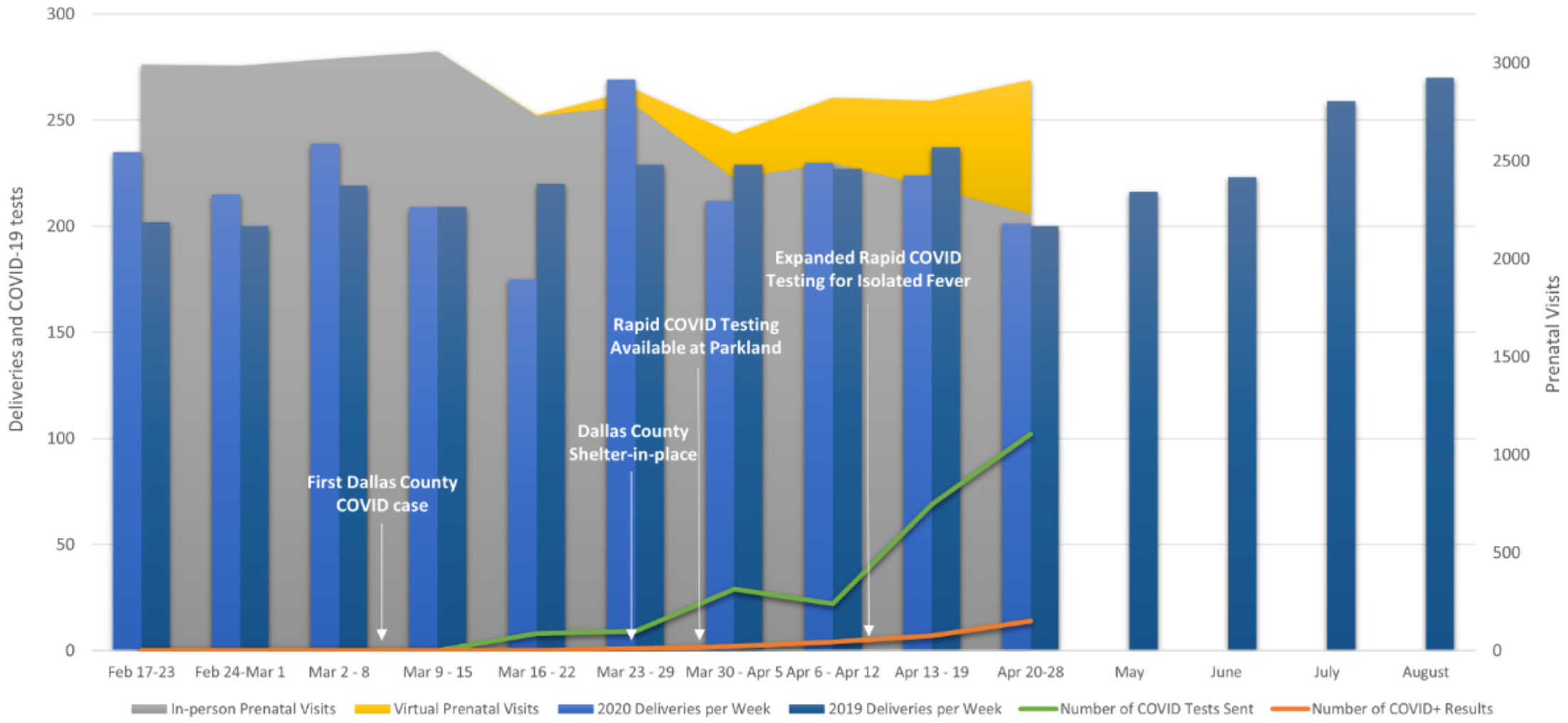
Table 2
Perinatal outcomes for infants of Black women in and outside a target CHNA region

Characteristic	Target Region N = 2638	Outside Region N = 6626	P-value	RR (95% CI) Unadjusted	RR (95% CI) Adjusted*
Gestational age at delivery	39.0 [37.9, 40.0]	39.1 [38.0, 40.1]	<0.001		
≤ 32 weeks	128 (4.7)	252 (3.7)	0.026	**1.27 (1.03,1.56)**	**1.32 (1.07, 1.64)**
≤ 34 weeks	219 (8)	437 (6)	0.005	**1.25 (1.07,1.46)**	**1.29 (1.10, 1.51)**
≤ 35 weeks	438 (16)	929 (14)	0.002	**1.18 (1.06,1.31)**	**1.20 (1.08, 1.34)**
Cesarean delivery	1158 (42)	3046 (45)	0.041	0.95 (0.90,1.00)	1.03 (0.98, 1.08)
Abruption	40 (1.5)	80 (1.2)	0.250	1.25 (0.86,1.82)	1.26 (0.86, 1.85)
Major malformation	71 (2.6)	162 (2.4)	0.525	1.09 (0.83,1.44)	1.18 (0.89, 1.57)
Stillbirth	27 (1.0)	41 (0.6)	0.042	**1.64 (1.01,2.66)**	**1.89 (1.19, 3.01)**
5-minute Apgar < 4	17 (0.6)	54 (0.8)	0.396	0.79 (0.46,1.36)	0.77 (0.44, 1.34)
pH < 7.0	26 (1.0)	39 (0.6)	0.037	**1.68 (1.03,2.75)**	**1.86 (1.12, 3.09)**
IVH grade 3 or 4	1 (0.0)	9 (0.1)	0.195	0.28 (0.04,2.20)	0.24 (0.03, 1.89)
Neonatal ICU admission	217 (8.2)	476 (7.2)	0.085	1.15 (0.98,1.34)	**1.18 (1.01, 1.38)**
Birthweight <= 1000	41 (1.6)	50 (0.8)	<0.001	**2.06 (1.37,3.10)**	**2.09 (1.37, 3.18)**
Birthweight <= 2500	390 (15)	747 (11)	<0.001	**1.31 (1.17,1.47)**	**1.33 (1.19, 1.50)**
bronchopulmonary dysplasia	35 (1.3)	47 (0.7)	0.004	**1.87 (1.21,2.89)**	**1.81 (1.16, 2.83)**
CPAP or ventilator use	203 (8)	422 (6)	0.022	**1.21 (1.03,1.42)**	**1.24 (1.05, 1.46)**
NEC requiring surgery	0 (0.0)	1 (0.0)	0.528	0.84 (0.03,20.54)	n/a
Neonatal death	4 (0.2)	18 (0.3)	0.284	0.56 (0.19,1.65)	0.60 (0.20, 1.79)
TTN	33 (1.3)	79 (1.2)	0.816	1.05 (0.70,1.57)	1.08 (0.71, 1.63)
Periventricular leukomalacia	3 (0.1)	0 (0.0)	0.006	**17.58 (0.91,340.23)**	n/a
Retinopathy of prematurity	26 (1.0)	29 (0.4)	0.002	**2.25 (1.33,3.82)**	**2.37 (1.38, 4.07)**

Data presented as median [Q1,Q3] or n (%). IVH = intraventricular hemorrhage; ICU = intensive care unit; CPAP = continuous positive airway pressure; NEC = necrotizing enterocolitis, TTN = transient tachypnea of the newborn
*Adjusted for maternal age

Duryea EL et al. SMFM Annual Meeting. Feb 2022

Intersects with Virtual Visits launched due to COVID-19 pandemic



Virtual healthcare

JAMA Network Open

Original Investigation | Obstetrics and Gynecology

Comparison Between In-Person and Audio-Only Virtual Prenatal Visits and Perinatal Outcomes

Elaine L. Duryea, MD; Emily H. Adhikari, MD; Anne Ambia, MD; Catherine Spong, MD; Donald McIntire, PhD; David B. Nelson, MD

Abstract

IMPORTANCE Ensuring access to prenatal care services in the US is challenging, and implementation of telehealth options was limited before the COVID-19 pandemic, especially in vulnerable populations, given the regulatory requirements for video visit technology.

OBJECTIVE To explore the association of audio-only virtual prenatal care with perinatal outcomes.

DESIGN, SETTING, AND PARTICIPANTS This cohort study compared perinatal outcomes of women who delivered between May 1 and October 31, 2019 (n = 6559), and received in-person prenatal visits only with those who delivered between May 1 and October 31, 2020 (n = 6048), when audio-only virtual visits were integrated into prenatal care during the COVID-19 pandemic, as feasible based on pregnancy complications. Parkland Health and Hospital System in Dallas, Texas, provides care to the vulnerable obstetric population of the county via a high-volume prenatal clinic system and public maternity hospital. All deliveries of infants weighing more than 500 g, whether live or stillborn, were included.

EXPOSURES Prenatal care incorporating audio-only prenatal care visits.

MAIN OUTCOMES AND MEASURES The primary outcome was a composite of placental abruption, stillbirth, neonatal intensive care unit admission in a full-term (≥37 weeks) infant, and umbilical cord blood pH less than 7.0. Visit data, maternal characteristics, and other perinatal outcomes were also examined.

RESULTS The mean (SD) age of the 6559 women who delivered in 2019 was 27.8 (6.4) years, and the age of the 6048 women who delivered in 2020 was 27.7 (6.5) years (P = .38). Of women delivering in 2020, 1090 (18.0%) were non-Hispanic Black compared with 1067 (16.3%) in 2019 (P = .04). In the 2020 cohort, 4067 women (67.2%) attended at least 1 and 1216 women (20.1%) attended at least 3 audio-only virtual prenatal visits. Women who delivered in 2020 attended a greater mean (SD) number of prenatal visits compared with women who delivered in 2019 (9.8 [3.4] vs 9.4 [3.8] visits; P < .001). In the 2020 cohort, 173 women (2.9%) experienced the composite outcome, which was not significantly different than the 195 women (3.0%) in 2019 (P = .71). In addition, the rate of the composite outcome did not differ substantially when examined according to the number of audio-only virtual visits attended.

CONCLUSIONS AND RELEVANCE Implementation of audio-only virtual prenatal visits was not associated with changes in perinatal outcomes and increased prenatal visit attendance in a vulnerable population during the COVID-19 pandemic when used in a risk-appropriate model.

JAMA Network Open. 2021;4(4):e215854. doi:10.1001/jamanetworkopen.2021.5854

Key Points

Question Were audio-only virtual prenatal visits during the COVID-19 pandemic associated with a change in perinatal outcomes in a vulnerable population?

Findings In this cohort study of 12 607 women, 173 women (2.9%) experienced placental abruption, stillbirth, cord pH less than 7.0, or full-term neonatal intensive care unit admission, which was not significantly different than the 195 women (3.0%) affected in 2019. The rate of this composite outcome also did not differ significantly when stratified by the number of virtual prenatal visits.

Meaning In this study, women who delivered in 2020 following implementation of audio-only prenatal virtual visits did not experience more adverse pregnancy outcomes than women who delivered in 2019.

Author affiliations and article information are listed at the end of this article.

Table 1. Prenatal Visit Schedule Incorporating Virtual Visits[a]

Approximate weeks of gestation	Type of visit	Comment
10	In-person	Initial prenatal visit, to include initial obstetric laboratory testing
14	Virtual	None
18-20	In-person	Ultrasonographic and maternal serum screening performed
24	In-person	Glucose tolerance testing performed
28	In-person[b]	If Rho(D) immune globulin administration required
32	In-person	Third trimester laboratory studies performed
34	Virtual	None
36	In-person	Gonorrhea/chlamydia testing performed
37	Virtual	None
38	In-person	None
39	In-person	None
40	In-person	None
41	In-person	None

Duryea EL et al. JAMA Net Open 2021

Virtual healthcare: AUDIO-only!

Clinical Practice and Quality

Patient Perspectives on Audio-Only Virtual Prenatal Visits Amidst the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Pandemic

Denisse Holcomb, MD, Mary Ann Faucher, PhD, MPH, Jennifer Bouzid, MSN, BSN, Marjorie Quint-Bouzid, MPA, David B. Nelson, MD, and Elaine Duryea, MD

OBJECTIVE: To evaluate patient satisfaction after integration of audio-only virtual visits into a pre-existing prenatal care schedule within a large, county-based system during the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic.

METHODS: We implemented audio-only prenatal virtual visits in response to the SARS-CoV-2 pandemic within a large, county-based prenatal care system serving predominantly women with low socioeconomic status and limited resources. Using a four-question telephone survey, we surveyed a cross-section of patients who had opted to participate in virtual visits to assess their level of satisfaction surrounding audio-only visits. In addition, average clinic wait times and attendance rates by visit type were examined.

RESULTS: From March 17 to May 31, 2020, more than 4,000 audio-only virtual prenatal visits were completed in our system. After implementation, the percentage of visits conducted through the virtual platform gradually rose, with nearly 25% of weekly prenatal visits being performed through the virtual platform by the month of May. Clinic wait times trended downward after implementation of virtual visits ($P<.001$). On average, 88% of virtual prenatal visits were completed as scheduled, whereas only 82% of in-person visits were attended ($P<.001$). Hospital administration attempted to contact 431 patients who had participated in at least one virtual visit to assess patient satisfaction; 283 patients were reached and agreed to participate (65%). Ninety-nine percent of respondents reported that their needs were met during their audio-only virtual visits. The majority of patients preferred a combination of in-person and virtual visits for prenatal care, and patients reported many benefits with virtual visits.

CONCLUSION: Audio-only virtual prenatal visits—as a complement to in-person prenatal visits—have specific and distinct advantages compared with video-enabled telehealth in a vulnerable population of women and offer a viable option to increase access to care.

(Obstet Gynecol 2020;136:317–22)
DOI: 10.1097/AOG.0000000000004026

As the United States continues to be affected by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, health care systems have rapidly adapted to maintain access to care while providing recommended social distancing. In the world of obstetrics, telehealth quickly gained popularity, because postponing ambulatory visits is not a viable option. Telehealth encompasses different modalities, including synchronous video visits, synchronous audio-only visits, asynchronous communication, and remote patient monitoring.[1] Before the SARS-CoV-2 pandemic, telemedicine had increasingly been used as a tool to deliver limited facets of prenatal care, including genetic and nutrition counseling, as well as mental health and lactation services.[1–5] Telehealth has also been used for postpartum blood pressure monitoring in patients with hypertensive disorders.[6,7] Despite promising evidence, policy guiding telehealth for

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Each author has confirmed compliance with the journal's requirements for authorship.

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Financial Disclosure
The authors did not report any potential conflicts of interest.

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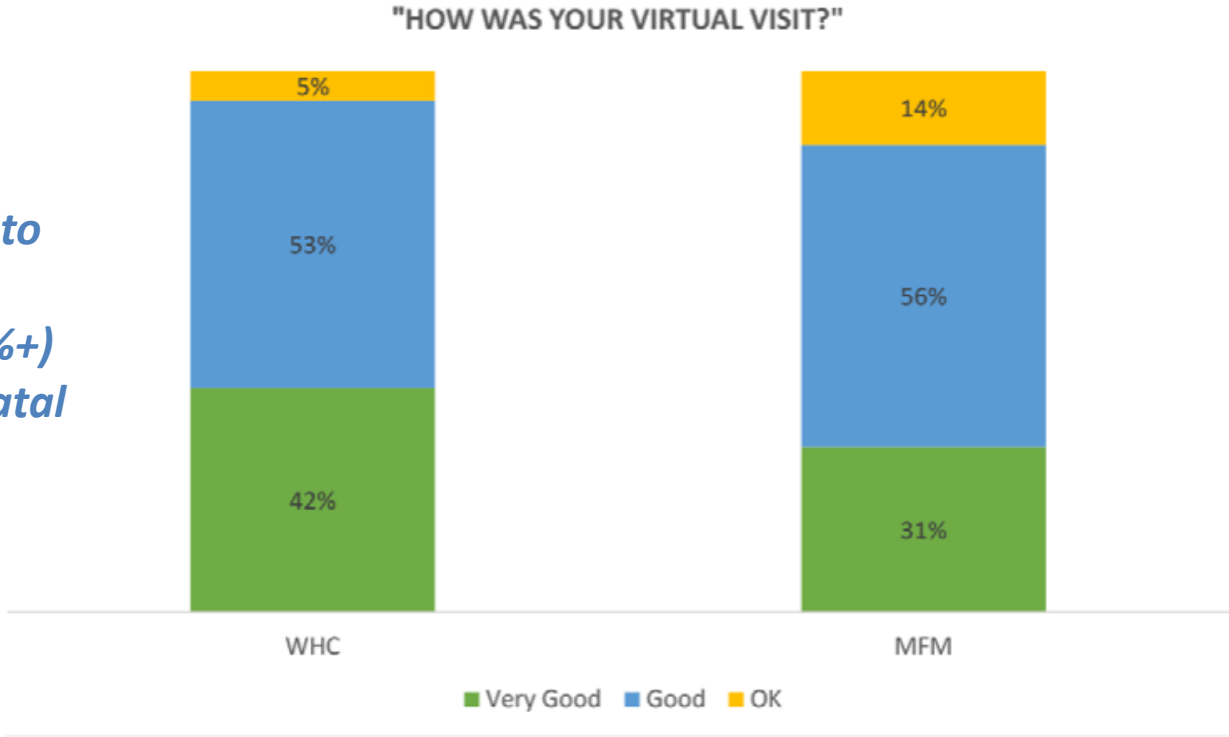
Appendix 3. Patient feedback regarding virtual prenatal visits, by clinic location.

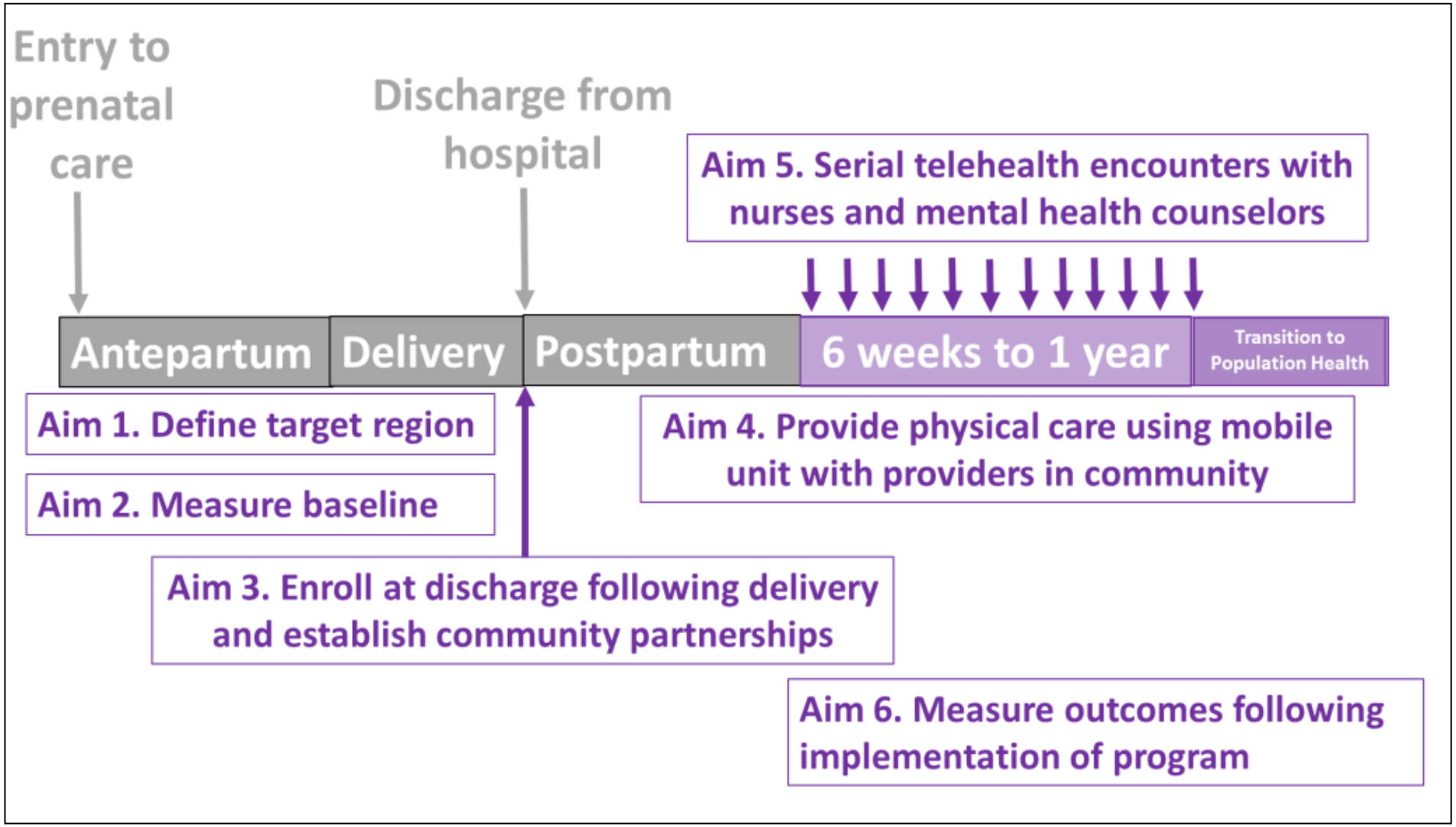
Patients with limited access to care were accepting (95%+) of use of prenatal virtual visits!!



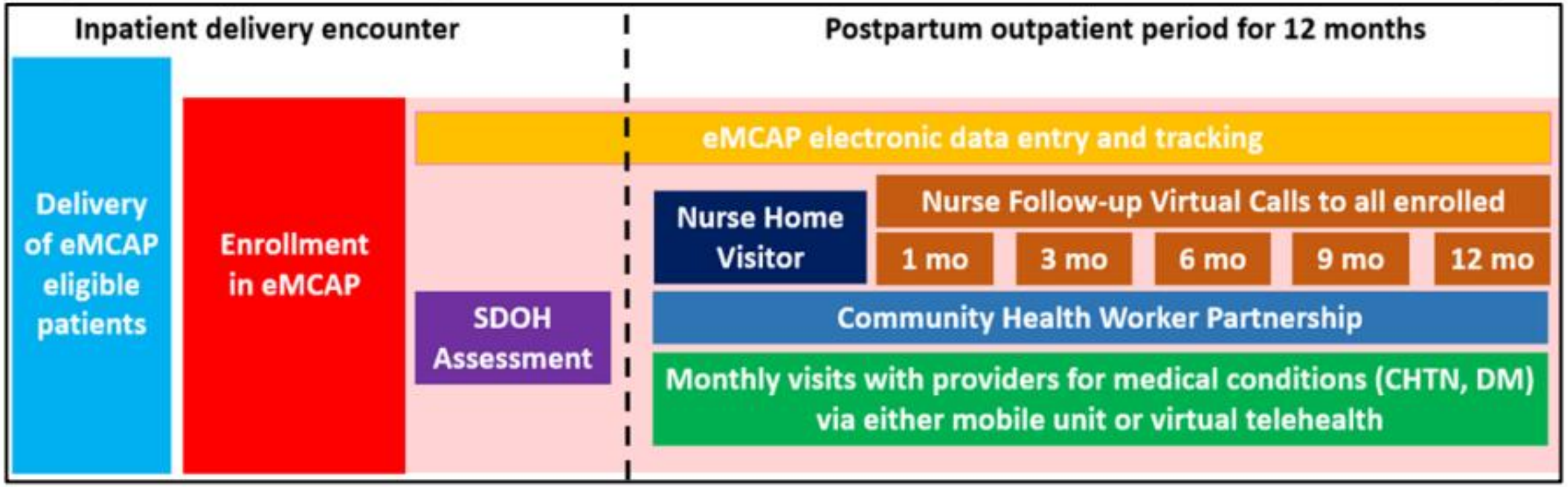
Holcomb D et al. Obstet Gynecol. Aug 2020

UTSouthwestern Medical Center

Putting all this together…



extending Maternal Care After Pregnancy (eMCAP)



Launched 1 Oct 2020

extending Maternal Care After Pregnancy (eMCAP): Enrollment

Enrollment (postpartum):

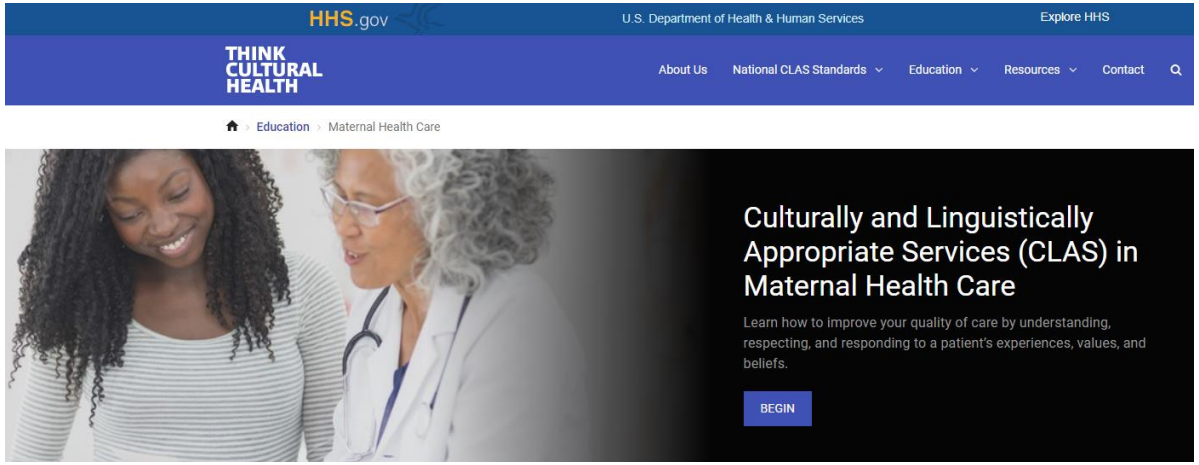
Mother-baby ward

Electronic identification based upon zip code of target region

Nurses with enrollment team using bilingual staff

Not interrupt ongoing care team

Added:
Culturally and Linguistically Appropriate Services (CLAS) in Maternal Health Care



extending Maternal Care After Pregnancy (eMCAP): FORMS

eMCAP Data Sheet
ENROLLMENT (revised 10/28/21)
Study #_____
Date enrolled to eMCAP:_____
Name:_____
MRN:_____
Delivery date:_____
Enrolled in Dallas Healthy Start prior to eMCAP enrollment: Y/N
Consented for Dallas Healthy Start with eMCAP Enrollment: Y/N/Pending
Enrolled in Nurse/Family Partnership: Y/N
Is patient in eMCAP: Y/ Declined/Ineligible/Not approached
If Declined (multi-select):
a. I have concerns about funding/cost of program
b. I have concerns about registering in programs or having my name a "list"
c. I don't want any individuals visiting my home
d. I am moving soon
e. Other – I don't have time/energy to participate
f. Other – I don't think the program will benefit me
g. Other – No reason given
h. Other – (comment)
eMCAP Nurse Coordinator:_____
eMCAP Enrollment Status: In Progress/Complete
If enrolled, Enrollment Complete: Before Discharge/After Discharge
If yes, pt accepts FU phone calls: Y/N
Hope Supply Bag Given? Y/N/Not Available
Enrolled in MyChart? Previously enrolled/Enrolled today/Declined

Medical:

CHTN before pregnancy: Y/N
CHTN in pregnancy: Y/N
If Yes: requiring meds during pregnancy: Y/N
If Yes:
Amlodipine
Nifedipine ER
Labetalol
Hctz
Other (multi-select)
Dose:_____
Meds started/titrated after delivery? Y/N
If Yes:
Amlodipine Dose:_____
Nifedipine ER Dose:_____
Labetalol Dose:_____
Hctz Dose:_____
Other

Dose same as above

SOCIAL DETERMINANTS:
INDIVIDUAL
Number of household family members:_____

1. Housing status (select one)
Has housing:
Apartment
Townhome/condo
Duplex
Mobile home
Single family home
Other_____
Does not have housing
Chose not to answer

Has any family member ever been incarcerated? (read through list of options)?

Father of the Baby	Grandparent
Significant Other	Mother
Aunt	Sister
Brother	Son
Daughter	Spouse
Father	Step Parent
Foster Parent	Uncle
Grandchild	Chose not to answer

If yes to any of the above, does the individual live in the immediate family home? Y/N
If yes to any of the above, how long has the individual been incarcerated (years)?_____

2. Housing Stability
In the last 12 months, was there a time when you were not able to pay the mortgage or rent on time? Y/N/Refused to answer
In the last 12 months, how many places have you lived:_____
In the last 12 months, was there a time when you did not have a steady place to sleep or slept in a shelter (including now)?

3. Language/Education (check one)
Primary language spoken at home: English/Spanish/Other
Highest grade level completed: None 1 2 3 4 5 6 7 8 9 10 11 12
No college, some college, technical school, GED, college degree

4. Employment (choose one)
Unemployed
Disabled
Part-time or temporary work
Full-time work
More than full-time/multiple job
Other
Occupation:
Food industry

COMMUNITY

HEALTHY COMMUNITY SUCCESS AND CHALLENGES

What are the greatest strengths of your community? (Select all that apply):

☐ Education	☐ Community activity	☐ Language skills
☐ Employment	☐ Police	☐ Family
☐ Healthcare	☐ Personal space	☐ Mental Health treatment access
☐ Healthy Eating	☐ Insurance	☐ Substance abuse treatment access
☐ Parks	☐ Transportation	☐ Affordable Housing options
☐ Community safety	☐ Workplace safety	

Other:_____

What are the greatest weaknesses of your community? (Select all that apply):

☐ Education	☐ Lack of community activities	☐ Poor access to health care
☐ Job skills	☐ Police	☐ Insurance
☐ Employment	☐ Lack of personal space	☐ Limited transportation options
☐ Substance abuse	☐ Lack of affordable housing options	☐ Workplace safety
☐ Mental health	☐ Legal issues	☐ Language skills
☐ Lack of healthy food	☐ Community safety	☐ Family
☐ Recreation and green space		

Other: _____

AREAS OF NEED

Health Care: What is the greatest health care need?

☐ Primary care	☐ Substance abuse
☐ Specialty care	☐ Mental health
☐ Dental care	☐ Transportation to health care appointments
☐ Eye care	

Nutrition: What is the greatest nutritional need?

☐ Access to affordable healthy foods	☐ Access to healthy food in stores
☐ Access to healthy food in schools	☐ Cooking classes

Stress: What are sources of stress in your daily life? (Select all that apply):

☐ Relationships	☐ Access to transportation
☐ Fear of domestic violence	☐ Access to safe housing
☐ Access to health care services	☐ Access to education
☐ Access to food	☐ Community violence
☐ Discrimination due to race	☐ COVID-19

Transportation: What is the greatest transportation need?

☐ Transportation to health care	☐ Affordable transportation
☐ Transportation to work	☐ Transportation to community activities
☐ Transportation to grocery stores	☐ Reliable, scheduled transportation

Enrollment forms entered as “flowsheet” linked to electronic registry

K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	A
MC_C	EMC_C	EMC_M	EMC_M	EMC_D	EMC_H	EMC_V	EMC_B	EMC_B	EMC_IF	EMC_T	EMC_R	EMC_R	EMC_P	EMC_H	EMC_H	EMC_H	EMC_H	EMC_C	EMC_C	EMC_P	EMC_P	EMC_V	EMC_D	EM
	No		No	None	N/A				No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	Yes	Nifedip	Yes	Overt	Apresol				No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		No	Yes		No	
	No		No	Overt	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		Yes	Sympto	Yes	Yes		No	
	Yes		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind			Positive	#####	No		Yes	Yes		No	
	No		No	GDM A	N/A		Yes		No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	GDM A	N/A				Yes	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	Yes	Nifedip	Yes	Overt	Apresol				Yes	Yes	Not Ind	Not Ind	Not Ind	Positive	#####	Positive	#####	Yes	Sympto	Yes	No		No	
	No		No	GDM A	N/A		No		No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	None	Apresol				No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	Yes		No	
	No		No	None	N/A				Yes	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		No	No		No	
	No		No	None	N/A		No		No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		No	Yes		No	
	No		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		Yes	Sympto	Yes	Yes		No	
	No		No	None	N/A				Yes	Yes	Not Ind	Not Ind	Not Ind	No History		No History		Yes	Sympto	Yes	No		No	
	Yes	Nifedip	Yes	GDM A	Apresol				No	No	Not Ind	Not Ind	Not Ind	No History		Positive	#####	No		Yes	Yes		No	
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	No		No	None	N/A				No	No	Not Ind	Not Ind	Not Ind	Positive	#####	Positive	#####	No		Yes	Yes		No	
	Yes		No	None	N/A				Yes	Yes	Not Ind	Not Ind	Not Ind	No History		Positive		No		Yes	No		No	
	No		No	None	N/A				No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		No	No		No	
	No		No	None	N/A				Yes	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	Yes		No	
	Yes	Nifedip	Yes	None	Apresol				No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	Yes		No	
	No		No	None	N/A				No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	None	N/A				Yes	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	None	N/A				No	No	Not Ind	Not Ind	No	Negative		Positive	#####	Yes	Sympto	Yes	No		No	
	No		No	None	N/A		No		No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	None	N/A				Yes	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	Overt	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		No	No		No	
	No		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	Negative		Positive	#####	Yes	Sympto	Yes	Yes		No	
	No		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	GDM A	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		No	No		No	
	Yes	Labetal	Yes	Overt	Apresol				Yes	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		Yes	Sympto	Yes	Yes		No	
	No		No	None	N/A				Yes	Yes	Yes	Yes	Not Ind	No History		No History		Yes	Sympto	Yes	No		No	
	No	Nifedip	Yes	Overt	Apresol		No		Yes	No	Not Ind	Not Ind	Not Ind	No History		No History		No		No	No		No	
	No		No	None	N/A		No		No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		No	No		No	
	No		No	None	N/A				No	Yes	Yes	Yes	Not Ind	No History		No History		No		Yes	Yes		No	
	No		No	GDM A	N/A				No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	None	N/A				Yes	Yes	Not Ind	Not Ind	Not Ind	No History		No History		Yes	Sympto	Yes	No		No	
	No		No	GDM A	N/A				Yes	Yes	Yes	Yes	Not Ind	No History		No History		No		No	No		No	
	No		No	None	N/A				No	No	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		Yes	Sympto	Yes	Yes		No	
	No		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	Yes		No	
	Yes	Nifedip	Yes	None	Apresol				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	GDM A	N/A				Yes	Yes	Not Ind	Not Ind	Not Ind	Positive	#####	Positive	#####	No		Yes	No		No	
	Yes		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	Yes		No	
	No		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	No		No	
	No		No	None	N/A				No	Yes	Not Ind	Not Ind	Not Ind	No History		No History		Yes	Sympto	Yes	No		No	
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	No		No	None	N/A				Yes	Yes	Not Ind	Not Ind	Not Ind	No History		No History		No		Yes	Yes		No	
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Placed into a real-time dashboard for reporting

MM CHNA FLAG
- [x] All
- [ ] N
- [x] Y

CHNA FLAG
- [x] All
- [x] N
- [x] Y

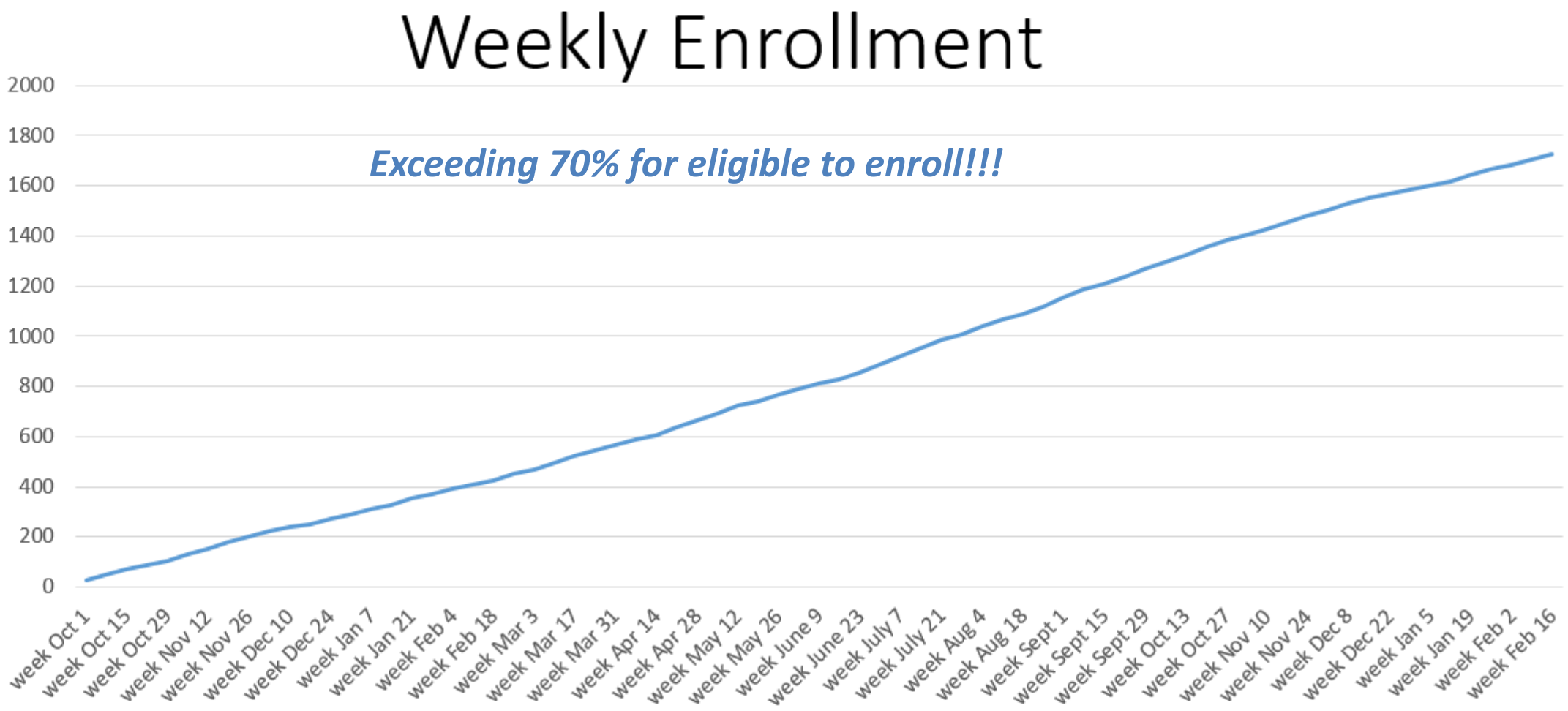
DALLAS CNTY FLAG
- [x] All
- [x] N
- [x] Y

HOMES FLAG
- [x] All
- [x] N
- [x] Y

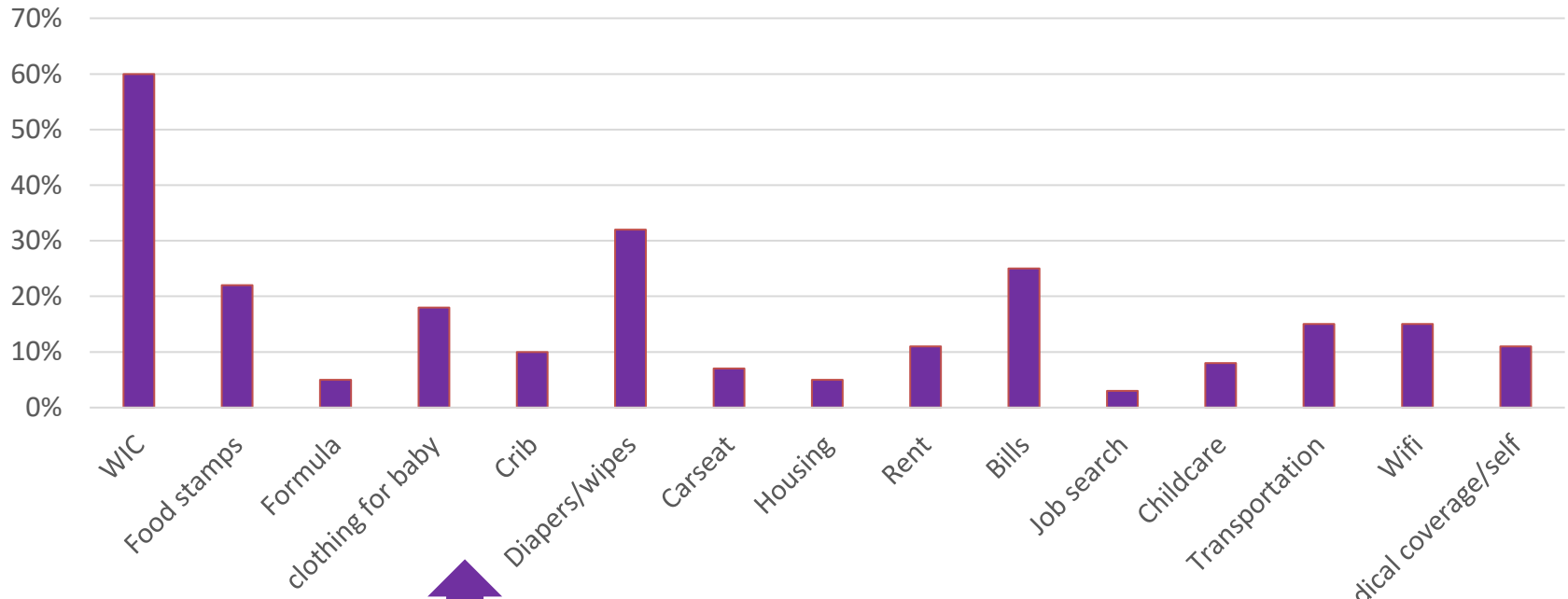
PAT LANGUAGE
- [x] All
- [x] (Null)
- [x] Albanian
- [x] Amharic
- [x] Arabic
- [x] Bengali
- [x] Bosnian

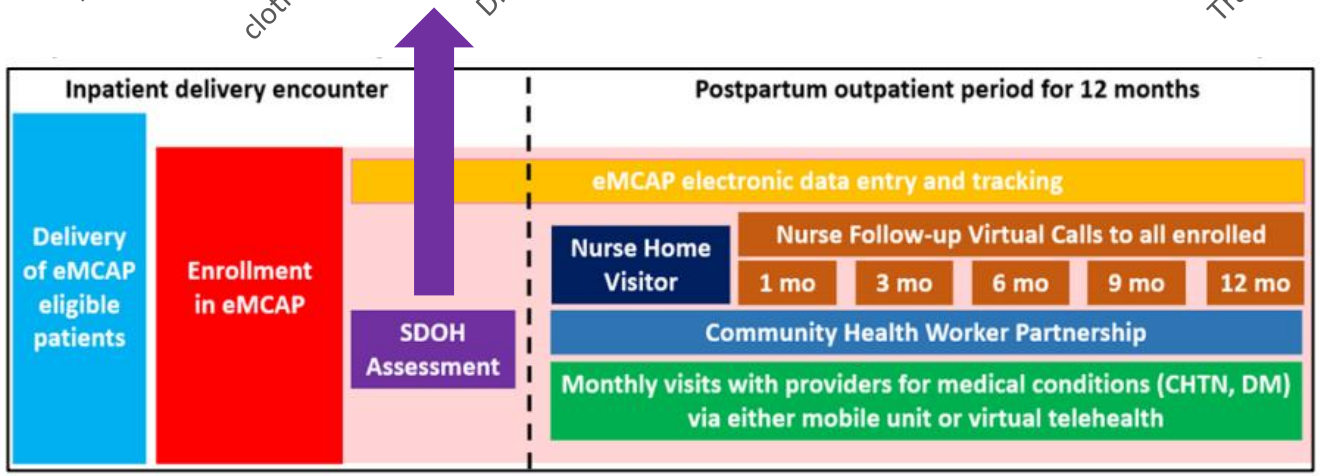
2,456 Total Count of Patients from the Target Population	2,351 EMCAP_POPUPLATION	69.79% Percentage of Enrolled	1,714 Count of Patients who are Enrolled	1.02% Percentage of those who were not Approached
25 Count of of those who were not approached	22.96% Percentage of those who Declined	564 Count of of those who declined	2.16% Percentage of those enrolled in Dallas Healthy Start	38 Count of Patients Enrolled in Dallas Healthy Start
1.63% Percentage of Patients enrolled in NFP and EMCAP	28 Count of Patients enrolled in NFP from the EMCAP Population	81.16% Percentage of Patients who have Nurse Maternal Home Visit Scheduled	1,392 Count of Patients who have Nurse Maternal Home Visit Scheduled	58.05% Percentage of Patients with completed Nurse Maternal Home Visit
995 Count of all patients who had a Nurse Maternal Home Visit Completed	41.95% Percentage of Nurse Maternal Visits that are not Completed	719 Count of Nurse Maternal Visits that are not Completed	56.65% Percentage of Child Home Visit Scheduled	976 Count of Child Home Visit Scheduled
65.79% Percentage of Child Home Visit Completed	627 Count Child Home Visit Completed	34.21% Percentage of Child Home Visit No Show	326 Child Home Visit No Show Count	47.80% Percentage of 1 Month Follow Up Phone Call Completed

extending Maternal Care After Pregnancy (eMCAP)



extending Maternal Care After Pregnancy (eMCAP)





extending Maternal Care After Pregnancy (eMCAP)

Needs reported both by standardized screening (SDOH) and freeform patient report

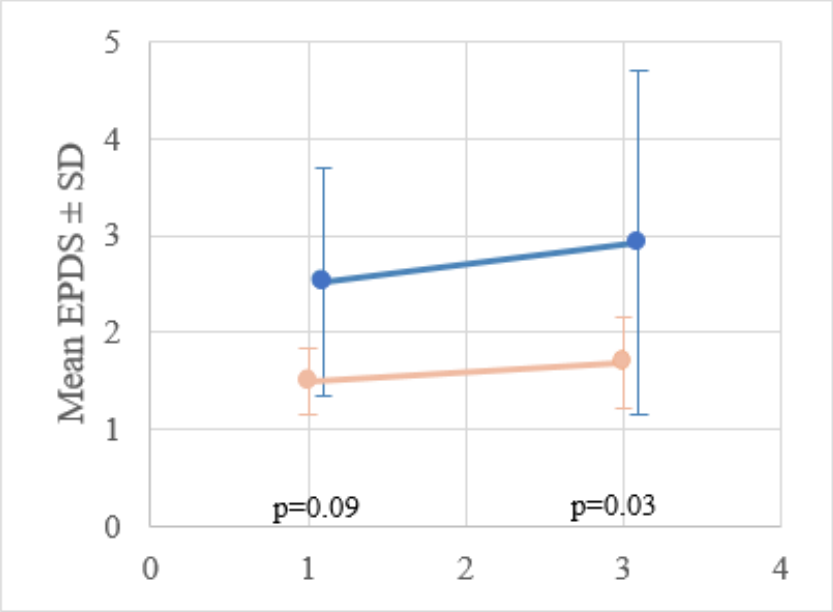
Need	*N (%)*
Standardized Structured Screening	n = 748
Missed Utility Bill	108 (15%)
Medical Transportation	73 (10%)
Non-Medical Transportation	48 (6%)
Dependence on Social Programs for Food	529 (71%)
Free-form, Patient Reported	n = 564
Bill Assistance	71 (13%)
Transportation	51 (9%)
Food Stamps	77 (14%)

Data presented as N (%).

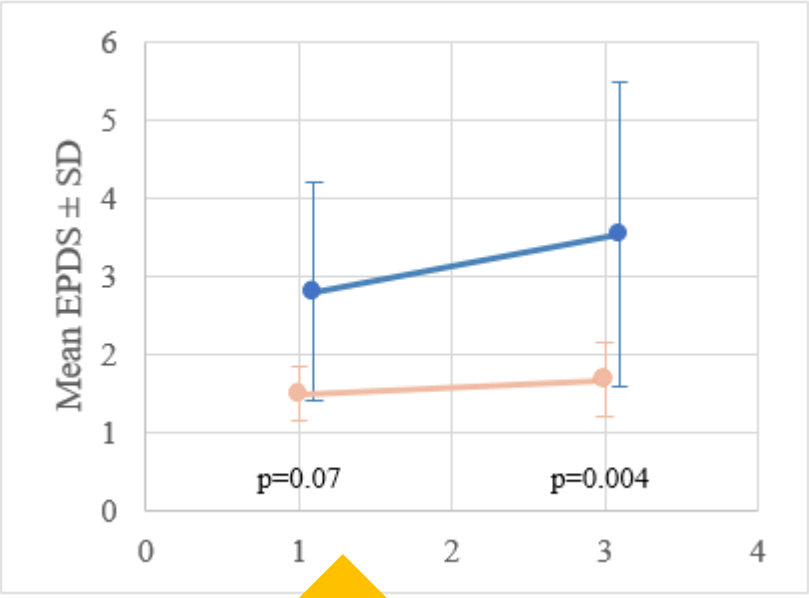
UTSouthwestern Medical Center

extending Maternal Care After Pregnancy (eMCAP)

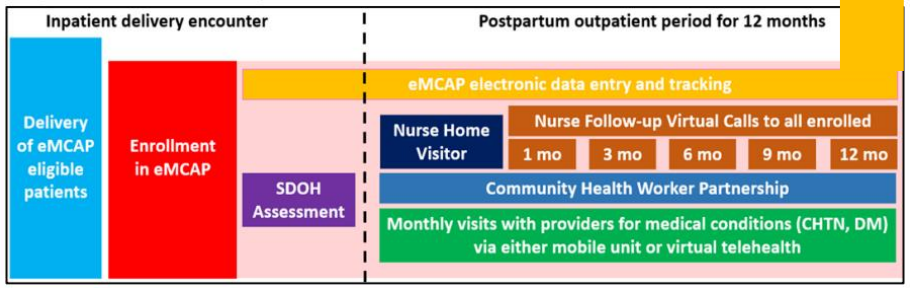
Transportation to medical appointments



Transportation to non-medical appointments



Need Present Need Absent



extending Maternal Care After Pregnancy (eMCAP)

The Mental Health Impact of Acute Postpartum Needs

Ashlyn Lafferty, BS; Elaine Duryea, MD; Robert Martin, MD; Lisa Moseley, RN; Melissa Wafford, RN; Donald McIntire, PhD; Catherine Spong, MD; David Nelson, MD
University of Texas Southwestern, Department of Obstetrics and Gynecology

Background

- Maternal morbidity mortality have been on the rise in the United States affecting more than 350,000 women annually.
- Similar trends are observed in Texas where 39% of maternal deaths in 2012 were deemed preventable upon detailed review.
- Cardiac mental health conditions were among the most common reasons for maternal death, and more than half (56%) of all deaths during occur more than 60 days following delivery.
- In Dallas County, women living in zip codes with high percentages of ethnic minorities have higher rates of comorbidities and suffer worse perinatal outcomes inspiring the establishment of a community-based program titled "extending Maternal Care After Pregnancy (eMCAP)."

Objectives

To examine acute postpartum needs of individuals living in underserved communities and to determine the impact these needs have on the incidence of depression and anxiety symptoms as assessed by the Edinburg Postpartum Depression Scale (EPDS) and Generalized Anxiety Disorder (GAD7) at 1 and 3 months postpartum.

Materials and Methods

- This is a prospective observational study of postpartum women residing in high risk zip codes as determined by the Dallas Community Health Needs Assessment (Figure 1) and who gave birth between Oct. 1, 2020 and July 3, 2021
- Information is collected regarding each participant's acute postpartum needs
- These needs were linked to serial Edinburg Postpartum Depression Scale (EPDS) and Generalized Anxiety Disorder (GAD7) collected at 1 and 3 months and analyzed analyzed utilizing a mixed effect repeated measures model with $p < 0.05$ considered significant.

Tables and Figures

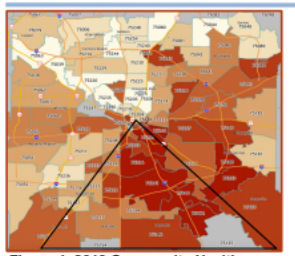


Figure 1. 2019 Community Health Needs Assessment (CHNA) all-cause mortality rate adjusted by age per 100,000 population. Black triangle is the region targeted by eMCAP.

Figure 2. eMCAP enrollment within the Triangle. Half (50%) of all participants enrolled in eMCAP live in 3 of the 15 zip codes identified to be high-risk by the Dallas CHNA .

Figure 3. eMCAP participants with acute needs within the Triangle. 51% of all participants with acute needs live in 3 of the 15 zip codes identified to be high-risk by the CHNA .

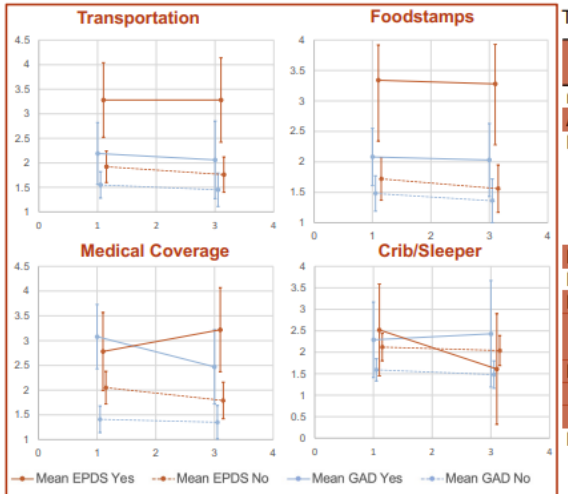


Figure 4. Differences in mean EPDS and GAD scores based on specific acute postpartum needs. Acute needs included help with transportation, foodstamps, continued medical coverage for self, and crib or sleeper for infant.

Table. Demographics and Needs

Characteristic	*Frequency (%)*
n	458
Age (mean±std)	27.9±6.8
Race/Ethnicity	
Black	140 (31%)
White	13 (3%)
Hispanic	303 (66%)
Other	2 (0%)
Nulliparity	132 (29%)
BMI (mean±std)	34.0±7.6
Hypertension	
Chronic	48 (10%)
Gestational	119 (26%)
Diabetes	
Gestational	36 (8%)
Pregestational	16 (3%)
Needs	321 (70%)
Transportation	69 (15%)
Foodstamps	101 (22%)
Medical Coverage	50 (11%)
Crib/Sleeper	46 (10%)

std: standard deviation

Results

- Of the people enrolled, 458 had at least one EPDS and GAD7 recorded (Table). Approximately one-third of participants were Black, two-thirds were Hispanic, and only 3% were White.
- Acute needs were identified in 70% of individuals: transportation to medical appointments (15%), foodstamps (22%), continued medical coverage (11%), and crib or sleeper (10%; Table).
- Out of the 15 zip codes within the region targeted by eMCAP, half (50%) of participants enrolled in the program were concentrated in 3 zip codes: 75216, 75224, and 75232.
- Fifty-one percent of individuals with acute needs identified lived in the same three zip codes with the highest enrollment (Figures 2,3).
- Mean EDPS but not GAD7 scores were significantly higher in individuals who needed transportation to medical appointments ($p=0.033$) and foodstamps ($p=0.017$; Figure 4).
- Mean GAD7 but not EPDS scores were significantly higher in participants who needed postpartum medical coverage ($p=0.010$, Figure 4).
- Neither mean GAD7 nor EDPS scores were significantly elevated in individuals who needed a crib or sleeper ($p=0.296$, $p=0.885$, Figure 4).

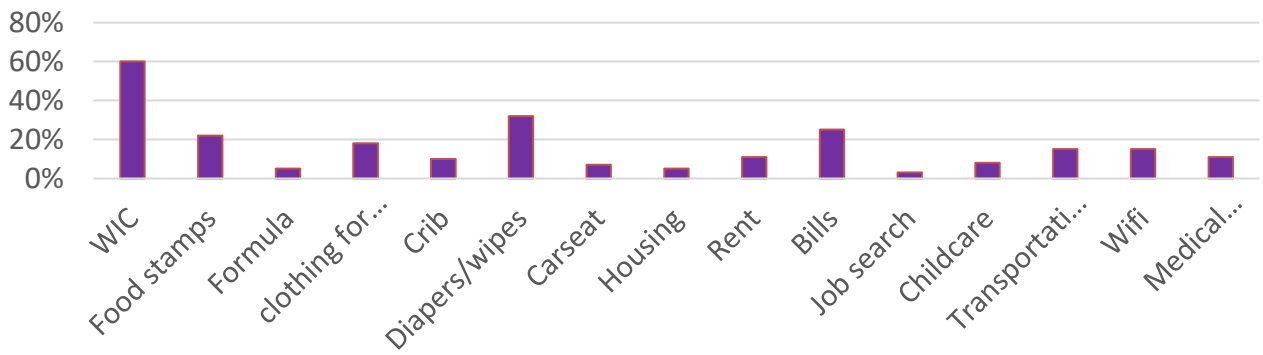
Conclusions

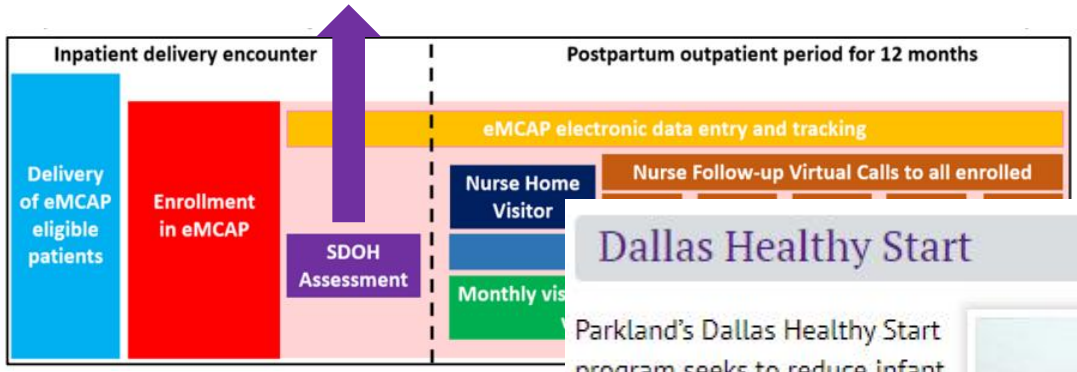
Acute postpartum needs for transportation, medical care coverage, and food stamps correlate with higher depression and anxiety screening indicators. The majority of individuals with identified needs are concentrated within a small area of the county. These acute postpartum needs and their geographic distribution identify social services that could be utilized and which areas to target in order to decrease rates of maternal morbidity and mortality related to mental health after pregnancy.

Presented at SMFM Annual Meeting Poster Session IV, 4 Feb 2022

UTSouthwestern Medical Center

Community-based organization partnership





Dallas Healthy Start

Parkland's Dallas Healthy Start program seeks to reduce infant deaths, pre-term and low-weight births. To learn more about Dallas Healthy Start, please call 214-590-1670 or email DallasHealthyStart@phhs.org.

Diapers, baby supplies, health services provided to moms enrolled in Parkland's eMCAP program

October 18, 2021 Mollie Belt Health 0

There's never been a better time...
Call today to Advertise with The Dallas Examiner!
214-941-3100

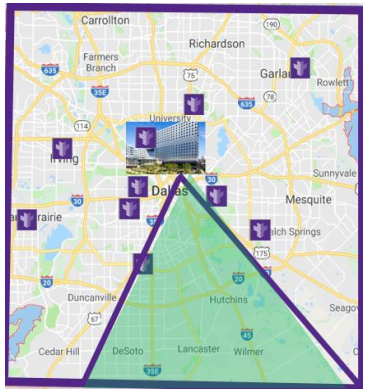
extending Maternal Care After Pregnancy (eMCAP):

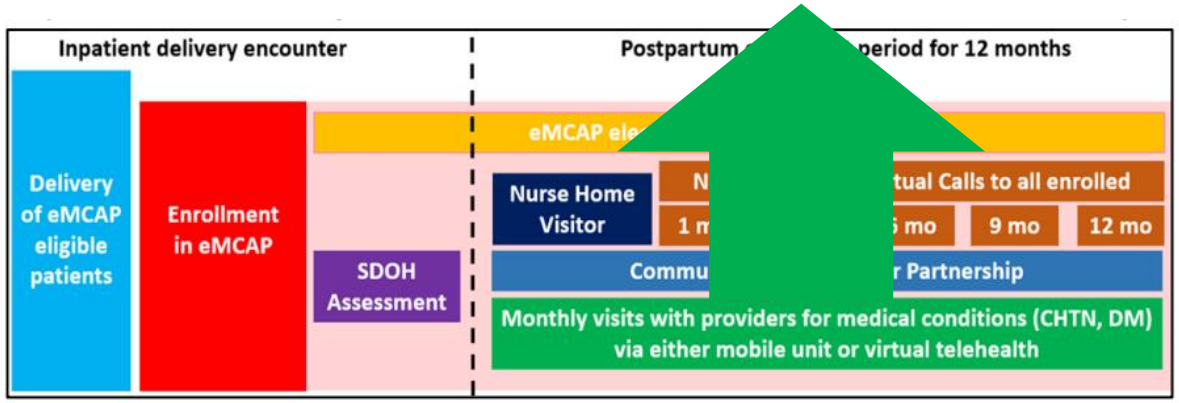
Care delivery IN the community

Multi-disciplinary effort:

- **Nurses**
- **Nurse home visitors**
- **Physicians**
- **Advanced practice providers**
- **Community-health workers**
- **Social services**
- **Behavioral health teams**
- **Pharmacists**

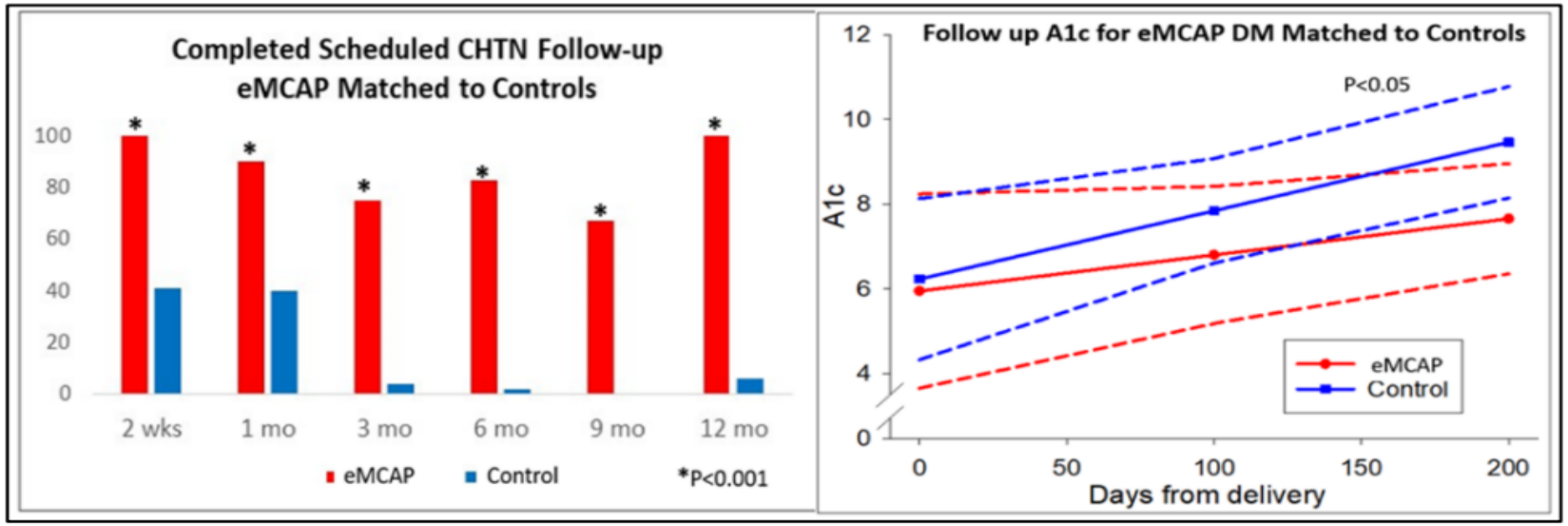
Specially-designed electronic health registry linked to existing electronic medical records and obstetric quality database.

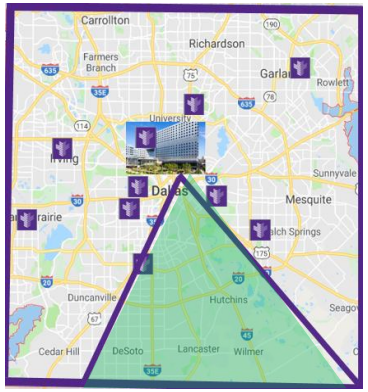


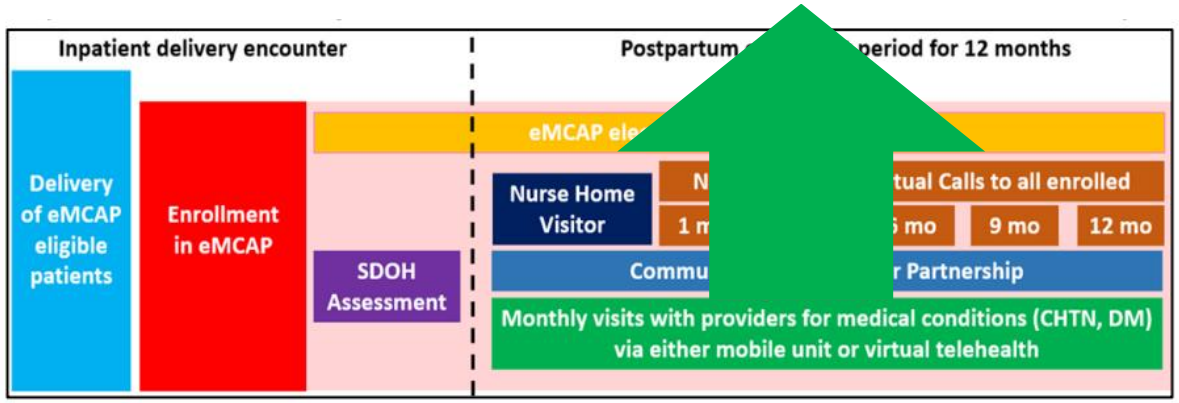


extending Maternal Care After Pregnancy (eMCAP) WINS!

Follow-up eMCAP for Chronic Hypertension and Diabetes Mellitus compared to controls (1:2 match)







extending Maternal Care After Pregnancy (eMCAP) WINS!

- In March 2021 announced **Hamon Charitable Foundation donated $1M to support** the *extending Maternal Care After Pregnancy (eMCAP)*.

- The eMCAP team was awarded the **University of Texas Southwestern Medical Center's Program for the Development and Evaluation of Model Community Health Initiatives in Dallas (PDEMCHID)** selected team for funding $100,000 for next two years beginning August 2, 2021.

NBCDFW LOCAL WEATHER RESPONDS INVESTIGATIONS VIDEO SPORTS ENTERTAINMENT

PREGNANCY

Program Aimed to Save Lives of New Moms

With the increase in deaths among women who've recently given birth, the Parkland Hospital program focuses on healthcare, social and economic challenges facing postpartum women

By Bianca Castro • Published August 20, 2021 • Updated on August 20, 2021 at 6:37 pm

Program aims to reduce mortality rates for at-risk new mothers

By Jan Jarvis

An innovative program is delivering health care to new mothers in an effort to reduce high maternal mortality rates reported in parts of Dallas County.

The program, called Extending Maternal Care After Pregnancy (eMCAP), is unique because it is community based and extends the time that women receive care after delivery from 60 days to 12 months, said Dr. David B. Nelson, Assistant Professor of Obstetrics and Gynecology at UT Southwestern.

"We are providing care to patients in the community as opposed to bringing the patient to the hospital," he said. "It's a paradigm shift."

Under the program, a team of coordinators, nurse navigators, and community health workers from UT Southwestern and Parkland Health & Hospital System provides access to care for the full year following delivery. A mobile care unit goes into South Dallas neighborhoods to bring caregivers to patients for convenient appointment access. Follow-up telephone calls and virtual provider visits also connect these new moms with postpartum care, resources, and community-based services.

Parkland, in partnership with UT Southwestern physicians and other caregivers in obstetrics and gynecology, introduced the program in October 2020. The Hamon Charitable Foundation recently made a $1 million gift to support eMCAP for the first year.

The program focuses on a geographic area of southern Dallas County that has significant needs and, in some cases, has become a health care desert.

A new mother is enrolled by a UT Southwestern research nurse to participate in the Extending Maternal Care After Pregnancy program for access to community health services up to one year after birth.

For years, maternal mortality has been a health issue in the state and nationally. In 2018, the most currently available data, Texas reported 18.5 deaths per 100,000 births and ranked 13th highest among 25 states, according to the National Center for Health Statistics. Recently, the postpartum period – rather than delivery – has been identified to be the highest risk for maternal morbidity and mortality. A 2020 state-sponsored Maternal Mortality and Morbidity Task Force found that 61 percent of maternal mortality cases in Texas occurred from six weeks to a year after delivery. Women with limited access to care with conditions like hypertension and diabetes mellitus are especially at risk.

In 2019, Dr. Nelson provided invited testimony to the U.S. House Committee on Energy and Commerce on improving maternal health and access to care. The launch of the local eMCAP program represents the commitment to this charge and call to action.

"For those with high blood pressure and diabetes, follow-up and ongoing coordination of care have an important impact on the future health of the mother, her newborn child, and the entire community," Dr. Nelson said.

The program has already made a difference. When a mother with congenital hearing loss feared she would not be able to hear her newborn's cry, for example, the team stepped in to arrange for a hearing aid replacement and scheduled an appointment for an evaluation.

From the program's launch on Oct. 1, 2020, through April 7, 2021, the eMCAP program had enrolled 573 mothers and completed 763 virtual nurse home visits. Patients are invited to take part based on targeted home ZIP codes identified to have the highest needs through community health needs assessment. To date through early April, the program recorded 514 provider visits – combining both in-person mobile unit care and virtual visits. The goal is to enroll 1,200 mothers each year.

"When a healthy mother is able to care for her healthy baby, both the family and community benefit," Dr. Nelson said.

Other nursing staff and physicians from the UT Southwestern Department of Obstetrics and Gynecology participating in the program include nurses Lisa Moseley, Melissa Wafford, Imelda Smith, and Andranecia Cox; Dr. Catherine Spong, Professor and Vice Chairman; Drs. Elaine Duryea and Robert Martin, Assistant Professors; and Dr. Don McIntire, Professor.

■

Dr. Nelson is a Dedman Family Scholar in Clinical Care.

Dr. Spong holds the Gillette Professorship of Obstetrics and Gynecology.

extending Maternal Care After Pregnancy (eMCAP) WINS!

HHS Racial Equity in Postpartum Care Challenge

Innovative methods to improve equity of postpartum care for Black or African American and American Indian/Alaska Native women enrolled in Medicaid or the Children's Health Insurance Program (CHIP), including follow-up care for diabetes, postpartum depression and/or postpartum anxiety, hypertension, and substance use disorders (SUD)

16. **The University of Texas Southwestern Medical Center** – Dallas, TX

Program/Focus: Maternal Care After Pregnancy (eMCAP)

This program focuses on extending postpartum care among underserved populations, with 85% of participants enrolled in Medicaid. This program provides postpartum and behavioral health services to participants up to 12 months after birth utilizing community health workers, home visiting, telehealth, and an in-person mobile unit with medical providers, social workers, and pharmacy services.

extending Maternal Care After Pregnancy (eMCAP) WINS!

The Joint Commission

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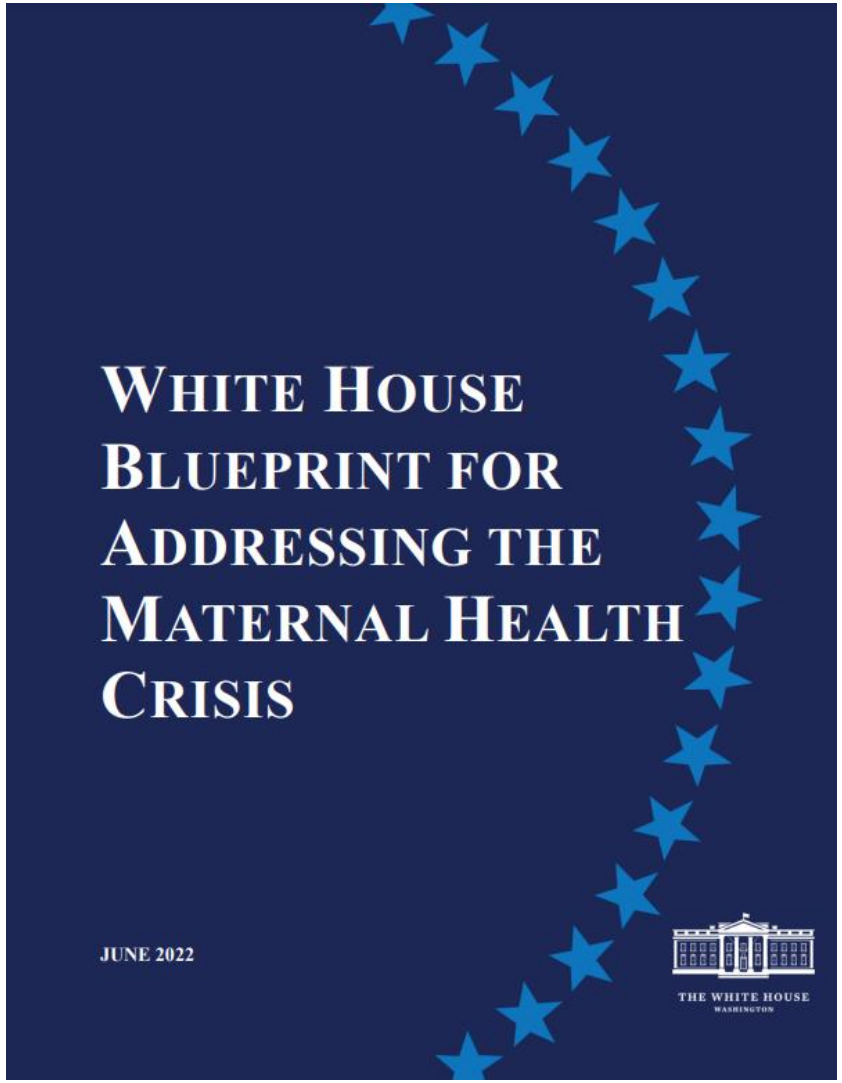
John M. Eisenberg Patient Safety and Quality Awards

Congratulations 2022 Awardees

This year's awardees made advancements related to medical errors in health information technology (IT), significantly reduced rates of critical events related to anesthesia, and connected mothers with important postpartum care. They are:

- **Individual Achievement:** Jason S. Adelman, MD, MS, chief patient safety officer and associate chief quality officer; executive director, Center for Patient Safety Research; director, Patient Safety Research Fellowship, Columbia University Irving Medical Center and NewYork-Presbyterian; associate professor of medicine (in biomedical informatics) and vice chair for quality and patient safety, Department of Medicine, Columbia University Vagelos College of Physicians and Surgeons
- **National Level Innovation in Patient Safety and Quality:** Anesthesia Risk Alerts Program – North American Partners in Anesthesia
- **Local Level Innovation in Patient Safety and Quality:** Improving Maternal Safety and Quality Through Extending Maternal Care After Pregnancy in Dallas County – Parkland Health

Aligns with current national calls to action!



Goal 1: Increase Access to and Coverage of Comprehensive High-Quality Maternal Health Services, Including Behavioral Health Services

Goal 2: Ensure Those Giving Birth are Heard and are Decision-makers in Accountable Systems of Care

Goal 3: Advance Data Collection, Standardization, Harmonization, Transparency, and Research

Goal 4: Expand and Diversify the Perinatal Workforce

Goal 5: Strengthen Economic and Social Supports for People Before, During, and After Pregnancy

Whitehouse Blueprint. 2022

Future state efforts of eMCAP in 2023 and beyond…

- Expand outreach through community-based organizations—Owenwood Farm & Neighbor Space
- **PCORI funding: ACCEPTED**
- NIH for funding—PENDING
- Focus on medical needs (e.g. mental health referrals, chronic hypertension, diabetes mellitus)
- Exploring Z codes

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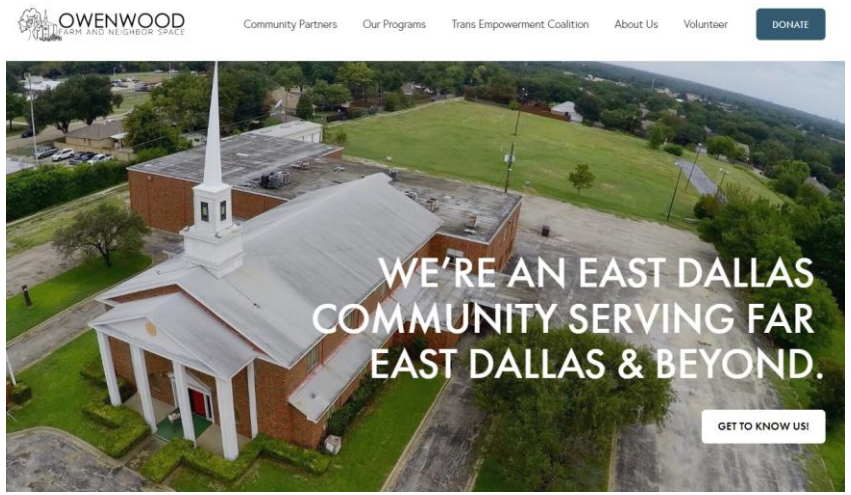
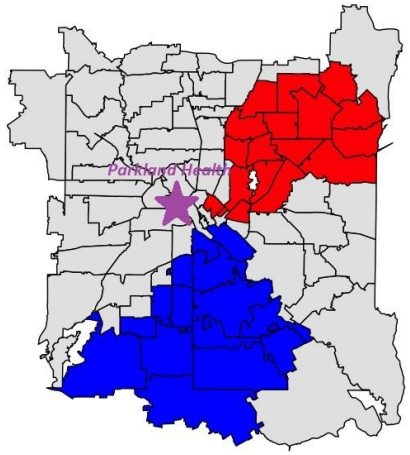
UT Southwestern approved for $18 million for multicenter trial to improve postpartum care

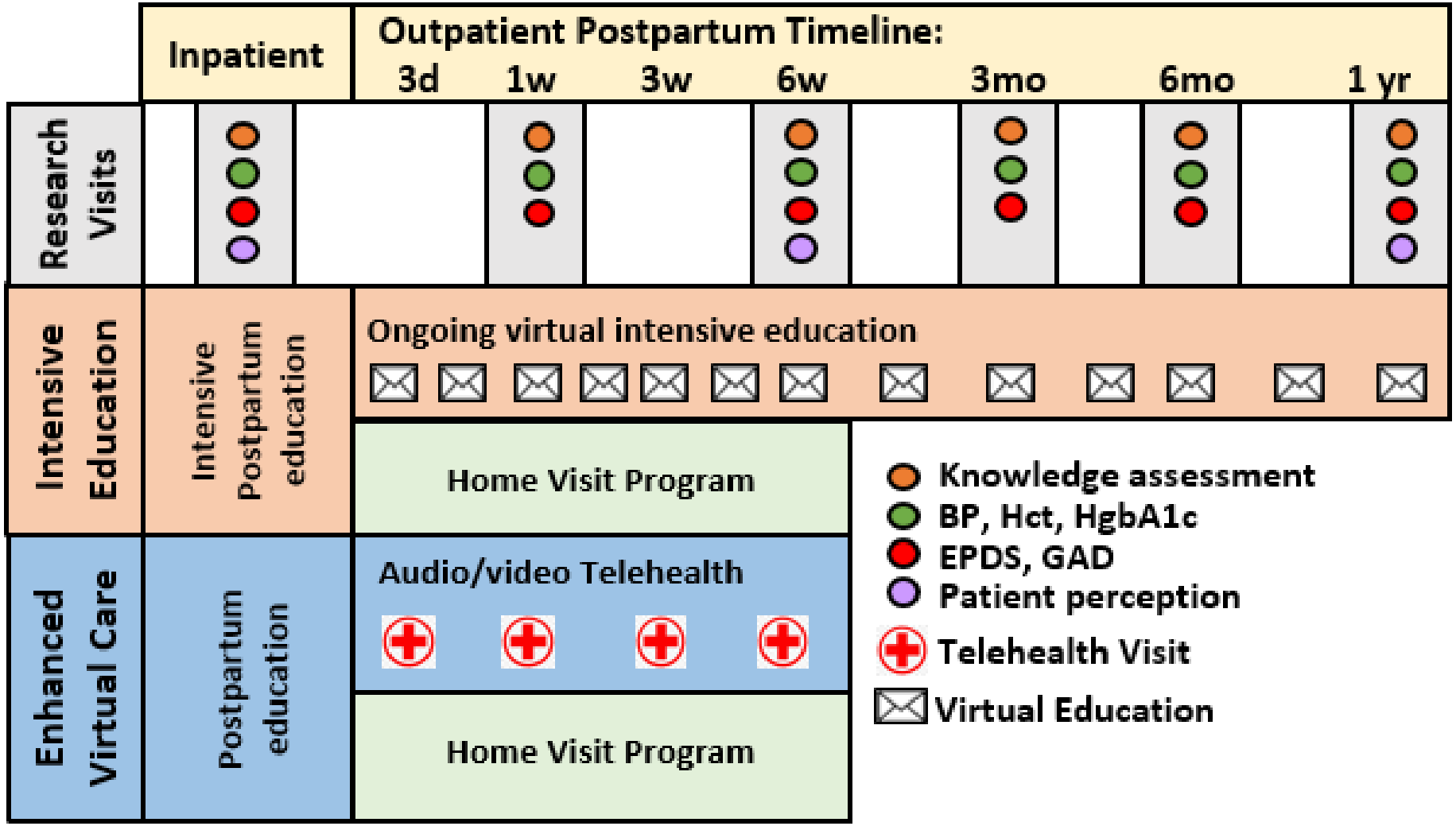
March 28, 2023

Funds awarded by the nonprofit Patient-Centered Outcomes Research Institute



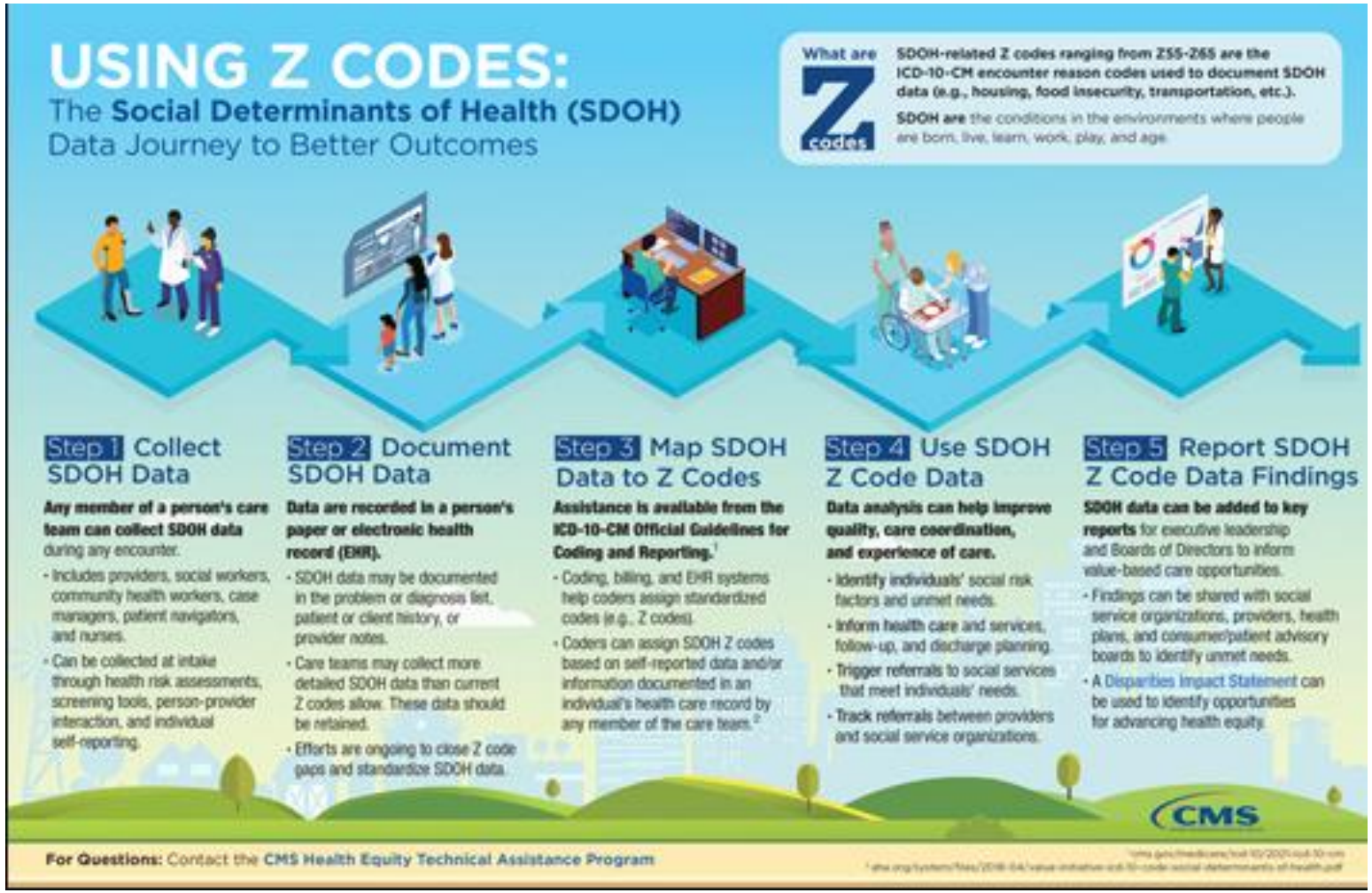


extending Maternal Care After Pregnancy (eMCAP) to PCORI!



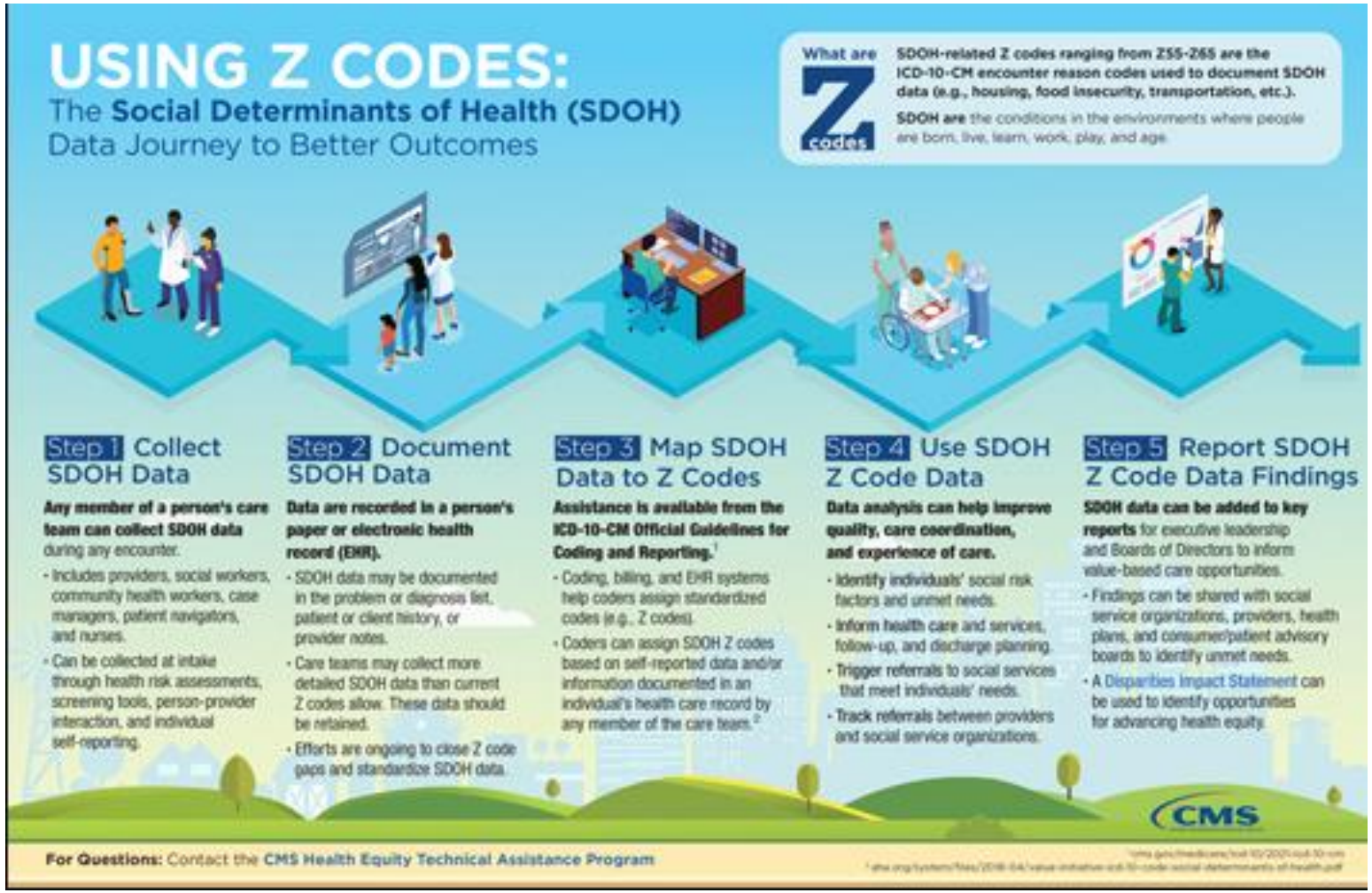
UTSouthwestern Medical Center

extending Maternal Care After Pregnancy (eMCAP): Z codes



Z code	Description
Z55	Problems related to education and literacy
Z56	Problems related to employment and unemployment
Z57	Occupational exposure to risk factors
Z59	Problems related to housing and economic circumstances
Z60	Problems related to social environment
Z62	Problems related to upbringing
Z63	Other problems related to primary support group, including family circumstances
Z64	Problems related to certain psychosocial circumstances
Z65	Problems related to other psychosocial circumstances

extending Maternal Care After Pregnancy (eMCAP)



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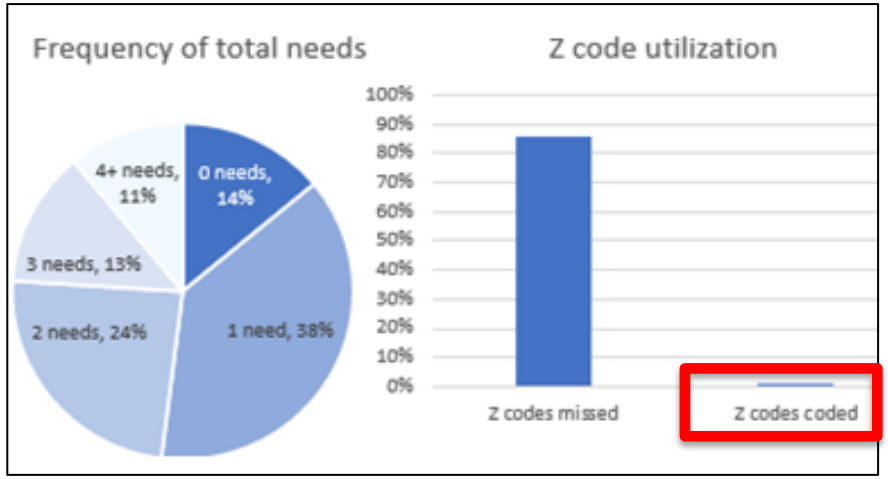
Z64	Problems related to certain psychosocial circumstances
Z65	Problems related to other psychosocial circumstances



Missing 99% of eligible Z codes for eMCAP!

To summarize…

- **Maternal mortality is an important, complex issue**

- **Obtaining accurate data for maternal mortality has been challenging: differing definition/terminology, "checkbox"**

- **Interest has reinvigorated efforts for improvement—one example are state-led Maternal Mortality Review Committees with surprising findings:**
    1. **Causes are evolving from the classic "triad"**
    2. **Postpartum (up to 1 year) is now recognized to be a vulnerable period for our patients**
    3. **There remain disparities in care**

To summarize…Tangible deliverables to take-away

1. Emphasize the need for good data to guide good decisions
2. Identify a target region (we cannot "boil the ocean")
3. Consider limitations of patient population served (e.g. absence of Wi-Fi limits digital platforms, so use audio-only telephone calls)
4. Enrollment includes dedicated team BEFORE discharge, CLAS-training, and not interfere with postpartum medical care on unit
5. Leverage the electronic medical record by standardized needs assessment → link to medical record (ask the same question, same way, and document it consistently)
6. Have an "answer" when need identified—Community-Based Organizations are meaningful
7. Flip care model from "in the hospital or clinic" to "in the community"

To summarize…

- **extending Maternal Care After Pregnancy (eMCAP) is a commitment to the members of our community to make a change in the health of our mothers and future generations of Dallas County**

- **Our local efforts aim to close some of the recognized gaps in health disparity and align with national priorities on this important issue**

- **More work to be done!!!**

Thank you