Maternal Suicide in the U.S. The Latest Research and Data Collection Efforts

Sidra Goldman-Mellor, PhD, MPH, Marcela Smid, MD, MA, MS,
Kara Zivin, PhD, MS, MA, MFA

September 30, 2021

2020Mom.org

#MaternalSuicideAwareness

Meet Joy

Joy Burkhard, MBA

Founder & Executive Director,

2020 Mom

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of Maternal Mental Health

Who is 2020 Mom?

Our Mission: To close gaps in Maternal Mental Health Care.

Our Vision:
A health care delivery system that routinely detects and treats maternal mental health disorders for every mother, every time.

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Closing Gaps in Maternal Suicide Data Collection & Information Sharing

The Latest Data on Maternal Mortality (Including Suicide) in the US & CA

JULY 10, 2019 IN EMERGING CONSIDERATIONS

CDC's Maternal Mortality Review Data Brief

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Maternal Suicide Resources

Webinars

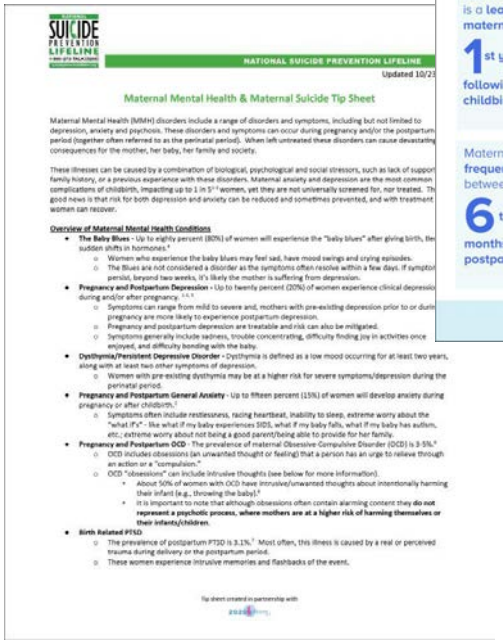
Maternal Suicide: What All Providers and Advocates Should Know

September 29, 2020

2020 Mom & Zero Suicide Institute Webinar - The National Zero Suicide Initiative: Levers for Maternal Mental Health

Thursday, November 12, 2020

Materials


NATIONAL SUICIDE PREVENTION LIFELINE

Updated 10/2

Maternal Mental Health & Maternal Suicide Tip Sheet

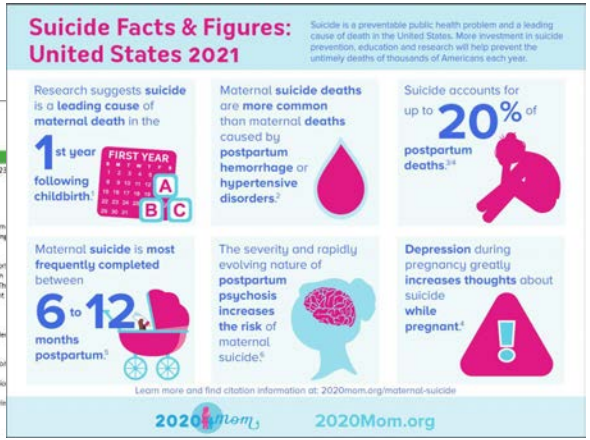
Maternal Mental Health (MMH) disorders include a range of disorders and symptoms, including but not limited to depression, anxiety and psychosis. These disorders and symptoms can occur during pregnancy and/or the postpartum period (together often referred to as the perinatal period). When left untreated these disorders can cause devastating consequences for the mother, her baby, her family and society.

These illnesses can be caused by a combination of biological, psychological and social stressors, such as lack of support, family history, or a previous experience with these disorders. Maternal anxiety and depression are the most common complications of childbirth, impacting up to 1 in 5[1,2] women, yet they are not universally screened for, nor treated. The good news is that risk for both depression and anxiety can be reduced and sometimes prevented, and with treatment women can recover.

Overview of Maternal Mental Health Conditions

- **The Baby Blues** - Up to eighty percent (80%) of women will experience the "baby blues" after giving birth, likely due to sudden shifts in hormones.[4]
  - Women who experience the baby blues may feel sad, have mood swings and crying episodes.
  - The Blues are not considered a disorder as the symptoms often resolve within a few days. If symptoms persist, beyond two weeks, it's likely the mother is suffering from depression.
- **Pregnancy and Postpartum Depression** - Up to twenty percent (20%) of women experience clinical depression during and/or after pregnancy.[3,4,5]
  - Symptoms can range from mild to severe and, mothers with pre-existing depression prior to or during pregnancy are more likely to experience postpartum depression.
  - Pregnancy and postpartum depression are treatable and risk can also be mitigated.
  - Symptoms generally include sadness, trouble concentrating, difficulty finding joy in activities once enjoyed, and difficulty bonding with the baby.
- **Dysthymia/Persistent Depressive Disorder** - Dysthymia is defined as a low mood occurring for at least two years, along with at least two other symptoms of depression.
  - Women with pre-existing dysthymia may be at a higher risk for severe symptoms/depression during the perinatal period.
- **Pregnancy and Postpartum General Anxiety** - Up to fifteen percent (15%) of women will develop anxiety during pregnancy or after childbirth.[3]
  - Symptoms often include restlessness, racing heartbeat, inability to sleep, extreme worry about the "what if's" - like what if my baby experiences SIDS, what if my baby falls, what if my baby has autism, etc.; extreme worry about not being a good parent/being able to provide for her family.
- **Pregnancy and Postpartum OCD** - The prevalence of maternal Obsessive-Compulsive Disorder (OCD) is 3-5%.[6]
  - OCD includes obsessions (an unwanted thought or feeling) that a person has an urge to relieve through an action or a "compulsion."
  - OCD "obsessions" can include intrusive thoughts (see below for more information).
    - About 50% of women with OCD have intrusive/unwanted thoughts about intentionally harming their infant (e.g., throwing the baby).[6]
    - It is important to note that although obsessions often contain alarming content they **do not represent a psychotic process, where mothers are at a higher risk of harming themselves or their infants/children.**
- **Birth Related PTSD**
  - The prevalence of postpartum PTSD is 3.1%.[7] Most often, this illness is caused by a real or perceived trauma during delivery or the postpartum period.
  - These women experience intrusive memories and flashbacks of the event.

Tip sheet created in partnership with



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What We Will Cover

Overview of maternal suicide research and data collection in the U.S.

The role of Maternal Mortality Review Committees (MMRCs)

Maternal suicidal ideation, suicide risk factors, and racial disparities

Fireside Chat

Meet Dr. Goldman-Mellor

Sidra Goldman-Mellor, PhD, MPH

Associate Professor of Public Health

School of Social Sciences, Humanities, and Arts

University of California, Merced

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Context

- Pregnant and birthing persons in U.S. die at a higher rate than in other high-income countries*
- Reducing these deaths is a public health and clinical priority
- Evidence suggests that suicide is a prevalent and increasing cause of death during pregnancy and the first year postpartum**
- This devastating outcome receives far less attention

*World Health Organization, 2019
**Metz et al. 2016, Wallace et al. 2016, Mangla et al. 2019

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Key Terminology

- Maternal mortality
  - Death of a woman while pregnant or within 42 days of end of pregnancy, *from any cause related to or aggravated by the pregnancy* or its management (e.g., hemorrhage, hypertension, & venous thromboembolism)
  - Does not include "accidental or incidental" causes, such as suicide

- Pregnancy-related death (PRD)
  - Death of a woman while pregnant or within one year of the end of a pregnancy from *any cause related to or aggravated by the pregnancy* or its management
  - Does not include suicide

Key Terminology, Continued

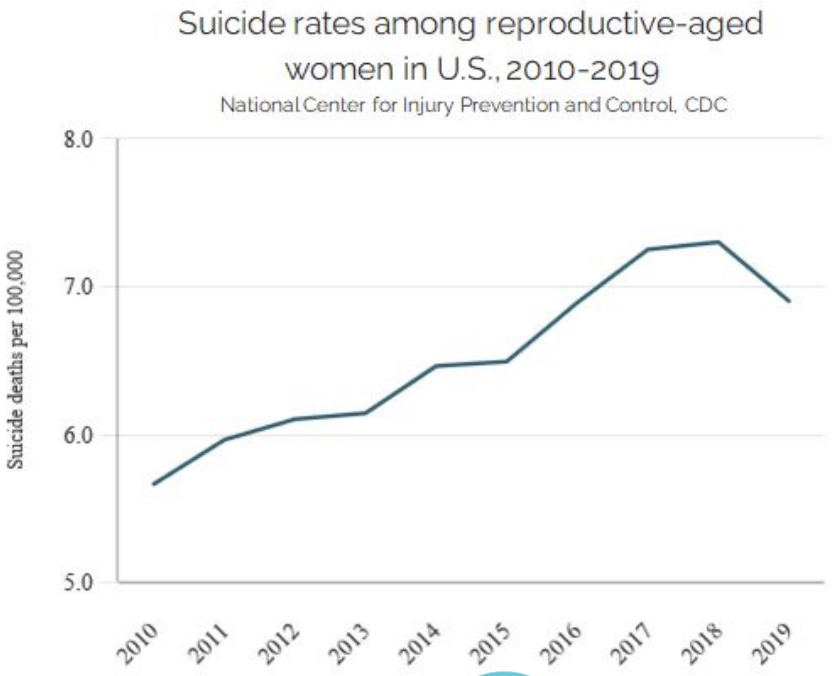
- Pregnancy-associated death (PAD)
  - Death of a woman while pregnant or within one year of the end of a pregnancy from any cause
  - Includes suicide

- Maternal morbidity
  - “Morbidity” generally refers to any non-fatal illness and injury
  - Severe maternal morbidity (SMM): Unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a woman’s health (myocardial infarction, renal failure, eclampsia, sepsis, etc.)
  - Does not usually include mental health

Updated National Estimates Are Needed

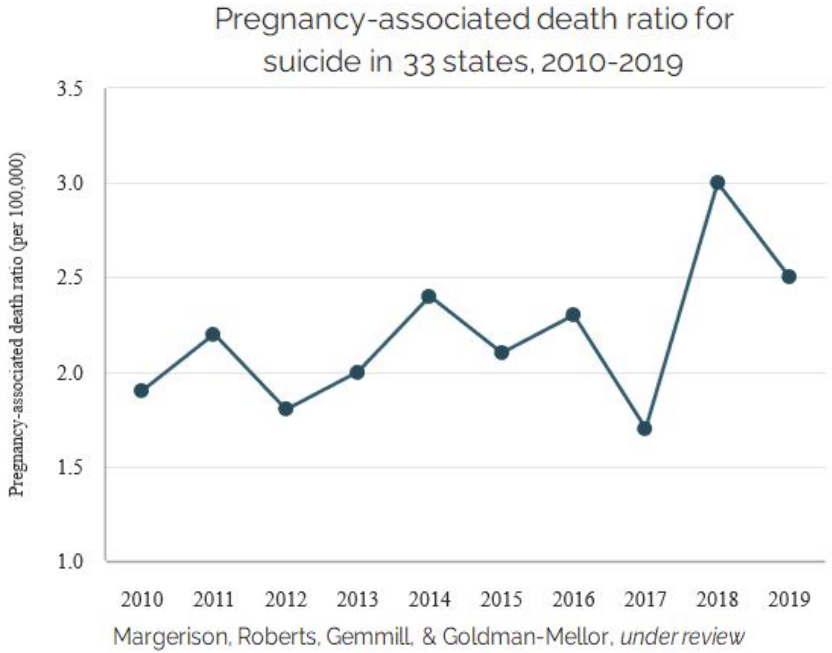
- Most recent U.S. estimates of suicide rates during pregnancy & postpartum are from 2010
  - Health of reproductive-aged women has changed since then -- including rising rates of suicide
  - 2010-2020 also saw fertility declines
  - Need to understand trends for better prevention
- Recent collaborative work* examines pregnancy-associated death due to suicide (and other PADs) in U.S. from 2010-2019
  - Examined racial/ethnic disparities
  - Identified timing of deaths in relation to pregnancy

*Margerison, Roberts, Gemmill & Goldman-Mellor, *under review*



What do our Best Estimates Show?

- Used birth and death certificate data from 2010-2019 (from 33 states + DC that were using death certificates with pregnancy "checkbox")
- There were 11,782 total pregnancy-associated deaths from 2010-2019
- Of these, 558 deaths were suicides (5.4%) -- overall PAD ratio of 2.2 per 100,000 live births
  - 59.3% died due to maternal/obstetric causes
  - 10.7% due to drug-related causes
  - 5.4% due to homicide
  - 19.2% due to other causes
- PAD due to suicide fluctuated a bit, but increased approximately 32% from 2010-2019



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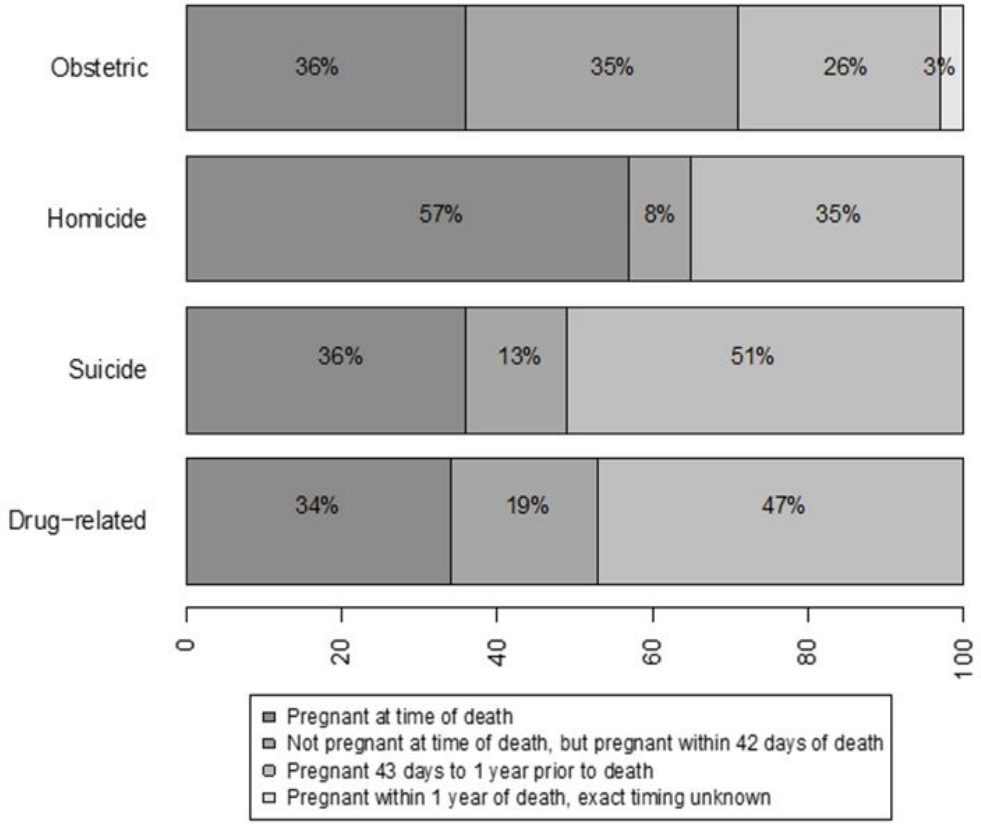
Pregnancy Associated Deaths by Timing of Death



*Margerison, Roberts, Gemmill & Goldman-Mellor, under review

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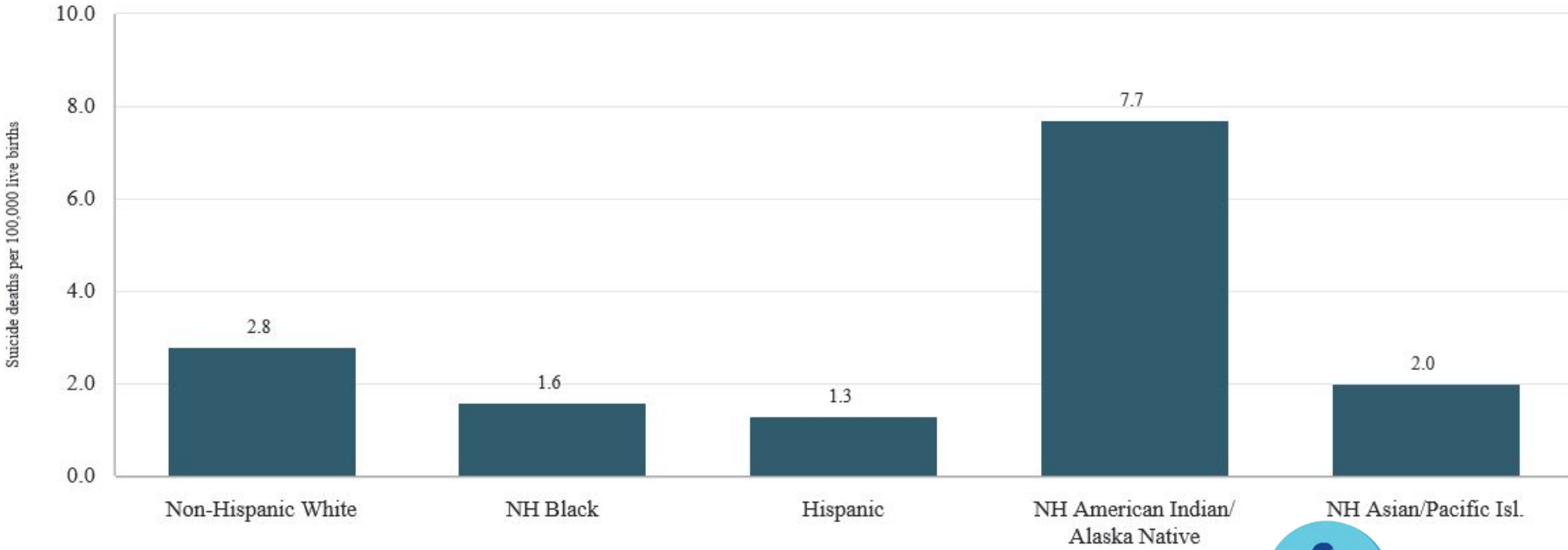
Racial & Ethnic Disparities in Pregnancy-Associated Suicide Deaths



Margerison, Roberts, Gemmill, & Goldman-Mellor, *under review*

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Accounting for Under-reporting of Suicide Deaths

- Also attempted to quantify under-reporting of suicide death using previously published procedures**
  - Due to under-utilization of the pregnancy checkbox on the death certificate, as many as 50% of pregnancy-associated suicide deaths may be missed.

- After statistically accounting for (estimated) misclassified suicide deaths, the pregnancy-associated suicide death ratio changed from 2.2 to 5.1 per 100,000

- An estimated total of 844 suicide deaths were under-counted during our study period

- If we add those "missing" suicide deaths, **suicide would account for 9.4% of all pregnancy-associated deaths**

*Margerison, Roberts, Gemmill & Goldman-Mellor, under review

**Wallace et al. 2016, *American Journal of Obstetrics & Gynecology*; Horon & Cheng 2011, *Public Health Reports*.

What Do We Conclude From These Findings?

- Suicide among pregnant and postpartum women is increasing, and accounts for a non-negligible proportion of pregnancy-associated deaths
- Most (64%) of these suicide deaths occur postpartum, the vast majority after the 6-week check-up
- Unacceptable racial/ethnic disparities in PAD suicide death, with American Indian/Alaska Native women at far greater risk
  - Nearly 3x higher than NH White women, who themselves are relatively high-risk
- The contribution of suicide (and drug-related deaths & homicide) to overall pregnancy and postpartum mortality is likely much higher than unadjusted estimates would suggest

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Meet Dr. Smid

Marcela Smid MD, MA, MS

Assistant Professor, Division of Maternal Fetal Medicine, Department of Obstetrics and Gynecology, University of Utah

Medical Director of SUPeRAD (Substance Use and Pregnancy - Recovery, Addiction, Dependence) Clinic

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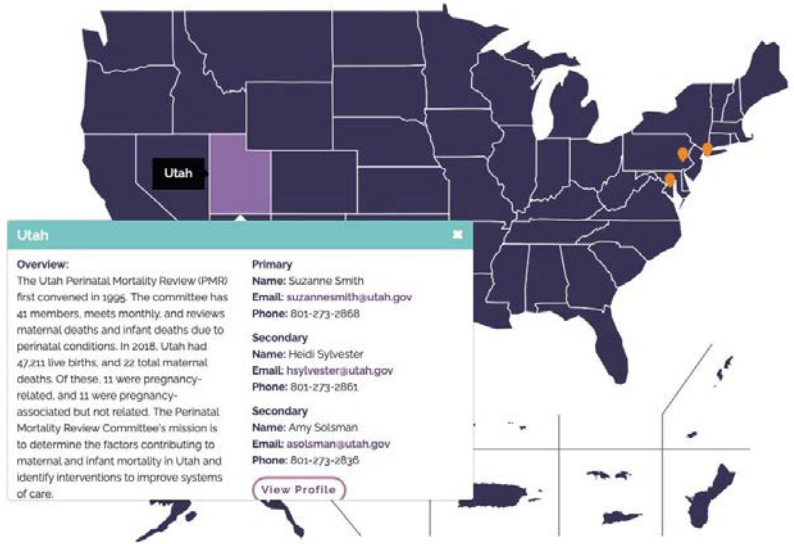
Maternal Mortality Review Committees

- Multi-disciplinary team reviewing maternal deaths
  - Medical (MD, RN, CNM)
  - Social work
  - Mental health and substance use
  - Tribal representatives
  - Patients
- Over 50 committees in the United States including Washington DC, Philadelphia and New York City



https://reviewtoaction.org/tools/networking-map

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Pregnancy-Associated Death

A death during or within one year of pregnancy, regardless of the cause. These deaths make up the universe of maternal mortality; within that universe are pregnancy-related deaths and pregnancy-associated, but not related deaths.

Pregnancy-Related Death

A death during or within one year 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.

Pregnancy-Associated, but Not Related Death

A death during or within one year of pregnancy, from a cause that is not related to pregnancy.

Pregnancy-Related Mortality Ratio

The number of pregnancy-related deaths (using the above definition) per 100,000 live births.

Ultimate question:

If the person who died had not been pregnant, would they have died?

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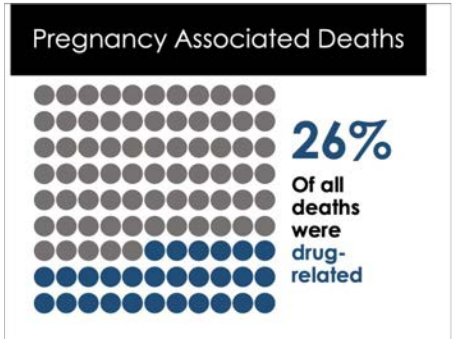
Maternal Mortality Review Committees

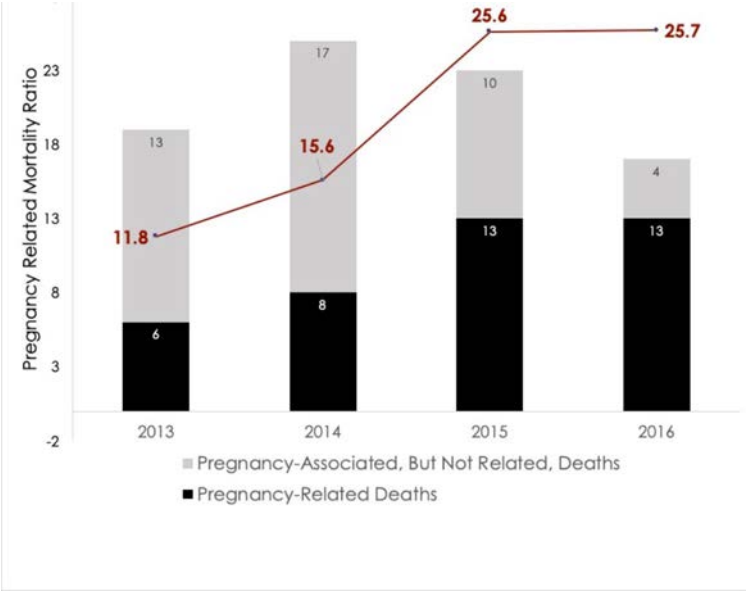
Maternal Morbidity and Mortality: *Original Research*

Pregnancy-Associated Death in Utah

Contribution of Drug-Induced Deaths

Marcela C. Smid, MD, Nicole M. Stone, MPH, Laurie Baksh, MPH, Michelle P. Debbink, MD, PhD, Brett D. Einerson, MD, Michael W. Varner, MD, Adam J. Gordon, MD, and Erin A. S. Clark, MD





Why did the pregnancy related mortality ratio go up?

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Maternal Mortality Review Committees

Table 1. Standardized Criteria Applied to Accidental Drug-Related Deaths and Suicides

Standardized Criteria for Accidental Drug-Related Deaths and Suicides	Case Examples	No. of Times Identified in Accidental Drug-Related Death	No. of Times Identified in Suicide
1. Pregnancy complication		**7**	**1**
a. Increased pain directly attributable to pregnancy or postpartum events leading to self-harm or drug use that is implicated in suicide or accidental death	Back pain, pelvic pain, kidney stones, cesarean incision, or perineal tear pain	0	0
b. Traumatic event in pregnancy or postpartum with a temporal relationship between the event leading to self-harm or increased drug use and subsequent death	Stillbirth, preterm delivery, diagnosis of fetal anomaly, traumatic delivery experience, relationship destabilization due to pregnancy, removal of child(ren) from custody	7	1
c. Pregnancy-related complication likely exacerbated by drug use leading to subsequent death	Placental abruption or preeclampsia in setting of drug use	0	0

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Maternal Mortality Review Committees

Table 1. Standardized Criteria Applied to Accidental Drug-Related Deaths and Suicides

Standardized Criteria for Accidental Drug-Related Deaths and Suicides	Case Examples	No. of Times Identified in Accidental Drug-Related Death	No. of Times Identified in Suicide
2. Chain of events initiated by pregnancy		**9**	**3**
a. Cessation or attempted taper of medications for pregnancy-related concerns (neonatal or fetal risk or fear of Child Protective Service involvement) leading to maternal destabilization or drug use and subsequent death	Substance use pharmacotherapy (methadone or buprenorphine), psychiatric medications, pain medications	3	1
b. Inability to access inpatient or outpatient drug or mental health treatment due to pregnancy	Health care professionals uncomfortable with treating pregnant women, facilities not available that accept pregnant women	0	0
c. Perinatal depression, anxiety, or psychosis resulting in maternal destabilization or drug use and subsequent death	Depression diagnosed in pregnancy or postpartum resulting in suicide	1	2
d. Recovery or stabilization of substance use disorder achieved during pregnancy or postpartum with clear statement in records that pregnancy was motivating factor with subsequent relapse and subsequent death	Relapse leading to overdose due to decreased tolerance or polysubstance use	5	0

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Table 1. Standardized Criteria Applied to Accidental Drug-Related Deaths and Suicides

Standardized Criteria for Accidental Drug-Related Deaths and Suicides	Case Examples	No. of Times Identified in Accidental Drug-Related Death	No. of Times Identified in Suicide
3. Aggravation of underlying condition by pregnancy		**1**	**5**
a. Worsening of underlying depression, anxiety, or other psychiatric condition in pregnancy or the postpartum period with documentation that mental illness led to drug use or self-harm and subsequent death	Pre-existing depression exacerbated in the postpartum period leading to suicide	1	5
b. Exacerbation, undertreatment, or delayed treatment of pre-existing condition in pregnancy or postpartum leading to use of prescribed or illicit drugs resulting in death, or suicide	Undertreatment of chronic pain leading to misuse of medications or use of illicit drugs, resulting in death	0	0
c. Medical conditions secondary to drug use in setting of pregnancy or postpartum that may be attributable to pregnancy-related physiology and increased risk of complications leading to death	Stroke or cardiovascular arrest due to stimulant use	0	0

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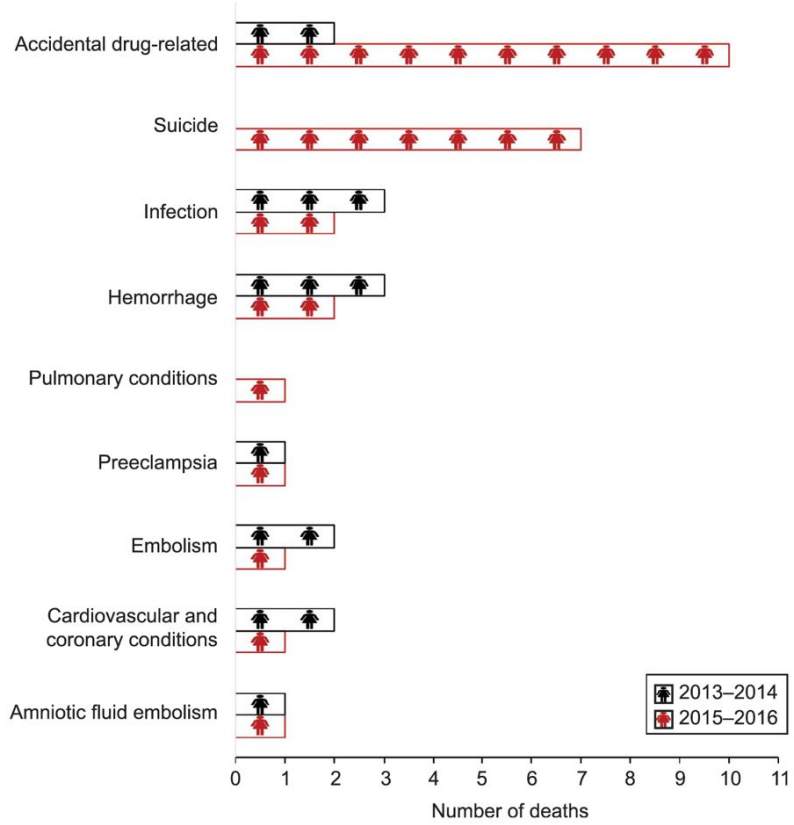

Fig. 2. Causes of pregnancy-related deaths, 2013–2014 and 2015–2016.

Smid. Drug-Related Death and Suicide Classification Criteria. Obstet Gynecol 2020.

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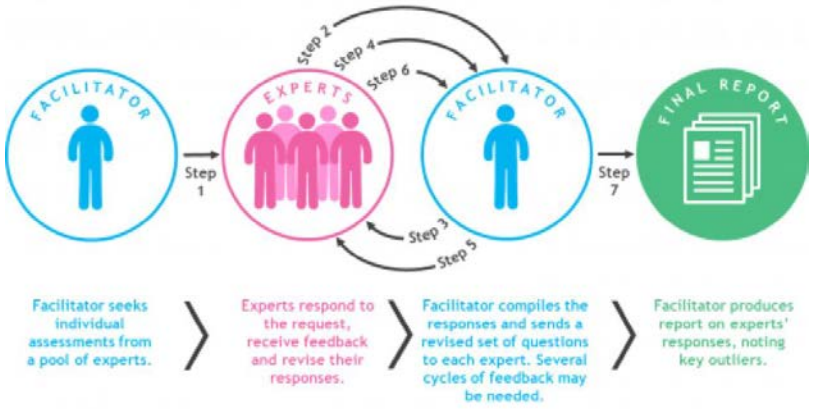
Maternal Mortality Review Committees

DELPHI METHOD. FOR PREGNANCY RELATED CRITERIA

- National consensus
- Representative from each state and other experts (over 50 participants)
- Currently in Round 3



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Meet Dr. Zivin

Kara Zivin, PhD, MS, MA, MFA

Professor of Psychiatry, Obstetrics and Gynecology, Health Management and Policy/Public Health, University of Michigan

Faculty Associate, Survey Research Center, Institute for Social Research

Research Career Scientist, Center for Clinical Management Research (CCMR), VA Ann Arbor Healthcare System

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Trends in Suicidal Ideation and Self-Harm Among Privately Insured Delivering Women

Suicide deaths are a leading cause of maternal mortality in the United States

CDC maternal mortality statistics exclude suicide deaths

Suicidal ideation or self-harm (suicidality) are often excluded from maternal morbidity measures

Prevalence and trends in suicidality among childbearing individuals remain poorly described

Admon et al, *JAMA Psychiatry*, 2020

Research objective and study design

We sought to identify trends in suicidal ideation and intentional self-harm (suicidality) in a large, national cohort of commercially insured childbearing individuals

2006-2017 Optum™ Clinformatics™ Data Mart

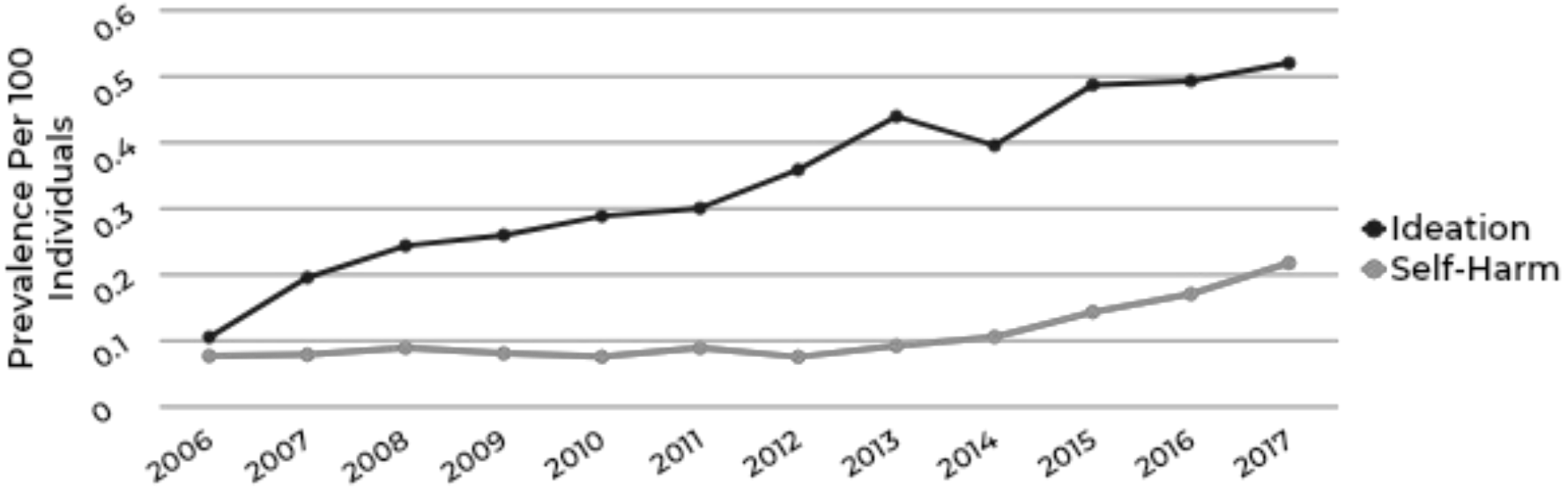
Medical claims for a large, national, commercially insured population across all 50 states

Maternal Behavioral Health Policy Evaluation (MAPLE) study* cohort (N=595,237)
Individuals aged 15-44 continuously enrolled in a single commercial health insurance plan for one year before and one year after childbirth

Identification of suicidality in the year before or after childbirth based on ICD9-10 diagnosis codes during at least one inpatient or two outpatient visits

* R01 MH120124

Prevalence of suicidal ideation and self-harm among privately insured childbearing individuals 2006-2017



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Prevalence of suicidal ideation and self-harm among privately insured childbearing individuals 2006-2017

Larger escalations among:

- Non-Hispanic Black
- Low income (≤400 federal poverty level)
- Younger (15-18 years old): prevalence of suicidality increased from 1.6% to 9.5% among individuals aged 15-18 years old
- Experiencing co-morbid anxiety and depression or serious mental illness

Among those with diagnoses of suicidality

- 45.1% took place in the pre-delivery period
- 58.7% took place in the post-delivery period
- These results include 3.8% with suicidality in both periods

Perinatal behavioral health diagnoses per 100 individuals

- Depression or anxiety: 2006=1.2%; 2017=2.6%
- Bipolar disorder: 2006=6.9% 2017=16.9%
- Psychotic disorder: 2006=17.4% 2017=46.2%

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Conclusions, relevance, and next steps

The prevalence of suicidal ideation and self-harm occurring in the year preceding birth increased substantially over a 12-year period

Younger, non-Hispanic Black, and those diagnosed with a behavioral health disorder had higher risks

Policymakers, health plans, and clinicians should ensure access to universal suicidality screening and appropriate treatment for pregnant and postpartum individuals

Future work should include individuals covered under Medicaid health insurance, as well as address disparities in detection, diagnosis, and treatment of suicidality in those with perinatal mental health conditions

Fireside Chat

Sidra Goldman-Mellor, PhD, MPH

Associate Professor of Public Health, School of Social Sciences, Humanities, and Arts, University of California, Merced

Marcela Smid, MD, MA, MS

Assistant Professor, Division of Maternal Fetal Medicine, Department of Obstetrics and Gynecology, University of Utah

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Maternal Mental Health & Health Affairs

October 8th, 10 - 11:30am PT

The October issue of the journal *Health Affairs* (issue available online October 4) will be primarily devoted to the topic of Maternal Mental Health.

Webinar:

Join a cross-section of contributors who will be presenting on the issue.

https://www.healthaffairs.org/events

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