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APPENDIX

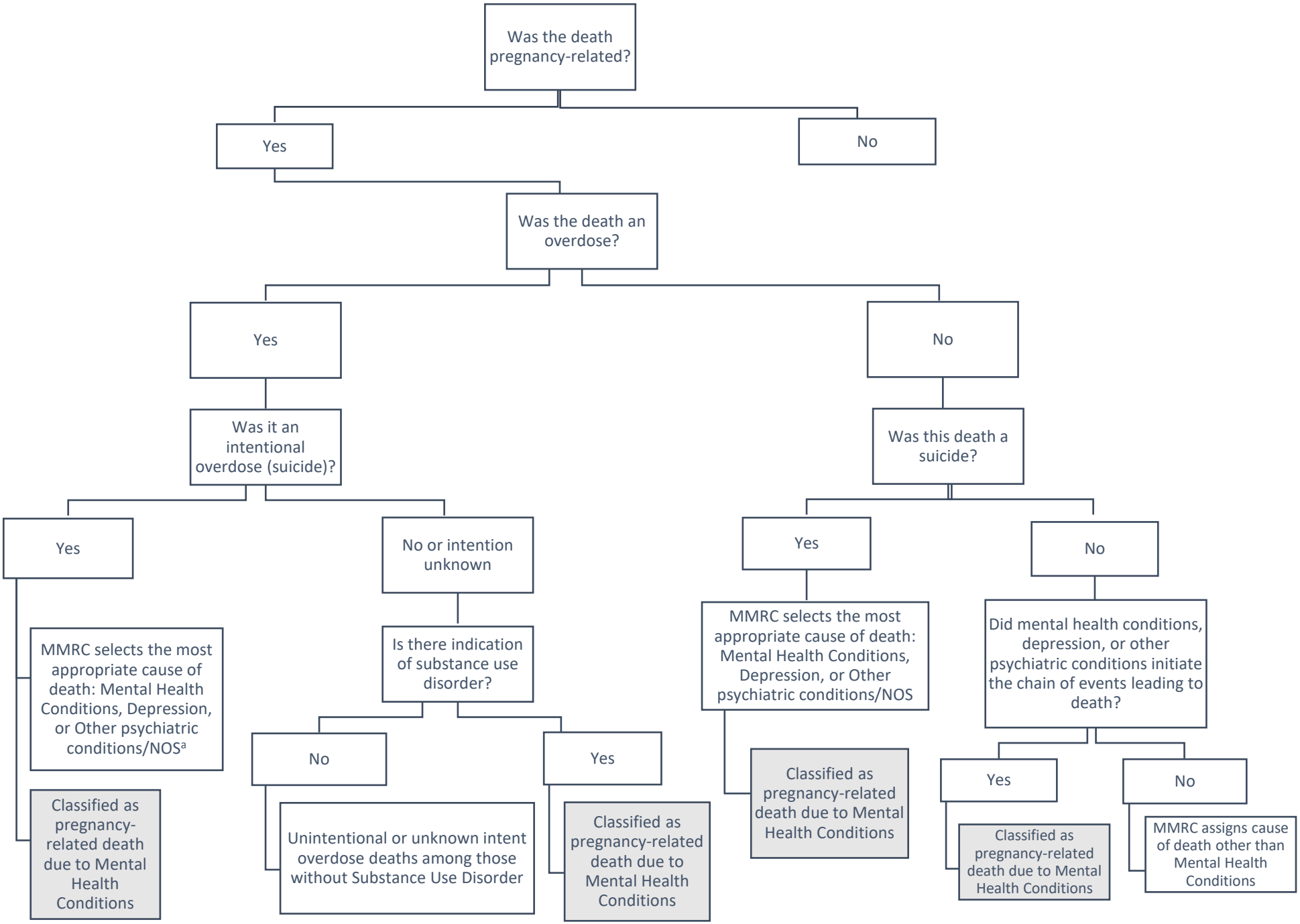
Appendix Exhibit A1. Coding scheme for assigning Mental Health Conditions as the underlying cause of pregnancy-related death

Appendix Exhibit A2. Potential contributing factors for pregnancy-related deaths, Maternal Mortality Review Committee Decisions form, version 18

Appendix Exhibit A3. Topic areas and recommendations for prevention made by Maternal Mortality Review Committees for pregnancy-related deaths due to mental health conditions

Appendix Exhibit A4. Definitions of selected mental health conditions, substance use, and life stressors described in Exhibit 3

Appendix Exhibit A1. Coding scheme for assigning Mental Health Conditions as the underlying cause of pregnancy-related death.



SOURCE: https://reviewtoaction.org/sites/default/files/2021-04/PMSS-MM%20Decision%20Tree%20for%20Suicides%20and%20Overdoses%20v3.pdf

NOTE: NOS: Not otherwise specified

Appendix Exhibit A2. Potential contributing factors for pregnancy-related deaths, Maternal Mortality Review Committee Decisions form, version 18.

Contributing Factor	**Definition from Maternal Mortality Review Committee Decisions Form**
Delay or Failure to Seek Care	The provider or patient was delayed in referring or accessing care, treatment, or follow-up care/action.
Adherence to Medical Recommendations	The provider or patient did not follow protocol or failed to comply with standard procedures (i.e. non adherence to prescribed medications).
Knowledge	Lack of knowledge regarding importance of event or of treatment of follow-up. The provider or patient did not receive adequate education or lacked knowledge or understanding regarding the significance of a health event (e.g. shortness of breath as a trigger to seek immediate care) or lacked understanding about the need for treatment/follow-up after evaluation for a health event (e.g. needed to keep appointment for psychiatric referral after an ED visit for exacerbation of depression).
Cultural/Religious**,** or Language Factors	Demonstration that any of these factors was either a barrier to care due to lack of understanding or led to refusal of therapy due to beliefs (or belief systems).
Environmental Factors	Factors related to weather or social environment.
Violence and Intimate Partner Violence (IPV)	Physical or emotional abuse perpetrated by current or former intimate partner, family member, or stranger.
Mental Health Conditions	The patient carried a diagnosis of a psychiatric disorder. This includes postpartum depression.
Substance Use Disorder-Alcohol, Illicit/Prescription Drugs	Substance use disorder is characterized by recurrent use of alcohol and/or drugs causing clinically and functionally significant impairment, such as health problems or disability. The committee may determine that substance use disorder contributed to the death when the disorder directly compromised a woman's health status (e.g. acute methamphetamine intoxication exacerbated pregnancy-induced hypertension, or woman was more vulnerable to infections or medical conditions).
Tobacco Use	The patient's use of tobacco directly compromised the patient's health status (e.g. long-term smoking led to underlying chronic lung disease)
Chronic Disease	Occurrence of one or more significant pre-existing medical conditions (e.g. obesity, cardiovascular disease, or diabetes).
Childhood Sexual Abuse/Trauma	The patient experienced rape, molestation, or one or more of the following: sexual exploitation during childhood plus persuasion, inducement, or coercion of a child to engage in sexually explicit conduct; physical or emotional abuse or violence other than that related to sexual abuse during childhood.
Lack of ***Access/Financial*** Resources	System issues, e.g. lack or loss of healthcare insurance or other financial duress, as opposed to woman's noncompliance. Impacted woman's ability to care for herself (e.g. did not seek services because unable to miss work or afford postpartum visits after insurance expired). Other barriers to accessing care: insurance non-eligibility, provider shortage in woman's geographical area, and lack of public transportation.
Unstable Housing	Woman lived "on the street", in a homeless shelter, or in transitional or temporary circumstances with family or friends.

***Social Support/Isolation*-**Lack of Family/Friend or Support System	Social support from family, partner, or friends was lacking, inadequate, and/or dysfunctional.
Inadequate or Unavailable ***Equipment/Technology***	Equipment was missing, unavailable, or not functional (e.g. absence of blood tubing connector).
Lack of Standardized ***Policies/Procedures***	The facility lacked basic policies or infrastructure germane to the woman's needs (e.g. response to high blood pressure, or a lack of or outdated policy or protocol).
Poor ***Communication***/Lack of Case Coordination or Management/Lack of Continuity of Care (System Perspective)	Care was fragmented (i.e. uncoordinated or not comprehensive) among or between healthcare facilities or units (e.g. records not available between inpatient and outpatient or among units within the hospital, such as Emergency Department and Labor and Delivery).
Lack of ***Continuity of Care*** (Provider or Facility Perspective)	Care providers did not have access to woman's complete records or did not communicate woman's status sufficiently. Lack of continuity can be between prenatal, labor and delivery, and postpartum providers.
Clinical Skill/Quality of Care (Provider or Facility Perspective)	Personnel were not appropriately skilled for the situation or did not exercise clinical judgment consistent with current standards of care (e.g. error in the preparation or administration of medication or unavailability of translation services).
Inadequate Community ***Outreach***/Resources	Lack of coordination between healthcare system and other outside agencies/organizations in the geographic/cultural area that work with maternal child health issues.
Inadequate ***Law Enforcement*** Response	Law enforcement response was not in a timely manner or was not appropriate or thorough in scope.
Lack of ***Referral*** or Consultation	Specialists were not consulted or did not provide care; referrals to specialists were not made.
Failure to Screen/Inadequate ***Assessment*** of Risk	Factors placing the woman at risk for a poor clinical outcome recognized, and the woman was not transferred/transported to a provider able to give a higher level of care.
Legal	Legal consideration that impacted outcome.
Other	Contributing factor not otherwise mentioned.

SOURCE: https://reviewtoaction.org/national-resource/guidance-using-mmria-committee-decisions-form

Appendix Exhibit A3. Topic areas and recommendations for prevention made by Maternal Mortality Review Committees for pregnancy-related deaths due to mental health conditions.

Topic area	Illustrative recommendations[a]
Coordination of care, including case management, appropriate referral, and communication and record sharing between providers	*Increase access to records among medical providers, especially between substance use disorder and obstetric providers.*
	Increase care coordination following discharge from an inpatient psychiatric hospitalization.
	Department of public health should work with perinatal system, managed care organizations, and community systems to improve care coordination and increase resources.
	Improve coordination between psychiatry and OB/GYN[b] providers in rural areas.
	Substance use disorder and obstetric providers should co-manage patients.
	If a baby tests positive for a substance, delivery facility should notify prenatal care provider.
	Obstetric care providers should offer referrals to existing programs: domestic violence resources and suicide prevention programs.
	If a patient in substance use treatment with a small child is lost to follow-up, this should trigger a referral to social work.
	Mental health and substance use referrals should be triggered when positive neonatal drug screen results are documented.
	Use common electronic medical records across providers and hospital systems.
	Improve case coordination when domestic violence and depression history is documented.
Access to and availability of naloxone	*Make naloxone readily available to individuals with a history of substance use and their family members.*
	Ensure naloxone is available at home for people with substance use disorder, history of substance use disorder, or prescribed opioids.
	Maintain an adequate supply of naloxone to be prescribed to all patients, along with education on signs of overdose.
Access to treatment and services for substance use disorder and mental health conditions	*Provide in-home services for moms at risk of mental health or substance use disorder, including technology options (e.g., daily check-in with counselor).*
	Fund and establish a maternal mental health hotline and resource navigation programs.
	Identify high-risk moms for home visiting in the very early postpartum period and improve the reach of these programs to more zip codes and accessibility to individuals with unstable housing.
	Increase access to crisis response and walk-in centers for individuals needing substance use or mental health resources and treatment.
	Improve mental health and substance use services in jails.

Prescribing practices	*Establish standards of care for prescribers: check controlled substance databases, co-prescribe naloxone with opioids.*
	Providers should have access to and use prescription drug monitoring programs.
Screenings and assessments	*Screening for postpartum depression by using standardized screening tool during postpartum visits.*
	Ensure that screenings for substance use, domestic violence/intimate partner violence, mental health, and suicidal ideation completed at OB/GYN intake are language and culture appropriate.
	Standardized prenatal and postpartum screening method for mental health and substance use.
	Providers should use a validated mental health screening tool at prenatal visits.
	Ensure that screenings are completed at OB/GYN intake: substance use, domestic violence, intimate partner violence, mental health, increase in depressive symptoms, suicidal ideation.
	Assessment for drug dependence and referral to appropriate treatment during prenatal and postpartum care.
	Electronic medical records symbol added that indicates patient has mental health/substance use medical records.
	Providers should screen for unstable living conditions during prenatal care.
	Providers should screen for substance use when treating mental health conditions.
Social, family, and peer support	*Increase use of peer support for follow-up on substance use disorder.*
	Increase availability of social support systems for veterans.
	Provide family therapy to veterans with post-traumatic stress disorder.
	Increase mental health providers offering aftercare for family survivors of suicide.
Education for patients, providers, and the public	*Public education for bystander intervention for overdose.*
	Educate providers on mental health specialists to whom they can refer patients.
	Educate providers on mental health screening and treatment.
	Increase awareness of obstetric providers about trauma-informed care.
	Work with law enforcement and community partners to increase gun safety education for the public.
	Increase public awareness about signs and symptoms of postpartum depression and incorporate this into labor and delivery discharge information.
	Educate doctors and emergency department staff on available resources for suicide response.
	Clinical outreach educators should provide education and training to emergency department providers on administering mental health, intimate partner violence, and suicide assessments and steps following positive results.

	Medical licensing boards should address substance use disorder and stigma among health care providers.
	Training for obstetric providers on appropriate pain and prescription management in pregnancy.
	Educate public on disposal of excess medications.

SOURCE: Authors' analysis of pregnancy-related deaths occurring from 2008 to 2017 and reviewed by 14 state Maternal Mortality Review Committees: Arizona (2016), Colorado (2008-2012, 2014-2015), Delaware (2009-2017), Florida (2017), Georgia (2012-2014), Hawaii (2015-2016), Illinois (2015), Louisiana (2017), Mississippi (2016-2017), North Carolina (2014-2015), Ohio (2008-2016), South Carolina (2014-2017), Tennessee (2017) and Utah (2014-2016).

NOTES: a. Maternal Mortality Review Committee recommendations were edited slightly for clarity.
b. OB/GYN: obstetrics and gynecology

Appendix Exhibit A4. Definitions of selected mental health conditions, substance use, and life stressors described in Exhibit 3.

Pre-existing/history of depressive disorder includes dysthymic disorder, mild depression, and major depressive disorder.

Anxiety disorder includes Adjustment Disorder, Obsessive-Compulsive Disorder, and Post-Traumatic Stress Disorder.

Substance use disorder includes deaths where the abstracted medical records documented Substance Use Disorder (SUD) or substance abuse or dependence as a preexisting condition, or SUD treatment.

Other mood or psychotic disorder includes bipolar disorder and depression, psychoses, schizophrenia, and personality disorder.

Substance use includes any substance use at time of death as well as history of or recent substance use (with or without diagnosis of SUD). Classification included review of autopsy toxicology when available.

Unstable housing/homelessness defined as the individual lived "on the street", in a homeless shelter, or in transitional or temporary circumstances with family or friends.

Incarceration includes incarceration before pregnancy, during pregnancy, and/or after pregnancy.

Removal of a child from the person’s custody or Child Protective Services Involvement was defined on the basis of any indication in the records that child was removed, or indication of Child Protective Services or Department of Children and Family Services involvement or notification.

Medication instability defined as indication that the individual stopped taking psychiatric drug or medication for the treatment of substance use disorder or had a change in medication or dosage during pregnancy or postpartum.

Adverse childhood event defined as experiencing any of the following: emotional abuse, physical abuse, sexual abuse, witnessed intimate partner violence, household substance abuse, mental illness in the household, parental separation or divorce, incarcerated household member, emotional neglect, and physical neglect.

Domestic violence defined as experiencing or perpetrating violent or aggressive behavior within the home, often involving a partner.