Pregnancy-Associated Mortality Review (PAMR) Update

Reena Oza-Frank, PhD, RD
Data and Surveillance Administrator
Bureau of Maternal, Child, and Family Health
Ohio Department of Health

OCPIM
November 7, 2019
Outline

• Maternal Mortality Overview
• ODH PAMR Overview
• ODH PAMR New Activities
Maternal Mortality Overview
Definitions

Maternal Mortality Review Committee (MMRC)  
=  
ODH Pregnancy-Associated Mortality Review (PAMR)
Definitions

Pregnancy-Related Death
The death of a woman during pregnancy 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
The death of a woman during pregnancy or within one year of pregnancy from a cause that is not related to pregnancy.
# Unique Role of Maternal Mortality Review Committees (MMRCs)

<table>
<thead>
<tr>
<th>Data Source</th>
<th>CDC – National Center for Health Statistics (NCHS)</th>
<th>CDC – Pregnancy Mortality Surveillance System (PMSS)</th>
<th>Maternal Mortality Review Committees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Frame</td>
<td>During pregnancy – 42 days</td>
<td>During pregnancy – 365 days</td>
<td>During pregnancy – 365 days</td>
</tr>
<tr>
<td>Source of Classification</td>
<td>ICD-10 codes</td>
<td>Medical epidemiologists (PMSS-MM)</td>
<td>Multidisciplinary committees</td>
</tr>
<tr>
<td>Measure</td>
<td>Maternal Mortality Rate - # of Maternal Deaths per 100,000 live births</td>
<td>Pregnancy Related Mortality Ratio - # of Pregnancy Related Deaths per 100,000 live births</td>
<td>Pregnancy Related Mortality Ratio - # of Pregnancy Related Deaths per 100,000 live births</td>
</tr>
<tr>
<td>Purpose</td>
<td>Show national trends and provide a basis for international comparison</td>
<td>Analyze clinical factors associated with deaths, publish information that may lead to prevention strategies</td>
<td>Understand medical and non-medical contributors to deaths, prioritize interventions that effectively reduce maternal deaths</td>
</tr>
</tbody>
</table>

**Nicely reviewed in:**
- Berg C, et al. (Editors). Strategies to reduce pregnancy-related deaths: from identification and review to action. Atlanta: Centers for Disease Control and Prevention; 2001
### Unique Role of Maternal Mortality Review Committees (MMRCs)

<table>
<thead>
<tr>
<th>Data Source</th>
<th>CDC – National Center for Health Statistics (NCHS)</th>
<th>CDC – Pregnancy Mortality Surveillance System (PMSS)</th>
<th>Maternal Mortality Review Committees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Frame</td>
<td>During pregnancy – 42 days</td>
<td>During pregnancy – 365 days</td>
<td>During pregnancy – 365 days</td>
</tr>
<tr>
<td>Source of Classification</td>
<td>ICD-10 codes</td>
<td>Medical epidemiologists (PMSS-MM)</td>
<td>Multidisciplinary committees</td>
</tr>
<tr>
<td>Measure</td>
<td>Maternal Mortality Rate - # of Maternal Deaths per 100,000 live births</td>
<td>Pregnancy Related Mortality Ratio - # of Pregnancy Related Deaths per 100,000 live births</td>
<td>Pregnancy Related Mortality Ratio - # of Pregnancy Related Deaths per 100,000 live births</td>
</tr>
<tr>
<td>Purpose</td>
<td>Show national trends and provide a basis for international comparison</td>
<td>Analyze clinical factors associated with deaths, publish information that may lead to prevention strategies</td>
<td>Understand medical and non-medical contributors to deaths, prioritize interventions that effectively reduce maternal deaths</td>
</tr>
</tbody>
</table>

Nicely reviewed in:
- Berg C, et al. (Editors). Strategies to reduce pregnancy-related deaths: from identification and review to action. Atlanta: Centers for Disease Control and Prevention; 2001
MMRC: Six Key Decisions

• Was the death pregnancy-related?
• What was the cause of death?
• Was the death preventable?
• What were the critical contributing factors to the death?
• What are the recommendations and actions that address the contributing factors?
• What is the anticipated impact of these actions, if implemented?
Power of MMRCs

- Deaths
- Near Misses
- Severe Maternal Morbidity
- Maternal Morbidity Requiring Hospitalization
- Maternal Morbidity Resulting in Emergency Department Visit
- Maternal Morbidity Resulting in Primary Care Visit

Cascading Effects of Review Committee Actions
Power of MMRCs

- Deaths
- Near Misses
- Severe Maternal Morbidity
- Maternal Morbidity Requiring Hospitalization
- Maternal Morbidity Resulting in Emergency Department Visit
- Maternal Morbidity Resulting in Primary Care Visit

Cascading Effects of Review Committee Actions

Eliminate preventable maternal deaths
Reduce maternal morbidity
Improve population health of women

10
Objective

• Decrease pregnancy-associated and pregnancy-related mortality and maternal morbidity

Purposes

• To identify preventability
• To examine circumstances of a woman’s death around pregnancy
• To identify factors that contribute to the death
• To provide recommendations and create interventions to improve maternal outcomes
ODH PAMR Review Process

1. VS sends list of deaths to PAMR Coordinator

2. Coordinator requests medical and social services records for all deaths

3. Coordinator abstracts records into MMRIA to create a standardized, de-identified case summary form

4. Case summary form is presented to multidisciplinary committee of experts for review

5. Committee determines if death was pregnancy-related and identifies factors associated with death

6. Data from committee meetings entered into MMRIA to allow analyses of death data

7. Recommends interventions to prevent maternal deaths
ODH PAMR Data
Of 610 pregnancy-associated deaths:

186 (31 percent) were pregnancy-related, meaning the cause of death was related to or aggravated by the pregnancy or its management.
Ohio and U.S. Pregnancy-Related Mortality Ratios, 2008-2016

Rate of deaths did not change significantly

Note: U.S. and Ohio surveillance methods differ. Both include women who died during pregnancy or within one year of pregnancy. However, in contrast to the Ohio PAMR process, the U.S. process is based entirely on vital statistics data submitted to CDC by states; medically trained epidemiologists determine the cause and time of death related to the pregnancy (CDC Pregnancy Mortality Surveillance System [PMSS]).
Underlying Causes of Pregnancy-Related Deaths by Leading Causes, Ohio 2008-2016

- Cardiovascular and Coronary Conditions* 16%
- Infections 13%
- Hemorrhage 12%
- Pre-Eclampsia and Eclampsia 12%
- Cardiomyopathy 10%
- Embolisms** 8%
- Mental Health Conditions 4%
- Amniotic Fluid Embolism 4%
- Other*** 22%

*Not including cardiomyopathy
**Not including amniotic fluid embolism
***Includes cerebrovascular accident, homicide and others
Timing of Pregnancy-Related Death in Relation to Pregnancy, Ohio 2008-2016
Disparities in Pregnancy-Related Deaths: by Race

Black, Non-Hispanic  
Deaths per 100,000 live births  
29.5

White, Non-Hispanic  
11.5

Black women died at a rate > 2 ½ times that of white women
Chance to Alter Outcome Among Pregnancy-Related Deaths (n=86), Ohio 2012-2016

- No Chance, 37%
- Some Chance, 27%
- Good Chance, 29%
- Unable to Determine 9%

Over half of deaths were considered preventable.
## Preventability by Cause of Death, 2012-2016

<table>
<thead>
<tr>
<th>Underlying Cause of Death</th>
<th>Preventable %</th>
<th>Preventable number</th>
<th>Total number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular &amp; Coronary Conditions</td>
<td>29</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Pre-eclampsia &amp; Eclampsia</td>
<td>85</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>64</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Infections</td>
<td>64</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Embolisms (not AF)</td>
<td>56</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Cardiomyopathy</td>
<td>75</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Amniotic Fluid Embolism</td>
<td>20</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Cerebrovascular Accidents</td>
<td>25</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Mental Health Conditions</td>
<td>100</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
Contributing Factors

- Factors identified that contributed to the death
- **Four** factors on average were identified for every pregnancy-related death
- **Levels:**
  - *Provider* (32%)
  - *system of care or facility* (22%)
  - *patient or family* (46%)
Contributing Factors: Provider Level

- failure to adequately screen or assess risk
- mis-diagnosis
- use of ineffective treatment
- delays in diagnosis, treatment, or follow-up
- failure to refer or seek consultation
- lack of communication between providers
- lack of continuity of care
- inadequate patient education
Contributing Factors: *Systems or facility Level*

- lack of continuity of care from a system perspective
- lack of or insufficient case coordination or management
- systems barriers to accessing care (e.g., insurance, provider shortage, transportation)
- unavailable facilities
- inadequate, unavailable, or inadequately trained personnel
- inadequate follow-up by personnel
- lack of or poor communication (e.g., between providers)
- lack of standardized policies or procedures
- inadequate or unavailable equipment / technology
Contributing Factors: Patient or Family Level

- chronic disease (e.g., obesity, chronic medical condition)
- lack of knowledge (re: importance of event, follow-up)
- adherence
- mental health conditions
- delay or failure to seek care
- substance use disorder (alcohol, illicit drugs, Rx abuse)
- tobacco
- violence (intimate partner, prior assault)
- social support, isolation, or dysfunctional
- access / financial (lack of $ resources, poverty, housing)
ODH PAMR: Two 5-year Federal Grant Awards

2019-2024

CDC: $450,000/year

HRSA: ~$2 million/year
ODH PAMR Recently Received 2 Federal Awards

CDC
Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) Program

• Facilitate an understanding of the drivers of maternal mortality and complications of pregnancy and better understand the associated disparities.
• Determine what interventions at patient, provider, facility, system, and community levels will have the most effect.
• Inform the implementation of initiatives in the right places for families and communities who need them most.
ODH PAMR Recently Received 2 Federal Awards

CDC
Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) Program
- Facilitate an understanding of the drivers of maternal mortality and complications of pregnancy and better understand the associated disparities.
- Determine what interventions at patient, provider, facility, system, and community levels will have the most effect.
- Inform the implementation of initiatives in the right places for families and communities who need them most.

HRSA
State Maternal Health Innovation Program
Translating recommendations on addressing maternal mortality and SMM from ideas to action by:
1) Establishing a state-focused Maternal Health Task Force to create and implement a strategic plan.
2) Improving the collection, analysis, and application of state-level data on maternal mortality and SMM.
3) Promote and execute innovation in maternal health service delivery.
Ohio Maternal Health Task Force

Goal: Create and implement a strategic plan statewide

- Improve state maternal health data and surveillance.
- Link PAMR data with Title V Needs Assessment activities.

Data and Surveillance

Establish Task Force
- Establish Ohio Maternal Health Task Force
  - Establish a team charter, develop strategic plan, create topic-specific Implementation Teams.

Interventions

Task Force and Task Force Implementation Teams will identify, prioritize, and develop work plans to implement evidence-based interventions.
- Interventions will be implemented.

Workplan Activities
- Update proposed state workplan based on Task Force input.
Quality Improvement

- AIM Implementation
  - Submit state AIM application to ACOG
  - Hypertension bundle (statewide)
  - Racial Disparity bundle (community level)
  - *Tentative* Cardiovascular bundle (statewide)

- Other QI Activities
  - AWHONN post-birth warning signs (community level)
  - IMPLICIT Network toolkit with pediatric practices (interconception health)
Promote and Execute Innovation

- Conduct implicit bias training
  - ODH Home Visiting, WIC, among others
- Expand simulation training for obstetric emergencies to emergency medicine staff
- Train OB providers on implementing telehealth encounters
  - Implementation Team on telehealth informs training activities
- Implement LOCATE
PAMR Grants: Next Steps

• Hire new staff
• Contracts for vendors
• Establish and initiate the Ohio Maternal Health Task Force
QUESTIONS?
Contact Information

Reena Oza-Frank
Bureau of Maternal, Child, and Family Health
Data and Surveillance Administrator
Ohio Department of Health
(614) 466-4626
reena.oza-frank@odh.ohio.gov
Disparities in Pregnancy-Related Deaths

Deaths per 100,000 live births

- Appalachian Rural Suburban Metropolitan County Type
  - Deaths: 10.4, 12.7, 16.0

- Unmarried Married Marital Status
  - Unmarried: 11.1, Married: 19.5

- Graduate or Professional Degree Bachelor's Degree Associate's Degree Some College; No Degree High School Grad or Equivalent <High School Education
  - Education: 7.3, 12.9, 9.6, 14.5, 15.7, 25.0

- Other Medicaid Private Insurance
  - Other: 9.4, Medicaid: 22.2, Private: 25.7

- 35-39 30-34 25-29 20-24 <20 Age
  - Age: 9.8, 12.0, 13.2, 11.5

- Black, Non-Hispanic White, Non-Hispanic Race/Ethnicity
  - Black, Non-Hispanic: 29.5, White, Non-Hispanic: