Review of Perinatal Deaths

By Van Buren Co. Child Death Review Team

Prevention is the end goal when reviewing a child death

Michigan Child Death Review
Annual Team Member Training
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1

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The National Center for Fatality Review and Prevention

* A resource and data center that supports child death review (CDR) and fetal and infant mortality review (FIMR) programs around the country.
* Supported with funding from the Maternal and Child Health Bureau (MCHB) at the Health Resources and Services Administration (HRSA), aligning with several MCHB priorities and performance and outcome measures such as:
  - Healthy pregnancy
  - Child and infant mortality
  - Injury prevention
  - Infant safe sleep

2

The Common Goal of CDR and FIMR:

Local, interdisciplinary case review aids in better understanding of how and why children die and whether or not, these cases could have been prevented. Through this process we can demonstrate the need for changes to policies and programs to improve child health, safety and protection, to prevent future child deaths.

3

Differences / Similarities of CDR vs. FIMR

CDR

- Process tells us how and why babies die in a community
- Inter-disciplinary team
- Case Review Team

FIMR

- Process tells us how and why babies die in a community
- Inter-disciplinary team
- Two teams - Case Review Team & Community Action Team
- Maternal Interview
- Confidential, de-identified cases

4

Challenges for Counties with Small vs. Large Populations

Smaller counties have fewer deaths to review thus making it easier for the CDR Team to review deaths from birth to 18yrs. of age. On the other hand, larger counties have more deaths to review than the CDR team has time for, and therefore need to limit the review of perinatal deaths.

This is where the need for a FIMR Team comes in play. Higher populated counties with larger medical centers have greater access to specific medical experts or professionals to review perinatal cases thus obtaining more detailed information regarding maternal history.

5

Michigan FIMR Teams

- Berrien
- Calhoun
- Detroit
- Muskegon
- Inter-Tribal Council of Michigan
- Jackson
- Kalamazoo
- Kent
- Macomb
- Oakland
- Saginaw

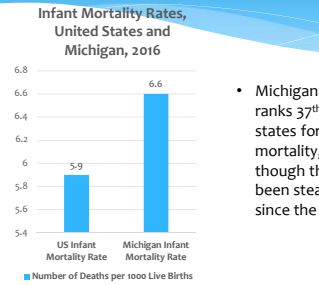
Infant Mortality Definitions

Live Birth – infant who shows any signs of life: breathing; heartbeat; pulsing cord; definite movement, regardless of gestation or weight

Perinatal Deaths – any death of an infant that occurs as a result of a congenital anomaly or other medical condition.

7

Infant Mortality in Michigan

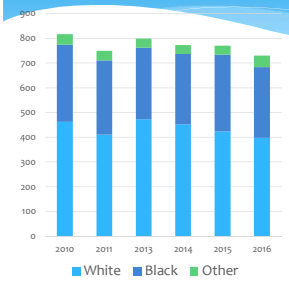


- Michigan currently ranks 37th out of 50 states for infant mortality, even though the rate has been steadily falling since the 90's.

National Center for Health Statistics. (2017, March 31). *State of the State of Michigan*. Retrieved April 2, 2018, from Centers for Disease Control and Prevention: https://www.cdc.gov/nchs/pressroom/states/michigan/michigan.htm

8

Infant mortality in Michigan, 2010-2016, by race



- For every 1000 live births in Michigan, almost 7 babies won't make it till their 1st birthday
- In 2016, that meant the loss of 730 infants
- For every death of 1 White Michigan infant, there are 2.8 deaths of Black infants

https://www.mdch.state.mi.us/pha/osr/InDxMain/INFDX.asp

9

2017 Infant Death Statistics

- In 2017, 762 infants under the age of 1yr. died, resulting in an infant mortality rate of 6.8 per 1,000 live births
- The perinatal death rate was 8.9 in 2016 and 9.3 in 2017
- Both the white and black infant mortality rates remained about the same in recent years, with a persistent racial disparity in which African American mothers experiences 3 times the risk of an infant death compared white mothers.
- Between 2000-2013, the Native American infant death rate remained an average 11 deaths per 1,000 live births. Between 2015-2017, the rate increased to 14.2 deaths per 1,000 births.

https://www.mdch.state.mi.us/pha/osr/InDxMain/Infsum05.asp 10

Leading Causes of Infant Deaths in Michigan - 2017

- Prematurity - 33.5%
- Birth Defects - 18.5%
- Accidents – 10.8%
- Accidental Suffocation in Bed – 7.1%

Which of these seem preventable?

https://www.mdch.state.mi.us/pha/osr/InDxMain/Infsum05.asp 11

Natural Infant Deaths

Primarily attributed to an illness or internal malfunction of the body; not directly influenced by external forces

- Natural deaths may not always seem preventable
- They may be medically complicated or more difficult to review due to lack of records and expertise (use of birth abstract helpful)
- Reviewing these cases can give us unique insights into problems in our communities

Risk Factors for natural infant deaths

- Maternal
- Fetal
- Placental
- Biological
- Psychological
- Social / Behavioral

12

Review of Natural Infant Deaths

Although most natural deaths do not have a lot of information to discuss, it is still an issue in Michigan, with our higher than national average of infant mortality.

Many pertinent issues can be revealed during a review of a perinatal death. Some examples may include:

- Domestic violence
- Incarceration
- Lack of reliable transportation
- Previous child deaths
- Criminal history
- Medical history of extended family
- Substance use/abuse
- Prior CPS involvement
- Limited education
- Lack of prenatal care
- Toxic stress
- Barriers to services

13

With infant cases, point of view matters

Preventable

vs.

Non-Preventable

- It's hard to make recommendations if you think a death was unavoidable.
- It's challenging to gain community support for recommendations if the death is seen as preventable.

Natural

vs.

Injury

- Most infant deaths are "natural".
- Infant mortality is often a symptom of other problems.
- Recommendations can focus on systems that families receive services from, regardless of cause of death.

14

Why Infant Death Review Matters

Through the review of infant deaths, teams can determine if these deaths could have been prevented and if so, how & by what measures.

* Identify risk factors
* Identify gaps in appropriate services for the family and community
* Community & individual education
* Coordination of services
* Culturally appropriate verbal & written communication
* Decreasing the stigma & increasing the access to services such as counseling for mental health, substance abuse, domestic violence, etc.

15

Risk Factors for Infant Mortality

- Congenital Anomalies of Infant
- Environmental Exposures
- Genetics
- Inadequate Prenatal Care
- Incarceration of Mother
- Lack of Education
- Lack of Social Support
- Maternal Pre-existing Health Conditions
- Other Medical Conditions of Infant
- Physical or Emotional Abuse of Mother
- Poor Nutrition
- Poor/Unstable Housing
- Poverty
- Premature Birth
- Racism
- Smoking
- Substance Abuse
- Toxic Stress
- Underemployment
- Unemployment
- Unsafe Neighborhoods

16

Risk factors for birth defects

- Smoking
- Drinking alcohol
- Drug use
- Certain maternal medical conditions, including obesity or uncontrolled diabetes
- Having someone in your family with a birth defect
- Being an older mother, typically >34 years old

While we know the cause of ***some*** birth defects, ***most of them*** are caused by a complex mix of factors that we don't understand.

Source: *CDC Birth Defects 2017*

17

Risk factors for prematurity

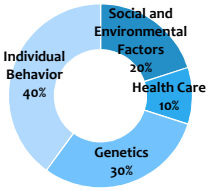
- Low maternal income
- Young or advanced maternal age
- First pregnancy as a teen
- Black maternal race
- Poor nutrition
- Anxiety/Depression
- Physical abuse
- Long work hours/extended standing
- Environmental exposures
- Infection (placenta, UTI)
- Prior pre-term delivery
- Twins or higher order pregnancy
- Abnormal cervical/uterine anatomy
- Placental abnormalities
- Under or overweight
- Fetal abnormalities
- Short inter-pregnancy interval
- Chronic maternal health issues
  - Hypertension
  - Diabetes
  - Clotting disorders
- Tobacco and alcohol use
- Substance abuse
- Inadequate prenatal care
- Stress

Source: https://www.cdc.gov/reproductivehealth/images/maternal-infant-health/pretermbirth-infographic-idea2.jpg

18

There are factors you can control. But most, you can't.

Impact of Different Factors on Risk of Premature Death



Source: Schroder, 2007

The Right People

- Unique case review requires unique expertise.
- Should you have a neonatologist attend if you're reviewing deaths due to prematurity? An OB/GYN or a family practice physician?
- Difference between larger and smaller counties – what kind of physician can you get to come to your meeting?

20

Medical Professionals

Typical Child Death Review participants

- EMS
- Medical Examiner
- Pediatricians
- Nurses
- Social Workers
- Other Healthcare Professionals

Helpful MEDICAL EXPERTS for Natural infant cases

- OB/GYN
- Pediatrician
- Neonatologist
- Pathologist
- Family practice providers
- Dietician
- Home visitors

21

Other Professionals

Typical Child Death Review Participants

- Public Health
- Law enforcement
- Prosecutors / Friend of the Court
- DHHS – CPS / Foster Care
- Substance Abuse / Mental Health

Other Helpful Professionals

- WIC
- Maternal Infant Health Program
- Schools
- Durable Medical Equipment Providers
- Fire Department
- Child Care Licensing
- Victim Advocates

22

The Right Records

- This may take more pre-meeting work than usual, requesting and assembling records.
- Get enough information to get a clear picture of the situation that lead to the child death so that your team can:
  - ✓ Recommend prevention activities to ensure the health and safety of our children
  - ✓ Identify risks and gaps in care and services
  - ✓ Improve community awareness

23

Records, cont.

Information Required at CDR Meetings

In order to assist in the review, this is a breakdown of the information or potential applicable reports that each participating agency should bring to review meetings. This is just a guideline to be used. Best practice is to bring any records you have on the caregiver or child. We also realize that not all records are applicable in every case. Some information can be obtained from several different departments.

24

Records, cont.

Please look under your discipline to see what reports/information you need to bring to the review meeting:

COORDINATOR:

Death certificate
Hospital Medical Records (IP/ER Admission History & Physical, Discharge Summary and any Consultation Notes)

MEDICAL EXAMINER/FORENSIC PATHOLOGIST:

Autopsy
Toxicology reports
Medical history obtained

LAW ENFORCEMENT:

Investigation report from fatal event
Information regarding caregiver's criminal history
UD 10 Crash report
Substance abuse history
Domestic Violence history
Fire marshal's report

25

Records, cont.

DEPARTMENT OF HUMAN SERVICES:

Number of referrals on the caregivers/supervisors as victims and perpetrators
Number of substantiations on the caregivers/supervisors as victims and perpetrators
Foster care history
CPS action taken as a result of the death
Benefit information (Medicaid, Food Stamps, Cash assistance, etc.)
Child Care licensing reports
Services provided to family after death

26

Records, cont.

HEALTH DEPARTMENT:

Birth Records for infants / Birth Abstracts
Information from WIC visits
Children Special Health Care records
Immunization records
Information about family composition (number of other children in the home, parent's ages, etc.)
Services provided to family after death

PROSECUTOR:

Caregiver/Supervisor's criminal history
Charges/Verdicts resulting from fatal event

27

Records, cont.

PRIVATE PHYSICIAN/HOSPITAL:
Information on medical history/previous hospital visits
Emergency Department records from fatal event
Insurance information

JUVENILE COURT:
Child's juvenile delinquency history

EMS:
EMS run sheet
Information regarding condition of the home

28

Special Considerations
Cross County and State Lines

County Lines

- Review by county of residence
- Death certificate sent to Co. of residence
- If 3 counties involved, one for transport only, one where incident occurred, and one Co. of residence then death does not need to be reviewed by Co. with transport only
- Mortality statistics are prepared by Co. of residence
- Infants who never left the hospital are considered residents of mother's home address

State Lines

- If a child residing in Michigan dies in another state, or if a child from another state dies in Michigan, both cases will be reviewed and the pertinent information needed for review would be the same.
- Obtaining records from out of state delays child death reviews.
- Due to difference in privacy laws for each state, some records may not be released for review.

29

The Right Questions:
Identify risks and gaps

- Are there appropriate services for this family in the community?
- Were they able to access these services?
- Was the medical standard of care met in this case?
- Was there bias in the service-delivery context that affected the family?
- Was there a lack of knowledge that contributed?
- Were bereavement services available?
- Was genetic testing indicated/conducted?
- Was domestic violence present?
- Was substance use/abuse present?
- Were there mental health issues at play in this case?
- Were there environmental exposures that lead to preterm delivery?

30

Practical Considerations for Teams

Challenge	Possible Solutions
Few Cases/Small Population	• Consider joining forces with another small community to pool your resources • Consider reviewing cases of similar causes together, even if not in chronological order • Evaluate how frequently you meet • Consider meetings also a time to discuss prevention education topics
Limited Team Composition	• Ask other CDR members from counties with large hospitals for contact information of medical experts or professionals needed for your reviews • Ask experts to come only to cases relevant to their expertise • Check if expert able to consult via phone if unable to attend in person

Case Studies

Case #1

- Baby died of respiratory distress syndrome secondary to respiratory syncytial virus (RSV)
- Baby born prematurely
- Female; 28weeks; 2# 1oz.; twin died in utero at 16weeks gestation
- NICU stay – difficulty weaning from vent
- Discharged home on oxygen and apnea monitor with bottle feedings at 2 ½ mo. of chronological age
- Mom is 20yrs. of age, white; 1st pregnancy
- She entered prenatal care at 16weeks with signs and symptoms of preterm labor

32

Case Studies (cont.)

Case #2

- Baby died of hypoxic brain injury secondary to traumatic birth
- Baby full term at 40weeks gestation
- Male; 7# 1oz.
- Mom 32yrs. of age; African American; 1st pregnancy
- Uneventful pregnancy with adequate prenatal care
- Labor and delivery difficult with placenta abruptio
- Baby delivered by emergency C-Section
- Dad 40yrs. of age; African American

33

Case Studies (cont.)

Case #3

- Baby died of heart failure secondary to hypoplastic left heart syndrome
- Baby born full term at 39weeks gestation
- Female; 6# 10oz.
- NICU stay; never discharged home
- Baby diagnosed prenatally with Down's Syndrome and hypoplastic left heart syndrome
- Mom 36yrs. of age; white; two other children ages 5yrs. & 7yrs.
- Dad 36yrs. of age; white; no other children

34

In summary…

- Please take the provided handouts on natural infant deaths.
- We must review these deaths to help prevent deaths like them in the future. *Especially* if your community doesn't have FIMR.
- Quality reviews require planning and coordination, but they ***make a difference!***
- **Thank you** for your willingness to work on child fatality review to improve your community and help children to thrive.

35

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