Child Death Review

• East and West River Teams
• Standardize the process
• Support/Training for the review teams.
• Abstracting of child deaths in 2021
  – Review statewide deaths 0-12 years of age
  – This includes infants post hospitalization
  – Each team will meet three times a year
South Dakota
Infant Death Review
South Dakota Infant Death Review

• FORMATION:
  – History
  – IDR officially formed in 2012
  – Began utilization of Child Death Review (CDR) Case Reporting System data collection tool

• GOALS:
  – To understand why infants die and to act to prevent other deaths
  – To utilize the CDR data reporting tool so that data can be reviewed by a state-level advisory group for prevention efforts and to annually review data to make recommendations to help turn tragedies into lessons that can prevent other deaths.
Infant Death Review PROCESS

**CASE NUMBER**

- State / County or Team Number / Year of Review / Sequence of Review:

**A. CHILD INFORMATION**

<table>
<thead>
<tr>
<th>A1. CHILD INFORMATION (COMPLETE FOR ALL AGES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Child's name: First</td>
</tr>
<tr>
<td>2. Date of birth:</td>
</tr>
<tr>
<td>4. Age:</td>
</tr>
<tr>
<td>6. Hispanic or Latino origin?</td>
</tr>
<tr>
<td>7. Sex:</td>
</tr>
<tr>
<td>8. Place of birth:</td>
</tr>
<tr>
<td>9. Race/ethnicity:</td>
</tr>
<tr>
<td>10. Health status at birth:</td>
</tr>
<tr>
<td>11. Cause of death:</td>
</tr>
</tbody>
</table>

- Child's health insurance: check all that apply:
  - Name
  - Indian Health Service
  - Other specialty
  - Other

**SAVING LIVES TOGETHER**
Principal Data Sources

- Death certificate
- SUID Investigation Reporting Form
- Coroner and medical examiner records
  - Autopsy results
  - Chart review
  - Lab work (toxicology, metabolic, X-rays, etc.)
- Law enforcement reports
- Birth Certificate
- Child Death Review
- Medical record
- EMS/ED records
Infant Death Review Demographics
2015 - 2019

CDR Reviewed Infant Deaths by Year

2015: 34
2016: 27
2017: 28
2018: 29
2019: 27

145 POST-DISCHARGE DEATHS
Demographics - Race
2015 - 2019

Births
- White: 5,348 (8%)
- American Indian: 9,096 (15%)
- Other: 44,635 (75%)
- Unknown: 980 (2%)

Deaths
- White: 76 (53%)
- American Indian: 47 (32%)
- Other: 22 (15%)
- Unknown: 25

There are racial disparities in infant deaths post-discharge – (based on IDR data).

South Dakota State University
Demographics - Sex
2015 – 2019

Births
- Male: 29,337 (49%)
- Female: 30,722 (51%)

IDR Deaths
- Male: 50 (34%)
- Female: 95 (66%)
Demographics
2015 – 2019

Sex of Deceased
- Male: 50 (34%)
- Female: 95 (66%)

Deaths by Sex by Year
- 2015: Male 11, Female 23
- 2016: Male 5, Female 22
- 2017: Male 11, Female 17
- 2018: Male 11, Female 18
- 2019: Male 12, Female 15

South Dakota State University
Manner & Cause of Death
2015 - 2019

• Natural (47)
  • SIDS (13)
  • Congenital anomalies (8)
  • Other medical (6)
  • Other infection (5)
  • Pneumonia (4)
  • Cardiovascular (4)
  • Other perinatal (1)
  • Cancer (1)
  • Influenza (1)
  • Null or Unknown (4)

• Accidental (48)
  • Asphyxia (42)
  • Motor vehicle (3)
  • Drowning (1)
  • SIDS (1)
  • UNK (1)

• Homicide (7)
  • Weapon (3)
  • External - Other (3)
  • External - Unknown (1)

• Undetermined (43)
  • Undetermined (35)
  • SIDS (6)
  • Unknown (2)
Manner of Death by Race, 2015-2019

Numbers of deaths are given within the bar. Includes only deaths among American Indian & White infants; homicides and unknown manner of death are not shown.

- Natural: 14 Amer Indian, 24 White
- Accidental: 21 Amer Indian, 23 White
- Undetermined: 10 Amer Indian, 27 White

Mortality Rate per 1,000 Births

South Dakota State University
Deaths Related to Sleep Surface
2015 - 2019

Total IDR Deaths: 145

“Was the death related to sleeping or the sleep environment?”
- 42 NO
- 99 YES
- 4 UNK

Incident Sleep Place:
- 50 Adult Bed
- 16 Crib
- 12 Couch
- 19 Other *
- 2 Blank (1) or Unk (1)

* Other includes floor (6), car seat (4), bassinet (4), Rock ‘N Play (2), Changing mat wedge (1), Rocker chair (1), Bouncy chair (1)
Crib Availability for Sleep-related Deaths
2015 - 2019

Was there a crib (includes Pack ‘n Play), bassinet, bed side sleeper or baby box in the home?

- Yes: 56
- No: 17
- Missing: 19
- Unknown: 7

South Dakota State University
Of the 99 sleep-related deaths, 52% occurred in an adult bed ($N=50$):

Was there a Crib / Bassinet / Port-a-Crib in the home?

```
<table>
<thead>
<tr>
<th>Number of Deaths</th>
<th>Yes</th>
<th>No</th>
<th>Unk/Blank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>29</td>
<td>4</td>
<td>17</td>
</tr>
</tbody>
</table>
```

Of 99* sleep-related deaths, 55 occurred when infant was bed-sharing (39 with an adult, 6 with a child, 10 with an adult AND another child).

*21 of the 99 did not have these questions answered, so bed-sharing could be even higher.
Sleep Environment Breakdown

INFANT DEATHS 2015 - 2019: 145

"Was the death related to sleeping or the sleep environment?"  
- 99 YES
- 42 NO
- 4 UNK/BL

Was the sleep location a FIRM SURFACE*?  
- 26 YES
- 71 NO
- 2 UNK/BL

Was the infant SLEEPING ALONE?  
- 10 YES
- 6 NO
- 10 BLANK

Was the sleep location free from SOFT ITEMS**?  
- 1 YES
- 9 NO

* "Firm Surface" includes crib (including pack ‘n play), bassinet, or floor.

** "Soft Items" includes comforter, blanket/flat sheet, pillow, cushion, boppy, positioner, bumper pads, or toy.
Summary

- Disproportionate number of deaths among American Indian population than among whites.
- Disproportionate number of deaths among males than among females.
- Younger infants have a higher number of deaths than older infants.
- 73% of deaths were related to sleeping or the sleep environment. Of these, 52% occurred in an adult bed and of the records with bed-sharing questions answered, 71% reported bed-sharing (55/78).
To reflect on the information and data that was just presented;
What positives did you identify?

What was concerning to you?

Did you identify any gaps in the data?

Based on that reflection;
What are some areas of improvement? (either to the data collection process, data analysis, ideas for prevention strategies)
South Dakota Maternal Mortality and Morbidity

Katelyn Strasser, MPH, RN
Maternal Child Health Epidemiologist, SDDOH

Dr. Mary Carpenter
Medical Director-Department of Health and Medicaid
Huge Racial Disparities Found in Deaths Linked to Pregnancy

Major maternal health legislation signed into law

The briefing / Why do women still die giving birth?

For Every Woman Who Dies In Childbirth In The U.S., 70 More Come Close
MATERNAL MORTALITY DEFINITIONS:

**Pregnancy-associated death**: The death of a woman while pregnant or within one year of the termination of pregnancy, regardless of the cause. This makes up the universe of maternal mortality. Within that universe are pregnancy-related deaths and pregnancy-associated, but not related deaths.

**Pregnancy-associated, but not related death**: The death of a woman during pregnancy or within one year of the end of pregnancy, from a cause that is not related to pregnancy.

**Pregnancy-related death**: 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.

Source: Review to Action
Data Sources

Pregnancy Mortality Surveillance System (PMSS)

- Use death certificates linked to fetal death and birth certificates
- Reviewed by medical epidemiologists
- Classify as pregnancy-associated, pregnancy-related, cause of death, and identify injury relatedness
- Most recent data is from 2017
- Does not count SD resident deaths that occurred in other states

Source: CDC PMSS

*Number of pregnancy-related deaths per 100,000 live births per year

Sources:
CDC PMSS
Catalano, AJOG
Racial/Ethnic Disparities in Pregnancy-Related Mortality Exist
PMSS data 2011-2016

Pregnancy-related mortality ratios:
• 42.4 deaths per 100,000 live births for Black non-Hispanic women
• 30.4 deaths per 100,000 live births for American Indian/Alaskan Native non-Hispanic women
• 14.1 deaths per 100,000 live births for Asian/Pacific Islander non-Hispanic women
• 13.0 deaths per 100,000 live births for white non-Hispanic women
• 11.3 deaths per 100,000 live births for Hispanic women

Source: CDC PMSS
Factors in disproportionate pregnancy-related mortality ratios

Access to care

Quality of care

Prevalence of chronic diseases

Source: Petersen, MMWR, 2019
Number of Pregnancy-Associated but Not Related vs. Pregnancy-Related Deaths, 2010-2017

Source: CDC PMSS
1 in 4 maternal deaths in South Dakota is pregnancy-related

Source: CDC PMSS
Causes of Pregnancy-Associated Deaths, 2010-2017

- Other non-cardiovascular conditions: 69.2%
- Cardiovascular conditions: 9.6%
- Infection: 9.6%
- Hypertensive disorders of pregnancy: 3.9%
- Hemorrhage: 1.9%
- Amniotic fluid embolism: 1.9%
- Cardiomyopathy: 1.9%
- Cerebrovascular accident: 1.9%

Source: CDC PMSS
Percent of Pregnancy-Associated Deaths Due to an Injury, 2010-2017

- No injury: 42.3%
- Motor vehicle accident: 21.2%
- Suicide: 13.5%
- Drug overdose (unintentional, accidental): 11.5%
- Homicide: 7.7%
- Other: 1.9%
- Unknown: 1.9%

Source: CDC PMSS
Data Sources

South Dakota Vital Statistics

- Death certificates linked to fetal death and birth certificates
- Reviewed by SDDOH staff
- More current data (2019)
- Considers SD residents that died in other states

Source:
South Dakota Vital Statistics
Number of Pregnancy-Associated Deaths, 2010-2019

Source: South Dakota Vital Statistics
Timing of Pregnancy-Associated Deaths, 2010-2019

- Pregnant at time of death: 29.6%
- Pregnant within 42 days of death: 16.9%
- Pregnant 43 days to 1 year before death: 53.5%

Source: South Dakota Vital Statistics
Demographic Characteristics of all Pregnancy-Associated Deaths, 2010-2019 (N=71)

<table>
<thead>
<tr>
<th>Maternal Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20</td>
<td>8</td>
<td>11.3</td>
</tr>
<tr>
<td>20-24</td>
<td>9</td>
<td>12.7</td>
</tr>
<tr>
<td>25-29</td>
<td>22</td>
<td>31.1</td>
</tr>
<tr>
<td>30-34</td>
<td>18</td>
<td>25.4</td>
</tr>
<tr>
<td>35-39</td>
<td>10</td>
<td>14.1</td>
</tr>
<tr>
<td>&gt;=40</td>
<td>4</td>
<td>5.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>29</td>
<td>40.8</td>
</tr>
<tr>
<td>Never married</td>
<td>34</td>
<td>47.9</td>
</tr>
<tr>
<td>Divorced</td>
<td>6</td>
<td>8.5</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Source: South Dakota Vital Statistics

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>16</td>
<td>22.5</td>
</tr>
<tr>
<td>High school graduate or GED</td>
<td>29</td>
<td>40.8</td>
</tr>
<tr>
<td>Some college</td>
<td>9</td>
<td>12.7</td>
</tr>
<tr>
<td>College graduate or higher</td>
<td>16</td>
<td>22.5</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>1.4</td>
</tr>
</tbody>
</table>
Percent of live births by mother’s race from 2010-2019 was 72.3% for white women and 15.0% for American Indian women

Source: South Dakota Vital Statistics
Data Sources

Maternal Mortality Review Committee (MMRC)
• Multidisciplinary committee that reviews deaths that occur during or within 1 year of pregnancy
• Data gathered by nurse abstractor, put into MMRIA system, and turned into de-identified case narratives
• Determines pregnancy-relatedness and makes specific recommendations for prevention

Source: CDC
PMSS
### COMMITTEE DETERMINATION OF CAUSE(S) OF DEATH

**IF PREGNANCY-RELATED, COMMITTEE DETERMINATION OF UNDERLYING CAUSE OF DEATH**

Refer to page 3 for PMSS-MM cause of death list.

**PREGNANCY-RELATEDNESS: SELECT ONE**

- [ ] PREGNANCY-RELATED
  - A death 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

- [ ] PREGNANCY-ASSOCIATED, BUT NOT RELATED
  - A death during pregnancy or within one year of the end of pregnancy from a cause that is not related to pregnancy

- [ ] PREGNANCY-ASSOCIATED BUT UNABLE TO DETERMINE PREGNANCY-RELATEDNESS
  - Not pregnancy-related or associated (i.e. false positive, was not pregnant within one year of death)

**ESTIMATE THE DEGREE OF RELEVANT INFORMATION (RECORDS) AVAILABLE FOR THIS CASE:**

- [ ] COMPLETE
  - All records necessary for adequate review of the case were available

- [ ] MOSTLY COMPLETE
  - Missing gaps (i.e. information that would have been beneficial but was not essential to the review of the case)

- [ ] NOT COMPLETE
  - Minimal records available for review (i.e. death certificate and no additional records)

- [ ] N/A

**MANIOR OF DEATH**

- [ ] WAS THIS DEATH A SUICIDE?

- [ ] WAS THIS DEATH A HOMICIDE?

**IF ACCIDENTAL DEATH, HOMICIDE, OR SUICIDE, LIST THE MEANS OF FATAL INJURY**

- [ ] FIREARM
- [ ] SHARP INSTRUMENT
- [ ] BLUNT INSTRUMENT
- [ ] POISONING/ OVERDOSE
- [ ] SUICIDE/ STRANGULATION/SUFFOCATION
- [ ] FALL
- [ ] PUNCHING/ KICKING/BEATING
- [ ] EXPLOSIVE
- [ ] DOGGED
- [ ] FIRE OR BURNS
- [ ] MOTOR VEHICLE
- [ ] INTENTIONAL: NEGLIGENT

**COMMITTEE DETERMINATIONS ON CIRCUMSTANCES SURROUNDING DEATH**

- [ ] DID DEATH CONTRIBUTE TO THE DEATH?

- [ ] DID DISCRIMINATION CONTRIBUTE TO THE DEATH?

- [ ] DID MENTAL HEALTH Conditions OTHER THAN SUBSTANCE USE DISORDER CONTRIBUTE TO THE DEATH?

- [ ] DID SUBSTANCE USE DISORDER CONTRIBUTE TO THE DEATH?

**TYPE (Optional: Cause Descriptive)**

- [ ] UNDERLYING
- [ ] CONTRIBUTING
- [ ] IMMEDIATE
- [ ] OTHER SIGNIFICANT

**DOES THE COMMITTEE AGREE WITH THE UNDERLYING CAUSE OF DEATH LISTED ON DEATH CERTIFICATE?**

- [ ] YES
- [ ] NO

---

*Underlying cause refers to the disease or injury that initiated the chain of events leading to death or the circumstances of the accident or violence which produced the fatal injury.*
Maternal Mortality Review in South Dakota

- South Dakota Preventable Death Committee
  - Provide recommendations for death review processes
- Ad hoc maternal mortality committee
  - Formed multidisciplinary group
  - Received technical assistance from CDC MMRIA
  - Signed onto MMRIA platform and attended 2019 MMRIA training
- New abstractor joining our team in April
- Have data sharing agreements out to health facilities for signature
- Maternal Mortality Review Committee- TBD 2021
To reflect on the information and data that was just presented;

What positives did you identify?

What was concerning to you?

Did you identify any gaps in the data?

Based on that reflection;

What are some areas of improvement? (either to the data collection process, data analysis, ideas for prevention strategies)
National Violent Death Reporting System (NVDRS)

- NVDRS is a state-based anonymous surveillance system
- CDC funding out of the National Center for Injury Prevention and Control
- SD, one of the ten remaining states to implement this system in 2018
- Collects information on all violent deaths
- A violent death includes:
  - Suicides
  - Homicides
  - Undetermined Intent
  - Unintentional firearm
  - Legal intervention
  - Terrorism

**National Violent Death Reporting System**

- Over 600 variables
- Data about *victim*, *suspect*, *incident*, *weapon*, *toxicology*
- Comprehensive depiction of the *who, what, where, when, and how* to gain insight as to *why* the death occurred

- Death Certificates
- Coroner/Medical Examiner Reports
- Law Enforcement Reports
South Dakota Department of Health received funding from CDC in 2018
- 4-year project period (9/2018 - 8/2022)
- Data collection started January 1st, 2019
  - Pilot year (Minnehaha and Pennington County)
  - Statewide data collection started January 1st, 2020

SD-VDRS aims to provide our state and communities with a clearer understanding of violent death.

This information can be used to guide state and local prevention efforts.
Team:

- **Kiley Hump** - Administrator, Chronic Disease Prevention and Health Promotion
  PI/Grant Manager, assist with the Preventable Death Committee

- **Matt Tribble** - Injury Prevention Coordinator
  Program coordinator, assist with the Preventable Death Committee, prevention programming

- **Amanda Nelson** - Injury Prevention Epidemiologist / East River Data Abstractor
  Data collection, abstraction and analysis

- **Kaylyn Davis** - West River Data Abstractor (Black Hills Special Services Cooperative)
  Data collection, abstraction and prevention programming

- **Mariah Pokorny** - State Registrar, Office of Vital Statistics
  Death certificates and coordination with coroners

- **Jamie Messerli** - Program Evaluator (Sanford Health)
  Evaluation design, implementation, and reports
Preliminary 2019 SD-VDRS Data

68 Violent Deaths in Minnehaha and Pennington County

Violent Deaths by County:
- 49% of cases occurred in Pennington County
- 51% of cases occurred in Minnehaha County

Manner of Death
- 83.8% Suicides
- 14.7% Homicides
- 1.5% Undetermined

57 suicide deaths in Minnehaha and Pennington County

Suicide Methods
- 51% Firearm
- 32% Hanging/Suffocation
- 14% Poisoning
- 4% Other

Suicides by Sex and Race

Suicides by Age Group
Preliminary 2019 SD-VDRS Data

Factors Contributing to Suicide Deaths

- Suicide intent disclosed: 18%
- History of suicidal thoughts/plans: 32%
- History of suicide attempts: 30%
- Argument (before/during injury): 14%
- Relationship problem: 14%
- Substance problem: 23%
- Alcohol problem: 32%
- Mental health problem: 37%
- Depressed mood: 47%

Life Stressors Contributing to Suicide Deaths

33% of suicides had a life stressor documented in the coroner and/or law enforcement records.

- School problem: 2%
- Eviction or loss of home: 4%
- Suicide of a friend or family: 2%
- Non-suicide death of a friend or family: 4%
- Job problem: 7%
- Financial problem: 7%
- Disaster exposure: 2%
- Contributing physical health problem: 16%

Note: Circumstances surrounding suicide deaths were documented in reports by coroners and/or law enforcement. Persons who die by suicide may have had multiple circumstances. It is possible that other circumstances could have been present and not diagnosed, known, or reported.

Thank you to our data providers from Minnehaha and Pennington County!
Preliminary 2020 SD-VDRS Data

As of 2/24/21:
- 226 cases abstracted into NVDRS
  - 43% (98) cases completed

2020 SD-VDRS Deaths by Manner of Death
Preliminary 2020 SD-VDRS Data

SD-VDRS Cases by County of Injury (189 Cases)
Preliminary 2020 SD-VDRS Data: Suicides

80 suicide deaths – completed cases

Suicide Methods
- 55% Firearm
- 33% Hanging/Suffocation
- 11% Poisoning
- 1% Other

Factors Contributing to Suicide Deaths

- Suicide intent disclosed: 31%
- History of suicidal thoughts/plans: 34%
- History of suicide attempts: 18%
- Intimate partner problem: 34%
- Depressed mood: 48%
- Substance problem: 24%
- Alcohol problem: 34%

Note: Circumstances surrounding suicide deaths were documented in reports by coroners and/or law enforcement. Persons who died by suicide may have had multiple circumstances. It is possible that other circumstances could have been present and not diagnosed, known, or reported.
Resources

- South Dakota Preventable Death Committee
  - [https://doh.sd.gov/statistics/PreventableDeath.aspx](https://doh.sd.gov/statistics/PreventableDeath.aspx)
  - Committee members, meeting minutes, and meeting presentations

- Coroner Training
  - Overview of SD-VDRS, SUDORS, and Coroner Worksheets

- South Dakota Violent Death Reporting System (SD-VDRS)
  - Informational one-pager
  - Pocket guide
  - Reports

For printed resources, contact
Amanda Nelson
Amanda.Nelson@state.sd.us
605-367-7436