

## SIM Toolkit: The Infant Mortality Checklist

### Stage One: Overview Investigation

- Develop a SIM team
  - MCH epidemiologist or perinatal epidemiologist
  - MCH program director and/or program staff
  - MCH policy analyst
  - MCH subject matter experts and/or community members
- Identify the time period, study population and baseline infant mortality rates
- Review reporting changes: fetal deaths, live births, infant deaths
  - Determine the extent of any changes in the reporting influenced by infant mortality trends
  - Examine birth weight and gestational age numbers and percentages over time
  - Examine frequencies, proportions, and mortality rates by birth weight and gestational age, both overall and by race
  - Examine by extreme preterm and low birth weight births if applicable
  - Examine by region/state/county as necessary
- What are the causes of infant death and have they varied over time?
  - What are the adverse pregnancy outcomes, in terms of newborn maturity and birth anomalies, that are contributing to infant death?
  - Preterm (<37 weeks) and very preterm (<32 weeks) delivery
  - Low birth weight (<2,500 grams) and very low birth weight (<1,500 grams)
  - Small for gestational age
  - Post-term delivery (42 or more weeks)
  - Macrosomia (>4,000 grams or >4,500 grams)
  - Congenital malformation and anomalies
- How do potential changes in the proportion of adverse pregnancy outcomes in the state, county, urban area or tribal region relate to trends in the infant mortality rates?
  - Are the trends increasing/decreasing/stable and do they corresponded with changes in infant mortality?
  - How have the causes of mortality by these outcomes changed over time?
  - Are there racial/ethnic disparities in infant mortality rates and causes of death?
  - How have the racial/ethnic disparities in mortality and associated outcomes changed over time in your specific target population and target area (e.g., state, county, urban area or tribe)?
- When are the deaths taking place (maturity at birth and maturity-specific mortality)?
  - Apply the Perinatal Periods of Risk framework
  - Are specific causes of death associated with certain ages at death?
  - Is the association between cause of death and age at death changing over time?
  - How does the risk of infant mortality vary by birth weight and gestational age and is that relationship changing over time?

### Stage Two: Focused Investigation

- What contributors are associated with an excess in infant mortality or an adverse pregnancy outcome (below are examples)?
  - Poverty
  - Health inequity
  - Nativity status
  - High crime rates
  - Urbanicity
  - Lack of housing
  - Lack of health insurance
  - Lack of employment
  - Low educational attainment
  - Poor health status
  - Obesity
  - Poor mental health
  - Stress and lack of support
  - Absence of preconception care
  - Maternal low birth weight and/or small for gestational age
  - Poor access to or inadequate use of prenatal care
  - Infertility treatment
  - Poor quality of prenatal care
  - Tobacco use
  - Substance abuse
  - Poor nutrition
  - Unintended pregnancy
  - First pregnancy or high parity
  - History of poor birth outcomes
  - Short birth interval (<24 months)
  - Age of mother (<20 years / >40 years)
  - Low or high weight gain during pregnancy
  - Medical complications (hypertension, diabetes, etc.)
  - Infections
  - Multiple births
  - Inappropriate delivery hospital level for maternal or fetal risk
  - Lack of the availability of high-risk obstetrical and newborn care
- How does the distribution of these contributors vary?
  - Over time?
  - By state, county, urban area, tribal region, place?
  - By race, ethnicity, age, education, plurality, parity and other maternal attributes?
  - What risk factors underlie these disparities?
- What are the relative risks for these contributors to infant mortality? Relative risk is a measure of comparison between the occurrence of an outcome among those exposed to a contributor (or exposure) and those not exposed.
- Are there successful infant mortality prevention programs or best practices that can be recommended?
  - How has the impact been demonstrated?
    - Interventions
    - Effectiveness
    - Evaluation
  - Are these programs reaching the right people?
    - Outreach implementation
  - Are these programs appropriate/generalizable to your target population and target area (e.g., state, county, urban area or tribe)?