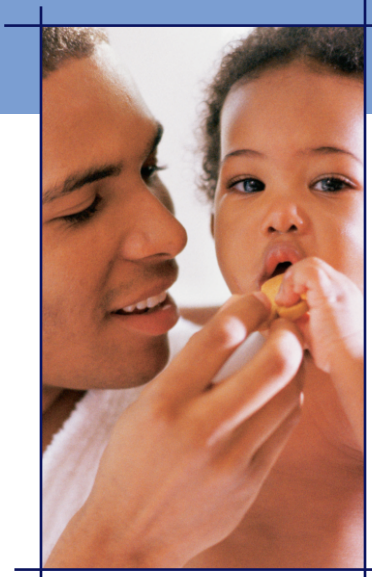
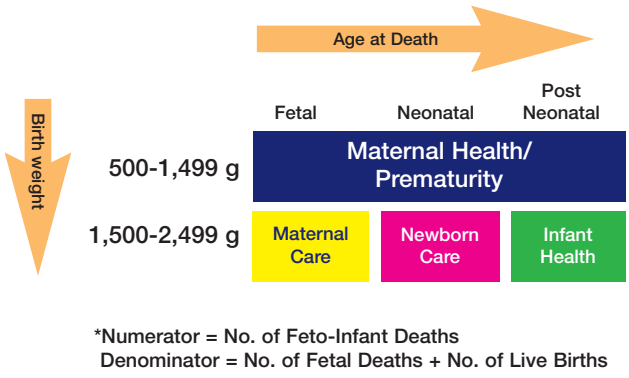


A New Methodology

To further understand disparities in Ohio's IMR, a new method of examining infant mortality, perinatal periods of risk (PPOR), was used to provide a more in-depth analysis. PPOR was developed at the Centers for Disease Control and Prevention and includes five major steps: 1) engaging community partners; 2) mapping feto-infant mortality (fetal and infant deaths, more than 24 weeks and more than 500 grams); 3) focusing on reduction of the overall feto-infant mortality rate; 4) examining potential opportunity for improvement between populations of interest; and; 5) targeting further investigation of and prevention efforts toward identified gaps. (For detailed information on PPOR methodology, please visit http://www.citymatch.org/PPOR/.)

In Ohio, engaging community partners was the first step taken. Working with stakeholders and utilizing available data, Ohio Department of Health staff chose the population of interest and the reference group. As part of this process, they examined maps of feto-infant mortality across two dimensions: age at death and birth weight (See Figure 2). In the past, infant mortality was examined only by the first dimension, age at death. By dividing deaths into the four categories of maternal health/prematurity, maternal care, newborn care and infant health, the PPOR map provides direction as to where to target prevention efforts. The reference group reflects the population group that had the best outcomes. The outcomes of other population groups were then compared to this reference group and excess rates were calculated (see Figure 3). Based on these excess rates, the maternal health/prematurity category was identified for prevention efforts. By using the PPOR method, the primary stakeholders in Ohio developed a common understanding of the data, the problem and a focus for primary prevention strategies.

Figure 2 - Categories of Perinatal and Infant Mortality



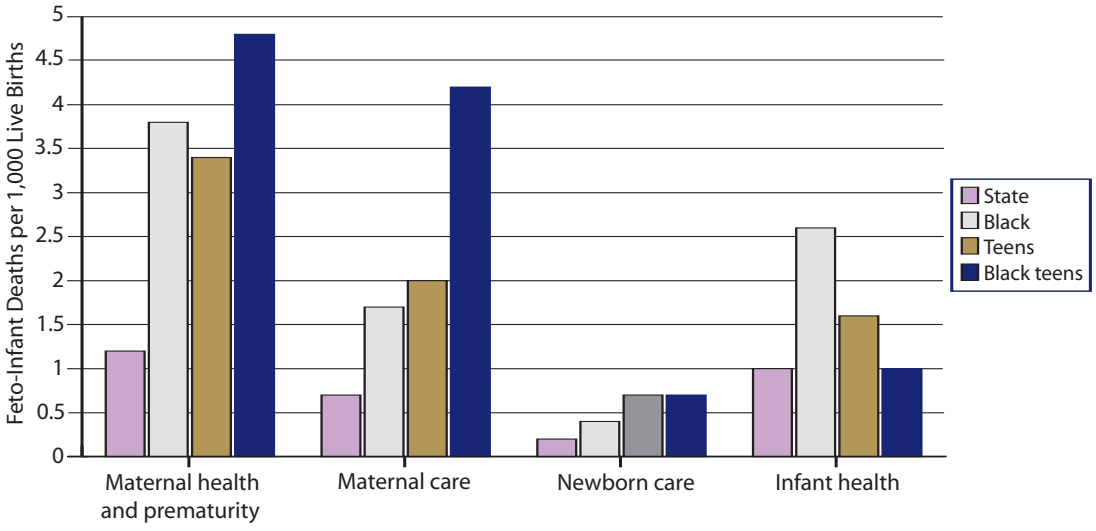
*Numerator = No. of Feto-Infant Deaths
Denominator = No. of Fetal Deaths + No. of Live Births

Persistent Disparities

Four populations were studied in relation to each primary prevention category: the state overall, all blacks, black teens and all teens (15-17 years). Demographics of the reference population are Ohio non-Hispanic, white women older than 19 years of age with more than 12 years of education. Women in this reference population have the lowest IMRs in Ohio. The reference population represents an actual group of women in Ohio, and serves as a benchmark of outcomes that are achievable. The differences in IMR between the four populations studied are displayed in Figure 3. This figure shows excess infant mortality in each PPOR category when compared to the reference population. In Figure 3, the reference population is represented as zero.

Within each category, the black, black teen and teen (15-17 years) populations experience the highest proportion of excess infant deaths compared to both the overall state and the comparison population. Each of the primary prevention categories, their identified risk factors, overall goal and suggested strategies will be discussed in greater detail.

Figure 3 - Excess Feto-Infant Mortality as Compared to Reference Population Ohio, 1999-2000



Understanding Opportunities for Improvement

Maternal Health and Prematurity

This category reveals the largest gap in Ohio between the reference population and other populations, and most infant/fetal deaths are mapped to this category. By definition, the infants in this category who died were very small (VLBW, less than 1,500 grams) and were either stillborn or died within the first year of life. The most common causes identified for the death in this category are those related to the health of the woman before she became pregnant (also known as pre-conception health). Known risk factors for VLBW (less than 1,500 grams) include sexually transmitted infections, poor nutrition, the extremes of pre-pregnancy weight (either too high or too low), substance abuse, anemia, short inter-pregnancy interval (less than 24 months) and exposure to stress (e.g., domestic violence or physical labor). Each of these factors is amenable to public health interventions and is influenced by social, psychological, behavioral, environmental and biological factors before pregnancy occurs.

The prevention of deaths in this category can also be hampered by the low incidence of women who plan their pregnancies. For example, in 2003, 46 percent of Ohio pregnancies that resulted in a live birth were unintended. This is higher than both the national average and the Healthy People 2010 goal. Data collected in 2003 by the Pregnancy Risk Assessment Monitoring System (PRAMS) and Vital Statistics also revealed the following:

- About 44 percent of women who were not trying to get pregnant were using contraception when they got pregnant.
- 6.2 percent of Ohio teen mothers (10-19 years) had repeat pregnancies in less than 18 months.

The goals to reduce deaths in the maternal health and prematurity category are to improve the general and reproductive health of women prior to pregnancy and decrease the rates of unintended pregnancies. Strategies to achieve these goals in Ohio include:

- Understanding women's behaviors and the practices of health providers in order to enhance knowledge of data and quality of perinatal practices.
  - → Conducting focus groups with both women of childbearing age and their providers in order to inform and improve the design and delivery of health education messages, interventions and service protocols.
  - → Advancing the use of the Perinatal Data Use Consortium.
- Supporting Ohio Partners for Birth Defects Prevention in the development of a statewide birth defects surveillance system.
- Supporting the Fetal Alcohol Spectrum Disorders Statewide Initiative.

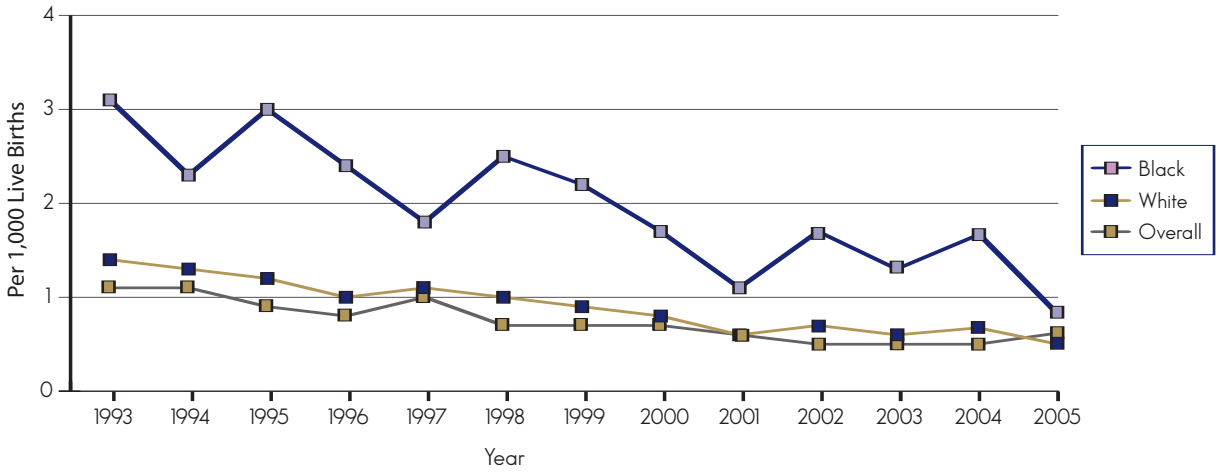
- Pursuing a Family Planning Preconception waiver through Ohio's Medicaid program to extend Medicaid eligibility for family planning services to women who otherwise would have had no coverage due to income.
- Applying for appropriate federal and private funding to provide health and/or social services to women of childbearing age to ensure healthy pregnancies and babies.
- Partnering with the Ohio Section of the American College of Obstetricians and Gynecologists to develop or modify and implement preconception/interconception service protocols.

Infant Health

Deaths in this category occurred among infants with birth weights greater than 1,500 grams and after the first 28 days of life. Most of these deaths were due to sudden infant death syndrome (SIDS). SIDS is the leading cause of death in the post-neonatal period and the Ohio SIDS death rates (Figure 4) demonstrate the black community has historically been disproportionately affected. Risk factors for SIDS include prone (on stomach) sleeping position of the baby and maternal smoking both during pregnancy and after birth. Breastfeeding may have a protective effect against SIDS.

In 2005, 17.4 percent of all babies born in Ohio had mothers who smoked during pregnancy. A 2001 survey of prenatal care providers in Ohio indicated almost all (99 percent) reported asking about a client's smoking status but then only two-thirds reported assessing the client's willingness to quit smoking. Finally, less than half (44 percent) reported giving clients pregnancy-specific, self-help smoking cessation materials.

Figure 4 - Ohio SIDS Death Rates by Race 1993-2005



Goals to further reduce mortality in the infant health category include reducing SIDS and improving access to pediatric care. Specific strategies include:

- Promoting access to a consistent health care provider.
- Applying for appropriate federal and private funding to provide health and/or social services to women of childbearing age to ensure healthy pregnancies and babies.
- Promoting smoking cessation by pregnant women and encouraging this cessation to continue after delivery.
- Promoting a safe-sleep environment for all infants (babies sleeping alone and on their backs on a firm mattress in an empty crib).
- Promoting breastfeeding.
- Promoting and supporting active Child Fatality Review processes in each county to monitor trends and causes of infant deaths.

Maternal Care

Deaths in this category occurred among infants with birth weights greater than 1,500 grams and during the pregnancy (stillbirths). Common causes of mortality in this category are related to late/inadequate prenatal care or the need for specialized management of high-risk pregnancies (medical or obstetrical complications). Increasing numbers of women over the age of 35 years are becoming pregnant, leading to increases in age-related chronic diseases during pregnancy such as diabetes and chronic hypertension, and increases in the incidence of multiple gestation pregnancies (twins, triplets, etc.). Each of these increases the risk of a premature delivery, which in turn contributes to increases in the rate of LBW births.

- While it is recognized that Ohio's rate for early entry into prenatal care is below the national goal (90 percent), adequacy of care is also an issue. According to 2005 Vital Statistics data, about 13 percent of women in Ohio did not enter prenatal care within the first three months of pregnancy. Additionally, an increased number (22 percent) of black women did not enter prenatal care within the first three months of pregnancy.
- According to a survey of women who recently gave birth (PRAMS, 2003), the top three reasons for lack of early prenatal care were nonrecognition of pregnancy, inability to obtain an appointment with a provider and inability to pay for care.