• **Goal #1**
  Increase Quality and Years of Healthy Life, Reduce Disparities and Promote Health Equity

• **Objective**
  Reduce deaths of infants (under 1 year of age)
Infant Mortality
Infant Mortality Rate

- defined as the number of deaths in infants per 1000 live births

- one of the most important indicators of the health of a nation, as it is associated with a variety of factors such as:
  - maternal health
  - quality and access to medical care
  - socioeconomic conditions, and
  - public health practices

- continued to steadily decline over the past several decades:
  26.0 per 1000 live births in 1960 to 6.9 per 1000 live births in 2000 (USA)

- U.S. was ranked 12th in the world in 1960; however, we are currently ranked 29th in the world in infant mortality (2004 data)
  - This ranking is due in large part to disparities which continue to exist among various racial and ethnic groups, particularly African Americans
## Infant Mortality Rates by Country
### 2004 Data

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>IMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Singapore</td>
<td>2.0</td>
</tr>
<tr>
<td>2</td>
<td>Hong Kong</td>
<td>2.5</td>
</tr>
<tr>
<td>3</td>
<td>Japan</td>
<td>2.8</td>
</tr>
<tr>
<td>4</td>
<td>Sweden</td>
<td>3.1</td>
</tr>
<tr>
<td>5</td>
<td>Norway</td>
<td>3.2</td>
</tr>
<tr>
<td>29</td>
<td>Poland</td>
<td>6.8</td>
</tr>
<tr>
<td>29</td>
<td>Slovakia</td>
<td>6.8</td>
</tr>
<tr>
<td>29</td>
<td>United States</td>
<td>6.8</td>
</tr>
</tbody>
</table>

California Demographic Characteristics: 2006

- State Projected Total Population 37.4 million
  - Hispanic 13.2 million (35%)
  - Non-Hispanic 24.2 million (65%)
    - White 16.4 million (44%)
    - Asian 4.3 million (12%)
    - Pacific Islander 0.1 million (0.4%)
    - African American 2.3 million (6%)
    - American Indian 0.2 million (0.6%)
    - Multi-Race 0.8 million (2.1%)

- California Resident Women Births 562,157
  - 13.3% of 2005 US Births

- Births to Resident Hispanic Women 52% of total births

- Paid by Medi-Cal
  - Prenatal Care 46% of total births
  - Delivery 47% of total births

- Unintended Births to California Women 43%

Percent of Live Births Resulting from an Unintended Pregnancy: 2006

Data Source: California Department of Public Health, Maternal and Infant Health Assessment, 2006.
Infant Mortality Rate Among States with the Highest Number of U.S. Births, 2005

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>California</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant Mortality Rate</td>
<td>6.9</td>
<td>5.3</td>
<td>7</td>
</tr>
<tr>
<td>Percent Low Birthweight Births</td>
<td>8.2</td>
<td>6.9</td>
<td>13</td>
</tr>
<tr>
<td>Percent Very Low Birthweight Births</td>
<td>1.5</td>
<td>1.2</td>
<td>9</td>
</tr>
<tr>
<td>Percent Preterm Deliveries</td>
<td>12.7</td>
<td>10.7</td>
<td>7</td>
</tr>
</tbody>
</table>

California Infant Mortality Rates per 1,000 Live Births, 2000-2006

Data Sources: California Birth and Death Statistical Master Files 2000-2006.
California African American and White Infant Mortality Rates & Ratio for Births: 2000-2005

Data Source: California Birth Cohort Data 2000-2005
Infant Mortality Rates and Black-White Disparity Ratio, Ten Most Populous States, 2005

## Leading Causes of Infant Death and Rates in California, 2006

<table>
<thead>
<tr>
<th>Group Cause of Infant Death and ICD-10 Codes</th>
<th>California</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rank</td>
</tr>
<tr>
<td>All Causes (A00-Y89)</td>
<td>2829 (100%)</td>
</tr>
<tr>
<td>Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)</td>
<td>1</td>
</tr>
<tr>
<td>Disorders related to short gestation and low birth weight, not elsewhere classified (P07)</td>
<td>2</td>
</tr>
<tr>
<td>Newborn affected by maternal complications of pregnancy (P01)</td>
<td>3</td>
</tr>
<tr>
<td>Sudden Infant Death Syndrome (R95)</td>
<td>4</td>
</tr>
<tr>
<td>Newborn affected by complications of placenta, cord and membranes (P02)</td>
<td>5</td>
</tr>
<tr>
<td>Neonatal hemorrhage (P50-52, 54)</td>
<td>6</td>
</tr>
<tr>
<td>Bacterial sepsis of newborn (P36)</td>
<td>7</td>
</tr>
<tr>
<td>Accidents (unintentional injuries) (V01-X59)</td>
<td>8</td>
</tr>
<tr>
<td>Respiratory distress of newborn (P22)</td>
<td>9</td>
</tr>
<tr>
<td>Diseases of the circulatory system (I00-I99)</td>
<td>10</td>
</tr>
<tr>
<td>All other causes</td>
<td>966 (34.1%)</td>
</tr>
</tbody>
</table>

Rates are per 100,000 live births.
Risk Factors for Infant Mortality

- Low Birthweight/Prematurity
- Sudden Infant Death Syndrome
- Maternal Behaviors/Lifestyles
  - Substance use (Tobacco, Alcohol, Drugs)
  - Poor nutrition
  - Lack of prenatal care
  - Chronic illnesses/Medical problems
  - Unplanned pregnancy
- Lack of access to medical care
- Socioeconomic status
- Race - many of the racial/ethnic differences in infant mortality remain unexplained
Center for Family Health: MCAH Programs
Maternal, Child and Adolescent Health

Interventions Across the Lifespan

- Prenatal Care
- Preconception and Reproductive Health & Health Care
- Women’s Health & Health Care
- Child/Adolescent Health & Health Care
- Neonatal and Infant Health Programs
- Interconception Health

Conception → Labor And Delivery → Interconception → Pregnancy → Interconception → Conception
• MCAH is partnering with organizations and stakeholders to
  - provide direction for the integration of preconception care into public health practice
  - develop policies to support preconception health as a strategy to address health disparities
  - promote preconception health messages to women of reproductive age

• Preconception Health Council of California
  - composed of representatives from organizations and programs that are stakeholders in the development of preconception care services in California

• Current Major Activities:
  – Folic Acid Campaign
  – Preconception Care Website
  – Social Marketing Campaign for preconception messaging specific to African Americans and Youth
Black Infant Health (BIH) Program

- To address the persistence of poor birth outcomes (high infant mortality, high LBW/prematurity rates) in African Americans, MCAH commissioned UCSF to conduct a detailed assessment of current BIH program services.

- Assessment recommendation: Develop a single core model for all 17 BIH jurisdictions.

- A local/state/academic collaborative workgroup was formed to develop a new BIH model based on the assessment findings, expert input, available evidence.
Perinatal Period

• Comprehensive Perinatal Services Program (CPSP)
  - provides enhanced prenatal care services for Medi-Cal eligible women

• Adolescent Family Life Program (AFLP)
  - addresses health risks and need of resources related to birth outcomes for adolescents

• CA Diabetes and Pregnancy Program (CDAPP)
  - improves pregnancy outcomes for high-risk pregnant women who develop/have diabetes during pregnancy
Regional Perinatal Programs of California (RPPC)

- evolved from the need for a comprehensive, cooperative network of public and private health care providers within regional geographic areas to assure the well-being of pregnant women and their babies

- promote access to risk-appropriate perinatal care to pregnant women and their infants through regional quality improvement activities

- **CA Perinatal Quality Care Collaborative (CPQCC)**
  - a collaborative of public/private partners that develops perinatal outcomes information which allows for data-driven performance improvement and benchmarking throughout CA
  - includes 126 member hospitals, representing over 90% of all neonates cared for in CA neonatal intensive care units (NICUs)
  - have developed several toolkits, e.g.
    - Antenatal steroid therapy
    - Care and management of the late preterm infant
    - Improving initial lung function: surfactant and other means
    - Delivery room management of the VLBW infant
    - Nutritional support of the VLBW infant
    - Severe hyperbilirubinemia prevention
    - Prevention of perinatal HIV
    - Hospital acquired infection prevention
    - Prevention of perinatal group B *Streptococcus* disease
Breastfeeding, Nutrition, Physical Activity

- **Breastfeeding Program**
  - aims to promote breastfeeding as the norm for infant feeding for at least the first year of life

- **Nutrition and Physical Activity Initiative**
  - integrates and coordinates healthy eating and physical activity promotion within MCAH and its local programs

- **RPPC and Breastfeeding Program partnership**
  - **Birth and Beyond California (BBC) Project:**
    - a collaborative approach with hospitals to improve their exclusive breastfeeding rates by establishing supportive hospital policies and a continuous quality improvement plan

  - **Model Hospital Policy Recommendations Online Toolkit**
    Eight hospitals began the project in early 2008, with a goal of adding 12 new hospitals every 6 months through 2011
Sudden Infant Death Syndrome (SIDS) Program

• In 1990, four landmark bills were passed to address the need for public awareness and to provide services to parents who lost infants to SIDS

• Focuses on providing education in SIDS awareness, grief counseling and risk reduction strategies to reduce the number of SIDS deaths

• Activities:
  - Targeted outreach campaign for African American families
  - Trainings for SIDS families and health care providers, coroners, emergency responders, general public
  - SIDS risk reduction campaign known as “Back to Sleep” or “Reduce the Risk” has reduced the rate of SIDS deaths in California by 31% percent from 1999 to 2004
Maternal Mortality Rate, California 1970-2006

Maternal Deaths per 100,000 Live Births

HP 2010 Objective – 4.3 Deaths per 100,000 Live Births

Maternal/Pregnancy-Related Mortality Rate
California Residents & United States
1991-2006

Pregnancy-Related Mortality Rates by Race/Ethnicity
California Residents: 1990-2006

### Fetal-Infant Mortality Rate Map California, 2005

**Total State Population**

<table>
<thead>
<tr>
<th>Birthweight</th>
<th>Maternal Health/Prematurity</th>
<th>Fetal (24+wks)</th>
<th>Neonatal (1-28 Days)</th>
<th>Post neonatal (29-364 Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1499 g</td>
<td>3.2</td>
<td>2.0</td>
<td>1.1</td>
<td>1.3</td>
</tr>
<tr>
<td>1500+ g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Fetal-Infant Mortality Rate = 7.5 (deaths n=4,120)

**African American Population**

<table>
<thead>
<tr>
<th>Birthweight</th>
<th>Maternal Health/Prematurity</th>
<th>Fetal (24+wks)</th>
<th>Neonatal (1-28 Days)</th>
<th>Post neonatal (29-364 Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1499 g</td>
<td>7.5</td>
<td>3.0</td>
<td>1.0</td>
<td>2.9</td>
</tr>
<tr>
<td>1500+ g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Fetal-Infant Mortality Rate = 14.5 (deaths n=443)
California Maternal Quality Care Collaborative (CMQCC)

- a collaborative of private/public partners that aims to advance California maternity care through data-driven quality improvement

- has developed a toolkit for distribution to obstetric hospitals to improve intervention for postpartum hemorrhage

- oversees the *Local Assistance for Maternal Health projects* which address contributing factors to poor outcomes of mothers and infants, such as inappropriate labor induction
Maternal Health

• **Pregnancy-Associated Mortality Review (PAMR)**
  - a committee of perinatal medical experts conducts a comprehensive review of pregnancy-related deaths to identify opportunities for quality improvement and prevention of maternal morbidity and mortality
  - has determined that about 70% of maternal deaths reviewed, and thus accompanying fetal/infant deaths, were possibly preventable

• **Maternal Quality Indicator (MQI) Workgroup**
  - funded by MCAH to compile statewide causes of maternal morbidity and establish risk adjusted rates for major causes of maternal morbidity
Challenges

• How to reverse the MCAH indicators that reflect our public health system is working sub-optimally (e.g. maternal mortality and morbidity)?

• What is causing the health disparities in African American community?