

Focus Area 16: Maternal, Infant, and Child Health

Objective 16-15. Reduce the occurrence of spina bifida and other neural tube defects. Target = 3.0 per 10,000 live births and fetal deaths of 20 or more weeks gestation. [State Data Sources: California Birth Defects Monitoring Program (BDMP); California Vital Statistics System - Natality]

Data provided by the California BDMP indicate that the five-year statewide rate for spina bifida and other neural tube defects (NTDs) was 6.8 per 10,000 live births plus fetal deaths over 20 weeks during the 1999 to 2003 time period. This 5-year average rate was significantly higher than the HP2010 target of 3.0 per 10,000, and the HP2010 objective was not being achieved for Californians.

Examined by race and ethnicity of the mother, Latinas or Hispanics experienced significantly higher rates of births with spina bifida and other NTDs (6.0 per 10,000), than any other single racial or ethnic population. The rate for Asians was at the HP2010 target (3.0 per 10,000), and the rate for African Americans or Blacks was near the target (3.1 per 10,000). The rates for Whites (3.6 per 10,000) and for those classified as "Other" (6.7 per 10,000) were further from the HP2010 target rate of 3.0 per 10,000.

Examined by age of mother, those aged 40 years and older experienced the highest spina bifida and other NTDs rates (6.3 per 10,000 live births plus fetal deaths). The HP2010 target was being achieved only for mothers under age 17 (2.1 per 10,000).

For more information on birth defects in California, visit the California Birth Defects Monitoring Program Web site at:

http://www.cbdmp.org/bd_spina_bifida.htm

http://www.cbdmp.org/bd_neural.htm

For more information on Healthy People 2010 objective 16-15, please visit:

<http://www.healthypeople.gov/Document/HTML/Volume2/16MICH.htm>

and the DATA2010 Web site at: <http://wonder.cdc.gov/data2010/>

The California Birth Defects Monitoring Program – a public health program – is jointly operated by the [Maternal, Child & Adolescent Health](#), division of the California Department of Public Health, and the [March of Dimes Foundation](#).

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Neural Tube Defects

Found in about **1 in 1,480** pregnancies in California, neural tube defects—a group of conditions affecting the brain and spinal cord—are common, serious birth defects with substantial public health impact.

DEVELOPMENT, DETECTION AND TREATMENT

The neural tube develops about 18-30 days after conception, often before a woman realizes she is pregnant. (This is about the time of the first missed menstrual period.) As the embryo develops, 2 growing tissue ridges fold up and fuse, forming a cylinder. This is the neural tube, the precursor of the brain and spinal cord. Unless the cylinder is fully closed, nerve tissue and bones will not develop normally and a neural tube defect results.

The most common neural tube defects are [spina bifida](#), an opening in the spinal cord and backbone, and [anencephaly](#), absence of most of the brain and skull. About 20% of infants with neural tube defects have other major birth defects as well.

All babies with anencephaly die. For those with spina bifida, the average lifetime cost for medical treatment, educational services and lost productivity is [\\$294,000](#).

Expanded AFP screening, a prenatal blood test, can identify 80% of pregnancies with spina bifida and 97% with anencephaly. Prenatal diagnosis is also possible with ultrasound and/or amniocentesis.

LATINOS AT GREATER RISK

- Neural tube defects are more common in Latino infants, particularly if mothers are born outside the US.
- The rate in Mexico is more than 5 times higher than in US Whites. Mexican-born mothers giving birth in the US have half the risk of their counterparts in Mexico, but more than twice the risk of second-generation Mexican-Americans.
- This difference is not necessarily explained by known risk/protective factors such as socioeconomic status or vitamin use nor by differential use of prenatal diagnosis.

[➔ More on neural tube defects](#)

| NEURAL TUBE DEFECTS ⁽²⁾ | |
|---|-------------------------|
| | Rate per 1000 Births |
| All Births | .68 |
| <i>About 370 cases/year in California</i> | |
| <i>About 2,790 cases/year in U.S.</i> | |
| By Mother's Age | |
| <17 yo | .21 |
| 17-19 yo | .61 |
| 20-24 yo | .53 |
| 25-29 yo | .47 |
| 30-34 yo | .50 |
| 35-39 yo | .34 |
| >39 yo | .63 |
| By Mother's Race/Ethnicity | |
| White | .36 |
| Latina/Hispanic | .60 |
| African American/Black | .31 |
| Asian | .30 |
| Other | .67 |
| Source: California Birth Defects Monitoring Program registry data, 1999-2003, livebirths and stillbirths over 20 weeks | |
| View note for neural tube defects | |

RELATED STUDY FINDINGS

- [Anencephaly](#)
- [Neural tube defects: Study findings](#) (exposures and risk factors)
- [Spina bifida](#)