Maternal, Infant, and Child Health

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PROGRESS REVIEW

In the 13th in a series of assessments of *Healthy People 2010,* Acting Assistant Secretary for Health Cristina Beato chaired a focus area Progress Review on Maternal, Infant, and Child Health. Dr. Beato stressed the importance of this focus area not only as a reflection of the current health status of a large segment of the U.S. population but also as a predictor of the health of the next generation. Although there have been significant advances nationally in recent years, she acknowledged that disparities still exist in healthcare outcomes as they relate to women of color and the poor. In conducting the review, Dr. Beato was assisted by staff of the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA), which are the co-lead agencies for this *Healthy People 2010* focus area. Also participating were representatives of other offices and agencies within the U.S. Department of Health and Human Services (HHS).

The complete text for the Maternal, Infant, and Child Health focus area of *Healthy People 2010* is available at **www.healthypeople.gov/document/html/volume2/16mich.htm**. The meeting agenda, data presentation (tables and charts), and other materials for the Progress Review can be found at **www.cdc.gov/nchs/about/otheract/hpdata2010/fa16/mich.htm**.

Data Trends

In presenting an overview of data that define the status of objectives in this focus area, Edward Sondik, Director of CDC's National Center for Health Statistics, concentrated on the three main themes of the review—maternal morbidity and mortality, the promotion of healthy pregnancies and healthy infants, and children with special healthcare needs. With respect to the first theme, there was little change between 1998 and 2001 in the national rate of maternal illness and complications requiring hospitalization during the course of labor and delivery. When the data are broken down by race, however, a different picture emerges. The rate for white women decreased from 30.3 to 30.0 per 100 deliveries between 1998 and 2001, while the rate for black women increased from 37.7 to 39.0 per 100 deliveries during that period. The target for 2010 is 24.0 per 100 deliveries (Obj. 16-5a). Overall, obstetric complications are associated with 30.7 percent of live births nationally, and preexisting medical conditions are associated with 4.1 percent. The principal causes of obstetric complications are, in descending order of occurrence, obstetric trauma, infection, preeclampsia and eclampsia, and hemorrhage. Between 1998 and 2001, the rate of cesarean births among low-risk women increased from 18 to 21 percent in women giving birth for the first time and from 72 to 82 percent in women who had undergone a previous cesarean procedure. The 2010 targets are 15 percent and 63 percent, respectively (Objs. 16-9a and 16-9b). Over the past half century, the rate of maternal deaths from childbirth was greatly reduced—from 83.3 per 100,000 live births among the total population in 1950 to 9.9 per 100,000 in 2001. There are notable differences by race and ethnicity. White women died from complications of childbirth at a rate of 7.2 per 100,000 live births in 2001, compared with a rate of 9.5 for Hispanics and 24.7 for blacks. The target is 3.3 per 100,000 live births (Obj. 16-4).

The rate of infant deaths (i.e., within 1 year of birth) among the total population decreased from 7.2 per 1,000 live births in 1998 to 6.8 per 1,000 in 2001. Of the racial and ethnic groups for which data are available, the death rate for non-Hispanic black infants in 2001 was highest at 13.5 per 1,000, compared with 4.1 for Asians. The target is 4.5 per 1,000 (Obj. 16-1c). In general, the highest death rates (9.0 or more per 1,000) in the survey period 1998 to 2000 occurred in a band of southeastern states extending from Louisiana to North Carolina and in the District of Columbia. The leading causes of death among infants are birth defects, preterm delivery and low birth weight (LBW), sudden infant death syndrome (SIDS), and maternal complications during pregnancy. Racial and ethnic disparities are evident among LBW (<5 1/2 lb.) infants and very low birth weight (VLBW, <3 1/4 lb.) infants. In 2001, 13 percent of black infants had LBW and 3 percent had VLBW, compared with LBW and VLBW percentages of 6.7 percent and 1.2 percent, respectively, for white infants. The target is 5.0 percent for LBW and 0.9 percent for VLBW (Objs. 16-10a and 16-10b). When aggregated, LBW and VLBW accounted for 293.5 deaths of black infants per 100,000 live births in 2001, compared with 77.5 deaths per 100,000 among white infants.

The proportion of pregnant women who receive prenatal care beginning in the first trimester has shown little change in recent years. Longstanding racial and ethnic disparities among the recipients also remain much the same. In 2001, 83 percent of all pregnant women received such care, but the black proportion was only 74 percent and the American Indian/Alaska Native proportion only 69 percent. The target is 90 percent (Obj. 16-6a). The proportion of pregnant women aged 15 to 44 years who had abstained from alcohol in the month preceding the survey was 90.9 percent in 2002, with little variance by race or ethnicity. The target is 94 percent (Obj. 16-17a). The proportion of pregnant women who had abstained from cigarette smoking during the preceding month increased from 87 percent in 1998 to 88 percent in 2001. The 2001 proportions were highest among Asians (98 percent) and Hispanics (97 percent). The target is 99 percent (Obj. 16-17c). Breastfeeding of infants (Obj. 16-19) showed increases from 1998 to 2002: in the early postpartum period, it rose from 64 to 70 percent of mothers over this period (target, 75 percent); at 6 months, from 29 to 33 percent (target, 50 percent); and at 1 year, from 16 to 20 percent (target, 25 percent). In 2002, the highest percentages at each of the three stages were recorded for Asians and the lowest for blacks, with whites and Hispanics in between.

The incidence (new cases) of spina bifida and other neural tube defects decreased from 6 per 10,000 live births in 1996 to 4.8 per 10,000 in 2000. The target is 3 per 10,000 (Obj. 16-15). The decrease was due in large part to increased consumption of folic acid from fortified foods or dietary supplements, as evidenced by the rise in the median red blood cell folate level in nonpregnant women (aged 15 to 44 years) from 160 nanograms per milliliter (ng/ml) between 1991 and 1994 to 255 ng/ml between 1999 and 2000. This level surpasses the target of 220 ng/ml (Obj. 16-16b). Of the racial and ethnic groups for which data were available in the survey period 1999 to 2000, non-Hispanic blacks (at 206 ng/ml) were the only group whose level fell below the target. The incidence of SIDS in infants younger than 1 year of age decreased from 79 per 100,000 live births in 1996 to 56 per 100,000 in 2001. The target is 25 (Obj. 16-1h). The major factor in this improvement was the increase in the percentage of infants (younger than 1 year of age) who were put to sleep on their backs—from 35 percent in 1996 to 66 percent in 2000. The target is 70 percent (Obj. 16-13). In 2001, 12.8 percent of children younger than 17 years of age had special healthcare needs, including 16.6 percent of American Indians/Alaska Natives, the highest proportion among five racial or ethnic groups. Asians were in the lowest category at 4.4 percent. Male children with special healthcare needs predominated over females at a ratio of roughly 3 to 2.

Key Challenges and Current Strategies

In the presentations that followed the discussion of data, the principal discussants were Peter van Dyck of HRSA and Eve Lackritz and Jose Cordero of CDC. Participants in the review identified a number of obstacles to achieving the objectives and outlined activities under way to meet these challenges, including the following:

- Preterm delivery is the leading cause of hospitalization among pregnant women and the second leading cause of infant death (the first leading cause for black infants).
- On average, infant mortality rates among Hispanics are affected negatively by length of residence in the United States: the first generation exhibits rates close to those of whites; the second has higher rates, closer to those of blacks.
- A CDC-funded study identified women at risk for an alcohol-exposed pregnancy in several community-based settings, including a large urban jail and primary care clinics serving low-income women. Researchers found that providing motivational counseling to such women reduced their risk by two-thirds.
- Black women experience complications due to pregnancy at about the same rate as the national average, but they are more likely to die from such complications.
- Research has shown maternal obesity to be a risk factor for birth defects.
- In the early 1960s, most children with Down syndrome lived less than 3 years. By the 1990s, the median age at death had risen to 50 years. This success also poses the challenge of ensuring continued care as this population ages.
- HRSA's Maternal and Child Health Bureau (MCHB), funded at $985 million in fiscal year 2004, has primary Federal responsibility for improving the health of mothers and children. More than 27 million infants, children, and pregnant women are served by an MCHB program each year.
- Through community outreach, home visitation, and a network of support services provided by its current 110 grantees, the MCHB Healthy Start program targets the poorest neighborhoods, where the likelihood of maternal and infant mortality and LBW is highest. More than 90 percent of Healthy Start clients are black.
- The recently established HHS Interagency Council on Low Birth Weight promotes multidisciplinary research on LBW and preterm births, scientific exchange, policy initiatives, and collaboration among HHS agencies. The Council works in conjunction with the Advisory Committee on Infant Mortality, which provides recommendations to the HHS Secretary on how to address infant mortality issues.
- Food fortification and the national campaign to educate women about the preventive benefits of taking folic acid have resulted in decreases in the prevalence of spina bifida (31-percent decrease), a birth defect of the spine, and anencephaly (16-percent decrease), a severe birth defect of the brain. These decreases in prevalence rates are based on measurements before (1995–1996) and after (1998–1999) fortification with folic acid became standard practice.
- CDC's Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing, state-specific surveillance system designed to identify and monitor selected maternal behaviors and experiences before, during, and after pregnancy. PRAMS surveillance now covers approximately two-thirds of all U.S. births.
- An increase of 250 grams (≈$^1/_2$ lb.) in birth weight saves an average of $12,000 to $16,000 in first-year medical expenses. Prenatal interventions

that result in a normal birth (>5½ lb.) save almost $60,000 in medical expenses in the infant's first year.

- In efforts to reduce infant mortality rates, a notable success achieved in recent years was the virtual disappearance of respiratory distress syndrome (RDS), brought about through use of steroids and other forms of therapy.
- In addition to its own model program in Atlanta to track rates of autism and other developmental disabilities, CDC supports programs in several states to monitor these conditions in their regions. These activities will help determine trends over time and whether rates vary by geographic region, race, or other characteristics. CDC also conducts and funds innovative research into potential causes of autism.

Approaches for Consideration

During the review, the following suggestions were made for steps to bring about further progress in improving maternal, infant, and child health:

- Direct additional research toward determining the cause of black women's increased risk of dying from maternal complications.
- Aim to achieve and disseminate a nationwide, standardized reporting format and procedure for maternal morbidity during the perinatal period.
- Make better provision for professional services to treat and support children with special healthcare needs as they age, including helping them transition from pediatric care into appropriate adult care.
- Focus more sharply on the etiology and amelioration of postpartum depression, which has shown a rise in incidence in recent years.
- Widen the scope of evaluation of Healthy Start interventions to include longitudinal studies to ascertain the quality and persistence of any benefits they confer.
- Strengthen local resources for collecting and analyzing data on maternal, infant, and child health so that they accord more closely with national standards.
- Increase research on genetic, environmental, and behavioral factors that have an influence on pregnancy outcomes for mother and child.

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