Pregnancy and Infant Health: Progress Toward the 1990 Objectives

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Synopsis

Assuring all infants a healthy start in life and enhancing the health of their mothers are goals of the Public Health Service's health promotion and disease prevention initiative. The 13 priority objectives selected for the pregnancy and infant health area of the initiative focus on lowering infant, neonatal, and perinatal mortality rates, reducing the number of low-birth-weight infants, improving the health care of pregnant women and infants through regionalized perinatal care systems and comprehensive primary care services, encouraging early prenatal care and healthy lifestyles in pregnancy, and targeting the factors and populations associated with health risk.

Although considerable progress has been made in this century in lowering the infant mortality rate, infants continue to die at a higher rate than members of any other age category under 60 years, and black infants die at almost twice the rate of white infants. To lower these high mortality rates, the private, public, and voluntary sectors have cooperated in new approaches to perinatal and infant health that have already produced some encouraging results. Recent data, for example, indicate that the priority objective of universal screening of newborns for treatable metabolic disorders has already been achieved and that the target for neonatal and infant mortality rates could be reached earlier than 1990. Substantial challenges, however, lie ahead if the current racial and ethnic differentials evident in the rates for prenatal care registration, low-birth-weight babies, and maternal and infant mortality are to be eliminated.

THE UNITED STATES HAS MADE GREAT ADVANCES since the turn of the century in improving maternal and child health. The U.S. infant mortality rate has declined from more than 100 infant deaths per 1,000 live births in the early 1900s to 12.6 per 1,000 in 1980 (*1,2*). During the same period, the rate of maternal deaths due to complications of pregnancy, childbirth, and the puerperium fell from more than 700 per 100,000 live births to 9.2 per 100,000, a remarkable decrease (*1,2*).

There is increasing recognition that positive health behavior and the avoidance of hazards at the beginning of life can lead to lifelong benefits for mothers, children, families, and the nation. Through application of the knowledge and technology already available, a large proportion of the most burdensome maternal and child health problems can be prevented or ameliorated. We know, however, that significant gaps continue to exist between what is known and what is practiced in all sectors of the health care system. Preventive health care services and health promotion activities still are not as accessible nor as broadly used as they should be.

Because of these circumstances, pregnancy and infant health is 1 of the 15 priority areas that have been identified for the Public Health Service's health promotion and disease prevention initiative (*3*). There are at least 52 million women of reproductive age in the United States today. In 1980, women in this age group gave birth to 3.6 million live and more than 32,000 stillborn infants (*4* and unpublished data from the National Center for Health Statistics). Prenatal care was begun in the first trimester of pregnancy by 79.3 percent of the white mothers and 62.7 percent of the black mothers, but more than 46,000 mothers received no prenatal care (*4*). Three hundred thirty-four women died from complications of pregnancy, childbirth, and the puerperium (*2*). Of the 3.6 million infants born alive in 1980, more than 45,000 died before their first birthday; two-thirds of these deaths occurred during the neonatal period (from birth up to but not including the 28th day of life) (*2*).

Major causes of death within the neonatal period include congenital anomalies, respiratory distress syndrome, short gestation and low birth weight, and maternal com-

plications of pregnancy. Deaths in the postneonatal period (from 28 days of life up to but not including 1 year of age) are due to congenital anomalies, sudden infant death syndrome, accidents, and infectious diseases (*2,5*). Infants die at a far greater rate than members of any other age category up to 60 years, and the rate for black infants is almost twice that for white infants (*2*).

Birth weight is a significant predictor of infant mortality and morbidity such as developmental delays and congenital anomalies. Lower birth weights are associated with higher risks. In 1980, there were more than 242,000 low-birth-weight babies (less than 2,500 gm), of whom more than 40,000 were of very low birth weight (less than 1,500 gm). Proportions of low-birth-weight infants are higher among blacks, young teenagers, and women in their forties (*4*). Smoking cigarettes and drinking alcohol during pregnancy contribute significantly to the incidence of low-birth-weight infants.

Progress Toward 1990 Objectives

Based on identified problems and needs, 13 objectives were selected as the national priority in the pregnancy and infant health initiative (see box). Note that accomplishment of these objectives demands efforts extending beyond federally sponsored programs. The private sector of medicine and of the other health professions, business and industry, educational institutions, and the public are all involved. The basic approach is to assist States and communities by:

- Helping identify at-risk groups and underserved areas
- Targeting resources and specialized services
- Increasing professional consultation and technical assistance
- Establishing an information base through research and epidemiologic studies

1990 Priority Objectives for Pregnancy and Infant Health

Improved health status

1. By 1990, the national infant mortality rate (deaths for all babies up to 1 year of age) should be reduced to no more than 9 deaths per 1,000 live births.
2. By 1990, the neonatal death rate (deaths for all infants up to 28 days old) should be reduced to no more than 6.5 deaths per 1,000 live births.
3. By 1990, the perinatal death rate should be reduced to no more than 5.5 per 1,000.
4. By 1990, no county and no racial or ethnic group of the population (e.g., black, Hispanic, American Indian) should have an infant mortality rate in excess of 12 deaths per 1,000 live births.
5. By 1990, the maternal mortality rate should not exceed 5 per 100,000 live births for any county or for any ethnic group (e.g., black, Hispanic, American Indian).

Reduced risk factors

6. By 1990, low birth weight babies (less than 2,500 grams) should constitute not more than 5 percent of all live births.
7. By 1990, no county and no racial or ethnic group of the population (e.g., black, Hispanic, American Indian) should have a rate of low birth weight infants (prematurely born and small-for-age infants weighing less than 2,500 grams) that exceeds 9 percent of all live births.
8. By 1990, the majority of infants should leave hospitals in car safety carriers.

Increased public-professional awareness

9. By 1990, 85 percent of women of childbearing age should be able to choose foods wisely (state special nutritional needs of pregnancy) and understand the hazards of smoking, alcohol, pharmaceutical products and other drugs during pregnancy and lactation.

Improved services-protection

10. By 1990, virtually all women and infants should be served at levels appropriate to their need by a regionalized system of primary, secondary and tertiary care for prenatal, maternal and perinatal health services.
11. By 1990, the proportion of women in any county or racial or ethnic group (e.g., black, Hispanic, American Indian) who obtain no prenatal care during the first trimester of pregnancy should not exceed 10 percent.
12. By 1990, virtually all newborns should be screened for metabolic disorders for which effective and efficient tests and treatments are available (e.g., PKU and congenital hypothyroidism).
13. By 1990, virtually all infants should be able to participate in primary health care that includes well child care; growth development assessment; immunization; screening, diagnosis, and treatment for conditions requiring special services; appropriate counseling regarding nutrition, automobile safety, and prevention of other accidents such as poisonings.

SOURCE: Reference 3.

- Improving public and professional education
- Coordinating the programs and services provided by the private, public, and voluntary sectors.

Table 1. U.S. infant, neonatal, and postneonatal mortality rates, 1960, 1970, and 1980 and targeted rates for 1990, with percentage distribution of neonatal and postneonatal deaths

Year and age group	Mortality rate[1]	Percentage of infant deaths
1960:		
Infant	26.0	100.0
Neonatal	18.7	71.9
Postneonatal	7.3	28.1
1970:		
Infant	20.0	100.0
Neonatal	15.1	75.5
Postneonatal	4.9	24.5
1980:		
Infant	12.6	100.0
Neonatal	8.5	67.5
Postneonatal	4.1	32.5
Targeted 1990:		
Infant	9.0	100.0
Neonatal	6.5	72.2
Postneonatal	2.5	27.7

[1] Deaths per 1,000 live births.
SOURCE: National Center for Health Statistics

Table 2. Percentage reduction in U.S. infant, neonatal, and postneonatal mortality rates, 1960–70 and 1970–80, with targeted reduction for 1980–90

Age group	Actual percentage reduction		Targeted percentage reduction
	1960–70	1970–80	1980–90
Infant	23.1	37.0	28.6
Neonatal	19.2	43.7	23.5
Postneonatal	32.9	16.3	39.0

In many instances, the activities underway contribute to the achievement of more than one objective because the objectives are interrelated. Examples of these activities will be presented in the discussion of the progress being made toward achievement of the 1990 targets for each of the objectives for pregnancy and infant health.

Improving Perinatal Health

Improvement of perinatal health is the goal of the objectives pertaining to the reproductive continuum. Objectives 1, 2, and 3 are aimed at reducing the incidence rates of infant, neonatal, and perinatal deaths. Data from the National Center for Health Statistics (NCHS) reveal a declining infant mortality rate and show that recent progress has been greater for the neonatal period than for the postneonatal period (tables 1 and 2). Data on the trends in infant and neonatal mortality indicate that these goals may be reached before 1990. The perinatal mortality rate includes events before and after birth and is defined as the number of fetal deaths at 28 or more weeks of gestation (late fetal deaths) plus the number of neonatal deaths of infants under 7 days of age per 1,000 live births plus late fetal deaths. Tables 3 and 4 show that the rate of fetal deaths is declining but not as sharply as the rate of deaths of infants under 7 days of age. Because deaths at under 7 days of age contribute to both the perinatal and neonatal mortality rates, achieving the target of 5.5 for perinatal mortality in 1990 may be unrealistic given the goal of 6.5 for the neonatal mortality rate. If, for example, 75 percent of the projected rate for neonatal deaths is the result of deaths of infants under 7 days of age (a conservative estimate from the 82.5 percent in 1980), the rate of deaths of infants under 7 days of age would be approximately 4.9. Improvement in perinatal survival is anticipated, but this estimated rate of deaths at under 7 days of age would permit a fetal death rate of approximately 0.6—an unlikely situation given the trends in fetal deaths.

Table 3. U.S. perinatal and neonatal mortality rates, 1960, 1970, and 1980, with percentage distribution of perinatal and neonatal deaths

Age group or period of gestation	Mortality rate			Percentage distribution		
	1960	1970	1980	1960	1970	1980
Perinatal[1]	28.6	23.0	12.8	100.0	100.0	100.0
Late fetal[1]	12.1	9.5	5.8	42.3	41.3	45.3
0–6 days[2]	16.7	13.6	7.0	([3])	([3])	([3])
Neonatal[2]	18.7	15.1	8.5	100.0	100.0	100.0
0–6 days[2]	16.7	13.6	7.0	89.3	90.1	82.5
7–27 days	2.0	1.5	1.5	10.7	9.9	17.5

[1] Deaths per 1,000 live births plus late fetal deaths.
[2] Deaths per 1,000 live births.
SOURCE: National Center for Health Statistics

[3] Not calculated; denominator for rate of deaths 0–6 days differs from the denominator for perinatal mortality rate.

Analyses of the progress being made in reducing infant and neonatal mortality reveal that changes in maternal characteristics (shifts in the age-parity distribution) explain less than 30 percent of the general decline in infant and neonatal mortality, and they also show that birth-weight-specific mortality rates have improved (*6–9*). This progress is generally attributed to advances in technology, such as new methods instituted in neonatal intensive care nurseries, use of specialized personnel, and regionalization of perinatal services.

The training of specialized health personnel receives high priority in the Health Resources and Services Administration (HRSA). Pediatricians, nurse-midwives, and other providers of maternal and newborn health services are trained in programs supported by the agency's Bureau of Health Professions. In the agency's Bureau of Health Care Delivery and Assistance, selected maternal and child health training is funded through Title V Maternal and Child Health (MCH) projects of regional and national significance. For instance, multidisciplinary teams learn to care for newborns with respiratory distress syndrome and other pulmonary conditions in eight pediatric pulmonary centers at different locations across the country. These centers also serve as referral facilities for special services.

Other examples of specialized perinatal services are neonatal intensive care units and transport mechanisms, both supported in part by States' Title V MCH Block Grant funds. According to the Association of State and Territorial Health Officials (ASTHO), which collects data for use by the States through its reporting system, nearly 40 percent of the infants admitted to intensive care nurseries in 1980 were transported from other institutions (*10*). These data are encouraging because they indicate a willingness on the part of health care providers in less sophisticated facilities to refer infants to units organized to provide highly specialized care.

Research on perinatal issues continues to be a priority at the National Institutes of Health. At the National Institute of Child Health and Human Development, plans are in progress to examine the nature, pattern, and consequences of the treatment provided in neonatal intensive care nurseries. The increasing complexity of care in these intensive care units following the research and technological advances of recent years prompted this examination. Research fellowships at seven Institutes expand research competencies in perinatal health.

Table 4. Percentage reduction in U.S. late fetal, perinatal, and hebdomadal mortality rates, 1960–70 and 1970–80, with targeted reduction in perinatal mortality rate for 1980–90

Age group	Actual percentage reduction		Targeted percentage reduction 1980–90
	1960–70	1970–80	
Late fetal	21.5	38.9	[1]
Perinatal	19.6	44.3	57.0
Hebdomadal[2]	18.6	48.5	[1]

[1] Not applicable.
[2] Deaths at under 7 days of age.

'Assessing the nation's progress toward the establishment of regionalized perinatal care is difficult because clearly defined measures of the concept and an identified mechanism for collecting data are lacking . . . . The data on obstetrical facilities offer evidence that some of the smaller obstetrical units are being closed, and these closings probably reflect an attempt to improve the resources and skills.'

The trends in perinatal mortality indicate that more needs to be learned about the fetal portion of perinatal deaths. The 1980 National Fetal Mortality Survey, a major research effort of the NCHS, is expected to provide some of the answers. This vital statistics followback survey was based on a 2-in-5 sample of all fetal deaths at 28 weeks or more of gestation that occurred from January 1980 through December 1980 and on the mothers, physicians, hospitals, and other medical sources associated with those fetal deaths. Data on 6,386 fetal deaths were included. The survey is expected to provide national estimates of the numbers of fetal deaths in relation to numerous characteristics that are not available in the vital registration data.

Early Prenatal Care and Healthy Lifestyles

By 1990, the proportion of pregnant women in any county or racial or ethnic group who are without prenatal care in the first trimester of pregnancy should not exceed 10 percent (Objective 11). In 1980, the proportion of late registrants for prenatal care was more than twice the projected target (table 5). Higher percentages of the nonwhite groups than white groups registered late for such care, although there was a trend for black mothers to make greater gains in seeking care early than white mothers, thus narrowing the racial differential. According to summary reports to the Division of Maternal and Child Health, the State Maternal and Child Health programs in Ohio and Michigan recently conducted surveys to determine the current factors associated with late reg-

istration for prenatal care. The responses in these surveys indicated that some women were unaware of the importance of prenatal care, while others lacked the financial means to obtain it.

Maternal and child health services offered by programs of the Indian Health Service and the Bureau of Health Care Delivery and Assistance (BHCDA) are designed to improve the availability and accessibility of care. The Indian Health Service works with tribal health departments, private practitioners, and national professional organizations to provide comprehensive MCH services. Emphasis is on the early identification and early entrance into care of pregnant women—especially pregnant teenagers—and on the provision of high-risk screening and health education.

Among the BHCDA programs providing care to underserved populations are Community Health Centers, Migrant Health projects, and the National Health Service Corps. Recent data indicate that during 1982 the 525 Community Health Centers and the 127 Migrant Health projects served approximately 1,360,000 women of childbearing age and more than 160,000 infants. The National Health Service Corps currently has more than 300 obstetricians and family practice physicians providing care to pregnant women and infants in designated Health Manpower Shortage Areas throughout the States and Trust Territories. An additional 300 obstetricians will be placed in underserved areas between 1984 and 1986.

Increasing public awareness and promoting healthy behavior in pregnant women and women planning to become pregnant represent a major thrust in the prevention initiative. For example, cooperative efforts between the BHCDA and the National Institute on Alcohol Abuse and Alcoholism and between the BHCDA and the American Lung Association have resulted in the dissemination of professional resource packets on the risks of alcohol use and smoking during pregnancy to HRSA-administered health care delivery programs. The newly revised HRSA publication "Prenatal Care" also is being circulated widely to States under the Title V program.

The Healthy Mothers-Healthy Babies Campaign is a public information program conducted by a coalition of more than 60 national professional, voluntary, and governmental organizations and agencies. To motivate women to protect their health, the coalition has prepared and is distributing a series of posters to more than 10,000 clinics and other service sites. Targeted for low-income women, these posters present information on nutrition, smoking, breast feeding, alcohol and drug use, and the need for prenatal care. A fine range of materials for radio, television, and community use have been produced by the coalition, and efforts are now underway to promote their use through the development of community-State Healthy Mothers-Healthy Babies Coalition Chapters.

Objective 9 specifically addresses the need to expand the public's knowledge of nutritional needs in pregnancy and of the hazards of smoking and using alcohol while pregnant. Baseline data are unavailable on the public's knowledge of these hazards, but in a special survey that is to be carried out as part of the 1985 Health Interview Survey, the National Center for Health Statistics will seek information on the progress toward this objective. Preliminary results are available from the NCHS 1980 National Natality Survey, a companion followback survey to the 1980 National Fetal Mortality Survey described earlier. Based on a probability sample of live births in 1980, the data from 4,405 married mothers indicated that before pregnancy their smoking and drinking behavior had resembled that of the general population of women. When pregnancy was confirmed, both smoking and drinking were reduced, but the reduction in maternal drinking was more pronounced than the reduction in maternal smoking (*11*). These results suggest that women are becoming aware of the health risks in pregnancy and are altering their habits to reduce them.

Table 5. Percentage of U.S. women in various ethnic groups receiving no prenatal care during first trimester of pregnancy, 1970, 1978, and 1980, with percentage reductions in these percentages realized 1970–80 and targeted for 1980–90

Race or ethnic group	Percentage with no care in first trimester				Percentage reduction in percentage with no care in first trimester	
	1970	1978	1980	Targeted 1990	1970–80	Targeted 1980–90
All groups	32.0	25.1	23.7	10.0	25.9	57.8
White	27.6	21.8	20.7	10.0	25.0	51.7
Black	55.6	39.8	37.3	10.0	30.9	73.2
American Indian	[1]	43.7	41.3	10.0	[1]	75.8
Hispanic	[1]	43.0	39.8	10.0	[1]	74.9

[1] Data not available.
SOURCE: National Center for Health Statistics

Regionalized Perinatal Systems

Besides obtaining early prenatal care, all mothers and their newborns should receive the care appropriate for their health risks through a regionalized perinatal care system (Objective 10). A strong private sector-public partnership is working to set up regionalized perinatal care systems. Representatives of the American College of Obstetricians and Gynecologists, American Academy of Pediatrics, American Academy of Family Physicians, and the American Medical Association, assisted by representatives of the March of Dimes, and consultants from Federal, State, and local maternal and child health programs, published recommendations for organizing such a system in 1976 (*12*). After careful reassessment of those recommendations based upon the experience of the past 5 years, a followup document, "Guidelines for Perinatal Care," was published in 1983 by the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists in conjunction with the March of Dimes (*13*). This document upholds the principle of regionalization of perinatal care, identifies the resources needed for a three-level system, and provides updated recommendations for the management of normal and high-risk patients.

Meanwhile under the Title V MCH program, funds for special projects are targeted to States with excessive rates of infant mortality and adolescent pregnancy to assist these States in establishing regionalized perinatal care systems. Known as Improved Pregnancy Outcome (IPO) projects, they are currently funded in 24 States; their activities are being integrated with the MCH Services Block Grant programs. In progress reports submitted by these IPO projects, a variety of private-public sector activities are described, such as the formation of perinatal advisory groups for quality assurance, the appointment of consultation teams to transmit knowledge to medical care providers beyond tertiary units, and the implementation of data systems to assess and evaluate needs.

Information provided in the final progress report from the South Dakota IPO project illustrates the project's impact in that State. Among the results listed in the report are (*a*) a highly sophisticated neonatal intensive care unit, (*b*) five hospitals at the intermediate level, (*c*) the presence at the most sophisticated center of a specialized professional staff that provides direct services as well as consultation and education throughout the State, and (*d*) the presence of health personnel with advanced training in the followup care and the developmental assessment of infants and young children in each of the four districts of the State. None of these services were available in South Dakota before the IPO program. Moreover, most of the perinatal services initiated under the IPO Project are now sustained by the private sector, while the State underwrites certain limited perinatal services using MCH funds. The South Dakota data show that by the end of the IPO Project, the neonatal mortality rate for both white and Native American infants had decreased, the number of women who began prenatal care in the first trimester of pregnancy was greater, and the percentage of neonates in the intensive care unit who had been born there, rather than being transported there after birth, had increased.

Assessing the nation's progress toward the establishment of regionalized perinatal care is difficult because clearly defined measures of the concept and an identified mechanism for collecting data are lacking. Indications of progress must be derived from a mix of information. The data on obstetrical facilities offer evidence that some of the smaller obstetrical units are being closed, and these closings probably reflect an attempt to improve the use of resources and skills (*14*). Statistics from Alabama, for example, reveal that the percentage of newborns weighing less than 1,500 gm who were delivered at the perinatal center, rather than being taken there later, increased from 13 percent in 1970 to 60 percent in 1980 (personal communication from Dr. Robert Goldenberg, Department of Obstetrics and Gynecology, University of Alabama at Birmingham). This increase indicated (Goldenberg stated) that pregnant women in Alabama who are at high risk are being transported to a regional center, where planned high-risk births are taking place. Reports from State maternal and child health programs provide general descriptions of perinatal services and the process involved in the regionalization of these services. In current research and in other studies supported with Title V funds, various aspects and measures of the movement toward regionalization of perinatal care are being explored. An attempt is being made, in one such study, to identify the changes in State MCH programs that have occurred coincidentally with implementation of the IPO program, and in another, to investigate the factors that contribute to achievement of the goals of regionalized perinatal systems. The results of these studies are to be reviewed jointly by Division of Maternal and Child Health staff members and representatives of professional organizations, so that recommendations can be drawn up for future activities.

High-Risk Mothers and Infants

High-risk mothers and infants are a high priority in the health promotion and disease prevention initiative, and specific goals have been established for at-risk ethnic and racial groups and for small geographic areas. Targeting the women at risk should help lower the maternal mortality rate (Objective 5). In 1980 (according to un-

published data from the National Center for Health Statistics, Division of Vital Statistics), the maternal mortality rate per 100,000 live births was 6.7 for whites, 21.5 for blacks, and 8.2 for American Indians. Major causes of maternal deaths continue to be toxemia, sepsis, and hemorrhage. The Centers for Disease Control (CDC) conducts epidemiologic surveillance of pregnancy-related deaths to assess their preventability. An overview of maternal deaths in the United States from 1974 to 1978 is in preparation, and the results of further analyses by CDC of selected causes of death, such as toxemia and abruptio placentae, will be reported. For now, it is not clear whether the projected goal (Objective 5) can be achieved among the nonwhite subgroups. Meanwhile consideration should be given to revising this objective so as to direct it more to specific racial groups. Also, the reference to county rates (which present statistical problems because they are often based on such a small number of events) should be deleted.

Objective 4 projects that infant mortality rates specific for counties or racial or ethnic groups will not exceed 12 deaths per 1,000 live births. Data in figure 1 indicate that the white subgroup has already exceeded this goal and, also, that American Indians should be able to achieve rates under 12 sooner than 1990. On the other hand, the decrease in mortality rates that is to be achieved for black infants between 1980 and 1990 (43.9 percent) is greater than the entire decrease in the previous decade (34.4 percent). Collection of mortality data on Hispanics has recently been instituted by the National Center for Health Statistics, but data are not yet available.

Overall, the proportion of low-birth-weight babies is expected to decrease to 5 percent of total live births (Objective 6), whereas the goal for subgroups is set at 9 percent (Objective 7). In 1980, the proportion of low-birth-weight infants was 6.8 percent (*4*). Rates for white, Hispanic, and American Indian infants were well under the target, but the rate for black infants was almost twice that for the other subgroups (fig. 2). Low-birth-weight rates have declined by relatively small amounts since 1960. Therefore attainment of an overall rate of 5 percent by 1990 may not be feasible, although the current surge of efforts to find and implement clinical methods to prevent preterm labor may help improve this rate.

It is evident that substantial progress will have to be made if the objectives pertaining to high-risk mothers and infants are to be reached. Varied activities, underway or planned, focus on high-risk women and children. For example, the migrant health program of the Bureau of Health Care Delivery and Assistance supports five perinatal centers in Texas, Florida, and Oregon, whose purpose is to improve accessibility to care. These centers offer full-cycle maternity care to migrant women. In California, the health officers association initiated a 3-year Border Maternity Health Care Project in October 1983, as a special program of regional and national significance funded by Title V. The project is designed to improve birth outcomes for Hispanic-surnamed low-income women through the coordination of resources, the collaboration of public health providers near the California-Mexico border, and the production and distribution of guidelines for the management of care as well as a resource directory and health education materials.

Numerous efforts have been directed at reducing the incidence of low birth weight because prevention of its occurrence will markedly reduce infant mortality and long-term morbidity. North Carolina has implemented a

Figure 1. Infant mortality rates by race or ethnic group, United States, 1960-80

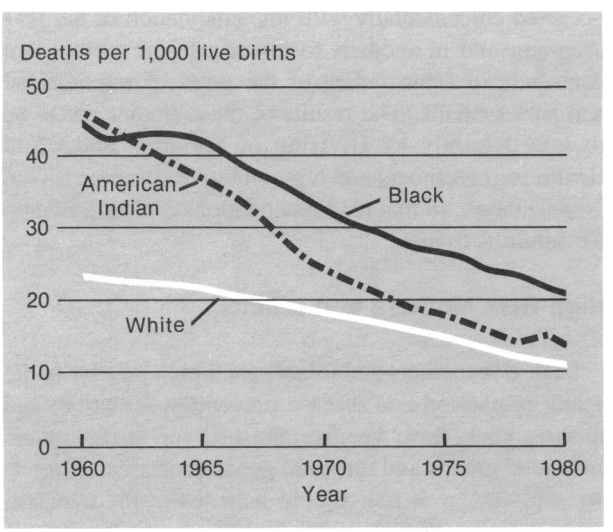
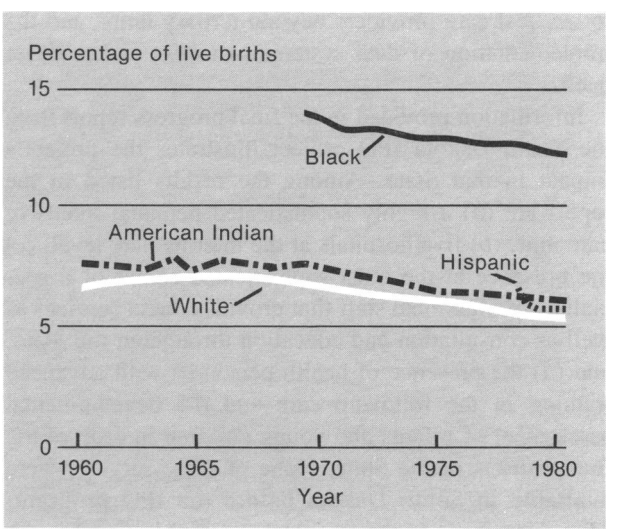


Figure 2. Low-birth-weight infants by race or ethnic group, United States, 1960-80



5-year plan to decrease the incidence of low birth weight. Adapting an approach used by investigators in California (*15,16*), the North Carolina Department of Human Resources, in cooperation with the private sector and academia, launched this effort in June 1983 with an educational campaign.

The National Institute for Child Health and Human Development has put considerable research emphasis on low birth weight and preterm labor. At a conference in June 1983, scientists reviewed the current knowledge of intrauterine growth retardation and recommended directions for future research in this area. Additionally, plans are in effect for a clinical trial of the prevention of prematurity by the detection and treatment of gestational genitourinary infections. The mechanism and the hormonal factors that are responsible for initiating labor will be considered, as well as methods for safely arresting premature labor.

Protecting Infant Health

Beyond the perinatal period, the priorities established relate to reducing risk factors, improving services, and protecting infant health. The screening of newborns for treatable metabolic disorders should be universal (Objective 12). Current data indicate that this objective has been achieved. Through MCH Services Block Grant funds, all States are providing screening and followup of newborns and treatment for PKU (phenylketonuria) and congenital hypothyrodism (table 6). The available information on the number of newborns screened includes data collected in regional newborn screening programs and data collected from State MCH programs under the ASTHO Reporting System (table 7). If allowance is made for neonatal deaths that occurred before collection of the screening samples and for the refusals by some parents to permit screening tests of their newborns, approximately 98 percent of the live-born infants whose births are reported to vital statistics offices are screened for these two conditions.

A significant aspect of this preventive screening is its cost-effectiveness. Reports from screening programs provide ongoing documentation. For example, the Colorado Department of Health, which operates a regional newborn screening program for three States and screens each newborn blood sample for six conditions, estimates that $7.90 is saved for each dollar spent (*17*). The State of Washington, which conducts a screening program for congenital hypothyroidism and phenylketonuria, has calculated that the cost of screening for these conditions, of identifying one infant with one of them, and of providing that infant with lifetime treatment is $17,439; if, however, the screening and treatment were not carried out, the cost would be $207,673 (a ratio of saving-benefit to cost of 11 to 1) (*18*).

Assuring comprehensive primary health care for all infants also is a 1990 goal (Objective 13). Definitive data are not available on the progress made so far toward this goal and would be difficult to obtain because of the multiplicity of care providers and of services. The private sector of medicine continues to provide primary care to the majority of the nation's infants under the standards of care of the American Academy of Pediatrics and other professional organizations. Programs administered by the Health Resources and Services Administration such as Indian Health, Maternal and Child Health, and Primary Care, assist States, communities, and special populations in the development and support of comprehensive primary care services for infants and children. The infants and children in underserved populations are among those cared for by these services. A joint goal of BHCDA and the Health Care Financing Administration is to improve the coordination between health service programs and the health financing system in order to help low-income families obtain health care for their children.

Among the activities directed at providing comprehensive services for infants and children, particular attention

Table 6. Number of States with mandated and voluntary programs to screen newborns for PKU (phenylketonuria) and congenital hypothyroidism, 1983

Basis of screening	*States with screening programs for PKU*	*States with screening programs for congenital hypothyroidism*
Mandated by State statute.....	47	41
Offered on voluntary basis.....	4	10
Total jurisdictions[1]	51	51

[1] Includes District of Columbia.
SOURCE: Division of Maternal and Child Health, Bureau of Health Care Delivery and Assistance, Health Resources and Services Administration, Department of Health and Human Services.

Table 7. Screening of newborns by State MCH (Maternal and Child Helath) agencies for PKU (phenylketonuria) and congenital hypothyroidism, fiscal year 1981

Reported activities of MCH agencies	*Screening for PKU*	*Screening for congenital hypothyroidism*
Number of MCH agencies ...	35	33
Total newborns screened....	2,344,874	2,214,540
Percentage of newborns screened	96.6	95.6

NOTE: Data are included only from agencies reporting detailed screening information.
SOURCE: This table is adapted from one on page 5, reference 12.

has been devoted to accident and injury prevention. Under an initiative of the Division of Maternal and Child Health, the guidance and technical assistance needed for establishing a program of injury prevention in infancy and childhood has been obtained from a broad spectrum of experts in the private and voluntary sectors as well as in Federal, State, and local governments. As part of this national effort, three projects on childhood injury prevention were begun in California, Massachusetts, and Virginia, with the support of Title V funds for special projects of regional and national significance. These projects have (*a*) provided a significant epidemiologic data base on childhood injuries; (*b*) conducted model community-based injury prevention programs; and (*c*) contributed materials both for a nationwide The Injury Prevention Program (TIPP) launched by the American Academy of Pediatrics and for an "Administrative Guide for State Maternal and Child Health (Title V) Programs: Developing Childhood Injury Prevention Programs" distributed by the Division of Maternal and Child Health. Many State health agencies, as well as practicing physicians and other health care providers, have used these data and the guidance and educational materials produced in these demonstration projects to assist them in setting up State and local childhood injury prevention programs.

In the realm of accident and injury protection, another thrust is to mandate the use of restraints in vehicles for infants and children (Objective 8). The Center for Environmental Health, Centers for Disease Control, supports demonstration programs designed to stimulate increased use of child restraints through community education and encouraging the expansion of child-restraint loan programs, including those to ensure the safe transport of newborns from hospitals. The American Academy of Pediatrics and the Department of Transportation also have sponsored a public awareness campaign, "First Ride/A Safe Ride." The National Highway Traffic Safety Administration, Department of Transportation, has reported that as of September 1983, 40 States and the District of Columbia had laws mandating use of such restraints for infants and toddlers. Of the remaining States, child restraint legislation had been introduced in all but two (personal communication from Office of Occupant Protection, National Highway Traffic Safety Administration, Department of Transportation, Washington, D.C.).

This review has touched on only a few of the efforts underway to achieve the goals set up for pregnancy and infant health. It is apparent that assuring optimal health for the nation's mothers and infants will remain a challenge for the years ahead. Clearly progress is being made, but more time will be needed before its exact extent is known.

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