

Infant Mortality— A Progress Report

EDWARD N. BRANDT, Jr., MD, PhD

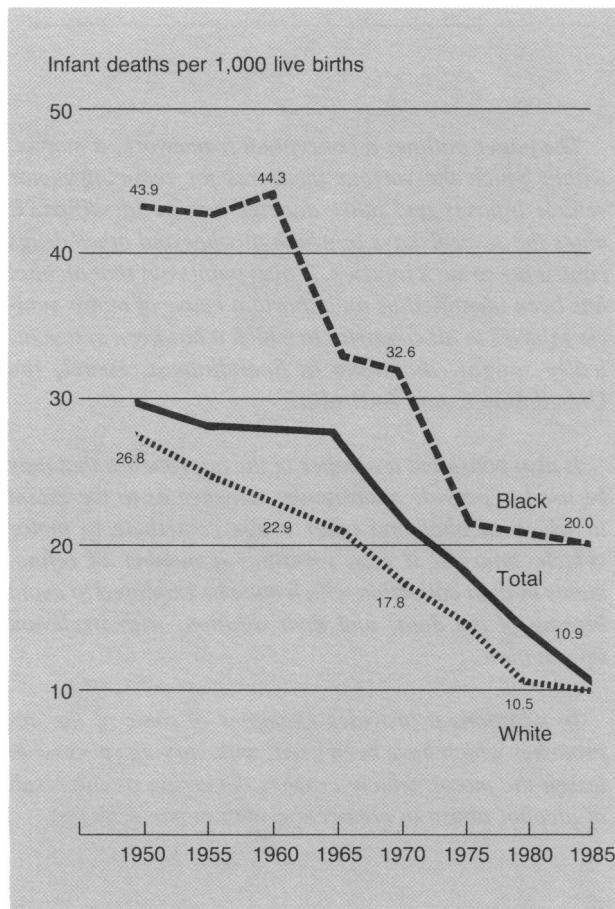
Dr. Brandt is the Assistant Secretary for Health, Department of Health and Human Services. The paper is based on his testimony before the Committee on Energy and Commerce, U.S. House of Representatives, on March 16, 1984.

The 1983 statistics cited are provisional data, and some estimates are extrapolations from the data for previous years.

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AS A NATION, WE CAN BE PROUD of our achievements in improving maternal and infant health. The provisional infant mortality rate for 1983 is 10.9 deaths per 1,000 live births, *the lowest rate in history* (1). Babies born now will live healthier and longer lives than ever before, yet just over 1 percent will not survive their first year. However, there remain disturbing geographic variations and disparities between subpopulations in our nation.

Figure 1. Infant mortality rates 1950-83



The entire nation is concerned about these disparities, as all professional and voluntary health groups should be. Some recent statistics will provide an important background for this discussion. There are 52 million women of reproductive age in this country. They had a total of 3.6 million live births in 1983. Included in those numbers are the following at risk groups: nearly 200,000 babies born to adolescents under 18 years of age, including nearly 10,000 to girls under age 15 (2); and nearly a quarter of a million infants weighing less than 2,500 grams at birth (2). It has been estimated that more than 900,000 infants were born to women who smoked during pregnancy and more than 1 million infants were born to women who drank during pregnancy.

Almost 40,000 live-born infants died in 1983 before reaching their first birthday.

Trends in Infant Mortality

The U.S. infant mortality rates (IMR) have been declining at a rapid pace since the late 1960s (fig. 1). In 1981, the latest year for which race-specific data are available, the national IMR was 11.9 per 1,000 live births, but the IMR was 10.5 for white infants and 20.0 for black infants. These rates represent IMR declines from 1980 of 4.5 percent for white and 6.8 percent for black infants. The continuing high black IMR is indeed a major concern.

Interpreting infant mortality data must be done thoughtfully, carefully, and objectively. Reducing infant mortality is a complex task with no simple and quick solution. The Public Health Service continues to examine the factors associated with infant mortality to identify opportunities for appropriate interventions.

Trends in LBW Incidence

Low birth weight (less than 2,500 grams) is the most important risk factor associated with infant mortality.

Compared with the decline in infant mortality, the incidence of LBW has declined relatively slowly during the 1970s (fig. 2). New understanding regarding this complex problem is being sought. No single factor accounts for all of the variation in birth weight. For example, the combination of many variables—the mother's demographic characteristics, medical and obstetric history, physical stature, smoking and alcohol use, and nutrition, as well as gestational age—explain only a portion of the birth weight variation. Better understanding of the biomedical and social factors related to LBW are essential to the development of effective intervention strategies.

Black mothers are twice as likely as white mothers to deliver a low birth weight infant. In the many studies of the black-white differential in pregnancy outcome over the past several decades, the following reasons for poor outcome among blacks have been cited: high proportions of teenage, high parity, and out-of-wedlock births; low socioeconomic status; high incidence of anemia and hypertension; and lack of adequate nutrition.

Findings from various analyses illustrate the complex relationships among factors associated with a greater risk of LBW. For example, maternal smoking and alcohol

consumption are associated with reduced birth weight. Yet data on married women from the 1980 National Natality Survey show that black women are somewhat less likely than white women to smoke or drink.

Even when several factors are controlled simultaneously, black women continue to be twice as likely as white women to have low birth weight infants. Based on a preliminary analysis of 1981 birth certificate data, the rate of low birth weight infants among college educated, married women, aged 25–29 having their second child who began prenatal care in the first trimester was found to be 2.3 for whites and 5.7 for blacks.

The fact that mature, married, college-educated black women who received prenatal care are still twice as likely as their white counterparts to deliver a low birth weight infant indicates that the black-white disparity is not a simple phenomenon. Therefore, single focused approaches will not realize the significant reduction in the black-white gap that we all hope to achieve.

Important Principles

Some obvious principles in further reducing infant mortality and preventing low birth weight are these:

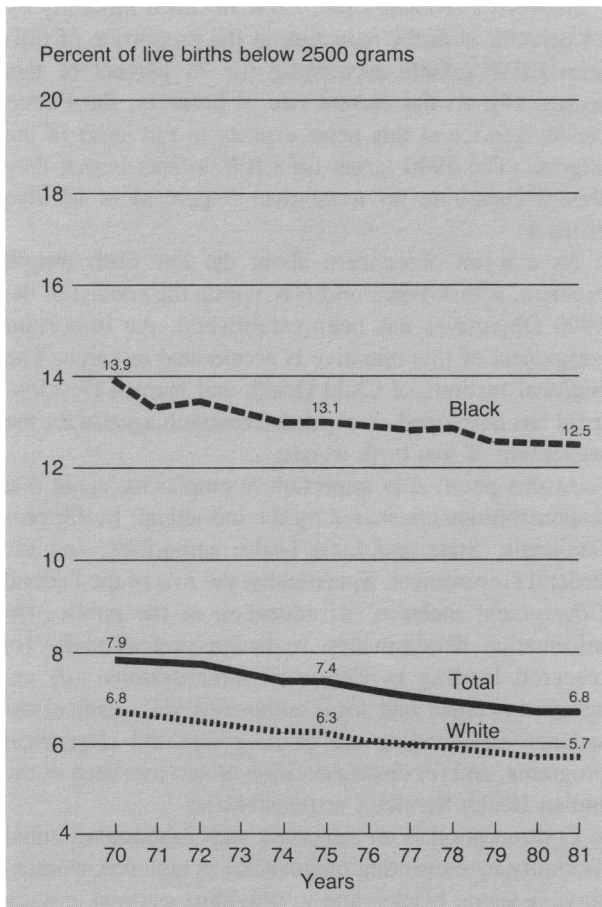
- Assure that the mother's health is optimal at the time of pregnancy through the provision of proper medical care, with special attention to and control of diseases such as diabetes, hypertension, and anemia;
- Avoid behavior known to be related to untoward pregnancy outcomes, such as smoking, alcohol consumption, drug abuse, and improper nutrition;
- Assure that the pregnancy is planned to coincide with optimal maternal age and interval between pregnancies.

Reducing infant mortality requires efforts across all segments of our society for solution. The individual woman must assume the responsibility of seeking proper medical care and complying with medical advice, the local community must provide appropriate support systems, health care professionals must give scientifically based advice and care, State authorities must define areas of need and plan to meet those needs supported by such programs as the health block grants and State and local funds, and the Federal Government must accomplish its role as defined later in this paper.

Prenatal Care

Quality prenatal care is an important intervention. There is little question as to the value of prenatal care in improving the health of the pregnant woman and preventing or reducing the complications of pregnancy and labor such as eclampsia. It has been asserted that more prenatal

Figure 2. Low birth weight ratios 1970-81



care for high-risk women will also reduce LBW. However, the task of determining the effectiveness of prenatal care in improving fetal health and reducing low birth weight has been difficult. In fact, the Institute of Medicine has formed a committee to investigate the prevention of low birth weight.

The 10 years between 1970 and 1980 showed steady progress toward narrowing the black-white gap in the receipt of early prenatal care. Nonetheless, only 62 percent of black women delivering in 1981 received prenatal care in the first trimester compared with 79 percent of white women (2). These 1981 natality data for women, conceiving in 1980, showed a very small decline in receipt of early care among black women, representing a departure from the upward trend of the previous decade. The decline occurred uniformly among both high and low risk black women. For the United States as a whole, no subgroup of black women showed a decline of more than 1 percentage point. Analysis of State trends in prenatal care is underway.

When dealing with these recent trends in prenatal care, it is important to emphasize that the *quality and content* of prenatal care may be the most important ingredient. Yet, despite increased understanding of risk factors, such as smoking, comparatively little is known about how to modify at-risk behavior. We need to expand our knowledge to develop effective responses to prevent low birth weight.

Objectives for the Nation

In 1980, Objectives for the Nation (3) were established by the Public Health Service to call attention to specific areas where work must be done to improve health, prevent disease, and reduce the burden of disability. The objectives and the agencies of the DHHS responsible for each one are listed in the box.

Lead Agencies Responsible for the 1990 Objectives

Preventive Services Objectives

High blood pressure control—National Institutes of Health
Family planning—Office of Population Affairs
Pregnancy and infant health—Health Resources and Services Administration
Immunizations—Centers for Disease Control
Sexually transmitted diseases—Centers for Disease Control

Health Protection Objectives

Toxic agent control—Senior Advisor for Environmental Health
Occupational health and safety—Centers for Disease Control
Fluoridation and dental health—Centers for Disease Control
Surveillance and control of infectious diseases—Centers for Disease Control

Health Promotion Objectives

Smoking and health—Office on Smoking and Health
Misuse of alcohol and drugs—Alcohol, Drug Abuse and Mental Health Administration
Nutrition—Food and Drug Administration
Physical fitness and exercise—President's Council on Physical Fitness and Sports
Control of stress and violent behavior—Alcohol, Drug Abuse, and Mental Health Administration

Assuring all infants a healthy start in life and enhancing the health of their mothers are important components of those measurable objectives for the improvement of the health of Americans. The quantitative objectives selected for pregnancy and infant health focus on lowering infant, neonatal, and perinatal mortality rates, reducing the number of low birth weight infants, and improving the health of pregnant women and infants.

Assuming that the same average percent decline for IMR of the past decade will continue, the projected estimate of IMR for the nation as a whole will fall well within the 1990 target of 9 infant deaths per 1,000 live births. Extrapolation of the rate for black infants yields an IMR of 13.5 as opposed to the target of 12 deaths per 1,000 live births.

Between 1970 and 1980, LBW declined modestly by 14 percent, with the reduction in the proportion of full-term LBW infants accounting for 75 percent of this decline (4). At the current rate of progress, the Public Health Service at this point expects to fall short of the targets. (The 1990 target for LBW infants is that they should constitute no more than 5 percent of all live births.)

As a result of concern about the low birth weight problem, a Task Force on LBW within the context of the 1990 Objectives has been established. An important component of this initiative is accelerated research. The National Institute of Child Health and Human Development has developed an expanded research agenda for the prevention of low birth weight.

At this point, it is important to emphasize again that responsibilities are shared by the individual, health professionals, State and local health authorities, and the Federal Government. Specifically, the role of the Federal Government includes (a) education of the public, (b) information dissemination to health professionals, (c) research leading to improved interventions, (d) assistance to State and local authorities via technical assistance and funding via block grants and categorical programs, and (e) direct provision of services such as the Indian Health Service's responsibilities.

Contraception is an important step in reducing infant mortality by preventing pregnancies in high risk women, such as young blacks, and in providing optimal spacing

of pregnancies. However, it is essential to combine family planning efforts with other primary care activities. Some special advantages of an integrated approach:

- promotion of good health practices, including immunization against rubella, among women who are becoming sexually active,
- counseling on the health effects of lifestyle choices and the spacing of pregnancies,
- appropriate care for women in the reproductive years who have chronic diseases such as diabetes, hypertension, sexually transmitted diseases, and genetic illnesses such as sickle cell disease,
- women for whom contraceptive methods fail are already in the care system and can get prompt prenatal care and counseling about pregnancy
- followup of the infant to assure good well-baby care and proper immunizations.

PHS Service Programs

The PHS has made important progress in reducing infant mortality. The following examples highlight its activities and programs.

The Maternal and Child Health (MCH) block grant helps each State to reduce infant mortality by assuring access to maternal health services of good quality. The services encompass prenatal care and preventive services as well as delivery and postpartum care. Because the block grants consolidate program and funding activities, States have full control and authority over substantial resources which they can allocate in the light of their own needs and priorities. According to unpublished material on the implementation of the MCH block grant in 13 States, there is an increased emphasis on services relating to improved pregnancy outcome, including prenatal and postpartum care.

The Maternal and Child Health Program has supported a wide range of activities to strengthen the capacity of the States. For example, special project funds were awarded to States with excessive rates of infant mortality and adolescent pregnancy to assist in the development of regionalized perinatal care systems. These Improved Pregnancy Outcome (IPO) projects are currently funded in 20 States, and they are now being integrated with MCH block grant programs. Continuation of these services by the States and the decline in infant mortality indicate that these IPO projects have had positive results.

The National Health Service Corps and the Maternal and Child Health Program staffs are using rates of low birth weight and post neonatal mortality to identify areas that need obstetric and pediatric services. They are planning to place 100 obstetricians and 200 pediatricians in these underserved areas to give direct services.

Community health centers and migrant health projects provide prenatal care to medically underserved pregnant women, and these projects have been associated with significant improvement in black infant mortality rates. To permit maximum coordination, agreements have been reached with States that have Medically Underserved Areas for joint discussions as to the placement of community health centers and National Health Service Corps members. Such arrangements allow optimal grant planning to reach our underserved populations.

The Indian Health Service, working with tribal health departments, private practitioners, and national professional organizations, provides comprehensive maternal and child health services. Emphasis is on early identification of pregnant women and early entrance to care, especially for the teenage population, to permit delivery of appropriate services and early health education. Great progress has been made in reducing Indian infant mortality rates—from 62.7 infant deaths per 1,000 live births for 1954–56 to 14.6 infant deaths for the period 1978–80. An analysis is being conducted of IHS-MCH data to understand better what factors have contributed to the progress and to identify the areas in which more work is indicated.

The Adolescent Family Life Program funds projects to prevent adolescent pregnancy by reaching young people before they become sexually active, to discourage adolescent sexual activity, and to minimize the adverse consequences for pregnant adolescents and their children. The program funds demonstration projects that offer care and prevention services in various delivery settings. After final evaluations of each model program have been completed, local communities will be able to adopt the proven models.

PHS Research Activities

The National Institute of Child Health and Human Development (NICHD) has assigned the highest priority to research on the etiology, prevention, and treatment of LBW infants, NICHD's expanded research initiative to prevent low birth weight encompasses research on intra-uterine growth retardation (fetal growth factors, biological predictors of fetal growth, and Perinatal Emphasis Research Centers); research on premature labor (biochemistry of labor and premature rupture of membranes); and research on environmental factors (nutrition, socioeconomic status, risk-taking behavior, physical activity, and working conditions). The initiative includes a cooperative network of maternal-fetal medicine units for clinical studies, educational efforts, joint efforts with other agencies and foundations, and a National Low Birth Weight Advisory Committee.

The Federal response to the knowledge gained over the

last decade on the effects of alcohol consumption during pregnancy has consisted of (a) vigorous public education, (b) heightened professional education, and (c) continued support of research. At present, the National Institute of Alcohol Abuse and Alcoholism supports 21 fetal alcohol research projects to address such issues as the effects of binge or episodic drinking, the effects of alcohol exposure during critical periods of fetal development, the mechanisms that cause adverse effects of alcohol on infants, and long-range development of children born to mothers who drank during pregnancy.

The preceding list represents only a sample of PHS research activities related to infant mortality.

Data Collection and Surveillance

The Centers for Disease Control will initiate in the summer of 1984 a National Infant Mortality Surveillance that will provide birth weight-specific mortality rates for various specified maternal characteristics.

The National Center for Health Statistics (NCHS) is assessing the feasibility of establishing a national system of linked birth and death records that will provide an improved data base for monitoring infant mortality trends. In addition, NCHS is linking the 1980 and 1981 National Death Index with the 1980 National Natality Survey (NNS) to prepare special analyses of infant mortality. For example, infant mortality rates will be generated for multiple items in the NNS, such as birth weight, maternal complications of pregnancy, and maternal smoking.

NCHS is developing an International Collaborative Effort to identify what can be learned from those countries with the lowest infant mortality rates. The first step will be a 1984 meeting with eminent researchers from those countries to select specific topics for research and to develop appropriate protocols.

Educating Health Professionals and Public

The PHS was one of the six founders of the Healthy Mothers, Healthy Babies Coalition, a group representing 60 voluntary, health professional, and State, local, and Federal governmental agencies concerned about the health of mothers and babies. Although the Coalition acknowledges the primary importance of the delivery of health services, its purpose is to improve the quality and availability of public education concerning prenatal and infant care. Its four goals are to (a) promote public awareness and education about preventive health habits for all pregnant women, (b) develop networks for sharing information among groups concerned about improving the health of mothers and babies, (c) distribute public

education materials on related topics, and (d) assist the development of local Healthy Mothers, Healthy Babies Coalitions.

Under the auspices of the Coalition, the PHS has produced, and distributed, in English and Spanish, radio spots, posters, pamphlets, newspaper columns, teacher guides, and bibliographies to clinics serving low income areas, WIC (women, infants, and children) offices, health departments, and schools nationwide. A program to promote breast feeding is under way, jointly sponsored by five medical professional organizations, and a special committee of the Coalition is addressing the educational needs of low-income women.

Conclusion

This paper presents a progress report on issues surrounding infant mortality and low birth weight; it includes a brief listing of some current activities relating to these important topics. The Federal efforts previously identified are just one part of the full range of governmental programs necessary to meet the 1990 Objectives. By no means are these the only efforts; many communities and State agencies are undertaking innovative efforts to improve their infant mortality rates. Promoting and protecting the health of the newborn is the best investment we can make in the future good health of the American people.

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