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INFANT MORTALITY: ARE WE MAKING PROGRESS?

After a long period of declining infant mortality rates in the United States, Federal health officials have recently expressed concern that the pace may be slowing.

The U.S. infant mortality rate dropped from 24.7 infant deaths (deaths of babies between birth and 1 year of age) per 1,000 live births in 1965 to a rate of 11.2 in 1983, a decline of nearly 55 percent. The average annual decrease in this period was 4.4 percent. Since 1981, however, the pace of the decline has progressively slowed to a level of around 2.5 to 3.0 percent per year.

This slowing decline has caused concern for several reasons. Infant mortality rates are one of the most commonly used indicators of a population's health status; they are closely associated with life expectancy levels. The U.S. Surgeon General has set a goal of reducing the infant mortality rate to 9.0 by 1990. Meeting this goal will require an average annual decrease of 3.1 percent from 1983 to 1990. Finally, despite the declining trend, the U.S. continues to have high levels of infant mortality relative to other industrialized nations.

This concern has been expressed in several major studies of infant mortality and low birth weight. The Southern Regional Task Force on Infant Mortality, formed by the Southern Governors' Association, recently released a study which shows the South has the highest infant mortality rates in the U.S. and recommends steps to improve Federal and State services. The National Academy of Science's Institute of Medicine published a report which details the problems of low birth weight and recommends approaches to its prevention.

Leading Factor

Low birth weight is the leading factor associated with infant mortality in the United States. Infants of low birth weight, defined as weighing less than 2500 grams (5 pounds, 8 ounces), are nearly 40 times more likely than infants of normal birth weight to die during the first four weeks after birth, known as the neonatal period. Although less than 7 percent of all births are of low birth weight, two-thirds of all deaths in the first four weeks occur among low birth weight infants.

Postneonatal deaths (between 28 days and one year old) are also linked to birth weight. Low birth weight infants are five times more likely than infants of normal birth weight to die during the postneonatal period. They account for 20 percent of postneonatal deaths.

Low birth weight is an indicator of inadequate fetal growth, resulting from premature birth, poor weight gain for a given duration of gestation, or both. Many factors typically associated with higher risk of infant mortality—such as prenatal care, smoking, alcohol use, and age and marital status of the mother—actually have their primary effect on birth weight. By increasing the likelihood that a woman will have a low birth weight infant, these factors increase the mortality risk for that infant. In addition, low birth weight infants tend to have health and developmental problems later in childhood, both as a result of the survival of less healthy babies and as a result of the side effects of certain neonatal intensive care procedures.

Chart 1 shows the sharply higher infant mortality rates among low and very low birth weight infants. Very low birth weight is defined as 1500 grams (3 pounds, 3 ounces) or less. Within each weight category, the infant mortality rates of whites and all other races are similar. Mortality rates among infants weighing less than 1,000 grams are greater than 700 per 1,000 live births. For infants 1000 to 1499 grams, the rate is about 250. Among normal weight infants, the rate is about 6 per 1,000 live births.

Chart 2, however, shows the percentage of infants born in each of the low birth weight categories. Black infants are more than twice as likely as white infants to be of low or very low birth weight. For example, 10.1 percent of black infants weigh 1500 to 2499 grams, compared to 4.8 percent of white infants. Also, 2.4 per-

cent of black infants weigh less than 1500 grams, compared to 0.9 percent of white infants. This difference between blacks and whites in the distribution of birth weights is the critical factor in the different infant mortality rates of the two groups. Black infant mortality rates are about twice as high as white rates.

Compared to other nations, the U.S. has a very high proportion of infants both of low birth weight and very low birth weight. This factor alone does a great deal to explain the high infant mortality rate in this country relative to other nations of comparable economic and medical development. The U.S. ranks below such nations as Sweden, Japan, Denmark, Norway, France, Spain, Canada, East Germany, and the United Kingdom.

Past Progress

In the first half of this century, the U.S. made relatively greater progress in reducing deaths to postneonatal infants. Improvements in public health and safety reduced deaths to these older infants, which were largely due to environmental causes such as infectious disease and poor nutrition. Since the mid-1960s, the U.S. has been particularly successful in reducing deaths to neonatal infants.

As a result of these trends, the distribution of neonatal and postneonatal deaths has changed dramatically. At the turn of the century, two-thirds of all infant deaths were postneonatal. In the early 1970s, after decades of strong improvement in postneonatal mortality, only about one-fourth of all infant deaths were postneonatal. In 1983, as a result of the relatively greater successes made in neonatal mortality in the previous decade, the share of all infant deaths that were postneonatal had increased to one-third.

Approaching Limits of Medical Technology

The recent decline in infant mortality, particularly neonatal mortality, is due primarily to the improved survival of low birth weight infants. While there has been some progress in the reduction of low birth weight, not as much progress has been made in reducing the incidence of small babies as has been made in treating them intensively after their birth. Neonatal intensive care programs have been given much of the credit for helping low birth weight infants to survive.

However, many doctors now believe we are approaching the limits of the improved technology which has permitted them to save low birth weight babies. Accelerating or even sustaining the pace of the decline in infant mortality may require new approaches, including an emphasis on the prevention of low birth weight.

Risk Factors

In many cases, mothers who are more likely to bear a child with a greater risk of death can be identified early in pregnancy to allow appropriate risk-reducing prenatal and neonatal measures to be taken. Both a woman's behavior and her physical and social characteristics greatly influence her infant's chance of survival.

The following factors have been shown to be important:

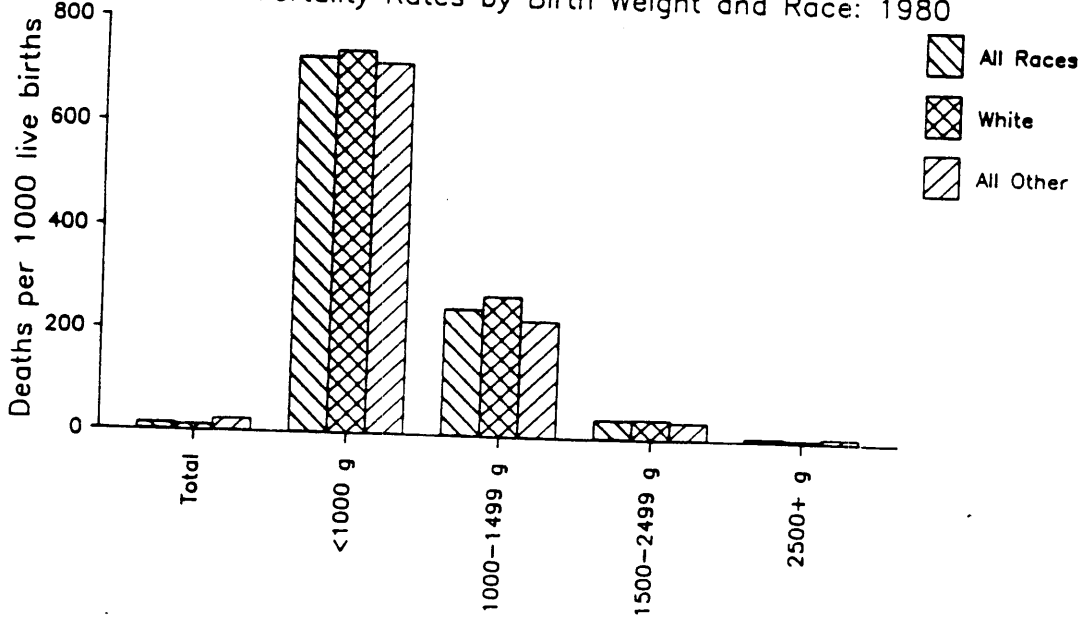
Absent or inadequate prenatal care can lead to higher rates of infant mortality, particularly among high-risk women. Adequate prenatal care is understood to encourage behavioral changes that improve the mother's health and nutrition. It may also uncover medical conditions that with appropriate treatment may not be as threatening to the infant's health.

Not all women receive prenatal care to the same extent. In the early 1980s, nearly 40 percent of black women did not see a doctor for prenatal care in the first trimester of pregnancy, compared to less than 20 percent of white women. There is also some evidence that prenatal care has declined recently in areas with high unemployment or large minority populations. Different researchers have estimated that every dollar spent on prenatal care could save from $2 to $11 in long term costs of health care and institutionalization.

Mothers who smoke during pregnancy are twice as likely to give birth to a low birth weight infant than are nonsmokers. According to the U.S. Surgeon General, smoking may contribute to between 20 and 40 percent of the cases of low birth weight infants. Maternal smoking during pregnancy can also lead to spontaneous abortions, and fetal and neonatal deaths. An infant's risk of sudden infant death syndrome is increased by

CHART 1

Infant Mortality Rates by Birth Weight and Race: 1980



maternal smoking during pregnancy. Pregnant smokers may also adversely affect their baby's long-term growth, intellectual development, and behavioral characteristics. Evidence shows that if mothers stop smoking during pregnancy, their infants on the average will be heavier and otherwise healthier than those of mothers who continue smoking.

Alcohol and drug use are other behaviors which increase the risk of infant mortality. Excessive alcohol use during pregnancy contributes to fetal alcohol syndrome, which can cause fetal death, premature delivery, low birth weight, and birth defects associated with mental retardation. The effects of other drugs are not as well documented; however, some researchers believe that drugs such as marijuana, heroin, methadone, and amphetamines increase the likelihood of low birth weight.

Births out of wedlock have infant mortality rates nearly as twice as high as those in wedlock. This problem has been exacerbated in recent years by the trend of a constantly increasing proportion of births to unmarried mothers. The proportion of all births that were out of wedlock nearly quadrupled between 1960 and 1983, even though the birth rates to both married and unmarried women declined in the same period. In 1983, more than 20 percent of all births were to unmarried mothers. This factor's importance stems, in part, from the higher incidence of unplanned pregnancies to unmarried mothers, their reduced likelihood of receiving prenatal care, and the lower levels of medical care provided to their infants.

Teenage mothers and mothers 35 or older are at greater risk of having their infants die. In the neonatal period, infant mortality rates of teenage mothers are more than 60 percent higher than to mothers over age 20. In the postneonatal period, the rates are about twice as high as those of other mothers. Infants born to teenage mothers are two to three times as likely to be of low birth weight as infants born to mothers in their twenties or thirties. This factor is related to the preceding one in that many births to teenage mothers are out of wedlock. Therefore, many of the same problems that lead to higher infant mortality among unmarried women also affect teenage mothers. In addition, there are biological factors that increase the incidence of low birth weight babies to mothers of these high-risk age groups.

Black infants are more than twice as likely to die as white infants. This risk factor, however, is largely a result of higher birth rates to black teenagers and black unmarried women, lower educational levels, later prenatal care, and other social and economic differences between black and white mothers. As shown in Chart 2, black infants are more than twice as likely to be of low birth weight than white infants.

Other factors associated with higher infant mortality include mothers who live in nonmetropolitan areas; have lower levels of education or income; have had previous infant deaths, stillbirths, or low birth weight infants; or have had closely-spaced births or many previous births. Infants who are premature, in multiple births, or with cogenital anomolies also tend to have higher infant mortality rates. In addition, male infants have higher infant mortality rates than female infants.

Public Programs and Social Trends

Public programs directed toward low income mothers and their children have to varying degrees reduced low birth weight and infant mortality. Medicaid, the Federal-State health insurance program for the poor, has been shown as effective in the reduction of low birth weight and infant mortality. Other programs which may have also had an impact include maternal and child health, WIC (supplemental food program for women, infants, and children), and family planning programs.

Social changes have also helped reduce the share of births to high risk women. They include an increase in women's educational levels, a decrease in the proportion of births to teenagers and women 35 and over, and a decline in family size.

In addition, the increased use of family planning and abortion have sharply reduced total births and the share of births that are not intentionally planned. This has reduced the share of births to high-risk categories of women.

Legislative Approaches

Congressional initiatives aimed at affecting infant mortality in the 99th Congress have included proposals to expand Medicaid services related to pregnancy (S.1730 and H.R. 3128), to target nutrition programs to geographical areas with high infant mortality (H.R. 1856), and to establish a national commission to recommend measures to prevent infant mortality (S. 1209, H.R. 3344, H.R. 3349, and H.R. 3353).

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CHART 2

Percent of Infants of Low Birth Weight by Race: 1980