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Table 1 Birth weight, race, and mortality, United States[a], singleton live births, 1974–1976[b]

Birth weight	Neonatal mortality rate (per 1000 births)		Postneonatal mortality rate (per 1000 births)	
	White	Nonwhite	White	Nonwhite
Low birth weight[c]	107.8	93.5	15.2	19.4
Normal birth weight[c]	2.6	3.2	2.8	4.7

[a] Eight areas, accounting for about 6% of U.S. births
[b] Source: Adapted from Shapiro et al. (38)
[c] Low birth weight: Less than or equal to 2500 grams. Normal birth weight: More than 2500 grams

infants dying after the first month of life are of normal birth weight (2500 grams or more at birth) compared with the 28% of infants dying within the first month of life who are of normal birth weight (2).

If environmental factors have a profound effect on postneonatal mortality, then social factors that reflect environmental conditions also can be expected to be highly related to postneonatal mortality. Data on the sociodemographic correlates of postneonatal mortality require the linkage of birth and death certificates, since there is little sociodemographic information on infant death certificates, at least in the United States. As the United States, as yet, has no national birth-death certificate linkage system, much of the knowledge about the sociodemographic correlates of postneonatal deaths derive from state or local studies or from data from countries such as Great Britain [in which birth and death certificates have been matched since 1975 (33)]. In the United States, non-white infants (except for those of Asian descent) are at higher risk of death, but the relationship between race and postneonatal mortality differs from that in the neonatal period. Table 2 indicates that black low-birth-weight infants are at lower risk of dying in the neonatal period than white low-birth-weight infants, but that in the postneonatal period black low-birth-weight infants are at higher risk of dying than their white counterparts. Black infants of normal birth weight are also at higher risk of death than white infants, to an even greater degree in the postneonatal period than in the neonatal period (38). In 1978, the postneonatal death rate for white infants in the United States was 3.6, whereas for black infants it was 7.6. Two-thirds of the excess deaths among black infants was accounted for by three causes of death: "symptoms" (42%), respiratory infections (15%), and other infections (9%). Between 1965 and 1978, however, postneonatal mortality rates fell 50% among blacks as compared with 33% among whites (29, p. 112). This pattern is the reverse of that for neonatal mortality, where the decline among white infants (48%) was greater than for black infants (42%).

In 1964, the excess death rate among black infants (as compared with white infants) was 9.2 per 1000 births; in 1978 the excess was 4.0 per 1000 births.

Table 2 Postneonatal mortality rates[a] by selected causes, United States, 1918–1978[b]

Cause	1918–1925	1939–1941	1949–1951	1964	1973	1978
Infections[c]	21.45	2.22	0.70	0.29	0.30	0.25
Neoplasms	NA[d]	NA	NA	0.06	0.04	0.03
Meningitis	NA	NA	NA	0.18	0.10	0.11
Respiratory	10.59	6.21	2.69	2.61	1.07	0.50
Gastro-intestinal	0.82	3.81	1.45	0.61	0.09	0.08
Congenital anomalies	1.70	1.46	1.42	1.22	0.90	0.74
Conditions of early infancy	4.10	1.17	0.65	0.31	0.08	0.17
Symptoms	NA	0.99	0.45	0.44	1.16	1.52
Accidents	NA	0.86	0.82	0.74	0.49	0.34
Homicide	NA	NA	0.01	0.02	0.04	0.04
Percentage of deaths accounted for by all causes	82%	92%	91%	94%	89%	88%

[a] Per 1000 live births.
[b] Source: NCHS. *Vital Statistics of the United States*, for years 1964, 1973, 1978. Frankel (11) (for years 1918–1925); Shapiro et al 1968 (38) (for years 1939–1941, 1949–1951).
[c] Includes diarrhea, except of newborn, except 1939–1941, which includes diarrhea of newborn.
[d] NA, Not available.

Although death rates associated with almost all major causes in the postneonatal period are still greater among black infants, the disparities among black and white infants have narrowed markedly in the case of deaths due to gastrointestinal causes (including gastroenteritis), conditions related to early infancy, and causes associated with ill-defined symptoms. In all three instances, death rates associated with these causes were more than five times higher among black as compared with white infants in 1964; by 1978, the rates among black infants were double or slightly more than double those of white infants. The disparities were also reduced, although to a lesser extent, for deaths due to respiratory causes and meningitis (30).

Although the many sociodemographic factors associated with postneonatal deaths are highly inter-correlated, it is possible to determine their relative importance, at least to some extent. British studies show the independent effects of maternal age, parity, and social class. In univariate analyses, the relationship between maternal age and mortality is U-shaped, with higher mortality among infants of very young and very old mothers. The higher the parity, the greater the death rate; the higher the social class, the lower the mortality. In Great Britain, the mortality rate among infants of mothers under

age 25, of parity three or greater, and of social class IV or V was 15.1 in 1976 compared with a mortality rate of 2.0 among infants of mothers aged 25–29, without prior pregnancies, and within the highest two social classes (33). A follow-back survey of legitimate births in the United States in 1964–1966 showed both family income and maternal and paternal levels of education to be related to postneonatal mortality, independent of race. Among both black and white infants, the inverse relationship between each of the three factors and rates of postneonatal death was striking and increased as the age of death increased. That is, the differentials across social classes were greatest for deaths at ages 6–11 months, somewhat less so at ages 1–5 months, and least for deaths under one day of age (31). Gortmaker's (13) multivariate analyses of these data showed the independent effect of poverty, maternal education, and paternal education, as well as an independent effect of hospitalization at birth (a probable proxy for other medical care variables).

Bross & Shapiro (5) used a log-linear model to investigate the relationship between birthweight, maternal age, race, education, and poor obstetric experience and mortality (neonatal and postneonatal separately) among infants born in eight areas of the United States. These births comprised about 6% of all US births in 1974–1975. All of the factors except birth order had a direct component relating to postneonatal death. Infants born small had progressively higher risks of postneonatal death. Education showed a consistent trend, with a 62% increase in risk for women with less than a high school diploma and a 34% decrease in women with some college experience. Nonwhites were at higher risk except at ages under 18, when white infants were at higher risk. Increased maternal age (over 34 years) was associated with lower risks of death regardless of race.

Crawford et al (7) also used multivariate techniques to study the relationship among several social and environmental factors and the various components of infant mortality in England and Wales. A social factor score was derived from information on population density, overcrowding in housing, social class, education, unemployment history, income, households per car, percentage population under 15, and migration. Environmental factors included water hardness and latitude. These factors explained 62% of the variance in postneonatal mortality in 1950–1953 and 53% in 1958–1964. When the percentage of mothers of parity 3+ and the percentage of births to mothers age 30+ were added, the percentage of variance explained in 1958–1964 rose to 62. Although the social factor score was highly related to postneonatal mortality, even more so in the earlier period than in the later period, the relationship was attenuated when parity and maternal age were considered. The amount of calcium in the water supply was significantly related to lower postneonatal mortality rates, and the authors hypothesized that this might be due to the increased solubility of lead in water containing low concentrations of calcium.

The relative unavailability of data makes it difficult to examine trends in the relationship of these sociodemographic factors over time. In the absence of data in the United States, the experience in other countries is instructive. In Scotland and England, social class differentials narrowed starting in 1974 (9); France experienced a slight narrowing of differentials in the early 1970s (33). Social class differences narrowed after 1970 in western Australia (34). The absence of trend data on social class differentials in the United States makes it impossible to determine whether social class differentials in postneonatal mortality narrowed during the period of rapid decline in postneonatal mortality during the late 1960s, but the narrowing of the disparities between racial groups and indirect evidence cited below concerning the impact of medical care suggest that this may have occurred, though perhaps only temporarily. Data from eight large areas in the United States in 1974–1975 suggest either a continuation of the disparities or even a resurgence of the large gaps between the postneonatality rates of infants in various sociodemographic groupings during the 1970s. Marked and statistically significant differences in postneonatal mortality rates were found for births to mothers with different lengths of education. Infants born to mothers without a high school degree had much higher mortality than infants of mothers with more than a high school education, among both normal and low-birth-weight infants; the rate among infants of mothers with only a high school degree was intermediate. Low-birth-weight infants born to mothers with some college education were twice as likely to die in the postneonatal period as normal-birth-weight infants of mothers with less than a high school education, but low-birth-weight infants born to mothers with less than a high school education were almost 12 times as likely to die in the postneonatal period as normal-birth-weight offspring of mothers with more than a high school diploma. Thus the disadvantage resulting from the presence of a presumably biologic risk factor is greatly compounded in the presence of an important sociodemographic risk factor.

Clues as to the mechanisms by which social class exerts an adverse affect on survival in the postneonatal period are provided by analyses of differences in causes of death across the social classes. In 1964–1966, differences in the causes of infant (not only postneonatal) deaths associated with either maternal or paternal education were concentrated among the infectious diseases, including the International Classification categories of infective and parasitic diseases, respiratory tract infections, and digestive system diseases. The differences by parental education were even more striking among white infants than among nonwhite infants, with differentials at least twofold in these categories of conditions between the lowest and the highest educational groupings in white infants (31). Differences in rates of death attributed to congenital anomalies have been, at most, of the order of twofold across the social classes in a wide variety of countries and areas of the United States, but differences attributed to other causes in the postneonatal period are of the order of six- to

ninefold (1). Unfortunately, the lack of information on social class gradients in the Scandinavian countries makes it impossible to determine whether the low postneonatal mortality rates there, which are a result of lower death rates attributed to infectious diseases, are associated with narrower differentials across the social classes.

Although there are few studies of the relationship between parental occupation and childhood mortality, Morris & Heady (27) published data from 1911–1950 for neonatal and postneonatal death rates among offspring of fathers in different social classes and occupations. There were notable differences in postneonatal mortality by occupation, even between occupations normally classified as within the same social class. For example, the rate for infants of miners in Social Class III was greater than that for infants of clerks in Social Class III, and the rate for miners' infants was the same (and similar to the rates for infants in Social Class V) regardless of whether the fathers were skilled (Social Class III) or partly skilled (Social Class IV). Although the authors speculated on the potential role of selective mating between classes, they indicated that a general decline in mortality within each of the social classes suggests that such a mechanism would provide only a partial explanation, at best, for the relationships found. More intensive exploration of reasons for differences in mortality among infants of parents in different occupations could provide information about the relative impact of environmental hazards as well as those related to "maternal capacity" (27).

The nature of the relationship between low birth weight and mortality and morbidity provides additional clues concerning the possible mechanisms of action of social status and poor health. Infants who are small but appropriately small for gestation age (AGA) are more at risk of dying in the neonatal period than infants who are small for their gestation age (SGA). However, the vast majority of SGA infants, i.e those small for gestation age and weighing 2000–2500 grams, are at greater risk both for postneonatal mortality and for illness in the first year of life than are AGA infants of similar weight (41).

Further evidence comes from information from England and Wales. Here, differentials in postneonatal mortality across the social classes narrowed in the early 1970s, when they might have been hypothesized to rise because of a prevailing recession during that period. Continued progress in reducing the social disparities in a time of economic hardship is thought to be due to a decrease in smoking and alcohol intake among pregnant women in economically stressed families. (I am indebted to Dr. Harvey Brenner for this suggestion.) However, later in the recession (1975–1976), the differentials between families categorized as in "other" social classes, which include the unemployed, showed increases in postneonatal mortality, whereas mortality continued to decline in social class groups I–V (9). The adverse impact of unemployment and income loss on mortality, including postneonatal mortality, has been

demonstrated in a variety of countries. For example, Brenner (4) showed that economic down-swings have been associated with increases in postneonatal mortality since the 1920s, and significantly so since the 1940s, in contrast to the relationship between economic down-swings and neonatal mortality, which has been found only since the end of World War II. There is an apparent lag of three to five years, and the effect is greater among whites than among nonwhites. Brenner's hypothesis is that it takes time for the effect of unemployment to become manifest.

These diverse observations provide a basis for at least tentative inferences about the nature of the impact of sociodemographic factors on postneonatal mortality. Intrauterine growth retardation is a major risk factor for postneonatal mortality. To the extent that factors associated with intrauterine growth retardation (such as suboptimal prepregnancy nutritional status) (17) are more common among the socially less advantaged, postneonatal mortality will be higher in those groups. When medical care is compromised, such as is likely during times of economic hardship, infants in the lower social classes will be adversely affected to a greater degree. All of these influences increase the inherent disadvantage that accrues from being born into conditions long associated with increased mortality: poor working conditions of parents, the need of mothers to work and their decreased ability to choose employment that minimizes the conflict between job and family, poor housing, and living in geographic areas less conducive to good health.

SUDDEN INFANT DEATH SYNDROME

The paucity of citations concerning postneonatal mortality is not matched by a similar dearth in the case of one particular "cause" of postneonatal death, i.e. sudden infant death syndrome (SIDS). From 1980 through 1983 there were 35 review articles alone in the English language literature. Interest in the subject derives from the fact that SIDS is the largest single "cause" of death in the postneonatal period in the United States, and because it generally comes without warning to unprepared families and hence is dramatic and particularly frightening.

SIDS, however, has been recognized since antiquity. Interpretation of secular trends is complicated by the fact that it is a diagnosis made by a process of exclusion; criteria for excluding other conditions have never been well standardized, so that increased attention to the diagnosis undoubtedly artificially increases the extent to which it is used. Just following the first international conference devoted to the subject, held in Seattle, Washington in 1963, the proportion of sudden death attributed to SIDS in the state of Washington rose markedly: from 1% in 1962 and 24% in 1963 to 50% in 1964 (32). Rates of

SIDS vary widely from one country to another, well over threefold in some instances (32).

Countries with low overall postneonatal mortality rates also have low SIDS rates. SIDS rates in Scandinavia are lower than elsewhere (32, 18). These differences cannot be only a matter of differences in the coding of cause of death, because categories that are possible alternatives for sudden infant deaths also occur less frequently in these same countries.

The correlates of SIDS are, in general, the same as the correlates of postneonatal mortality: prematurity, small-for-gestation age, greater incidence among twins and among male infants, an urban concentration (18), high parity (39), unwed status, short pregnancy interval (42), maternal smoking and alcohol intake, little prenatal care, and poverty. There are, however, several correlates that appear to be unique. The incidence of SIDS is generally highest in the late fall and winter (22), among the second of twins, and among mothers under the age of 20. This predilection for infants of young mothers is even greater than for postneonatal mortality as a whole; the U-shaped relationship wherein mortality rises again in older mothers is not found in the case of SIDS (39). [Babson & Clarke (2), however, found the same increased incidence among mothers under age 20 in postneonatal deaths due to infections.] An increased incidence of SIDS is found in families with a history of prior pregnancy loss, even when corrected for gravidity. Within the most recent few years, SIDS has been demonstrated to have a higher association in infants of mothers addicted to methadone (32). Infant botulism (which has the same age and seasonality patterns) is thought to account for 3–5% of SIDS. By far the most striking feature, however, is the concentration of SIDS early in the postneonatal period, months 1–3. Virtually all studies concur on these factors associated with increased risk; most of the associations were noticed very early in the recognition of the existence of the syndrome.

The large literature on physiological correlates of SIDS does not shed much light on its causes. There is widespread agreement that the evidence of asphyxia found at autopsy is an end-result of an underlying process rather than its cause, and there is a consensus that this chronic hypoxia precedes labor and delivery (15, 32, 21). Immunization such as for diphtheria, pertussis, and tetanus is not associated with an increased risk (42). No known method of prevention exists (except as is noted in the section on Medical Care, below); apnea monitors used at home, either for unselected infants or for infants thought to be at increased risk, are of unproven benefit, and their use is controversial. Ten percent of infants with recurrent apnea die, even when monitored (21).

Little progress has been made in learning the causes of SIDS, despite the large research effort devoted to its biological correlates. It appears to have multiple causation, with impact in a period of growth and development characterized by physiologic hypersusceptibility when the response to hypoxemia is

abnormal (21). Further progress in its understanding and prevention will undoubtedly require more attention to examination of the same factors that predispose to postneonatal deaths due to causes such as infection.

THE IMPACT OF MEDICAL CARE

Although postneonatal mortality is heavily influenced by sociodemographic conditions, the extent to which medical care can overcome the disadvantages associated with sociodemographic risk is poorly explored. It is much more difficult to study the impact of various aspects of medical care on postnatal mortality because, in contrast to neonatal mortality, the deaths are more likely to occur in the community rather than the hospital and therefore not be noticed by physicians and medical researchers.

Postneonatal mortality declined abruptly after the legislation of the mid 1960s that provided access to medical care for those who previously had difficulty affording and obtaining appropriate services. This alone is evidence of the benefits of health services, although it is indirect evidence. Moreover, the narrowing of the gap between postneonatal mortality rates of white and nonwhite infants, the narrowing of the disparity in postneonatal mortality rates between states characterized according to the percentage of their populations living in poverty (8), and the narrowing of the disparities across areas of cities distinguished by their social status differences (23) during this period are further evidence of benefit, in the sense that those who had been relatively more deprived previously benefited more from the increased accessibility to health care resources.

Other studies provide evidence of benefit. A multivariate regression analysis using data from counties in the United States showed that the availability of federally supported community health centers was associated with decreases in postneonatal mortality rates and reductions in the white-nonwhite disparities in those areas (12). Another study (15) showed that higher federal expenditures for health services (as measured by a proxy variable consisting of Medicare expenditures per Medicare enrollee) and the presence of more pediatricians per 1000 live births were associated with declines in postneonatal mortality, which were even more striking among nonwhites than among whites.

In England and Wales, 23% of the factors associated with postneonatal deaths that were considered to be avoidable were related to medical care (the remainder were believed to be social or parental in origin) (33). Half of the deaths in Glasgow in the early 1970s occurred at home and many of the infants seen in the hospital were already fatally ill at the time of arrival (35). In New Zealand, an even smaller proportion (20%) of infants were in the hospital at the time of death (33). Although these studies suggest that absence of medical care made a critical difference, the evidence cannot be considered conclusive.

More direct evidence of benefit derives from a case-control study of infants over one week but less than one year of age in Sheffield, England in the early 1970s (26). Infants who died unexpectedly at home were paired with age-matched controls who were hospitalized with an acute illness but who had survived. The infants who died were found to have received less medical care during their illness than matched controls, even though the duration and nature of their symptoms had been comparable. There were few if any sociodemographic differences among the families in the two groups, and the findings were interpreted primarily as showing the importance of receipt of medical care. In another case-control study, conducted in Copenhagen between 1956 and 1971, each infant who died unexpectedly was matched with four living "control" infants having the same sex and birth date (3). This study showed that the infants who died were significantly less likely to have kept their previous appointments with the health visitor. In contrast to the study in England, however, the numerous sociodemographic dissimilarities between infants of the two groups make it impossible to be sure that it was receipt of medical care that made the critical difference.

Data from a study of infant deaths in 50 states in 1971–1972 and 1974–1975 (36) show significant decreases in mortality from non-vehicular accidental causes between these two periods. The effect was most marked in states with the fewest abortions before the 1973 Supreme Court decision concerning abortion and that had the greatest increase in the number of abortions following that decision. No other cause of death (with the possible exception of homicide) changed between the two periods. As non-vehicular accidental deaths are an important component of causes of death in the postneonatal period (in contrast to causes of death in neonatal period), it is possible that it was the availability of abortions and consequent reductions in the birth of unwanted children that accounted at least partially for the significant reduction in infant mortality.

The most striking evidence of benefit was provided by a study conducted in Sheffield, England (6). From 1973–1979, the rate of deaths considered to be "possibly preventable" dropped from 5.2 to 1.9 per 1000 births. During that period, all infants were scored, at birth, according to their risk of subsequent death. Until 1975, health visitors saw half of the high-risk infants every two weeks up to the age of 20 weeks, and the children attended a special clinic at 5 weeks of age. After 1975, care of all of the high-risk infants was the responsibility of the primary care team. Health visitors were to see the high risk infants more often than they saw other infants: every two weeks up to three months and thereafter every month up to six months, with additional visits as necessary. In 1976, case conferences were instituted for each death, and starting in 1978 these were held in the doctors' offices. Part (12%) of the decline in post-perinatal mortality (after one week but within the first year) was associated with a reduction in risk concerning maternal age and parity; 9% was associated with

a drop in precipitate deliveries (which would mainly influence deaths early in this period of life), and 24% of the reduction in deaths was associated with an increase in breastfeeding. Although 36% of the decline was associated with factors other than those examined (including some that may have been associated with aspects of the medical care intervention), almost one-fifth (18%) of the drop in death rate could be attributed to the medical care program. The death rate of infants who actually received the special intervention was lower than that of infants who did not receive the intervention, even when the analyses were controlled for initial risk score. Of particular interest was that the reduction in deaths was due primarily to reduction in possibly preventable deaths (a reduction of approximately 3.3 per thousand), both those occurring in the home and in the hospital, and not to reductions in deaths associated with congenital malformations or those that were birth-related.

Despite the methodologic difficulties in demonstrating the beneficial impact of medical care (40), the findings of these diverse studies strongly suggest that access to and use of medical care, particularly in the case of families at increased social and biological risk, is associated with reductions in postneonatal mortality. Although not yet studied, the differences in mortality across countries might well be considered at least partially a result of differences in the organization and financing of health services (16).

THE ROLE OF PUBLIC HEALTH

Public Health has always been the leading edge at the frontier of knowledge concerning infant mortality. The greatest strides in understanding the determinants of high mortality in the first year of life and dealing with them effectively came about as a result of the activities of agencies such as the Division of Child Hygiene of the New York City Department of Health. These activities were rapidly taken up by other state and municipal departments of health and by the extension of public health nursing. The success of the efforts, which developed their momentum in the first two decades of this century, depended on the control of the distribution of infant feedings, i.e. the milk supply, by efforts to understand and improve sanitation, and by encouragement of the research and teaching of pediatrics (11). Frankel's address in 1927 to the American Public Health Association (from which the quotation at the beginning of this paper was taken) reviewed the progress that had been made up to that date in improving postneonatal survival.

Recognition of the existence and importance of sudden infant death syndrome was accomplished by astute medical examiners in local health departments; their activities in conjunction with those of bereaved and concerned parents led to a rapid response from the Children's Bureau and, much later, to

recognition of the problem of sudden infant death on the part of the National Institutes of Health and academic researchers (20).

With postneonatal mortality now increasing in relative importance, it is again appropriate to consider the role to be played by public health professionals in its understanding and control. New capacities and capabilities in data management now make it possible greatly to expand and improve knowledge about the distribution and correlates of infant death. There should be no obstacle to the routine linkage of birth and death certificates to provide information about the risk factors in particular population groups and in different geographic areas. Local efforts to map areas of high concentration of postneonatal deaths can focus the attention of researchers and academics on the study of the problem, and can galvanize public attention on issues of highest priority. The examination of infant deaths by month of age, with the routinely separate analysis of deaths and cause of deaths in the first month, in the early postneonatal period, and in the late postneonatal period, should shed light on the importance of different factors in the three periods, even if the accumulation and combination of several years of data are required to obtain sufficient numbers for analysis at the local level.

The wide disparities in postneonatal mortality rates among different countries cries for explanation and provides ample hypotheses for investigation. If postneonatal mortality is, even partly, a result of compromised intrauterine growth, international comparative studies should provide insight on possible determinants of retarded growth, and on the possible beneficial impact of certain types of public health and medical care interventions on both the proximate and underlying reasons for postneonatal deaths.

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A long-term, sustained public information program—similar to that waged on smoking and childhood immunization—could make an important contribution to the prevention of low birth weight. Multiple media would need to be employed to reach a variety of audiences—including the general public, health service providers, low-income women, teenagers and pregnant smokers. Messages could be tailored for media selected to get the best possible coverage of special target audiences. For example, radio music shows may be the best way to reach teenagers, while television soap operas may be more appropriate for housewives. The Healthy Mothers–Healthy Babies Coalition (including both the federal office and its state affiliates) is a logical organization to take the leadership in development and coordination of such a program. Both public and private funds would be necessary for the coalition to undertake this task.

Conclusions

Although much remains to be learned about the causes of low birth weight and the means to prevent it, the Institute of Medicine committee believes firmly that there is enough knowledge and experience already in hand to reach the Surgeon General's 1990 goal for reducing low birth weight if there is sufficient determination on the part of the federal, state and local governments, and of the major health organizations and providers, to put that knowledge to work. A systematic, sustained approach, like that defined here, will require money as well as the political will to take action. The funds required, however, for one of the most important interventions—adequate prenatal care—would be more than made up by the savings in medical care of low-birth-weight babies.

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The Need for Prenatal Care in the United States: Evidence from the 1980 National Natality Survey

By Susheela Singh, Aida Torres and Jacqueline Darroch Forrest

Summary

Seventy-eight percent of U.S. mothers begin prenatal care during the first three months of pregnancy; 18 percent wait until the second three months; and five percent wait until the third trimester or receive no care at all. Patterns of prenatal care vary widely among population subgroups: Mothers younger than 18 and unmarried mothers are the least likely to obtain first-trimester care (49 percent and 56 percent, respectively), and the most likely to obtain care only in the third trimester or none at all (about 12 percent of each group). Women aged 18–19, blacks, Hispanics, poor women and women with little education also have disproportionately high levels of very late or no care (7–9 percent).

Married, white, nonpoor women, in contrast, obtain the most timely prenatal care: In 1980, only two percent initiated care in the third trimester or received no care. Compared with this subgroup of women, the population as a whole has two times the risk of obtaining inadequate care. Unmarried women run the highest relative risk (five times the risk for married, white, nonpoor women), followed by teenagers, Hispanic women, women with little education, poor women and blacks (who have from three to more than four times the risk of the comparison group).

Susheela Singh and Aida Torres are Senior Research Associates, and Jacqueline Darroch Forrest is Research Director, at The Alan Guttmacher Institute. The research upon which this article is based was made possible by support from the Ford Foundation.

Introduction

A substantial literature suggests that prenatal care plays an important role in preventing poor pregnancy outcomes—especially among low-income, minority and adolescent women, who are regarded as high-risk groups.[1] Complications of pregnancy are more likely to occur among women who receive no prenatal care until the third trimester or who receive no prenatal care at all.[2] Black women, who are less likely than white women to receive prenatal care, are more than three times as likely as white women to die as a result of childbirth.[3] Low birth weight is a major predictor of poor infant health and development; babies born to women who receive no prenatal care are at least three times as likely to be of low birth weight as are babies born to women who receive early care.[4]

In recognition of these relationships, national objectives have been formulated that emphasize the importance of making good prenatal care available to all women. The U.S. Surgeon General has called for an increase to at least 90 percent by 1990 in the proportion of women in each racial and ethnic group who receive care in the first trimester of pregnancy.[5] The standards of maternity care developed by the American College of Obstetricians and Gynecologists (ACOG), now widely accepted in medical practice, recommend that every woman have a comprehensive program of prenatal care, beginning as early in the first trimester as possible; for uncomplicated pregnancies, the standards say, that program should generally include return visits every four weeks for the first 28 weeks of pregnancy, one visit every two weeks for the next eight weeks, and one every week thereafter until delivery.[6]

Available data show that use of prenatal services in the United States is widespread, and has increased in recent years (though not to the level targeted by the Surgeon General). Three-quarters of the women who gave birth in 1980 received prenatal care during the first trimester of pregnancy, compared with two-thirds in 1970—and the increase was observed in all age and racial subgroups.[7] Among mothers who received prenatal care, the median number of visits per mother was 11.2 in 1980, up from 10.4 in 1972.[8] Some of the important reasons for the increase in prenatal care in the 1970s were greater awareness of the benefits of medical assessment and treatment early in pregnancy; a rise in public funding to provide maternal and infant health services (including prenatal care) to low-income women; and, as noted, the

development of national targets to improve pregnancy outcomes through early care.

Nevertheless, other trends raise concern about the prospects for achieving the national goals. Although the increase in early prenatal care during the 1970s affected all age and racial subgroups, the proportions of nonwhites and teenagers who received such care remained at lower-than-average levels. Between 1980 and 1982, moreover, a decline occurred among women aged 15–29—and especially those aged 15–19—in the proportions receiving first-trimester care; the decline was observed among all racial subgroups.[9] Tightened eligibility for Medicaid coverage and cutbacks in funding of maternal health services for the poor probably contributed to the change.[10]

Achievement of adequate prenatal care for women in all age, income and racial categories is complicated by the lack of basic information on the number of women who receive insufficient care or no care, and on their characteristics. There exists no single or optimal measure of the size of the population that receives adequate or inadequate care, because there are many aspects of prenatal care to consider—for example, duration of the pregnancy at the time care is initiated, number of visits, and content and quality of care. The number of visits and the content of care that is necessary for a particular woman depend on the woman's health before and during the pregnancy and on her exposure to such risk factors as previous cesarean delivery, use of alcohol, drugs or tobacco, and genetic disorders. Some women may also need services besides medical care (e.g., nutrition services and parent training).

The most fundamental definition of adequate prenatal care is based on timing of the first visit, but even when timing alone is considered, there are different ways of defining adequacy. For example, one measure that has been used, in monitoring trends and setting goals, is the proportion of women whose first visit is made in the first trimester. Another, narrower definition, which has wide support among health professionals, classifies care as inadequate if there are no prenatal visits at all, or if the visits do not begin until the third trimester of pregnancy. Care begun so late is considered deficient because it cannot include meaningful screening, and preventable health problems may already have developed. Some researchers use the ACOG standards, which specify both the number and the timing of prenatal visits, to classify care as inadequate, intermediate or adequate. None of these definitions incorporate quality or content of care. Research on the components of prenatal care, for which there is certainly a need, would address some of the questions concerning quality or content of care; but it is on these aspects of care that data are least available.

Two main types of need exist: the need to educate women, to improve their knowledge of the importance of adequate prenatal care; and the need to publicly fund programs to help poor and other disadvantaged women obtain adequate care.

The purpose of this article is to identify those women who receive inadequate prenatal care, based on the narrower definition mentioned above (no prenatal visits at all, or no visit until the third trimester). National data on timing of the first visit are available from birth certificates and from two nationally representative surveys. Using these data, we examine the proportions receiving inadequate care according to age, race, marital status, residence, education and poverty status—variables expected to be related to the level of inadequate care.[11] Since publicly funded programs are directed largely toward low-income women, we also examine poverty status in combination with other factors. The analysis is preliminary and limited to simple cross-tabulations and distributions. Subsequent multivariate analyses will examine factors related to inadequate prenatal care in greater depth. We view the analysis presented in this article as the first step in defining more precisely the size and characteristics of the population in need of subsidized prenatal care.

Data and Methodology

The analysis draws upon data from three sources:

- published tables of vital statistics for 1980, based on information from birth certificates;[12]
- the National Natality Survey (NNS), which collected data from a representative sample of 9,941 birth certificates for 1980, from detailed interviews with most of the married mothers represented by those births, and from hospital/physician questionnaires;[13] and
- the 1982 National Survey of Family Growth (NSFG), which provides data from a nationally representative sample of 7,969 women aged 15–44 on births occurring between January 1979 and the date of interview.[14]

The main source for this article is the NNS, supplemented by the NSFG. The data on prenatal care available from the published vital statistics tables are very limited; we have used the tables as a check on the NNS estimated distributions of births by age, race and trimester in which prenatal care began. The table below compares the distribution of births by trimester based on each source, plus the percentage of women in each racial and ethnic category receiving third-trimester care or no care:

Measure	Vital stats.	NNS
Trimester	100.0	100.0
1st	76.3	77.8
2nd	18.6	17.5
3rd	3.8	3.6
No care	1.3	1.0
Race	5.1	4.6
Black (non-His.)	8.8	7.1
White (non-His.)	4.3	4.2
Hispanic	12.0	9.1

The NNS estimates show a slightly lower level of inadequate prenatal care than do the published vital statistics—4.6 percent (about 169,000 women), compared with 5.1 percent (about 185,000). The NNS also indicates a greater degree of underreporting of inadequate care among blacks and Hispanics than among whites. The relative conservatism of the NNS in describing the level of inadequate care should be borne in mind.

We have used weighted and imputed data from the NNS birth certificates rather than from the survey of mothers, because the birth certificate results are closer to the national vital statistics distributions, and because it was deemed preferable to use the same source for both unmarried and married mothers (the former were not interviewed in the NNS). Data from the hospital/physician questionnaires have not been used for this analysis, since an evaluation of the 1972 NNS indicated that those questionnaires tended to omit care administered by other physicians before the woman became a patient of the responding physician or hospital.[15]

The NNS furnishes information on sociodemographic characteristics associated with each mother (marital status, metropolitan residential status, Hispanic background, educational attainment and poverty status). For married women, data on educational attainment and Hispanic ethnicity are supplied by the mothers' questionnaires; for unmarried women, the data come from the birth certificates (only 22 states recorded Hispanic origin on birth certificates, but these states covered approximately 90 percent of all Hispanic births[16]). We have estimated poverty status for married women by using 1980 official poverty thresholds[17] in

Table 1. Number and percentage distribution of U.S. births by selected demographic and socioeconomic subgroups; and for each subgroup, percentage distribution of births by trimester in which prenatal care was begun; 1980

Subgroup	Births		Trimester in which care was begun				
	No. (in 000s)	%	1st	2nd	3rd	No care	Total
Total	3,612	100.0	77.8	17.5	3.6	1.0	100.0
Age-group							
<18	208	5.7	48.5	38.9	10.3	2.4	100.0
18–19	355	9.8	64.1	27.8	6.2	1.9	100.0
20–24	1,226	33.9	76.6	18.5	3.9	1.0	100.0
25–29	1,107	30.6	85.6	11.7	2.1	0.6	100.0
30–34	561	15.5	84.7	12.2	2.2	1.0	100.0
≥35	156	4.3	78.1	18.3	2.8	0.8	100.0
Race/ethnicity							
Black (non-Hispanic)	553	15.3	64.9	27.9	5.2	1.9	100.0
White (non-Hispanic)*	2,778	76.9	81.4	14.9	3.0	0.7	100.0
Hispanic†	282	7.8	68.3	22.6	6.8	2.3	100.0
Marital status							
Married	2,945	81.5	82.8	14.2	2.5	0.5	100.0
Unmarried	668	18.5	56.0	32.2	8.5	3.3	100.0
Residence							
Metropolitan	2,406	66.6	79.0	16.5	3.4	1.2	100.0
Nonmetropolitan	1,206	33.4	75.4	19.5	4.2	0.8	100.0
Education (yrs.)							
<12	839	23.2	61.6	29.1	7.0	2.3	100.0
12	1,617	44.8	80.1	15.9	3.2	0.9	100.0
≥13	1,156	32.0	86.5	11.2	1.9	0.4	100.0
Poverty status							
<150%	1,158	32.1	65.6	25.8	6.5	2.1	100.0
150–249%	902	25.0	80.8	16.8	1.7	0.8	100.0
≥250%	1,552	43.0	85.3	11.7	2.6	0.4	100.0

*In this and following tables, category includes Native Americans and women of Asian/Pacific origin.

†The proportion of Hispanic births from the NNS is an underestimate of the national total, which is expected to be about 8.5 percent (the 22 states with information on ethnic origin from birth certificates reported 307,163 mothers of Hispanic origin [see reference 16]). This higher estimate falls just outside the 95 percent confidence interval around the NNS figure of 7.8 percent—a result probably due to the fact that Hispanic origin was omitted from the factors (age, race, marital status, birth order and birth weight) on which the NNS weights for reproducing national totals were based.

combination with the family income and household size (the number of children living in the household, plus the parents) reported in the married mothers' questionnaires. Poverty status information for unmarried women has been derived from the 1982 NSFG, since the NNS lacks such data.

The 1982 NSFG, which included all women regardless of marital status, contains prenatal care data for all births that occurred between 1979 and 1981. We have used only the last birth of each respondent (if there was more than one birth during the period) in order to avoid a potential source of bias—namely, if women who had had more than one birth had a higher probability of earlier or later prenatal care than the average, inclusion of all of their births would bias estimates of prenatal care for a given year. Since the three-year observation period does center on 1980, the NSFG should provide reasonable estimates for women not married in that year. To estimate the distribution of births among unmarried women according to poverty status, we have applied the poverty status distribution of unmarried mothers in each prenatal care category from the NSFG to the number of births to unmarried women in that category from the NNS. Because of the small number of births on which they are based, the resultant estimates for unmarried women are reliable only within larger subgroups. Results for married women are much more stable.

Compared with the NNS, the NSFG shows a slightly higher proportion of married women who are poor (25.6 percent, as against 24.0 percent in the NNS). The difference may be due partly to a real increase in poverty between 1979 and 1981, and partly to other, unknown factors. If the slight overestimate for married women in the NSFG applies equally to unmarried women, then the overall proportion of births to poor women used in this analysis may be marginally overestimated.

The definition of marital status employed here is the same as that used in vital statistics reporting—married women are those who are currently married, even if separated; unmarried women are those who, at the time of the birth, had never been married, had been widowed or were divorced.*

Need for Prenatal Care

In this analysis, we define the number of women needing prenatal care to be equal to the number who give birth in a given year.† Although the analysis is carried out for 1980 births, the results do provide a rough picture of the overall situation during the early 1980s: The total annual number of births remained relatively stable after 1980, rising each year by one percent or less between 1980 and 1982 (from 3,612,000 to 3,681,000); but the proportion of women receiving prenatal care in the first trimester declined somewhat during 1981–1982. Therefore, we believe that the 1980 results provide minimum estimates of inadequate prenatal care for the first years of the decade.

Table 1 shows, for each of 19 population subgroups, the percentage distribution of 1980 births by the trimester in which prenatal care was begun. Also presented are the number and proportion of total births that each subgroup contributed, since these data are needed to put any evaluation of the adequacy of prenatal care into perspective. Subgroups that might be expected to show higher rates of inadequate care account for substantial proportions of births—very poor women, for example, contributed 32 percent of all births in 1980; the least-educated women, 23 percent; unmarried women, 19 percent; teenagers, 16 percent; and black women, 15 percent. Elevated rates of inadequate care among these subgroups would, therefore, have an important effect on the national rate.

*Eleven states did not record marital status on the birth certificate; for those states, the National Center for Health Statistics followed its standard practice of imputing marital status by matching surnames (see: NCHS, *Vital Statistics of the United States, 1980: Vol. 1—Natality*, 1981 addendum to technical appendix [mimeo]).

†More comprehensive estimates of the total number of women needing prenatal care during a given year could be computed by including pregnancies that result in miscarriages and stillbirths as well as pregnancies that end in live births during the following year. The National Fetal Mortality Survey, carried out in conjunction with the NNS, has data on prenatal care for women whose pregnancies ended in stillbirths, but stillbirths constitute a very small proportion of all involuntary fetal losses (about 0.5 percent of all live births).

Overall, four percent of mothers in 1980 did not visit their doctor until the third trimester of pregnancy (about 131,000 women), and one percent did not visit the doctor at all before giving birth (about 38,000 women). In addition, 18 percent of mothers made their first visit only during the second trimester (632,000 women). Seventy-eight percent of mothers received care in the first trimester—a proportion 12 points short of the national objective, but still representative of the large majority of women. Patterns of care, however, vary widely among subgroups. Only 49 percent of mothers younger than 18 received care in the first trimester, as did only 56 percent of unmarried mothers, 62 percent of the least-educated women, and 64–68 percent of older teenagers, blacks, very poor women and Hispanic women. Among these women, levels of inadequate care (third trimester only, or none at all) ranged from seven percent to 13 percent. Other subgroups in contrast, had above-average rates of care in the first trimester—for example, women aged 25–34 (about 85 percent), married women (83 percent), highly educated women (87 percent), the most affluent (85 percent) and whites (81 percent).

The disadvantage of adolescents with respect to prenatal care appears within racial, residential and educational subgroups (see Table 2). The proportion obtaining very late care or no care is often twice as high among teenagers as it is among 20–24-year-olds, and three times as high as among those aged 25 and older. Two interesting exceptions occur, however: Among Hispanic mothers and the least-educated mothers, the incidence of inadequate care is nearly as high among 20–24-year-olds (11 percent and nine percent, respectively) as it is among teenagers (12 percent and 11 percent); and even among those 25 and older, the proportions with inadequate care are greater than average (6–7 percent, compared with 2–4 percent for older women in other subgroups). Practically all of the differences across ages within subgroups, and several of the differences across subgroups within age categories, are highly statistically significant.

As was seen in Table 1, unmarried mothers had the second-worst prenatal care record in 1980—only 56 percent had first-trimester care, and 12 percent had very late or no care. Table 3 shows, in greater detail, the association of marital status with the likelihood of receiving inadequate care. The "total" columns indicate the very large differences that exist between married and unmarried women in each racial, residential and educational subgroup. Unmarried women typically have almost four times the level of inadequate care found in the corresponding subgroup of married women. However, for two subgroups, black mothers and the least-educated mothers, there is a smaller relative difference between married and unmarried members—the ratio is closer to 2:1. The differences between all married and all unmarried women within each subgroup are statistically significant.

Table 2. Percentage of mothers receiving inadequate prenatal care (third trimester only, or no care), by age-group, according to race/ethnicity, residence and education

Subgroup	Age-group		
	<20	20–24	≥25
Total	9.8	4.9	2.9
Race/ethnicity			
Black (non-His.)	12.8	6.4	3.6
White (non-His.)	8.3	3.9	2.5
Hispanic	11.9	11.4	6.4
Residence			
Metropolitan	10.3	4.8	2.7
Nonmetropolitan	8.9	5.3	3.4
Education (yrs.)			
<12	11.4	8.7	6.6
12	7.1	4.0	3.2
≥13	(9.9)*	3.5	1.7

*In this and following tables, unstable estimates (based on fewer than eight women in the cell, using unweighted numbers) are indicated by parentheses.

Note: Most of the differences between age-groups are statistically significant at $p<0.05$ using the two-tailed t-test (exceptions—20/20–24 comparison: Hispanic women, women with <12 years of education and women with ≥13 years of education; 20–24/≥25 comparison: women with <12 years of education and women with 12 years of education). Most of the differences between subgroups within each age-group are not significant (exceptions—<20: blacks vs. whites, and <12 vs. 12 years of education; 20–24: whites vs. Hispanics and <12 vs. 12 years of education; ≥25: whites vs. Hispanics, <12 vs. 12 years of education, and 12 vs. ≥13 years of education).

Significant differences are also found between married and unmarried women within each of the three age-groups, especially the younger groups. Unexpectedly, in the 20–24 age-group, the difference between the married and the unmarried is about as large as it is in the teenage group—even though 20–24-year-olds as a group are half as likely as teenagers to receive inadequate care. Even among mothers 25 and older, the proportion receiving inadequate care is significantly higher among the unmarried than among the married. Clearly, although increasing age brings some improvement in the adequacy of care received by each marital status group, unmarried women are much more likely to obtain inadequate care, at all ages.

This pattern of age and marital status differences characterizes all of the subgroups shown in the table except blacks 25 and older. Nearly all of the differentials are statistically significant; and the few that are not are in the expected direction. Among teenagers, only blacks fail to show significantly different levels of inadequate care among the married and the unmarried (eight and 14 percent, respectively); the small number of married black teenagers, and the large proportion of their births that are conceived premaritally, may account for the lack of significance. However, among 20–24-year-olds, the marital status differentials are significant in all subgroups, with the unmarried typically having 2–4 times as high a probability of obtaining inadequate care as the married. Even at ages 25 and older, all but three subgroups (blacks, and women with the least and the most education) show significant differences between their married and unmarried members; among Hispanics and nonmetropolitan

Table 3. Percentage of mothers receiving inadequate prenatal care, by marital status and age-group, according to race/ethnicity, residence and education

Subgroup	Married				Unmarried			
	Total	<20	20–24	≥25	Total	<20	20–24	≥25
Total	3.1	5.0	3.4	2.5	11.8	14.8	11.4	7.0
Race/ethnicity								
Black (non-His.)	3.8	7.8	3.0	3.6	9.6	13.6	8.8	3.7
White (non-His.)	2.8	4.6	3.0	2.3	12.5	15.3	12.6	[illegible]
Hispanic	5.9	6.5	8.8	3.9	18.5	20.3	17.9	[illegible]
Residence								
Metropolitan	2.8	5.1	3.1	2.4	11.1	14.6	10.8	5.9
Nonmetropolitan	3.5	5.0	4.0	2.8	13.7	15.5	13.0	10.8
Education (yrs.)								
<12	6.5	6.7	6.9	6.0	13.8	15.4	12.5	9.4
12	2.7	3.0	2.7	2.7	10.4	13.0	10.4	7.5
≥13	1.8	3.4	2.3	1.6	8.8	(23.7)	11.6	3.8

Note: The differences between all married and all unmarried women within each subgroup are statistically significant at $p<0.05$ using the two-tailed t-test. Differences between married and unmarried women in each age-group are significant except among the following subgroups: <20: blacks; ≥25: blacks, women with <12 years of education and women with ≥13 years.

Table 4. Percentage of mothers receiving inadequate prenatal care, by poverty and marital status,* according to age-group, race/ethnicity, residence and education

Subgroup	Poor (<150%)		Nonpoor (≥150%)	
	Married	Unmarried	Married	Unmarried
Total	5.4	13.6	2.3	7.9
Age-group				
<20	5.7	16.4	4.6	11.4
20–24	5.9	11.3	2.5	6.4
≥25	4.9		2.0	
Race/ethnicity				
Black (non-His.)	4.9	12.3	2.9	3.8
White (non-His.	5.1	(12.0)	2.2	(12.8)
Hispanic	8.3	(25.4)	4.5	(3.4)
Residence				
Metropolitan	5.5	12.5	2.1	8.4
Nonmetropolitan	5.3	(16.7)	2.8	(6.4)
Education (yrs.)				
<12	8.6	16.5	4.9	3.9
12	4.9	(9.9)	2.0	(9.6)
≥13	0.8		1.9	

*Data for married women are from the NNS. For unmarried women, estimates have been computed by applying poverty status distributions from the NSFG (among women grouped by trimester of care) to the numbers of unmarried women in the NNS receiving adequate and inadequate care. Because the NSFG sample of births to unmarried women is small, and the numbers of unmarried women in the NNS within subgroups is often extremely small, the resulting estimates for poor unmarried women are sometimes unstable. Some subgroups have been combined because of the very small numbers of cases.

Note: Differences between poor and nonpoor woman are statistically significant at $p<0.05$ using the two-tailed t-test except among the following subgroups: married women; teenagers, blacks, Hispanics and women with ≥13 years of education; unmarried women; whites and women with ≥12 years of education.

women, the differentials are large. The persistence of the difference between married and unmarried mothers suggests that certain basic characteristics of unmarried women, cutting across all other characteristics, affect their chance of obtaining prenatal care early in pregnancy. Unmarried women, for example, may be more likely to have unintended pregnancies, to be poor (since they have one income only) and to receive limited support from their families.

One unexpected finding in Table 3 is the higher level of inadequate care among unmarried whites than among unmarried blacks. The difference between these groups as a whole is statistically significant; while it is not significant for the three age-groups, the difference in each case is in the same direction. The unmarried constitute a much smaller proportion of all white mothers than of all black mothers (11 percent vs. 57 percent—not shown). As a "minority" group, unmarried white mothers may well be selected for particular characteristics, and this greater selectivity could partly account for the disadvantaged position of unmarried whites. The "minority" status of unmarried white mothers may also imply that less social and familial support is given to them, since being an unmarried mother represents relatively more deviant, and therefore less accepted, behavior among whites.

The women with the poorest pattern of care are unmarried Hispanic mothers, who are twice as likely as unmarried blacks and 1.5 times as likely as comparable whites to receive only third-trimester care or no care. (Both differences are statistically significant.) The differentials are smaller among teenagers, but larger among mothers 25 and older (only the results for the older women are significant, however). Among married women, Hispanics are once again more likely to obtain inadequate care than are either blacks or whites (although only the latter comparison is significant). The greater disadvantage of Hispanic women relative to other subgroups may stem from high levels of poverty, relatively low levels of education and, possibly, problems in adapting to the medical care system of a country with a different culture and language.

As Table 1 illustrated, low income is also associated with a greater likelihood of receiving inadequate prenatal care. Poor women (those with family incomes below 150 percent of the federal poverty level) contributed one-third of all births in 1980; only 66 percent of those women received prenatal care during the first trimester of pregnancy, while nine percent received very late care or no care at all. Among nonpoor women, in contrast, the proportions were 84 percent and three percent, respectively. (Because of the extremely low level of income represented by the poverty line itself—$8,385 in 1980—150 percent of poverty has been used in this analysis as the cutoff point to distinguish the poor from the nonpoor.[18]) Within each poverty status category, the patterns of prenatal care differ according to marital status:

Poverty and marital status	Trimester in which care was begun			
	1st	2nd	3rd	No care
<150% poverty				
Married	72	23	5	1
Unmarried	56	31	10	4
≥150% poverty				
Married	86	11	2	1
Unmarried	57	36	7	1

Poor mothers are more likely than the nonpoor to receive inadequate care whether they are married or unmarried—among the married, six percent compared with three percent, and among the unmarried, 14 percent compared with eight percent. These results suggest that being poor and being an unmarried mother are both strong determinants of inadequate care.

Table 5. Number and percentage distribution of mothers receiving inadequate prenatal care, according to subgroup

Subgroup	Care in 3rd trimester only, or no care		Care in 2nd trimester or later, or no care	
	No. (in 000s)	%	No. (in 000s)	%
Total	169	100.0	801	100.0
Age-group				
<20	55	32.5	234	29.2
20–24	61	36.1	287	35.8
≥25	53	31.4	280	35.0
Race/ethnicity				
Black (non-His.)	39	23.1	194	24.2
White (non-His.)	104	61.5	518	64.7
Hispanic	26	15.4	89	11.1
Marital status				
Married	90	53.3	507	63.3
Unmarried	79	46.7	294	36.7
Residence				
Metropolitan	108	63.9	504	62.9
Nonmetropolitan	61	36.1	296	37.0
Education (yrs.)				
<12	77	45.6	322	40.2
12	65	38.5	322	40.2
≥13	27	16.0	157	19.6
Poverty status				
<150%	100	59.2	399	49.8
150–249%	22	13.0	173	21.6
≥250%	47	27.8	229	28.6

Among subgroups that have higher overall levels of inadequate care—blacks, Hispanics, nonmetropolitan women and the least-educated women (but not adolescents)—poverty makes a greater difference for unmarried women than for married women (see Table 4). In the black subgroup, for example, the level of inadequate care is nearly twice as high among the married poor as among the married nonpoor; but among unmarried mothers, the poor are more than three times as likely as the nonpoor to receive deficient prenatal care. Income makes much less of a difference for unmarried women in the white, metropolitan and better-educated subgroups. Although these conclusions are based on small samples, the pattern of results suggests that among unmarried women, the effect of poverty on prenatal care varies across subgroups—being greater in the groups with poorer levels of care, and smaller in those with better care—whereas among married women, poverty has a small but consistent effect on adequacy of care in all subgroups.

Unmet Need for Prenatal Care

As the preceding tables have shown, the women who are most likely to obtain inadequate prenatal care are not distributed evenly across population subgroups. Two sources of unevenness exist—the absolute size of these subgroups (and thus the number of births they have) and their relative risk of receiving inadequate care; both deserve attention. Table 5 shows the number and percentage distribution of mothers in 1980 who obtained inadequate care, according to subgroup. Two sets of data are presented, which represent minimum and maximum estimates derived from the use of two definitions of inadequate care: the narrower measure used thus far (care begun in third trimester, or no care) and a broader measure (care begun in second trimester or later, or no care). Under these definitions, the number of mothers receiving inadequate care in 1980 ranged from 169,000 (five percent of all mothers) to 801,000 (22 percent). Regardless of the measure used, the data show that in sheer numbers, the women who make up the majority of those receiving inadequate prenatal care are younger than 25, white, married, located in metropolitan areas, less educated and poor. Although the white, married and metropolitan subgroups are less likely than other groups to receive inadequate care, the larger absolute size of each outweighs its lower risk, and thus results in its accounting for a substantial proportion of all mothers who obtain inadequate prenatal care (53–64 percent under the narrower measure, and 63–65 percent under the broader one).

The distributions in Table 5 do not accurately represent the relative risks of inadequate care among subgroups, however. One way of measuring relative risk is to compare each subgroup's share of total births (see Table 1) with its share of births preceded by inadequate prenatal care (see Table 5). The following subgroups are found in this manner to have disproportionately high risks of inadequate care (third trimester only, or none):

Subgroup	% of all births	% with inadequate care
Aged <20	16	33
Unmarried	19	47
Black (non-His.)	15	23
Hispanic	8	15
<12 years ed.	23	46
<150% poverty	32	59

These groups make about twice as large a contribution to births with poor prenatal care as they do to total births. (A similar but slightly weaker disproportionate relationship is observed when the broader definition of inadequate care is used—not shown.) The logical corollary to this conclusion is that corresponding subgroups (older, married, white, better-educated, nonpoor) have lower-than-expected levels of inadequate care.

A more straightforward way of expressing differences in relative risk is to compare all other subgroups with the group that is considered to have the best level of care at the current time. Married, white, nonpoor women have one of the lowest levels of inadequate care, although the pattern they exhibit is by no means ideal: In 1980, two percent of this group initiated prenatal care in the third trimester or received no care; 13 percent started care in the second trimester or later, or received no care. The risks of inadequate care for all other subgroups relative to this "standard" group are shown in Table 6. As in Table 5, minimum and maximum risks are presented. The population as a whole has 1.7–2.0 times the risk of obtaining deficient prenatal care as married, white, nonpoor women. However, the disadvantage of certain subgroups is much more extreme. Unmarried women run the highest relative risk; they have a level of late or no care that is 5.1 and 3.3 times the standard group's, depending on the definition used for "inadequate." Compared with the reference group, teenagers, blacks, Hispanic women, those with little education, and poor women exhibit relative risks ranging from 3.1 to 4.3 (narrower definition) and from 2.4 to 3.1 (broader definition). The subgroups closest to the standard, best-off group are highly educated women, the most affluent women, women 25 and older and married women.

Table 6. Risk of inadequate prenatal care for the total population and for each subgroup, relative to the risk for married, white, nonpoor women

Subgroup	Care in 3rd trimester, or no care	Care in 2nd trimester or later, or no care
Married, white, nonpoor (≥150% pov.)	1.0*	1.0*
Total population	2.0	1.7
Age-group		
<20	4.3	3.1
20–24	2.0	1.8
≥25	1.3	1.2
Race/ethnicity		
Black (non-His.)	3.1	2.6
White (non-His.)	1.6	1.4
Hispanic	4.0	2.4
Marital status		
Married	1.4	1.3
Unmarried	5.1	3.3
Residence		
Metropolitan	2.0	1.6
Nonmetropolitan	2.2	1.9
Education (yrs.)		
<12	4.0	2.9
12	1.7	1.5
≥13	1.0	1.0
Poverty status		
<150%	3.7	2.6
150–249%	1.1	1.5
≥250%	1.3	1.1

*Risk of 1.0 for standard group represents a level of inadequate care of two percent (narrower measure) and 13 percent (broader measure). For each other subgroup, risk is computed by dividing proportion in that subgroup receiving inadequate care by proportion in standard group receiving comparable care.

Implications

This brief review of current levels of and differentials in prenatal care has implications for policy. It should be emphasized that although the data in this article are for 1980, the conclusions drawn from them apply as well to subsequent years, since the most recent national estimates of prenatal care show a decline in early care in most subgroups between 1980 and 1982. The data presented here reveal that in 1980, 18 percent of all mothers did not initiate prenatal care until the second trimester of pregnancy, and another five percent either waited until the third trimester or received no care at all. This finding suggests that unless some direct action is taken to upgrade the current pattern of care, the nation will probably not achieve the objective of ensuring that by 1990, at least 90 percent of mothers in every population subgroup visit the doctor within the first trimester of pregnancy. That standard, enunciated by the Surgeon General, reflects widespread acceptance of the argument that early prenatal care is associated with better health outcomes for mother and child. Although studies carried out so far have not conclusively proved the association to be a causal one (because of problems with the data available),[19] the argument is intuitively reasonable.

Beyond this basic implication, the data suggest that two main types of need exist:

- The need to educate women, in order to improve their knowledge of the purpose and importance of adequate care during pregnancy. This need is especially salient in the case of women who presumably can afford adequate care but nevertheless do not obtain it. Such women, in fact, constitute a substantial proportion of those who receive inadequate care. Of the 169,000 women who obtained only third-trimester care or no care in 1980, about 40 percent had family incomes at or above 150 percent of the poverty level; of the 801,000 women who initiated care in the second trimester or later or who had no care, about 50 percent were above 150 percent of

poverty, it should also be noted that nonpoor mothers are more likely to be married, 25 or older, white and better educated (not shown). The need for education is relevant to poor women as well as to the nonpoor. Although poverty may be a barrier to the receipt of early prenatal care, poor women may also be insufficiently aware of the benefits of utilizing such care, should it be made available.

• The need to publicly fund programs to help poor women and other disadvantaged groups obtain adequate care during pregnancy. The strongest case may be argued for women who have family incomes below 150 percent of the poverty level—in 1980, nine percent of mothers in this group (about 100,000 women) received no care until the third trimester or no care at all, and 35 percent (about 400,000 women) received no care until the second trimester or later. Poor mothers are more likely to be unmarried, younger than 25, black or Hispanic, and less educated (not shown). Indeed, this article has shown that of all subgroups, teenage mothers and unmarried mothers have the highest levels of inadequate prenatal care—higher even than the level among poor women as a whole. For example, 44 percent each of teenage mothers and of unmarried mothers did not visit the doctor until the second trimester or later, compared with 35 percent of poor mothers. The need among teenage and unmarried mothers for public assistance, in the form of education and service provision, is evidently as strong as the need among poor mothers.

The benefits accruing to society as a whole from good prenatal care cannot be denied. The fact that only a few states will achieve the national goal for 1990 deserves serious consideration and action by policy-makers.[20] However, the complexity of the issue of need must be acknowledged. It is possible, for instance, that women who initiate early prenatal care also take other steps, independently of a physician's advice, that improve their pregnancy outcomes. The reverse may also be true—women who delay obtaining prenatal care until late in their pregnancy may make other health and behavioral decisions that are detrimental to pregnancy outcomes. It would seem that the twin objectives of improving the use of prenatal care among disadvantaged groups and expanding our understanding of the causes and consequences of inadequate care should be pursued simultaneously.

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Background Paper on Universal Maternity Care

COUNCIL ON MATERNAL AND CHILD HEALTH,
NATIONAL ASSOCIATION FOR
PUBLIC HEALTH POLICY

PREFACE

IT has been known for years that comprehensive prenatal care can yield healthier babies, prevent human suffering, and save money by greatly reducing the need for costly hospitalization for sick babies. The 1985 Institute of Medicine report, *Preventing Low Birthweight*, states, " . . . the overwhelming weight of evidence is that prenatal care reduces low birthweight. This finding is strong enough to support a broad, national commitment to ensuring that all pregnant women in the United States, especially those at medical or socioeconomic risk, receive high quality prenatal care" (1).

Timely access to prenatal care has deteriorated in this country for two consecutive years (2). According to the Institute of Medicine, the underlying cause of the problem of inadequate access to prenatal care is "the nation's patchwork, nonsystematic approach to making prenatal services available . . . Without a structure of accountability, gaps in care will remain and efforts to expand prenatal services will continue to face major organizational and administrative difficulties" (3).

Yet, according to the University of Pennsylvania's Dr. Marie McCormick, if this country is to experience further improvement in infant mortality, it must do so through reducing the low birthweight rate (4). Acknowledging 1) that America's infant mortality rate remains unacceptably high compared to other developed countries (5), 2) that to further reduce infant mortality we must first reduce low birthweight, and that 3) this may be accomplished, in part, through improving access to high quality prenatal care, it follows that a national program of universal maternity care has great potential for improving both infant health and infant survival. In addition, numerous reports from states and the Institute

Carolyn

of Medicine report have documented that investment in high quality health care for pregnant women will also save wasted expenditures in the first year of a sick newborn's life and later on (6). Such care should be comprehensive in scope, from early pregnancy testing through the postpartum and newborn infant visits. This care should be accessible to all pregnant women, without regard to personal or financial considerations.

The Institute of Medicine's Committee on Low Birthweight recommends that Federal and state governments take specific actions to assume responsibility for making such services available (7). Taking the Institute of Medicine's recommendations a step further, the National Association for Public Health Policy's Council on Maternal and Child Health has concluded that universal maternity care, mandated by the Federal government and administered by state health departments, would be the most effective and efficient way to improve the health of our mothers and babies. The following background paper discusses the need for such a program and suggests a number of recommendations for making universal maternity care a reality.

THE GOAL: COMPREHENSIVE MATERNITY CARE FOR ALL

What is Comprehensive Maternity Care?

Comprehensive maternity care includes care from the time pregnancy is first diagnosed through the postpartum visit. Comprehensive maternity care encompasses a broad spectrum of services that should be readily available so that a unique prescription for care can be developed to meet the individual needs of each expectant mother. Providers of comprehensive maternity care services should be prepared to offer:

- pregnancy testing
- early registration with labor and delivery services
- clinical assessment
- laboratory testing
- identification of high risk patients and referral for appropriate care
- nutritional assessment, counseling, and referral to appropriate feeding programs such as the Special Supplemental Feeding Program for Women, Infants, and Children (WIC) and Food Stamps
- health education and counseling
- social services
- labor and delivery services
- postpartum care, including family planning services (8).

Health in pregnancy depends on the mother's general prepregnancy health, personal health habits (e.g., tobacco and/or alcohol use), nutrition, stress, and other considerations in addition to the quantity and quality of prenatal care. Therefore, this broad approach to services is needed to maximize the potential of each pregnancy.

THE POTENTIAL: HEALTHIER BABIES

Can Comprehensive Maternity Care Make a Difference?

Research and experience have shown that comprehensive prenatal care can make a critical difference in the health of mothers and the survival of infants. Comprehensive prenatal care can eliminate or reduce the effects of specific diseases or disorders in the pregnant woman—for example, diabetes, anemia, hypertension in pregnancy, blood incompatabilities, venereal disease, and urinary tract infections—all of which can lead to grave consequences for the infant unless properly treated (9).

Comprehensive prenatal care can also decrease the likelihood of a baby being born too small—less than five pounds, eight ounces—a problem called "low birthweight" (LBW). Low birthweight is the single most important factor associated with infant mortality. In the U.S., low birthweight infants account for two-thirds of neonatal deaths (under 28 days) (10) and 50% of deaths in the first year of life (11). Low birthweight infants are also far more likely to suffer from permanent handicapping conditions such as mental retardation, birth defects, growth and development problems, blindness, autism, cerebral palsy, epilepsy, and respiratory distress syndrome (12). Babies born at low birthweight, including one out of every three weighing less than 1500 grams at birth (about three and a third pounds), continue to experience significant illness requiring hospitalization or extended care throughout the first year of life (13).

The low birthweight rate among infants born to women who received no prenatal care was almost three times that of the general population. The National Center for Health Statistics reports that in 1982 the low birthweight rate was 19.6% among infants born to women with no prenatal care. In contrast, the overall incidence of low birthweight births in the U.S. was 6.8% (14).

The March of Dimes Birth Defects Foundation has documented nationally that if a woman has 13 to 14 prenatal visits, she would have only a 2% chance of having a low birthweight baby. If she has no prenatal visits, however, her risk of having a small baby would be over 9% (15).

Evaluations of maternity care programs throughout the country have consistently shown that comprehensive prenatal care can bring dramatic improvements in pregnancy outcome.

- In the late 1970s, women who received comprehensive maternity care from the Cleveland, Ohio, Maternity and Infant Care (MIC) Project experienced 60% less perinatal mortality and 25% fewer preterm deliveries than comparable women not enrolled in the project (16).
- Within a two-year period, the Providence, Rhode Island, MIC Project experienced a 25% decrease in infant mortality rates in the areas it served (17).
- The Obstetrical Access Project in California provided comprehensive prenatal, delivery, and postpartum care to women in 13 underserved counties. Participants in the program had a 33% lower incidence of low birthweight compared to a matched group of nonparticipating Medi-Cal patients. The incidence of very low birthweight babies (less than about three and a third pounds) was 61% lower (18).
- Su Clinica Familiar, a migrant primary health care clinic, was established in 1972 in the Texas Rio Grande Valley. The clinic offers culturally-sensitive, comprehensive maternity services to its predominantly Mexican-American clientele. The incidence of low birthweight among clinic deliveries was only 4.4%. The rate of premature births was 3.5%. At the same time, the prematurity rate for all births was 7.6% in Texas, and 7.4% for the U.S. (19).

While the largest difference in newborn health is between those infants born to mothers who received *any* prenatal care versus those born to women who have had *no* prenatal care, the number of prenatal visits also makes a difference, with the risk of poor health decreasing with more and earlier visits during the pregnancy (20).

- In the California OB Access Project, LBW rates were substantially lower (2.8%) for women who began prenatal care in the first trimester, as well as for those who received the full package of comprehensive services, as compared to those who only had a partial package (7.2%) (21).
- In Oakland, California, an evaluation of the Oakland Perinatal Health Project (OPHP)—a comprehensive care project providing clinical, outreach, and support services for low income pregnant women and their infants—showed that between 1978 and 1981, for OPHP patients who

had ten or more prenatal visits, the LBW rate was 3%; for those with 5–9 visits, 10%; and for less than 5 visits, the LBW rate was 12.4%. Each prenatal visit was associated with a 13.6 gram increase in birthweight (22).
- In an Oregon prepaid health care program in 1983, "with maternal risk held constant, low birthweight, neonatal mortality, and infant mortality were 1.5 to 5 times greater with late, less frequent prenatal care than with early, more frequent prenatal care" (23).

Only Federal leadership can reduce inequities that exist in the utilization of maternity care and in the health status of different groups of women and infants in the U.S. Recent evidence suggests that while the association between receipt of prenatal care and improved pregnancy outcome holds for all sociodemographic groups, the relative impact of this association varies. The greatest improvement in maternal and infant health can be expected if programs are designed to meet the needs of the most socially disadvantaged groups, namely, the low income, the poorly educated, and minority women (24,25,26).

Recommendations

In order to further reduce infant mortality, public and private efforts must focus on reducing low birthweight through making available appropriate comprehensive maternity services to all pregnant women.

The successful strategies of state and Federal demonstration projects should be disseminated to all populations in need of such services.

THE POTENTIAL: COST SAVINGS

Can Comprehensive Maternity Care Save Money?

Comprehensive prenatal care is not only effective in reducing death and illness among newborns; it can also help contain costs by preventing perinatal conditions which require expensive treatment.

According to the United States Office of Technology Assessment, the annual cost of neonatal intensive care in the U.S. exceeds $1.5 billion (27). Since most of these hospitalizations are for premature and low birthweight babies, prevention of prematurity and low birthweight would eliminate the need for much of the neonatal intensive care being utilized in the U.S. today.

The cost of neonatal intensive care is staggering. Estimates of the average cost to "graduate" a low birthweight, sick, and/or disabled infant from a neonatal intensive care unit range from $13,616 for all low birthweight

babies (28) to nearly $100,000 per infant weighing 1000 grams (about 2 pounds, 3 ounces) or less (29), compared with only $400 for prenatal care (excluding labor and delivery services) (30). For the low birthweight infant who survives with severe physical or mental handicaps, the cost of lifetime care (20 years) is estimated to be $359,000 (31).

Providing comprehensive, prevention-oriented perinatal care is approximately five times more cost-effective than providing treatment-oriented medical services (32). Put another way, the American Academy of Pediatrics reported in 1984 that cost benefit estimates range from 2 to 10 dollars saved for every dollar spent on prenatal care (33).

The following estimates indicate the savings that states might have enjoyed had they implemented comprehensive prenatal care:

- Michigan state officials found that over six dollars could have been saved for every dollar spent by the state to provide prenatal care to 14,000 uninsured women. Without prenatal care, 6000 of the babies born to these women would need neonatal intensive care hospitalization. With prenatal care, at least 1500 of these babies would not need this costly hospital care, saving over $30 million (34).
- The Virginia State Perinatal Services Advisory Council concluded that the state could save $49.8 million in state expenditures for long-term institutional care for the mentally retarded through the provision of better prenatal care (35).
- The California Department of Health Services estimates that $6–7 million in neonatal intensive care costs for 3700 low birthweight infants could have been saved if their mothers had received prenatal care. Costs of prenatal care for those women would have been only $2.8 million (36).
- Oregon officials studying women receiving inadequate prenatal care in the state estimate that for the cost of caring for five high-risk premature infants, 149 women could have received comprehensive prenatal care (37).

What About the Uncompensated Cost of Maternity Care for the Uninsured?

Universal maternity care would not require the investment of huge amounts of new dollars. The public is already paying indirectly for the cost of care for sick mothers and babies without health insurance coverage through cost-shifting—higher hospital bills and insurance premiums for all—and through tax-supported health services for the indigent.

Uncompensated care, which includes both bad debts and charity care, is

becoming an increasingly significant part of the rising health care costs that public programs, private employers, and individuals must face. According to an American Hospital Association study, uncompensated care increased from $4.5 billion to $6.2 billion between 1978 and 1982 (38). Maternity and maternity-related cost is the single most important contributor to the burden of unpaid hospital bills in the U.S. today.

- Normal delivery, cesarean sections and newborn discharges combined account for 61% of all self-pay/no charge discharges (39).
- In 1981, 40% of all self-pay discharges were maternity patients, and hospitals received only 72% of charges billed to self-pay patients. Normal delivery was the single most common self-pay discharge diagnosis (40).
- According to the 1980 National Hospital Discharge Survey, 12.8% of discharges for deliveries were "self-pay" (41).
- Although only 5% of all discharges with costs considered "catastrophic" were self-pay, 16.5% of all catastrophic newborn discharges (of which 85% were for prematurity) were self-pay (42).

A number of states have studied the problem of uncompensated care. These are some of their findings:

- A South Carolina study found that, in 1983, hospitals shifted $69 million from those who could not afford to pay for care to the costs paid by paying patients. Forty three percent of indigent admissions at the hospital were obstetric/gynecology, pediatric, or newborn patients (43).
- In May 1983, the Virginia Perinatal Services Advisory Council found that in that state an estimated 23% of total hospital costs for neonatal intensive care is not reimbursed, and that total write-offs for neonatal intensive care were estimated to be $12 million a year (44).
- A study of 30 hospitals in Massachusetts found that three-fifths of bad debts were attributable to those without third party payment. The largest category of uncollected costs were for maternity and maternity-related care (45).
- A 1982–83 study of uncompensated care at Vanderbilt Hospital in Tennessee found that recipients of uncompensated care often had entered the health care system late (i.e., with late or no prenatal care), and that almost half of the high-cost uncompensated care patients were newborns (46).

While there is a significant need to decrease health care costs for newborn infants, present methods deal only with the consequences and not the

causes of the problem. Universal maternity care would cut health care costs by preventing many pregnancies from resulting in low birthweight babies and by eliminating the related hidden costs of uncompensated care. We are already paying for the most expensive side of the health cost equation—hospital costs for the sick. In the long run, putting resources instead into the prevention side will result in significant savings in both dollars and in human potential.

Recommendations

Adequate Federal financial support must be available to make access to prenatal and labor and delivery services a reality for all who need them.

A unified financing mechanism should be developed in each state to meet both prenatal and labor and delivery costs for all.

THE NEED: REDUCING BARRIERS TO MATERNITY CARE

Has the Utilization of Prenatal Care Changed in the Last Few Years?

Recently, some preliminary reports indicate that improvements in access to prenatal care have halted or even reversed. Dr. Edward N. Brandt, Jr., former Assistant Secretary for Health of the U.S. Department of Health and Human Services, recently explained that provisional 1983 and 1984 data reveal that the rate of decline in infant mortality has been relatively small in comparison with previous years. This general slowdown in the decline in the infant mortality rate is the first in 20 years. Brandt also expressed concern over the "apparent reduction in the timely provision of prenatal care" (47).

- A survey in Lexington/Fayette County, Kentucky, found that the number of pregnant women who did not receive prenatal care in 1982 was nearly 75% greater than the number in 1980 (48).
- A study of prenatal care in Oregon by the State Health Department found that in the 18-month period after 1980 the percent of mothers with inadequate care increased by one sixth to a total of 7.0% of all births. For the first half of 1982, 1.0% were without any care, and an additional 1.9% had four or fewer visits (49).
- For four consecutive years beginning in 1979, participation in early prenatal care by all pregnant women in the U.S. has remained virtually unchanged after a decade of steady improvement. Between 1981 and 1982, however, the participation rate in early prenatal care actually declined

for black women and for women of all ages up to age 29 ,while the proportion of both black and white women receiving late or no prenatal care actually increased (50).

Great disparities exist between who gets care and who does not, and between who gets care early in pregnancy and who starts late.

- Nationally, in 1982 one out of every 25 pregnant women received no prenatal care until the last trimester, and one in 67 received none at all. One out of 17 black pregnant women received no prenatal care until the last trimester and one in 30 received none at all, a statistic indicating a continuing gap in access to care since 1981. The fact that participation in early prenatal care has remained constant for white women while it has declined for black women indicates that, according to this measure, the difference in access to prenatal care between white and black women has gotten worse (51).
- In the three largest metropolitan countries in Washington State, both the proportion of women receiving late or no prenatal care and the proportion of low birthweight infants increased in low-income census tracts between 1980 and 1982, a period characterized by increasing unemployment and decreasing Medicaid eligibility (52).

State reports highlight the groups most at risk of inadequate prenatal care:

- In Oregon in 1982, nearly half of pregnant teens were considered to have had less than adequate care and 3% had no prenatal care at all (53).
- In Ohio in 1981, nonwhite pregnant women were twice as likely as white pregnant women to have received no prenatal care or to have received it only in the last trimester of pregnancy (54).
- In Florida in 1982, there were an estimated 65,000 low income pregnant women but only 25,000 were receiving comprehensive care (55).

Why Don't Pregnant Women Get Early, Comprehensive Prenatal Care?

Too often, comprehensive prenatal care is either not available or not accessible. The Institute of Medicine's report concluded that the major barriers to early receipt of prenatal care fall into the following six categories:

1. financial constr[illegible]
2. limited availabi[illegible] of maternity care providers

3. insufficient prenatal services in some sites routinely used by high-risk populations
4. experiences, attitudes, and beliefs among women that make them disinclined to seek prenatal care
5. poor or absent transportation and child care services
6. inadequate systems to recruit hard-to-reach women into care (56).

The financial burden of medical care during pregnancy is especially difficult for the uninsured, three quarters of whom are workers and their dependents. Despite their need for care, lack of insurance is associated both with lower utilization of health services and higher out-of-pocket costs (57).

- The 1977 National Health Care Expenditure Study showed that 16.6% of the non-institutionalized civilian population of the United States has no health insurance coverage, either public or private, for maternity care. Almost 30% of the privately insured population under age 65 has no maternity care coverage, and the coverage for those with non-group private policies is even worse, leaving 35% uncovered for any medical expenses connected with pregnancy (58).
- Even women with private insurance coverage have to pay for part or all of their prenatal and postpartum care. Kovar and Klerman have documented that 41.5% of women with insurance coverage had to pay out-of-pocket for prenatal and postpartum care. The percentage of prenatal and postpartum care charges that women have to pay themselves increases as their ability to pay, as determined by income, decreases (59).

Many publicly funded prenatal care programs are filled beyond capacity and must turn away pregnant women seeking prenatal care. There are many counties, especially in rural areas, where there are no obstetricians willing to accept low income patients, even those with Medicaid coverage (60). Additionally, high risk mothers are refused care because they may be seen as malpractice insurance risks (61).

- University of New Mexico researchers found that 87% of women without prenatal care stated they did not get care because they could not afford it (62).
- In 1982 the University of Kentucky Medical Center refused care to 387 indigent women (63).
- A 1978 study in New York City found that financing maternity care was a major impediment to obtaining adequate maternity care among non-registered patients. Nearly one-fourth of all non-registered patients had

actually gone to an institution to register for prenatal care and were turned away due to failure to meet financial requirements of the hospital. Over 50% of these women gave lack of money or medical insurance as the reason for non-registration (64).

Recommendations

Comprehensive, culturally sensitive prenatal care, supported by public funds, must be readily available in every county and metropolitan area in the country.

Federal leadership is necessary to reverse the barriers which prevent reimbursement of recognized alternative maternity care providers.

Federal, state and local officials must work with private providers to assure adequate Medicaid reimbursement for maternity care.

THE FIRST RESPONSE: CURRENT ACTIVITIES

Is Anything Being Done to Reverse the Decline in Utilization of Prenatal Care?

At the national level, the Child Health Assurance Program (CHAP), passed last year by the 98th Congress, extended Medicaid benefits to first-time pregnant women who would be eligible when the child is born and to pregnant women in intact families where the principal wage-earner is unemployed, and gave states the option of extending these benefits to families meeting income eligibility criteria even if the husband is employed. However, the income eligibility criteria remain at the discretion of states, meaning that women eligible in one state would not be eligible in others, and that in many states women need to be far below the poverty line to qualify for Medicaid. For example, the average income eligibility level in the Southeast, $4,137 for a family of four, is less than half of the federal poverty level (65).

Many states have undertaken specific actions in the area of improving access to prenatal care.

- According to a survey conducted by the Massachusetts Department of Public Health, 10 states out of 25 responding indicated that improving availability and accessibility of prenatal care, including outreach services, health promotion, nutrition care, case-coordination and follow-up, was a strategy to improve pregnancy outcome or more specifically to reduce low birthweight (66).
- Michigan has begun a two-year phase-in of its program making prenatal care a basic health service for all citizens. Eligibility is expected to extend

to 9,500 previously unserved pregnant women in families with incomes below 185% of the poverty level (67).
- Florida and Texas have included as Medicaid eligibles those optional categories of pregnant women permitted by Federal statute (68).
- Georgia, South Carolina, and Virginia have enacted legislation providing Medicaid benefits to medically needy pregnant women regardless of marital status (69).
- Virginia, Tennessee, and Mississippi have adopted optional categorically needy programs extending Medicaid benefits to pregnant women who would be financially eligible once their child is born regardless of marital status (70).
- The State of Texas has appropriated $22.75 million for the current biennium to fill in the gaps in maternal and infant health care, including making prenatal care more accessible (71).

A few states have also implemented new programs to deal with health care for the indigent. The experience with these systems may inform future efforts to fund universal maternity care.

- Oklahoma and South Dakota have created revenue pools from state and county funds to reimburse providers of indigent care (72).
- Florida has created a Public Medical Trust Fund from a 1% tax on hospital revenue to pay for expanding Medicaid eligibility, establishing primary care management programs for indigents, and eventually compensating hospitals providing an inordinate share of charity care (73).
- Maryland and New Jersey have all-payer hospital rate setting systems which include an allowance for charity care in each payment made to hospitals (74).
- Arkansas and West Virginia have recently passed legislation to fund indigent care, financed in Arkansas by the Medicaid rebate received under the 1981 Federal Budget Act, and in West Virginia by state appropriation and a hospital assessment (75).

THE FUTURE: SIGNS OF HOPE

What's Being Done Now to Make Universal Maternity Care a Reality?

A number of initiatives and activities are currently under way to both study and improve access to prenatal care:

- Congressmen Waxman and Hyde have introduced legislation (HR 3101)

in the 95th Congress to require states to provide Medicaid to all pregnant women meeting financial eligibility criteria regardless of the presence or employment status of the spouse.

- The Southern Regional Task Force on Infant Mortality, formed by the Southern Governors' Association in July, 1984, with the support of the Southern Legislative Conference on Children and Youth, is the first policymaking body to address the issue of infant mortality and low birthweight on a regional level, providing a focus for activities in that part of the country where 10 of the 11 states with the worst infant mortality rates can be found (76).
- The Alan Guttmacher Institute, which has, for a number of years, reported on access to family planning services on a county by county basis, has obtained initial foundation funding to develop procedures for reporting on access to prenatal care as well.
- The Center for Population and Family Health, School of Public Health, Columbia University, and the Child Health Outcomes Project of the University of North Carolina at Chapel Hill, in conjunction with the Council on Maternal and Child Health of the National Association for Public Health Policy, are completing a national survey of innovative state models to improve access to maternity care.
- The Prenatal Care Impact Group of the Bush Foundation Centers for Child and Family Policy will sponsor a series of papers and a national meeting to consider policy alternatives to improve access to prenatal care.
- The Children's Defense Fund has launched a five-year Prenatal Care Campaign aimed at improving the availability and accessibility of prenatal care for poor and minority women.

These efforts, while important, are not sufficient. Medicaid still only reaches the poorest of the poor. Most of the medically uninsured (almost 75%, according to National Center for Health Services Research data) are workers and their dependents, nearly half of whom are poor, near-poor, or low-income (77). Most of the self-pay and charity deliveries are to neither teenagers nor other typically disadvantaged groups. In fact, only 18% are under age 19, only 24% are unmarried, and only 14% are black (78).

The piecemeal approach to expanding access to maternity care has, until recently, improved early entry into prenatal care and utilization of hospital labor and delivery services. However, the trends of the last two years suggest that this strategy has approached the point of diminishing returns. New entitlements for special populations create their own bureaucratic and financial barriers. Medicaid solutions continue to ignore the working poor, the more than 40% of the privately insured who have to pay for prenatal care out-of-pocket, and the 16.6% who do not have any coverage for any maternity care.

There is practically no pregnant woman or newborn infant who would not realize some benefit were prenatal and labor and delivery care made more accessible, more systematic, and more comprehensive. We have the knowledge and the skill to make significant improvements in low birthweight and to reduce other causes of infant mortality and morbidity. Universal maternity care would benefit all of us.

Recommendation

The Federal government must assume ultimate responsibility for guaranteeing that high quality maternity care be available and accessible to all pregnant women in the United States.

GLOSSARY OF TERMS

Comprehensive care–"a broad range and scope of services . . . which may include both direct, personal health care services and indirect or supportive services."*

Infant mortality–death of an infant before one year of age.

Infant mortality rate–$\frac{\#\text{ of infant deaths} \times 1000}{\#\text{ of live births}}$

Low birthweight (LBW) – weight at birth of 2500 grams (5 pounds, 8 ounces) or less. LBW is associated with a 40-fold increased risk of death in first month of life.**

Morbidity – physical or mental illness or disability

Perinatal period – the period between 20 weeks of gestation and 28 days of age.

Pregnancy outcome – result of a pregnancy (i.e., healthy baby, low birthweight baby, fetal or infant death, etc.)

Prenatal – occurring before the birth of the baby

Postpartum – occurring after the birth of the baby

Very low birthweight (VLBW) – weight at birth of 1500 grams (3 pounds, 5 ounces) or less. VLBW is associated with a 200-fold increased risk of death before one month of age.**

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** McCormick, M. C. "The Contribution of Low Birth Weight to Infant Mortality and Childhood Morbidity," *New Eng. J. Med.* 312 (1985): 82–92.

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Cuts can mean high-risk babes

WASHINGTON (AP) — Limiting government aid for low-income pregnant women is bad economics as well as bad medicine, a federal advisory panel said Monday in the face of hold-the-line Reagan administration budget plans.

In fact, for a target population of 1.4 million women considered at risk of giving birth to seriously underweight babies, each new dollar spent on prenatal care could save as much as $3.38 in specialized treatment later on, the panel said.

The Institute of Medicine's Committee to Study the Prevention of Low Birthweight said that many in that high-risk group — tending to be poor, black, young and unmarried — are unable to get proper care early in their pregnancies and give birth prematurely to seriously underweight infants.

Then, after the babies are born, said panel chairman Richard E. Behrman, "the high cost of caring for low-birthweight infants is paid not just by parents but also by taxpayers through increased Medicaid expenditures and by everyone who buys private health insurance through increased premiums."

The institute committee, part of the National Academy of Sciences, presented its report to the House Energy and Commerce Committee in a hearing at Washington's Children's Hospital.

Dramatizing the issue, hospital personnel wheeled in an incubator bearing a premature 3½-pound infant at the start of the hearing as Dr. Gordon Avery, chairman of the hospital's Department of Neonatology, estimated the child's care would come to more than $60,000. Such huge bills are frequently paid by the government, by private insurance companies or end up being absorbed by the hospital and perhaps being passed on in the form of higher bills for other patients, institute committee members said.

Their study said that in 1982 — the latest year for which national data are available — about 248,000 U.S. infants were born weighing less than five and one-half pounds.

Babies below that mark are nearly 40 times more likely to die in their first month and also are much more likely to suffer from serious diseases.

What's needed, the authors said, are greater efforts to make sure fewer infants are born prematurely or otherwise underweight and in need of expensive care.

One barrier, they said, is that many young women are not eligible for Medicaid money to pay for prenatal visits to doctors — although the program might well have to pay for their babies' treatment later on.

The Reagan administration is asking Congress to cap total spending for Medicaid — the nation's health-care program for the poor — at about $22 billion in fiscal 1986, increasing that amount in future years only to adjust for inflation.

The report estimated that providing sufficient prenatal care for high-risk women could cost as much as $12.1 billion in a single year but that the eventual savings could be as much as $40.9 billion in foregone medical treatment.

Newborn Intensive Care Unit...Providence Hospital

HISTORICAL BACKGROUND

The Newborn Intensive Care Unit was opened in 1972 as a 6 bed "Newborn Special Care Nursery" and was designated as Alaska's referral center for critically ill newborns. The nursery was organized, opened, and funded through cooperative efforts and monies from Federal and State agencies; Emergency Medical Systems; Alaska Native Health Services; Private Pediatricians; and Providence Hospital. Throughout the 1970s Providence assumed increasing financial responsibility for the Newborn Intensive Care Nursery and today Providence accepts full financial liability for the operation of this complex 38 bed NICU.

CURRENT EFFORTS

Cooperation and work with other systems continues demonstrating the ongoing spirit of the venture begun in 1972. A partial list of Providence Perinatal programs follows:

---Providence provides intensive care for newborns in the Military & Alaska Native Health systems as well as those in the private sector

---LifeGuard, Providence's medical transport team provides transport for critical mothers and babies from any place or facility in the state to their health care facility of choice assisting families and physicians in the provision of needed care

---When the parents and physicians so desire, infants originating at other facilities are transferred back to that facility when their condition improves and they are able to receive the needed level of care at that facility.

---Extensive training for health workers throughout the state is provided in Providence sponsored programs. These programs take place both in Providence (with classroom and "hands-on" teaching) and in other health care facilities. The goals of the educational programs include

***PREVENTION of high risk pregnancies
***PREVENTION of low birthweight babies
***PREVENTION of complications of pregnancy and delivery
***EARLY assessment for, recognition of, and appropriate intervention & referral for high risk/physically distressed patients

---The Newborn ICU and the Maternity Center Nursing Units provide 24 hour a day formal and informal consultative services to health care workers from other facilities and maintain telephone "HOTLINES" for physicians to consult with specialists in maternal and infant care. There is no charge for these services.

The Newborn Intensive Care Nursery has been expanded 4 times since 1972. In July, 1985 this entirely new 38 bed unit was dedicated as part of the High Risk Maternity Center. This facility is expected to provide adequate space for Newborn Intensive Care needs of Alaska's population through the mid-1990s.

TODAY, OCTOBER 23, 1987...

***We have 28 patients. Our lowest census in 1987 was 14 babies...our highest was 42. Our "average" daily census in 1987 to date is 26.

---20 of our current patients were born at Providence
---8 of our current patients were born elsewhere and transferred here for special services and care.

***18 infants are from the Anchorage Bowl area
***9 infants are from other parts of Alaska

---24 of our infants are here because they require care for problems related to being born prematurely.
---4 of our infants were not born prematurely but were distressed at or shortly after birth for a variety of reasons. We generally have a larger proportion of infants in this group (10-40%).

***7 of our infants are from Military service personnel. This is a bigger proportion of our total than is usual.
***5 of our infants are from the Alaska Native Health System. This is a bit less than our "usual" mix. Most of the time 25-35% of our infants are ANMC patients.

***4 of our infants are recipients of Medicaid (this includes 3 of our 5 ANMC patients.
***9 of our infants are covered in some degree by private insurance.
***8 of our infants have no insurance coverage, have been denied public assistance, and/or are awaiting determination of eligibility for specific program funds.
***7 of our infants are covered through Military health care contracts.

TODAY we are staffed with 15 Registered Nurses, 1 Neonatal Nurse Practitioner, 1 Clinical Nurse Specialist, 1 Unit Clerk, 1 Equipment Technician, 2 Respiratory Care Therapists, 1 Perinatal Social Worker, 1 Manager, and receive numerous services from other departments such as Laboratory, Radiology, Special Diagnostic Services, Administration, etc. We also have 5 RNs in classroom orientation. Staffing is adjusted up or down every 4-8 hours depending on the number of infants in the unit AND the level of care they require.

Daily charges vary from depending on the level of care required and the amount of technological support needed. The daily charges are higher for more severely ill babies and are lowered as the infant improves and requires less care and support.

The majority of the families of our patients are hard working Alaskans. We serve families of the very affluent and influential, white and blue collar workers. and the poor. Without exception, they all love their infants, experience guilt feelings about their babies problems, and worry about how to provide the nurturing necessary for their newborn. Some parents express and deal with their feelings and anxieties in a more constructive manner than others. We individualize our health care interventions to each family's need and strive to empower them to do for themselves rather than fostering dependency.

While the costs of providing this care are very high the "outcome" of the financial expenditure is very positive. The majority of infants cared for in NICUs are functioning at age appropriate developmental levels at or shortly after discharge. A number of NICU "graduates" experience relatively minor deviations from developmental norms as do many children who did not require NICU care at birth. The number of NICU graduates with major developmental and/or functional deficits is very small. National follow up studies have demonstrated that although the absolute number of severly impaired children has increased over the years, the <u>percentage</u> of children with severe impairment HAS NOT INCREASED SINCE THE ADVENT OF NEWBORN INTENSIVE CARE.

Decreased funding of Newborn Intensive Care in this state threatens the safety and welfare of our future population. Premature birth, birth defects (major and minor), and complications of delivery will not go away if funding does. If care becomes less accessible, the problems resulting from these conditions will be intensified. Some infants will die. Some will live but have residual problems which are worse than or may not have occured at all if treated promptly in an NICU setting. This can lead to higher costs in human suffering and grief AND in health care expenditures in the future. The goal of Newborn Intensive Care is to literally put ourselves out of business. This goal will be a long time in coming and requires the continues commitment and support of public and private entities.

June 10, 1987

Ms. Lisa McClaren
c/o Representative Nilo Koponen
P.O. Box V
Juneau, AK 99811

Dear Ms. McClaren:

Enclosed is a copy of H. J. Resolution 192, nearly identicial to the Senate Joint Resolution 99. In my telephone conversation I may have incorrectly stated that Senator Murkowski had not co-sponsored the resolution; he has.

On the national level, WIC serves only 42% of those who are eligible. In fiscal year 1987 the WIC program is funded at $1.663 billion, and serves 3.4 of the 8 million eligible women, infants and children. Five million people qualify for WIC assistance but are unable to receive benefits because of inadequate government funding. This resolution is important to expand the impact of the federal program in Alaska.

Another source for statistical information on WIC is the Center on Budget and Policy Priorities. The Center analyzes the federal budget and policies and assesses their impact on domestic food programs in clear language. Stefan Harvey at (202) 544-0591 can answer questions, or write the Center at 236 Massachusetts Ave. N.E., Suite 305, Washington,D.C. 20002.

Again, I urge Represntative Koponen to contact Ted Stevens as a member of the Senate Appropriations Committee in mid summer when they will be marking up the FY '88 Labor, HHS, Education and Related Agencies appropriations bill.

Thank you for assistance and support for this important program.

Very truly yours,

Barbara L. Franklin

Barbara L. Franklin
P.O. Box 2765
Fairbanks, AK 99707

Enclosure

100TH CONGRESS
1ST SESSION

H. J. RES. 192

To express the sense of the Congress that the Special Supplemental Food Program for Women, Infants, and Children should receive increasing amounts of appropriations in fiscal year 1988 and succeeding fiscal years.

IN THE HOUSE OF REPRESENTATIVES

MARCH 18, 1987

Mr. MILLER of California (for himself, Mr. HAWKINS, Mr. JEFFORDS, Mr. SLATTERY, Mr. LELAND, Mr. PANETTA, Mr. WOLPE, Mr. MACKAY, Mr. MCHUGH, Mr. TRAXLER, Mr. HALL of Ohio, Mr. GILMAN, and Mr. CONTE) introduced the following joint resolution; which was referred to the Committee on Education and Labor

---

JOINT RESOLUTION

To express the sense of the Congress that the Special Supplemental Food Program for Women, Infants, and Children should receive increasing amounts of appropriations in fiscal year 1988 and succeeding fiscal years.

Whereas the 100th Congress wishes to assure a healthy, productive citizenry;

Whereas children are especially vulnerable to the effects of malnutrition;

Whereas 13 million children live in poverty;

Whereas children have been the fastest growing component of the poverty population;

Whereas the number of young children living in poverty has increased 41.2 percent between 1979 and 1985;

Whereas at no time in life is the need for good nutrition and adequate health care as critical as during pregnancy when the fetus is developing and during the initial years of the life of a child;

Whereas malnutrition causes a body to be more prone to illness and a mind to be less able to develop to its capacity;

Whereas malnutrition in early childhood may lead in the extreme to death or mental and physical retardation;

Whereas the infant mortality rate of the United States is unacceptably high;

Whereas 16 other industrialized countries have a lower infant mortality rate than that of the United States;

Whereas the Special Supplemental Food Program for Women, Infants, and Children (WIC) has been proven to have a major impact in reducing the incidence of low-weight births and late fetal deaths;

Whereas the WIC program decreases the rate of premature births, increases the proportion of poor pregnant women seeking prenatal care, increases head circumference of infants born to women who receive benefits under the WIC program during their pregnancies, improves diets for women, infants, and children, and reduces the incidence of anemia among women, infants, and children who are nutritionally at risk because of poverty;

Whereas the WIC program was proven to be cost-effective by a Harvard University School of Public Health study which indicated that every one dollar spent on the prenatal component of the WIC program potentially saves three dollars in later health care costs;

Whereas benefits afforded to participants under the WIC program result in significantly reduced health care costs and related costs incurred at the Federal, State, and local levels; and

Whereas over half of the women, infants, and children eligible for benefits under the WIC program cannot now be served because of insufficient funds: Now, therefore, be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This resolution may be cited as the "WIC Food For Life Resolution".

SEC. 2. SENSE OF CONGRESS WITH RESPECT TO WIC APPROPRIATIONS.

It is the sense of Congress that—

(1) the WIC program should receive appropriations—

(A) for fiscal year 1988 in an amount sufficient to enable not less than 300,000 more eligible women, infants, and children to be served each month than were served in fiscal year 1987;

(B) for fiscal year 1989 in an amount sufficient to enable not less than 55 percent of eligible women, infants, and children to be served;

(C) for fiscal year 1990 in an amount sufficient to enable not less than 60 percent of eligible women, infants, and children to be served;

(D) for fiscal year 1991 in an amount sufficient to enable not less than 65 percent of eligible women, infants, and children to be served; and

(2) that appropriations for the WIC program should continue to be increased for each succeeding fiscal year until all eligible persons are being served;

(3) that the budget resolution for fiscal year 1988 should assume the appropriation of the amounts necessary to meet the goals described in paragraph (1); and

(4) that an effective outreach program should be conducted to identify women, infants, and children that are eligible for benefits under the WIC program.

O

(1)

ALASKA STATE LEGISLATURE
HOUSE OF REPRESENTATIVES
RESEARCH AGENCY

P.O. Box Y, State Capitol
Juneau, Alaska 99811-3100
Mail Stop 3100
(907) 465-3991

October 21, 1987

MEMORANDUM

TO: Representatives Niilo Koponen and Johnny Ellis

ATTN: Lisa McLaren

FROM: Mary Jennings MJ
Legislative Analyst

RE: Location of Prenatal Care Providers in Alaska (Supplemental Information)
Research Request 88.032

You requested that we provide a table showing the ratio of women of childbearing age to the number of prenatal care providers for each census area of the state.

Table 1 provides the Alaska Department of Labor 1985 estimates of the number of women of childbearing age (i.e., women between the ages 15 and 44) in each census area of the state.[1] The number of prenatal care providers by type (e.g., private practice, public health nurse) is also given by census area. Dividing the number of women of child bearing age within a census area by the total number of providers with a census area gives the ratio of women to providers. The table indicates that the statewide ratio is 482 women to one provider, with a range from 43 (Bristol Bay) to over 1,400 (Dillingham) women per provider. The following section of this memorandum discusses problems with using a ratio method as an indication of the level of prenatal care service received throughout the state.

Population Discussions with various health officials indicated that population was not a factor preventing pregnant women from receiving prenatal care in relatively populous/rural communities without a provider based in the community. Most officials agreed that the frequency of

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[1]Estimates of the number of women of childbearing age by community were not available. The Alaska Department of Labor plans to provide these data in the near future.

(2)

visits of providers was the most important determinant of the quality of prenatal care in rural communities. Therefore, a relatively high ratio of women to providers--as in the Dillingham (1,461 to 1) and Matanuska-Susitna Borough (1,420 to 1) census areas--does not necessarily indicate a lesser degree of service.

Itinerant Providers. The ratios do not account for women who are served by providers based outside census area boundaries. For example, the Skagway-Yakatat-Angoon census area receives service from providers based in the Juneau Borough and Haines Borough census areas, but this is not indicated by the ratio. Additionally, the ratios do not reflect areas that have many communities served by relatively few itinerant providers. For example, the table indicates that the the ratio for the Prince of Wales-Outer Ketchikan census area is 296 women to one provider--relatively low. This ratio is misleading because several non-Native communities--which have been identified by the Alaska Department of Health and Social Services as receiving minimal service--are served by only one itinerant nurse. (The other providers in the area are two U.S. Public Health employees working in Metlakatla and a public health nurse serving the City of Craig).

Military Providers. The Aleutian Island, Anchorage Borough, Fairbanks Northstar Borough and South East Fairbanks ratios include military providers. Although these providers serve the significant military population, their services are not available to the general population of the census areas. Because we are not able to separate female members of the military population, the military providers are significant to the ratio.

I hope you find this information useful. Please call if you have any questions.

Attachment

TABLE 1
PRENATAL CARE PROVIDERS BY CENSUS AREA

CENSUS AREA	WOMEN OF CHILDBEARING AGE	TOTAL PRENATAL CARE PROVIDERS	RATIO OF WOMEN OF CHILDBEARING AGE TO PRENATAL CARE PROVIDERS	PROVIDER TYPE				
				PRIVATE PRACTICE	PUBLIC HEALTH NURSE	U.S. PUBLIC HEALTH SERVICE	MILITARY	LAY MIDWIFE
Aleutian Island	2,104	3	701		1		2	
Anchorage Borough	68,555	94	729	64	2	13	8	7
Bethel	3,152	24	131		10	14		
Bristol Bay	256	6	43		1	5		
Dillingham	1,461	1	1,461		1			
Fairbanks N.S. Bor.	19,465	38	512	13	10	5	8	2
Haines Borough	506	1	506		1			
Juneau Borough	7,453	18	414	8	5	4		1
Kenai Pen. Borough	10,234	23	445	18	5			
Ketchikan Gateway Bor.	3,034	16	190	6	5	5		
Kodiak Island Bor.	3,285	9	365	6	2			1
Mat-Su Borough	9,938	7	1,420	3	4			
Nome	1,801	10	180	6	4			
North Slope Bor.	1,209	7	173		3	4		
Northwest Artic Bor.	1,300	6	217		2	4		
Prince of Wales-Outer Ketchikan	1,182	4	296		2	2		
Sitka Borough	2,034	15	136	3	2	10		
Skgwy-Yakutat-Angoon	876	0	-					
S.E. Fairbanks	1,656	2	828				2	
Valdez-Cordova	2,217	10	222	8	2			
Wade Hampton	1,266	0	-					
Wrangell-Petersberg	1,634	6	272	4	2			
Yukon-Koyuk	1,946	4	487		4			
STATE TOTAL	146,564	304	482	139	68	66	20	11

Prepared by the House Research Agency, October 1987 (88.032C; 080387-03).

P.4/4

(12)

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY

TABLE 1

PRENATAL CARE PROVIDERS BY CENSUS AREA

CENSUS AREA	WOMEN OF CHILDBEARING AGE	TOTAL PRENATAL CARE PROVIDERS	RATIO OF WOMEN OF CHILDBEARING AGE TO PRENATAL CARE PROVIDERS	PROVIDER TYPE				
				PRIVATE PRACTICE	PUBLIC HEALTH NURSE	U.S. PUBLIC HEALTH SERVICE	MILITARY	LAY MIDWIFE
Aleutian Island	2,104	3	701		1		2	
Anchorage Borough	68,555	94	729	64	2	13	8	7
Bethel	3,152	24	131		10	14		
Bristol Bay	256	6	43		1	5		
Dillingham	1,461	1	1,461		1			
Fairbanks N.S. Bor.	19,465	38	512	13	10	5	8	2
Haines Borough	506	1	506		1			
Juneau Borough	7,453	18	414	8	5	4		1
Kenai Pen. Borough	10,234	23	445	18	5			
Ketchikan Gateway Bor.	3,034	16	190	6	5	5		
Kodiak Island Bor.	3,285	9	365	6	2			1
Mat-Su Borough	9,938	7	1,420	3	4			
Nome	1,801	10	180	6	4			
North Slope Bor.	1,209	7	173		3	4		
Northwest Artic Bor.	1,300	6	217		2	4		
Prince of Wales-Outer Ketchikan	1,182	4	296		2	2		
Sitka Borough	2,034	15	136	3	2	10		
Skgwy-Yakutat-Angoon	876	0	-					
S.E. Fairbanks	1,656	2	828				2	
Valdez-Cordova	2,217	10	222	8	2			
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STATE TOTAL	146,564	304	482	139	68	66	20	11

Prepared by the House Research Agency, October 1987 (88.032C; 080387-03).

1.

Infant Mortality 1984 mrd 3/9/07

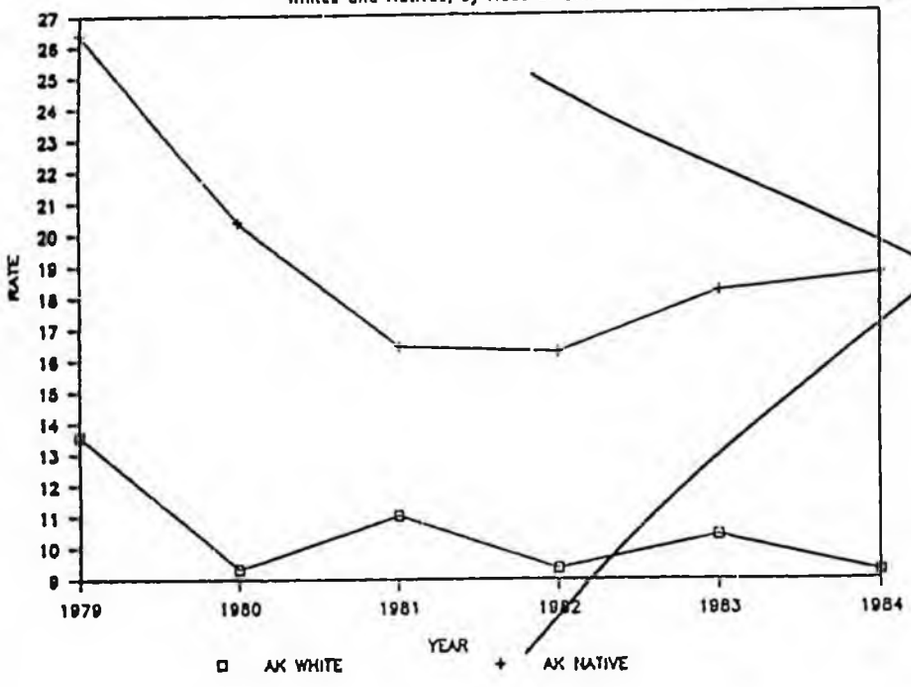
	Alaska	Whites	Natives	U.S.
Neonatal	6.1	4.7	9.6	7.0
Postneonatal	5.6	4.5	9.2	3.8
Infant Mor.	11.7	9.2	18.8	10.8

This one must be retyped!

Figure 1.05

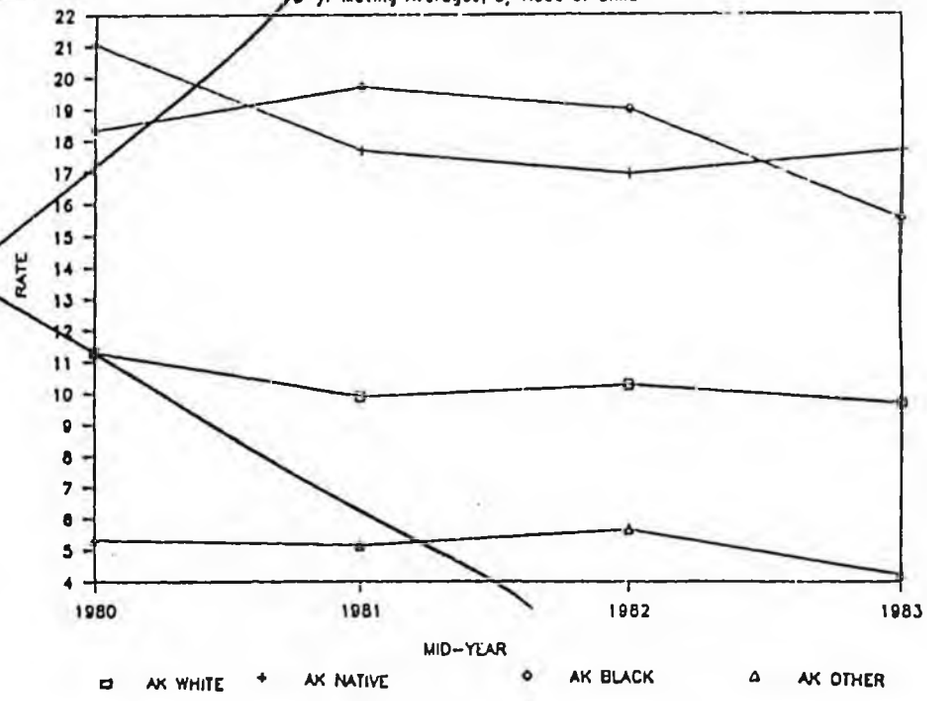
Infant Mortality Rates, 1979-1984

Whites and Natives, by Race of Child



Infant Mortality Rates, 1980-1983

3-yr Moving Averages, by Race of Child



POSTNEONATAL MORTALITY, ALASKA, 1979-1985
RATES CALCULATED AS DEATHS/BIRTHS * 1000

	RACE											
	WHITE			NATIVE			BLACK			OTHER		
REGION	RATE	BIRTHS	DEATHS	RATE	BIRTHS	DEATHS	RATE	BIRTHS	DEATHS	RATE	BIRTHS	DEATHS
ANCHORAGE/MATANUSKA-SUSITNA	4.00	29505	118	6.44	3262	21	4.92	2441	12	3.51	1423	5
GULF COAST	4.45	6966	31	5.79	1209	7	25.00	40	1	.	310	.
INTERIOR	5.40	10368	56	9.06	2208	20	7.14	840	6	.	299	.
NORTHERN	2.68	373	1	12.74	3218	41	.	21	.	.	45	.
SOUTHEAST	3.96	6064	24	11.56	2423	28	14.49	69	1	.	333	.
SOUTHWEST	6.02	1162	7	9.98	4607	46	.	48	.	.	103	.
TOTAL	4.35	54438	237	9.63	16927	163	5.78	3459	20	1.99	2513	5

HERE IS DATA=BINALL
.PA
TABLE 3.24A *********1985 PROVISIONAL DATA**********
POSTNEONATAL DEATHS AND MORTALITY RATES BY REGION AND YEAR, ALASKA, 1981-1985
RATES ARE 3 YEAR MOVING AVERAGES

	YEAR														
	1981			1982			1983			1984			1985		
	POST-NEO DEATHS	TOTAL BIRTHS	RATE	POST-NEO DEATHS	TOTAL BIRTHS	RATE	POST-NEO DEATHS	TOTAL BIRTHS	RATE	POST-NEO DEATHS	TOTAL BIRTHS	RATE	POST-NEO DEATHS	TOTAL BIRTHS	RATE
	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
REGION															
ANCHORAGE/MATA-NUSKA-SUSITNA	21	4699	3.9	17	5268	3.8	22	5770	3.9	28	6117	4.5	32	6362	4.8
GULF COAST	5	1177	5.1	7	1266	4.0	3	1343	4.6	8	1294	4.7	8	1395	6.0
INTERIOR	8	1837	5.1	11	2077	6.7	21	2037	7.1	13	2209	6.9	11	2235	5.4
NORTHERN	3	486	12.1	8	522	10.6	6	597	9.8	3	617	9.4	8	587	9.1
SOUTHEAST	5	1222	5.0	4	1330	4.3	8	1387	4.2	5	1373	5.6	10	1337	5.5
SOUTHWEST	6	785	6.6	6	892	8.3	10	959	10.1	12	923	10.1	7	920	10.0
TOTAL	48	10206	5.0	53	11355	5.1	70	12093	5.3	69	12533	5.7	76	12896	5.7

ALASKA RESIDENT INFANT DEATHS, 1979-1985
BY BIRTHWEIGHT AND RACE OF CHILD

ALL

	TYPE											
	BIRTHS		INFANT DEATHS		NEONATAL DEATHS		POSTNEONATAL DEATHS		PN (28 DAYS 5 MONTHS)		PN (6 MONTHS-1 YEAR)	
BWT	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN
<1000	316	0.41	208	23.16	191	38.28	17	4.26	15	4.72	2	2.47
1000-1499	335	0.43	80	8.91	67	13.43	13	3.26	11	3.46	2	2.47
1500-1999	751	0.96	55	6.12	35	7.01	20	5.01	16	5.03	4	4.94
2000-2499	2478	3.18	83	9.24	44	8.82	39	9.77	33	10.38	6	7.41
2500-3999	62137	79.79	407	45.32	124	24.85	283	70.93	221	69.50	62	76.54
4000+	11315	14.53	38	4.23	13	2.61	25	6.27	21	6.60	4	4.94
UNK	545	0.70	27	3.01	25	5.01	2	0.50	1	0.31	1	1.23
ALL	77877	100	898	100	499	100	399	100	318	100	81	100

item 1

LASKA RESIDENT INFANT DEATHS, 1979-1985
Y BIRTHWEIGHT AND RACE OF CHILD

ACE WHITE

	TYPE									
	INFANT DEATHS		NEONATAL DEATHS		POSTNEONATAL DEATHS		PN (28 DAYS 5 MONTHS)		PN (6 MONTHS-1 YEAR)	
	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN
BWT										
<1000	136	26.00	124	40.39	12	5.56	11	6.55	1	2.08
1000-1499	44	8.41	35	11.40	9	4.17	8	4.76	1	2.08
1500-1999	30	5.74	18	5.86	12	5.56	9	5.36	3	6.25
2000-2499	45	8.60	27	8.79	18	8.33	15	8.93	3	6.25
2500-3999	234	44.74	82	26.71	152	70.37	113	67.26	39	81.25
4000+	23	4.40	10	3.26	13	6.02	12	7.14	1	2.08
UNK	11	2.10	11	3.58	.	.	.	.	.	.
ALL	523	100	307	100	216	100	168	100	48	100

ALASKA RESIDENT INFANT DEATHS, 1979-1985
BY BIRTHWEIGHT AND RACE OF CHILD

RACE NATIVE

	TYPE									
	INFANT DEATHS		NEONATAL DEATHS		POSTNEONATAL DEATHS		PN (28 DAYS-5 MONTHS)		PN (6 MONTHS-1 YEAR)	
	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN
BWT										
<1000	41	13.95	37	27.01	4	2.55	3	2.36	1	3.33
1000-1499	30	10.20	27	19.71	3	1.91	2	1.57	1	3.33
1500-1999	23	7.82	16	11.68	7	4.46	6	4.72	1	3.33
2000-2499	33	11.22	14	10.22	19	12.10	16	12.60	3	10.00
2500-3999	146	49.66	34	24.82	112	71.34	91	71.65	21	70.00
4000+	12	4.08	2	1.46	10	6.37	8	6.30	2	6.67
UNK	9	3.06	7	5.11	2	1.27	1	0.79	1	3.33
ALL	294	100	137	100	157	100	127	100	30	100

#6.

ALASKA RESIDENT DATA, 1979-1985

TABLE OF APGAR5 BY TYPE

APGAR5 TYPE

FREQUENCY / PERCENT / ROW PCT / COL PCT	BIRTHS	INFANT DEATHS	NEONATAL DEATHS	POSTNEONATAL DEA	PN (28 DAYS-5 MO	PN (6 MONTHS-1 Y	TOTAL
OTHER	7857 9.81 88.11 10.09	487 0.61 5.46 54.23	401 0.50 4.50 80.36	86 0.11 0.96 21.55	69 0.09 0.77 21.70	17 0.02 0.19 20.99	8917 11.14
8-10	70020 87.45 98.40 89.91	411 0.51 0.58 45.77	98 0.12 0.14 19.64	313 0.39 0.44 78.45	249 0.31 0.35 78.30	64 0.08 0.09 79.01	71155 88.86
TOTAL	77877 97.26	898 1.12	499 0.62	399 0.50	318 0.40	81 0.10	80072 100.00

This could be retyped per:

Apgar	Births N	Births %	Inf. Deaths N	Inf. Deaths %
1-7	7857	10.09	487	54.23
8-10	70020	89.91	411	45.77

etc.

ALASKA RESIDENT BIRTHS AND INFANT DEATHS, 1984-1985
BY AGE OF MOTHER

7.

Mother's Age Tables

1984-85 only

	TYPE											
	BIRTHS		INFANT DEATHS		NEONATAL DEATHS		POSTNEONATAL DEATHS		PN (28 DAYS-5 MONTHS)		PN (6 MONTHS-1 YEAR)	
	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN
MOMAGE												
UNK	8	0.03	1	0.37	1	0.76	.	.	.	.	.	.
<15	21	0.08	.	.	.	.	.	.	.	.	.	.
15-17	632	2.49	9	3.37	8	6.11	1	0.74	1	0.93	.	.
18-19	1672	6.58	28	10.49	14	10.69	14	10.29	9	8.41	5	17.24
20-24	8072	31.74	102	38.20	41	31.30	61	44.85	51	47.66	10	34.48
25-29	8198	32.24	67	25.09	39	29.77	28	20.59	20	18.69	8	27.59
30-34	5105	20.08	46	17.23	22	16.79	24	17.65	21	19.63	3	10.34
35-39	1540	6.06	13	4.87	5	3.82	8	5.88	5	4.67	3	10.34
40+	181	0.71	1	0.37	1	0.76	.	.	.	.	.	.
ALL	25E3	100	267	100	131	100	136	100	107	100	29	100

ALASKA RESIDENT DATA, 1984-1985

TABLE OF MOMAGE BY TYPE

MOMAGE TYPE

FREQUENCY / PERCENT / ROW PCT / COL PCT	BIRTHS	INFANT DEATHS	NEONATAL DEATHS	POSTNEONATAL DEA	PN (28 DAYS-5 MO	PN (6 MONTHS-1 Y	TOTAL
OTHER	23104 88.52 97.55 90.86	230 0.88 0.97 86.14	109 0.42 0.46 83.21	121 0.46 0.51 88.97	97 0.37 0.41 90.65	24 0.09 0.10 82.76	23685 90.75
TEEN	2325 8.91 96.31 9.14	37 0.14 1.53 13.86	22 0.08 0.91 16.79	15 0.06 0.62 11.03	10 0.04 0.41 9.35	5 0.02 0.21 17.24	2414 9.25
TOTAL	25429 97.43	267 1.02	131 0.50	136 0.52	107 0.41	29 0.11	26099 100.00

Could be retyped ~~[illegible]~~

see # 6.

"Other" here means 20 or over

S. 8.

ALASKA RESIDENT DATA, 1979-1985

TABLE OF MOMMS BY TYPE

MOMMS TYPE

FREQUENCY / PERCENT / ROW PCT / COL PCT	BIRTHS	INFANT DEATHS	NEONATAL DEATHS	POSTNEONATAL DEA	PN (28 DAYS-5 MO	PN (6 MONTHS-1 Y	TOTAL
OTHER	65129 81.34 97.65 83.63	648 0.81 0.97 72.16	379 0.47 0.57 75.95	269 0.34 0.40 67.42	212 0.26 0.32 66.67	57 0.07 0.09 70.37	66694 83.29
SINGLE	12748 15.92 95.29 16.37	250 0.31 1.87 27.84	120 0.15 0.90 24.05	130 0.16 0.97 32.58	106 0.13 0.79 33.33	24 0.03 0.18 29.63	13378 16.71
TOTAL	77877 97.26	898 1.12	499 0.62	399 0.50	318 0.40	81 0.10	80072 100.00

momms =

Mother's Marital Status

Could be retyped —

See #6

ALASKA RESIDENT DATA, 1979-1985

TABLE OF RACE BY TYPE

RACE TYPE

FREQUENCY / PERCENT / ROW PCT / COL PCT	BIRTHS	INFANT DEATHS	NEONATAL DEATHS	POSTNEONATAL DEA	PN (28 DAYS-5 MO	PN (6 MONTHS-1 Y	TOTAL
OTHER	62598 78.18 97.76 80.38	601 0.75 0.94 66.93	368 0.46 0.57 73.75	233 0.29 0.36 58.40	183 0.23 0.29 57.55	50 0.06 0.08 61.73	64033 79.97
NATIVE	15279 19.08 95.26 19.62	297 0.37 1.85 33.07	131 0.16 0.82 26.25	166 0.21 1.03 41.60	135 0.17 0.84 42.45	31 0.04 0.19 38.27	16039 20.03
TOTAL	77877 97.26	898 1.12	499 0.62	399 0.50	318 0.40	81 0.10	80072 100.00

1.

9.

"Other" : Non-Native

Could be retyped —

see #6

ALASKA RESIDENT DATA, 1979-1985

10

10.

TABLE OF CENSUS BY TYPE

CENSUS TYPE

FREQUENCY / PERCENT / ROW PCT / COL PCT	BIRTHS	INFANT DEATHS	NEONATAL DEATHS	POSTNEONATAL DEA	PN (28 DAYS-5 MO	PN (6 MONTHS-1 Y	TOTAL
BUSH	11095 13.86 95.74 14.25	195 0.24 1.68 21.71	91 0.11 0.79 18.24	104 0.13 0.90 26.07	82 0.10 0.71 25.79	22 0.03 0.19 27.16	11589 14.47
OTHER	66782 83.40 97.52 85.75	703 0.88 1.03 78.29	408 0.51 0.60 81.76	295 0.37 0.43 73.93	236 0.29 0.34 74.21	59 0.07 0.09 72.84	68483 85.53
TOTAL	77877 97.26	898 1.12	499 0.62	399 0.50	318 0.40	81 0.10	80072 100.00

Cannot be retyped — see #6

"Bush" equals these Census Areas

Nome
N. Slope
NW Arctic (Kobuk)
Aleutian Is
Bethel
Bristol Bay
Dillingham
Wade Hampton
Yukon Koyukuk

LASKA RESIDENT BIRTHS AND INFANT DEATHS, 1979-1985
Y LEVEL OF PRENATAL CARE

	PRENATAL							
	ADEQUATE		INADEQUATE		NOT STATED		ALL	
	N	PCTN	N	PCTN	N	PCTN	N	PCTN
TYPE								
BIRTHS	65946	84.68	1498	1.92	10433	13.40	77877	100
INFANT DEATHS	562	62.58	33	3.67	303	33.74	898	100
NEONATAL DEATHS	266	53.31	15	3.01	218	43.69	499	100
POSTNEONATAL DEATHS	296	74.19	18	4.51	85	21.30	399	100
PN (28 DAYS-5 MONTHS)	238	74.84	15	4.72	65	20.44	318	100
PN (6 MONTHS-1 YEAR)	58	71.60	3	3.70	20	24.69	81	100

SAS

12

NEONATAL AND POSTNEONATAL DEATHS DEATHS FROM SELECTED CAUSES BY RACE OF INFANT, ALASKA, 1979-85

CAUSE OF INFANTS'S DEATH	AGE AT DEATH																			
	NEONATAL										POSTNEONATAL									
	RACE OF CHILD										RACE OF CHILD									
	WHITE		NATIVE		BLACK		OTHER		UNKNN		WHITE		NATIVE		BLACK		OTHER		UNKNN	
	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN	N	PCTN
CAUSE																				
CERTAIN GASTROINTESTINAL DISEASES	.	.	.	.	.	.	.	.	.	.	2	0.84	.	.	.	.	.	.	.	.
PNEUMONIA AND INFLUENZA	3	0.94	3	2.03	.	.	.	.	.	.	3	1.26	18	11.04	.	.	1	16.67	.	.
CONGENITAL ANOMALIES	94	29.47	33	22.30	7	17.50	2	22.22	2	22.22	32	13.45	13	7.98	.	.	1	16.67	.	.
DISORDERS RELATING TO SHORT GESTATION	24	7.52	18	12.16	3	7.50	2	22.22	2	22.22	.	.	.	.	.	.	.	.	.	.
BIRTH TRAUMA	9	2.82	9	6.08	.	.	.	.	1	11.11	.	.	.	.	.	.	.	.	.	.
INTRAUTERINE HYPOXIA AND BIRTH ASPHYXIA	19	5.96	1	0.68	1	2.50	.	.	.	.	3	1.26	.	.	.	.	.	.	.	.
RESPIRATORY DISTRESS SYNDROME	50	15.67	24	16.22	6	15.00	2	22.22	2	22.22	3	1.26	2	1.23	.	.	.	.	.	.
OTHER CONDITIONS OF PERINATAL ORIGIN	96	30.09	46	31.08	17	42.50	3	33.33	2	22.22	4	1.68	2	1.23	.	.	.	.	.	.
SUDDEN INFANT DEATH SYNDROME	4	1.25	4	2.70	1	2.50	.	.	.	.	129	54.20	72	44.17	13	61.90	2	33.33	1	33.33
UNINTENTIONAL INJURY	2	0.63	.	.	.	.	.	.	.	.	20	8.40	12	7.36	1	4.76	.	.	.	.
ALL OTHER CAUSES	18	5.64	10	6.76	5	12.50	.	.	.	.	42	17.65	44	26.99	7	33.33	2	33.33	2	66.67
TOTAL	319	100	148	100	40	100	9	100	9	100	238	100	163	100	21	100	6	100	3	100

OPTIONS FOR INCREASING PRENATAL SERVICES

I. Increase the number of women and children who qualify for medicaid

II. Provide a prenatal care program that would pay a portion of the cost of the medical prenatal care of the eligible women. Each woman would have a participation amount that would be dependent on her income and family size.

Eligibility

-- **low income**, but not eligible for medicaid

-- **high risk pregnancy** due to a medical condition or lack of access to prenatal care because of geographic location.

III. Enhancement of Services

-- case management

-- nutritional services

-- presumptive eligibility

-- no resource limit

-- one time eligibility

Solutions can be limited to one of these three choices or be combination of the three - see schematic.

Marty

POSTNEONATAL MORTALITY IN ALASKA

Definitions:

Infant Mortality (IM) - death of an infant during its first year of life

Neonatal Mortality (NM) - death of an infant during its first 28 days of life

Postneonatal Mortality (PNM) - death of an infant between 28 days and one year of age

Facts: *(based on Alaska data for 1979-85)*

1. Alaska's PNM rate is the **highest** of any state in the union.
   - AK's 1984 PNM rate: 5.5
   - U.S. 1984 PNM rate: 3.8

2. In Alaska, the PNM rate for Natives is twice as high as that for Whites..

   84 1985
   4.3 4.9

   1984
   - Natives - 9.2
   - Whites - 4.5

   1979-85
   - Natives - 9.6
   - Whites - 4.3

3. The Native's PNM rate is higher than the rate for Whites in each of the 6 geographical regions in the state.

4. The PNM rate (for all races) is highest in these 2 regions:

	1985 Rate
• Southwest AK	10.0
• Northern AK	9.1

5. Low Birth Weight (LBW) is more common among Neonatal deaths than among Postneonatal deaths.

2/3 of neonatal deaths are LBW

1/4 of postneonatal deaths are LBW

This is true for both Whites and Natives.

6. 3/4 of all Postneonatal deaths are Normal Birth Weight (NBW).

7. Teens account for:

(1984 - 85 data)

9% of births

17% of Neonatal deaths

17% of PN deaths (between 6 mos. and 1 year)

8. Single mothers account for:

16% of births

24% of Neonatal deaths

33% of all PN deaths

9. Natives account for:

20% of births

26% of Neonatal deaths

42% of all PN deaths

10. The bush accounts for:

14% of births

18% of Neonatal deaths

26% of all PN deaths

11. Inadequate Prenatal Care was characteristic of 3-4% of infant deaths compared to < 2 % of all births.

Higher percentage of Inadequate Prenatal Care was found among teens and among Natives.

(Adequacy of Care could not be determined for 1/3 of all infant deaths)

12. Causes of Death

- Neonatal: (of Whites and Natives respectively)

  Congenital Anomalies (29% and 22%)

  Respiratory Distress Syndrome (16% and 16%)

  Other Conditions of Perinatal Origin (30% and 31%)

- Postneonatal: (of Whites and Natives respectively)

  Sudden Infant Death Syndrome (SIDS) - (54% and 44%)

  (90% of PN SIDS occurred before the age of 6 months).

  For Whites, Congenital Anomalies (13%)

  For Natives, Pneumonia and Influenza (11%)

All other causes (18% and 27%). More detailed information is needed here.

Further Detail:

(1) **Low Birth Weight** (LBW) - less than 2500 grams (5.5 lbs)

Normal Birth Weight (NBW) - 2500 grams (5.5 lbs.) or more

(2) **PNM rate** = # postneonatal deaths in a year/# live births in a year X 1,000

(3) The 6 geographical regions of the state (with census areas included in each):

- Anchorage/Matanuska - Susitna Region

  Anchorage Borough

  Matanuska-Susitna Borough

- Gulf Coast Region

  Kenai Peninsula Borough

  Kodiak Island Borough

  Valdez-Cordova Census Area

- Interior Region

  Fairbanks North Star Borough

  Southeast Fairbanks Census Area

  Yukon-Koyukuk Census Area

- Northern Region
  - Nome Census Area
  - North Slope Borough
  - Northwest Arctic Borough (Kobuk C.A.)

- Southeast Region
  - Haines Borough
  - Juneau Borough
  - Ketchikan Gateway Borough
  - Prince of Wales-Outer Ketchikan C.A.
  - Sitka Borough
  - Skagway-Yakutat-Angoon Census Area
  - Wrangell-Petersburg Census Area
- Southwest Region
  - Aleutian Islands Census Area
  - Bethel Census Area
  - Dillingham Census Area
  - Wade Hampton Census Area

(4) The bush: Census Areas

Nome, North Slope, Northwest Arctic (Kobuk), Aleutian Islands, Bethel, Bristol Bay, Dillingham, Wade Hampton, Yukon-Koyukuk

(5) Inadequate Prenatal Care: Initial visit was in the third trimester of pregnancy or fewer than five prenatal visits.

NUMBER OF WOMEN OF CHILD BEARING AGE IN ALASKA

BY AGE AND RACE

1984 Alaska Vital Statistics Annual Report

Age	White	Native	Other	Total
15-19	13,605	4,051	1,684	19,340
20-24	14,455	3,980	2,139	20,574
25-29	23,497	3,338	3,902	30,737
30-34	24,205	2,939	1,785	21,248
35-39	17,192	2,271	1,083	14,459
	104,604	18,305	13,873	136,782

1984 LIVE BIRTHS BY AGE AND RACE OF MOTHER

Age	White	Native	Black	Other	Unknown	Total
< 15	4	4	0	0	0	8
15-17	158	136	17	3	0	314
18-19	531	294	41	11	6	883
20-24	2,929	848	160	82	30	4,049
25-29	3,163	628	126	119	25	4,061
30-34	1,911	328	51	77	23	2,390
35-39	567	117	5	39	0	733
40-44	55	22	0	4	0	81
45 +	1	1	0	1	0	3
Unknown	1	2	0	0	0	3
	9,320	2,380	400	336	89	12,525

Infant mortality consists of neonatal and postneonatal mortality. In southern states, where infant mortality rates are among the highest in the country, infant mortality in 1984 was most heavily affected by high neonatal mortality rates. Western states ranked among the highest for postneonatal mortality.

TABLE 2.1A

Infant Mortality Rate, Total, 1984

Rank	*State Name*	*Rate*
1	North Dakota	8.1
2	Maine	8.4
3	Vermont	8.7
4	Iowa	8.8
5	Montana	8.8
6	Minnesota	8.9
7	Massachusetts	9.0
8	Utah	9.1
9	California	9.4
10	Arizona	9.5
11	New Mexico	9.6
12	Nebraska	9.6
13	Idaho	9.8
14	Oregon	9.9
15	Rhode Island	9.9
16	Hawaii	9.9
17	Wisconsin	9.9
18	South Dakota	10.0
19	Kansas	10.1
20	Colorado	10.2
21	New Hampshire	10.2
22	Washington	10.2
23	Connecticut	10.4
24	Missouri	10.4
25	Pennsylvania	10.4
26	Ohio	10.4
27	Texas	10.5
28	Nevada	10.5
29	Delaware	10.8
30	Florida	10.8
31	Arkansas	10.9
32	New Jersey	10.9
33	Oklahoma	11.0
34	West Virginia	11.0
35	New York	11.0
36	Wyoming	11.1
37	Indiana	11.1
38	Alaska	11.2
39	Kentucky	11.5
40	Michigan	11.7
41	Maryland	11.8
42	Tennessee	11.8
43	Louisiana	12.1
44	Illinois	12.1
45	Virginia	12.1
46	North Carolina	12.4
47	Georgia	12.9
48	Alabama	12.9
49	Mississippi	14.4
50	South Carolina	14.7
51	District of Columbia	21.0
	United States	10.8

Source: National Center for Health Statistics. Calculations by Children's Defense Fund.

TABLE 2.1B

Neonatal Mortality Rate, Total, 1984

Rank	State Name	Rate
1	Montana	4.5
2	North Dakota	4.5
3	Oregon	4.8
4	Idaho	5.0
5	Maine	5.1
6	Washington	5.4
7	South Dakota	5.5
8	Vermont	5.5
9	Minnesota	5.5
10	Utah	5.6
11	Arizona	5.7
12	Alaska	5.7
13	Colorado	5.8
14	Iowa	5.9
15	California	6.0
16	New Mexico	6.0
17	Nevada	6.0
18	Massachusetts	6.1
19	Nebraska	6.2
20	Wisconsin	6.3
21	Missouri	6.4
22	Kansas	6.5
23	Hawaii	6.5
24	Texas	6.6
25	Ohio	6.8
26	Arkansas	6.9
27	Florida	6.9
28	Rhode Island	7.0
29	Oklahoma	7.0
30	Wyoming	7.1
31	New Hampshire	7.1
32	West Virginia	7.1
33	Indiana	7.1
34	Pennsylvania	7.2
35	Kentucky	7.4
36	Connecticut	7.5
37	New York	7.5
38	New Jersey	7.5
39	Delaware	7.6
40	Tennessee	8.0
41	Louisiana	8.0
42	Illinois	8.1
43	Michigan	8.1
44	North Carolina	8.1
45	Maryland	8.1
46	Virginia	8.7
47	Georgia	8.7
48	Alabama	8.7
49	Mississippi	9.0
50	South Carolina	9.8
51	District of Columbia	16.0
	United States	7.0

TABLE 2.1C

Postneonatal Mortality Rate, Total, 1984

Rank	State Name	Rate
1	Massachusetts	2.9
2	Connecticut	2.9
3	Rhode Island	2.9
4	Iowa	2.9
5	New Hampshire	3.1
6	Pennsylvania	3.2
7	Delaware	3.2
8	Maine	3.3
9	Hawaii	3.4
10	Minnesota	3.4
11	New Jersey	3.4
12	California	3.5
13	Nebraska	3.5
14	Virginia	3.5
15	New York	3.5
16	Utah	3.6
17	Kansas	3.6
18	New Mexico	3.6
19	North Dakota	3.6
20	Wisconsin	3.6
21	Michigan	3.7
22	Ohio	3.7
23	Maryland	3.7
24	Oklahoma	3.9
25	West Virginia	3.9
26	Arizona	3.9
27	Tennessee	3.9
28	Texas	3.9
29	Florida	3.9
30	Illinois	4.0
31	Indiana	4.0
32	Missouri	4.0
33	Wyoming	4.0
34	Louisiana	4.0
35	Arkansas	4.0
36	Kentucky	4.2
37	Alabama	4.2
38	Georgia	4.2
39	North Carolina	4.3
40	Colorado	4.3
41	Montana	4.4
42	South Dakota	4.5
43	Nevada	4.5
44	Idaho	4.7
45	Washington	4.8
46	South Carolina	4.9
47	District of Columbia	5.0
48	Oregon	5.1
49	Mississippi	5.4
50	Alaska	5.5
	United States	3.8

Source: National Center for Health Statistics. Calculations by Children's Defense Fund.

Low birthweight is the single largest cause of neonatal death. Ten of fourteen states with the highest incidence of low birthweight also had the highest neonatal mortality rates in 1984.

As might be expected, the states in which higher proportions of pregnant women fail to receive early prenatal care are the same states in which greater proportions of pregnant women receive no prenatal care or none until the last three months of pregnancy. For example, in New Mexico, two in every five infants born in 1984 were born to women who had no prenatal care in the first three months of pregnancy. One in eight New Mexico infants was born to a mother who had received late or no care.

TABLE 2.5A

Percent of Births that Were Low Birthweight, Total, 1984

Rank	*State Name*	*Rate*
1	North Dakota	4.8
2	Alaska	4.8
3	Iowa	4.9
4	Minnesota	4.9
5	New Hampshire	5.0
6	South Dakota	5.1
7	Washington	5.1
8	Idaho	5.1
9	Wisconsin	5.1
10	Oregon	5.2
11	Nebraska	5.4
12	Maine	5.5
13	Utah	5.6
14	Montana	5.8
15	California	5.9
16	Massachusetts	5.9
17	Rhode Island	6.0
18	Kansas	6.1
19	Vermont	6.1
20	Arizona	6.1
21	Indiana	6.3
22	Oklahoma	6.3
23	Ohio	6.4
24	Connecticut	6.6
25	Pennsylvania	6.6
26	Missouri	6.7
27	Nevada	6.7
28	Texas	6.8
29	West Virginia	6.9
30	Kentucky	6.9
31	Michigan	7.0
32	New Jersey	7.0
33	New York	7.0
34	Wyoming	7.1
35	Illinois	7.1
36	Virginia	7.2
37	Hawaii	7.2
38	Delaware	7.4
39	Florida	7.4
40	Maryland	7.4
41	Arkansas	7.5
42	New Mexico	7.6
43	Colorado	7.6
44	North Carolina	7.8
45	Alabama	7.9
46	Tennessee	7.9
47	Georgia	8.3
48	Louisiana	8.5
49	Mississippi	8.7
50	South Carolina	8.8
51	District of Columbia	12.5
	United States	6.7

Source: National Center for Health Statistics. Calculations by Children's Defense Fund.

International Infant Mortality Rates 1980-1985

Rank	*Country*	*Rate*
1	Finland	6
1	Iceland	6
1	Japan	6
4	Sweden	7
5	Denmark	8
5	Netherlands	8
5	Norway	8
5	Switzerland	8
9	Canada	9
9	France	9
9	Luxembourg	9
12	Australia	10
12	Hong Kong	10
12	Ireland	10
12	Spain	10
12	United Kingdom	10
17	Belgium	11
17	German Dem. Republic	11
17	Germany, Fed. Republic	11
17	United States	11

among cities located in the same state. The nonwhite infant mortality rate in the District of Columbia was nearly three times greater than the nonwhite rate in San Francisco. A black infant born in Cleveland, Ohio, was 1.7 times more likely to die in the first year of life than one born in Columbus, Ohio.

7. *In 1984, for the fifth consecutive year, there was no progress in reducing the percentage of infants born to women who received late or no prenatal care.* The ten worst states for women receiving late or no prenatal care were: New Mexico, Texas, District of Columbia, New York, Florida, Oklahoma, Arizona, Arkansas, South Carolina, and South Dakota. A black infant born to a woman in New York was three times more likely than a black Mississippi infant and four times more likely than a black Massachusetts infant to have a mother who received late or no prenatal care during pregnancy.

In 1986, families in thirty-two states received AFDC payments that were less than 50 percent of the federal poverty level.

8. *At the current rate of progress, the nation and the states will fail to meet nearly all of the Surgeon General's 1990 Objectives for reducing infant mortality, the number of low-birthweight births, and the number of women who receive late or no prenatal care.* Babies whose mothers receive no prenatal care are three times more likely to suffer low birthweight with commensurately greater risks of birth defects and death. As a result of the nation's slow progress in providing access to early prenatal care and in reducing the incidence of low birthweight, more than 300,000 excess low-birthweight births will occur between 1978 and 1990. These babies will cost the nation more than $2 billion during this period just for the medical care required during their first year of life.

PRENATAL CARE COSTS

Adequate Prenatal Care - for uncomplicated pregnancies must begin in the first trimester

-- visits should be every 4 weeks for first 28 weeks
-- one visit every 2 weeks for next 8 weeks
-- one visit every week thereafter until delivery
-- total number of prenatal visits = 14 to 15 visits
-- prenatal care provider - obstetrician/gynecologist, certified nurse midwife, or advanced nurse practitioner

Alaska Women's Health Service - Prenatal Care

1st Prenatal Visit	$ 200
Each Subsequent Visit @ $45 x 13 visits	$ 585

Since the recommended prenatal visit schedule for prenatal care totals 14 visits for a low risk full term gestation, I multiplied the $45 per visit rate by 13 visits.

Delivery Fees

Vaginal delivery	$ 700
Cesarean Section	$ 1,400

Cost of Vaginal Delivery		Cost of a C-Section Delivery	
Prenatal Care	$ 785	Prenatal Care	$ 785
Delivery-Physician Chg.	700	C-Section Del.	$ 1,400
Total Fees	$1,485	Total Fees	$ 2,185
Providence Hospital Fees	1,950	Providence Fees	$ 5,000
Grand Total	**$3,435**	**Grand Total**	**$ 7,185**

Neighborhood Health Center

Fee includes all prenatal visits plus delivery charges

0 Fee	25% Fee	50% Fee	75% Fee	Full Fee
Medicaid	125% Poverty	150% Poverty	175% Poverty	200% Poverty
$0.00	$300	$600	$900	$1,200

EXAMPLES OF GAPS IN PRENATAL CARE

Women earning over 78% of poverty are not eligible for medicaid; these women must pay cash out of pocket for prenatal care unless insured.

-- *uncomplicated pregnancy = 25% of her income must go toward prenatal care*

The 1984 Vital Statistics Report states that 25% (605) of Native women had inadequate prenatal care and 13% of White Alaskan women received inadequate prenatal care.

Four to five deliveries occur monthly in Anchorage emergency rooms because these women have had no prenatal care.

Alaska Women's Health Clinic in Anchorage reports 27% of their patients are not eligible for any third party reimbursement.

Providence Hospital reported that in 1986, 667 of the 2,480 births there occurred to women who had no third party reimbursement for their birth; 555 of these women have established some sort of payment plan for their birth, but 112 of these have not been able to establish a payment plan.

The state demographer estimates that 11% of the Alaska population has incomes above the Alaska poverty line, but below $18,000.

PROBLEMS TO BE DISCUSSED

Access to Care

Teen Pregnancies

Nutrition for Pregnant Women

Sudden Infant Death Syndrome

Data Related to Infant Births and Deaths

The Health of America's Children

MATERNAL AND CHILD HEALTH DATA BOOK

By
Dana Hughes
Kay Johnson
Sara Rosenbaum
Janet Simons
Elizabeth Butler

Adolescent Pregnancy Prevention: Prenatal Care Campaign •
Children's Defense Fund

PART 1

The Health of America's Children: Overview of Findings

TABLE 1.1

UNITED STATES TOTAL

Fact Sheet, 1984

	White	Nonwhite		Total
Births		Black	Total	
To all women	2,923,502	592,745	745,639	3,669,141
To all women age 19 and under	324,912	140,112	154,735	479,647
To women under age 15	3,959	5,720	6,006	9,965
Teen Births				
(As percentage of all births)				
To women age 19 and under	11.1%	23.6%	20.8%	13.1%
To women under age 15	0.1	1.0	0.8	0.3
Low-Birthweight Births				
Percentage of births that are low birthweight:				
To all women	5.6%	12.4%	11.1%	6.7%
To women age 19 and under	7.7	13.6	13.1	9.4
Percentage of all low-birthweight births:				
To women age 19 and under	15.3%	26.0%	24.4%	18.4%
Prenatal Care				
Percentage of babies born to women who began prenatal care in the first trimester:				
To all women	79.6%	62.2%	64.1%	76.5%
To women age 19 and under	56.7	47.0	47.3	53.7
Percentage of babies born to women who began prenatal care in the third trimester or not at all:				
To all women	4.7%	9.6%	9.3%	5.6%
To women age 19 and under	10.9	14.0	14.1	11.9
Infant Mortality				
Infant deaths per 1,000 live births				
Total infant deaths	9.4	18.4	16.1	10.8
Neonatal deaths	6.2	11.8	10.2	7.0
Postneonatal deaths	3.3	6.5	5.8	3.8

The nation will meet the Surgeon General's 1990 goals for infant mortality for all races, whites, and nonwhites if its current rate of progress continues. However, the nation will have to increase progress to meet the infant mortality goal for blacks. The U.S. will meet the goal for neonatal mortality, but to meet the goal for postneonatal mortality the nation will have to nearly triple its rate of progress. To meet the goals for low-birthweight births, the nation will have to improve at 4 times the rate of progress for all races, 2 times the rate for whites, 2.5 times the rate for nonwhites, and 7 times the rate for blacks. To meet the goal for prenatal care, the country will have to improve at 8 times the rate of progress of the past six years.

Source: National Center for Health Statistics. Calculations by Children's Defense Fund.

The Health of America's Children: Overview of Findings

National and International Findings

National Findings

A virtual stagnation in key maternal and infant health indicators in 1984 accompanied deeply entrenched childhood poverty and a major increase in the number of children without private health insurance. Stagnation in the U. S. infant mortality rate in the 1980s is the result of numerous factors, including: persistently high postneonatal mortality; the lack of an appreciable decline in the proportion of infants born at low birthweight (which is exacerbated by high rates of teenage childbearing); failure to increase the proportion of pregnant women who have access to early and continuous prenatal care; the ongoing erosion of major public health programs in the face of high poverty rates; and the more than one-third increase since 1978 in the number of Americans without health insurance, one-third of whom are children younger than 18 (Figure 1.5).

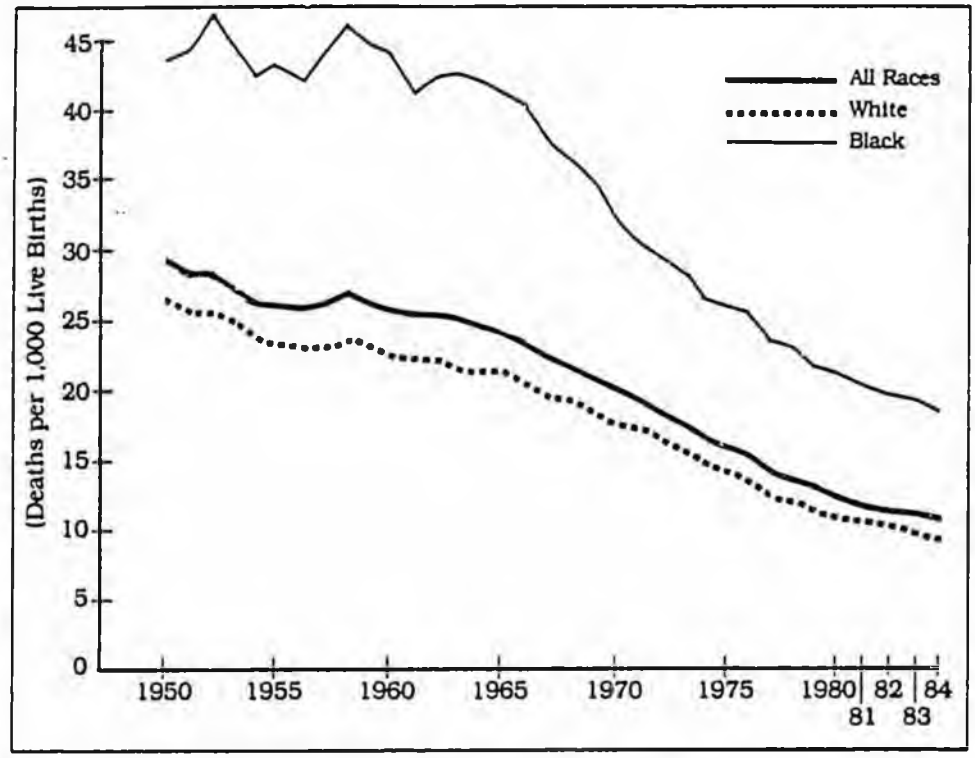
Infant mortality: Nearly 40,000 of the 3,669,141 children who were born in the United States in 1984 died before their first birthday, a rate of 10.8 infant deaths per 1,000 live births (Table 1.1). This infant mortality rate represents a 4 percent decline compared to the 11.2 rate that prevailed in 1983. This is a modest improvement over the 3 percent annual rate of decline of the previous two years (Figure 1.1, Table 3.1). Mortality rates among black and nonwhite infants also declined by 4 percent between 1983 and 1984 from rates of 19.2 and 16.8 to rates of 18.4 and 16.1, respectively. The infant mortality rate among whites declined by 3 percent, from 9.7 to 9.4.

- Despite their declining infant mortality, black children remained nearly twice (1.96 times) as likely as white infants to die in the first year of life. Only three times since 1940 has the disparity in black and white infant mortality been as wide (Table 3.1).
- While modest gains were made in 1984, experts anticipate no similar improvements for 1985. According to the National Center for Health Statistics (NCHS), an examination of preliminary data indicates that "there was no statistically significant difference between the estimated infant mortality rate for 1985 of 10.6 deaths per 1,000 live births and the 1984 revised provisional estimate of 10.7. * The absence of a statistically significant change in the provisional infant mortality rate between 1984 and 1985 is consistent with the slowing in the rate of decline in infant mortality since 1981, following two decades of sustained decline."[1]
- The slowing rate of decline can be seen by comparing the annual rate of decline during the 1981-1984 period (a 3.7 percent change) to the average annual rate of decline during the preceding ten years (a 4.5 percent change).

*Provisional estimates of annual infant mortality rates are calculated by NCHS prior to its receipt of all states' final statistics. For consistency, NCHS compares provisional rates to provisional rates.

FIGURE 1.1

Infant Mortality, by Race, 1950-1984



Neonatal mortality: The 1984 national neonatal mortality rate (deaths from birth to twenty-eight days of life) was 7.0 deaths per 1,000 live births. This was 4.10 percent lower than the 1983 rate of 7.3.

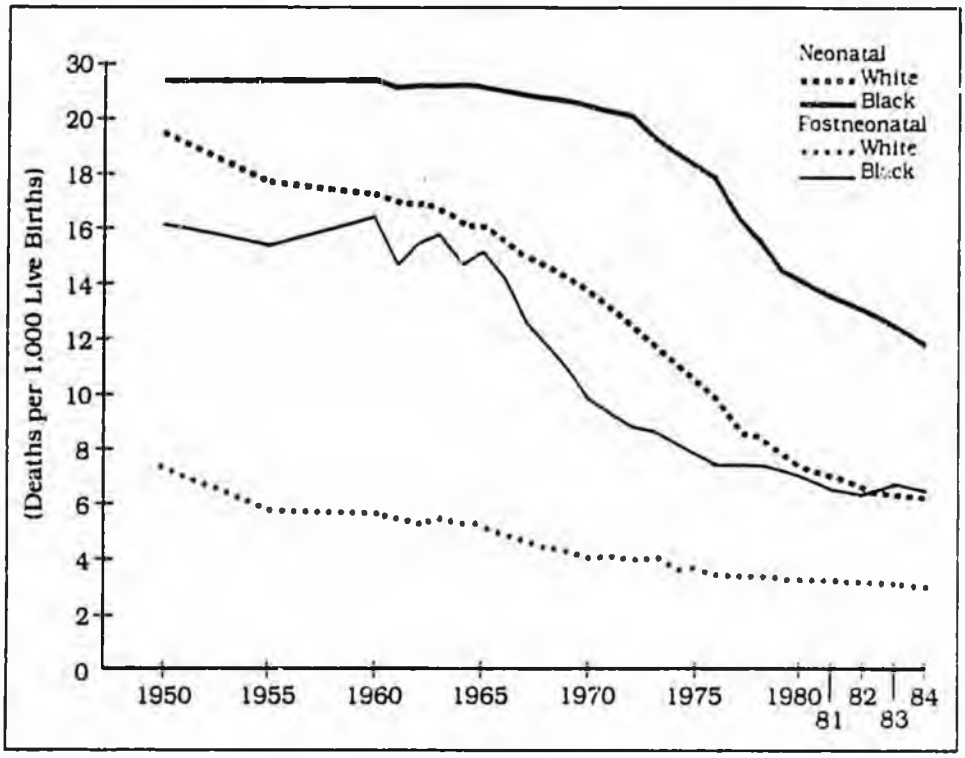
Postneonatal mortality: The 1984 national postneonatal mortality rate (deaths between twenty-eight days and one year of life) was 3.8 deaths per 1,000 live births. This represented only a 2.56 percent decline from the 1983 rate. This decline simply returned the nation's postneonatal mortality rate to its 1982 level, since in 1983 there was a nationwide increase in postneonatal mortality (Table 3.3). Thus, the nation made no progresss in reducing the rate of postneonatal mortality between 1982 and 1984.

■ Postneonatal mortality in the United States has remained persistently high, even during the great infant mortality decline that occurred between 1966 and 1979 (Figure 1.2). Postneonatal mortality is particularly disturbing in a country as wealthy as the United States. While the neonatal mortality rate is largely a function of maternal health status and access to medical and supportive services during pregnancy and labor, postneonatal mortality is a more sensitive indicator of the basic environment in which an infant lives. During the postneonatal period, infants need decent housing, food, sanitation, and primary medical care, yet poor children frequently lack these supports. Experts estimate that 80 percent of all infants who die during the postneonatal period were born at normal birthweight.[2]

Low birthweight: The incidence of low birthweight in 1984 remained virtually unchanged from earlier years. Contributing to the national low birthweight problem is the high rate of teenage childbearing in the United States. In 1984, 13 percent of all births were to teens and these infants were 1.4 times more likely than all infants to be born at low birthweight. Even when births to only older women are considered, however, America has a serious low birthweight problem.

FIGURE 1.2

Neonatal and Postneonatal Mortality, 1950-1984



■ Between 1983 and 1984 the percentage of low-birthweight babies (weighing less than 5.5 pounds at birth) declined only .1 percentage point, from 6.8 percent to 6.7 percent. The wide disparity in low birthweight among racial groups also persisted. While 5.6 percent of white infants were born at low birthweight in 1984, the figures for black and nonwhite infants were 12.4 percent and 11.1 percent, respectively. Black infants in 1984 thus were 2.21 times more likely than white infants to be born at low birthweight. Only twice since 1970—in 1982 and 1983—has the disparity in black and white low birthweight percentages been as great (Tables 1.1 and 3.4).

Numerous studies have examined the persistent problem of low birthweight in this country. Several of these demonstrate a link between low birthweight and access to medical and nutritional services as well as environmental factors such as exposure to critical levels of lead during pregnancy.[3] Yet in 1986, the Supplemental Food Program for Women, Infants, and Children (WIC) served only 40 percent of all financially eligible women, infants, and children nationally (Table 2.21D).

Similarly, in 1986 critical public health programs such as Community and Migrant Health Centers, the Title V Maternal and Child Health Block Grant, and the Federal Immunization Program suffered funding reductions as a result of the across-the-board cuts required by the Gramm-Rudman-Hollings provision of the Balanced Budget Act of 1985. Finally, contributing to the one-third increase in the number of uninsured Americans between 1978 and 1984, the Medicaid program in 1984 served 3.5 percent fewer children than were served in 1978 (Figure 1.6).

Prematurity: In 1984, 9.4 percent of all births were premature (occurring prior to the thirty-seventh week of pregnancy). Infants born prematurely are more than three times more likely to be born at low birthweight than those born at full term.[4] Prematurity can occur for

many reasons, including poor maternal nutrition, inadequate prenatal care, and untreated maternal infections.

Prenatal care: Between 1983 and 1984, the percentage of pregnant women receiving prenatal care early in pregnancy (during the first trimester) increased only .3 percentage point, from 76.2 percent to 76.5 percent (Tables 1.1 and 3.6). The percentage of women who received either no prenatal care or none until the seventh month or later did not decline at all from the 1983 figure of 5.6 percent. Indeed, 1984 was the fifth consecutive year during which the percentage of babies born to mothers who received late or no care worsened or failed to improve. By comparison, between 1969 and 1979 the percentage of pregnant women receiving late or no care in pregnancy improved by 37.03 percent (Tables 1.1 and 3.7).

Inadequate prenatal care can have serious implications for infant health. For example, between 1978 and 1985 the number of infants infected from birth by their mothers' syphilis rose by 150 percent nationally.[5] According to the U. S. Centers for Disease Control (CDC), this increase in the rate of congenital syphilis resulted from, among other things, the lack of adequate prenatal care experienced by pregnant women, which could have detected and treated the disease. CDC estimates that, had adequate prenatal care been received, at least 60 percent of the cases could have been prevented.[6]

International Findings

As a result of stagnating maternal and infant health indicators, *the United States' international ranking on infant mortality has deteriorated substantially during the past thirty years.*

- Infant mortality in the United States has declined steadily since the turn of the century, as it has in other countries. Several factors have contributed to the decline both here and in other industrialized nations, including the introduction of public health sanitation measures, immunizations, improved access to basic health services (such as prenatal care and primary pediatric health care), and reduction in the incidence of low-birthweight births.[7]
- In this book we compare the rate of decline in U. S. infant mortality to that of nineteen other nations. We selected these other nations for three reasons. First, they have reliable vital statistics reporting systems. Second, they have comparable economic structures. Third, their standards of living are comparable to that of the United States.
- During the 1950-1955 period, the United States ranked sixth best among twenty industrialized countries. By the 1980-1985 period, the nation had fallen to a tie for last place among the same countries (Table 1.2). The U. S. position has deteriorated not because infant mortality rates in this country have worsened, but because the nation has failed to reduce infant mortality as rapidly as have these other countries.
- Between the 1950-1955 and 1980-1985 time periods, the U. S. infant mortality rate declined by 61 percent. The other nineteen countries had greater rates of improvement during this period, with the sole exception of Australia* (Table 1.2). Even countries with 1950-1955 infant mortality rates substantially lower than ours (such as Iceland, Norway, Sweden, and the Netherlands), as well as countries with comparable rates (such as Denmark and the United Kingdom), improved more rapidly than the United States. Many of the nations that experienced more rapid improvements and have reached lower rates were substantially poorer than the United States.
- Experts point to numerous factors that account for the United

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*While Australia experienced a slightly lower rate of improvement than the United States during this period, its actual infant mortality rates were in fact lower than those of the United States.

TABLE 1.2

Infant Mortality Rates
1950-1985
Selected Countries

Country	1950-1955		1955-1960		1960-1965		1965-1970		1970-1975		1975-1980		1980-1985		% Change 1950-55 to 1980-85
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	
Australia	24	(4)	21	(5)	20	(6)	18	(9)	17	(14)	12	(10)	10	(12)	-58
Belgium	45	(14)	35	(14)	27	(14)	23	(16)	19	(18)	13	(12)	11	(17)	-76
Canada	36	(11)	30	(11)	26	(13)	21	(11)	16	(9)	12	(10)	9	(9)	-75
Denmark	28	(8)	23	(6)	20	(6)	16	(6)	12	(2)	9	(2)	8	(5)	-71
Finland	34	(10)	25	(9)	19	(5)	15	(5)	12	(2)	9	(2)	6	(1)	-82
France	45	(14)	33	(12)	25	(11)	21	(11)	16	(9)	11	(9)	9	(9)	-80
German Dem. Rep.	58	(18)	44	(18)	31	(18)	21	(11)	17	(12)	13	(12)	11	(17)	-81
Germany, Fed. Rep.	48	(16)	37	(15)	28	(16)	23	(11)	22	(20)	15	(8)	11	(17)	-77
Hong Kong	79	(20)	54	(20)	33	(19)	23	(16)	17	(12)	13	(12)	10	(12)	-87
Iceland	21	(2)	17	(1)	17	(3)	13	(1)	12	(2)	9	(2)	6	(1)	-71
Ireland	41	(12)	34	(13)	28	(15)	23	(16)	18	(16)	15	(18)	10	(12)	-76
Japan	51	(17)	37	(15)	24	(10)	16	(6)	12	(2)	9	(2)	6	(1)	-88
Luxembourg	43	(13)	37	(15)	29	(17)	21	(11)	16	(9)	13	(12)	9	(9)	-79
Netherlands	24	(4)	19	(3)	16	(2)	14	(3)	12	(2)	10	(7)	8	(5)	-67
Norway	23	(3)	20	(4)	17	(3)	14	(3)	12	(2)	9	(2)	8	(5)	-65
Spain	62	(19)	51	(19)	42	(20)	33	(20)	21	(19)	16	(20)	10	(12)	-84
Sweden	20	(1)	17	(1)	15	(1)	13	(1)	10	(1)	8	(1)	7	(4)	-65
Switzerland	29	(9)	23	(6)	20	(6)	17	(8)	13	(8)	10	(7)	8	(5)	-72
United Kingdom	28	(6)	24	(8)	22	(9)	19	(10)	17	(14)	14	(16)	10	(12)	-64
United States	28	(6)	26	(10)	25	(11)	22	(16)	18	(16)	14	(16)	11	(17)	-61

(Rates are rounded to the nearest whole number)
Source: United Nation's Children's Fund

States' failure to reduce infant mortality as rapidly as other countries. The first is a relatively high incidence of low birthweight, which is exacerbated (but by no means caused solely) by our high rate of teenage childbearing. Other countries have managed to reduce both low birthweight and infant mortality. They have done so both by promoting much lower rates of teenage childbearing and by ensuring access by pregnant women and infants to maternity care and family supports.

The percentage of babies born at low birthweight in the United States has declined only slightly since 1950 (Table 3.4). Indeed, the U. S. Department of Health and Human Services recently reported that declines in low birthweight in the United States have been so slight that such reductions are responsible for only 10 percent of the decrease in infant mortality that has occurred since 1960.[8] As a result, the incidence of low birthweight in the United States is substantially higher than in other industrialized countries.

A key major factor that distinguishes the United States from countries that have reduced infant mortality rates more rapidly is the provision of maternity services. Of all industrialized countries, the United States stands alone in its failure to assure pregnant women access to prenatal care *and* delivery services through either a public health service or universal health insurance.[9] While 23.5 percent of all mothers, more than 20 percent of white mothers, and nearly 40 percent of all black mothers in the United States did not receive early prenatal care in 1980, fewer than 1 percent of all mothers in Sweden received inadequate care that year.[10] In France, ensuring early and continuous prenatal care is regarded as so important that pregnant women are provided with cash payments as part of their prenatal care program in order to encourage their use of services and to ensure them an adequate standard of living.

The United States also has other social policies that affect infant

FIGURE 1.3

Infant Mortality Rates, Selected Countries, 1950-1985