Task Force on Infant Mortality

Statement on Infant Mortality

Why Is Infant Mortality Important?

Rates of infant mortality are sensitive indicators of a broad range of factors affecting children's health. As such, infant mortality is the “tip of the iceberg” of child health problems, and changes in infant mortality are a signal of factors affecting child health more broadly. In addition to its role as a general gauge of child health, infant mortality itself represents an important health problem. It is well to remember that infant death rates are the highest of any age group less than 65 years.

The message conveyed by infant mortality rates if better understood in terms of the causes of mortality at different times during the first year of life.

Neonatal Mortality

Neonatal mortality rate is defined as the number of infants dying between 0 and 27 days of life per 1,000 live births. These deaths in the first month of life reflect primarily factors associated with health of the mother before and during pregnancy and the special problems of the newborn. Deaths in this age range result chiefly from inadequate intra-uterine growth (prematurity, intrauterine growth retardation) and congenital anomalies. As a result, neonatal mortality rates provide an indicator of the factors affecting pregnancy, delivery, and the neonate and the adequacy of services in the prenatal, intrapartum, and neonatal periods.

Postneonatal Mortality

Postneonatal mortality rate is defined as the number of infants dying between 28 days and 11 months of life per 1,000 live births. These deaths in the first month of life reflect primarily factors associated with health of the mother before and during pregnancy and the special problems of the newborn. Deaths in this age range result chiefly from inadequate intra-uterine growth (prematurity, intrauterine growth retardation) and congenital anomalies. As a result, neonatal mortality rates provide an indicator of the factors affecting pregnancy, delivery, and the neonate and the adequacy of services in the prenatal, intrapartum, and neonatal periods.

Trends in Infant Mortality

At the beginning of this century, the infant mortality rate was about 100, ie, 10% of all infants died before their first birthday. During the first half of the century, infant mortality declined to about half that rate, largely as a result of a substantial decrease in postneonatal mortality. The latter result has been attributed to improvements in general nutrition, quality of milk and environmental sanitation. By the midpoint of the century, most infant deaths occurred in the neonatal period, and the majority of these were caused by problems associated with low birth weight.

Since the late 1960s, the infant mortality rate has decreased sharply, and this decline reflects a decrease in neonatal mortality. Although decreases in births to high-risk groups, eg, adolescent mothers, and a small decline in the rate of low weight infant births have contributed to this marked decrease, much of the recent decline in neonatal mortality is due to the increased survival of low birth weight infants due to improvements in respiratory care, treatment of neonatal infection, and improved supportive care.
weight infants and newborn infants with other problems.

Although this decline is gratifying and should not be minimized, several factors point to the need for additional efforts: continued disparities in the mortality rates among the black and white populations; a recent slowing in the rate of decline in infant mortality, raising concerns about achieving a "plateau"; a possible recent increase in postneonatal mortality; possible harmful effects from budget cuts and lower priority of child health issues.

In view of these concerns, it is worth reviewing what we know about approaches to infant mortality as a prelude to renewing the efforts to reduce infant loss.

**WHAT DO WE KNOW ABOUT DECREASING INFANT MORTALITY?**

Without minimizing the lack of knowledge of the causes of infant mortality or the need for efficacious interventions, or understanding the importance of social changes that may be required to alter the milieu that can increase the risk of infant death for some subgroups of the population, it must be recognized that we have developed a number of approaches to reduce infant loss. Some of these approaches are as follows.

**Prepregnancy Care**

*Reproductive (Family Life) Education.* A recurring theme is the lack of knowledge of the risks of early sexual activity and potential dangers of pregnancy, for the mother and the fetus, during adolescence. Few adolescents recognize the value of postponing sexual activity. Other risk factors, eg, smoking, alcohol, and genetic considerations, should be considered by potential parents of any age. Many studies support the use of reproductive education for persons who are sexually active to encourage more effective use of contraceptives and to decrease many risk factors affecting pregnancy.

*Genetic Counseling and Other Services.* The increasing availability of screening techniques for those infants at risk of a genetic condition and for prenatal diagnosis of such defects offers great potential for reducing the incidence of children born with severe inborn errors of metabolism, chromosomal disorders, or other anomalies and for early intervention in those infants with treatable conditions. Examples of the effectiveness of such techniques are the decrease in the number of babies born with Down syndrome to older mothers and the successful screening programs for phenylketonuria and hypothyroidism.

*Interpregnancy/Periconceptional Care.* There is sometimes a missed opportunity for affecting infant health in counseling a woman who may be considering pregnancy or a woman who has had one infant with significant problems. Pediatricians need to take a more aggressive stance concerning spacing of pregnancy and changing adverse health behaviors.

**Perinatal Care**

*Prenatal Care.* Although much remains to be learned about some of the causes of adverse perinatal conditions, there is little doubt that beginning prenatal care soon after conception is associated with improved pregnancy outcomes. The evidence suggests that prenatal care has reduced some problems leading to low birth weight, especially those in the third trimester or associated with specific maternal conditions, eg, diabetes. When the birth of a high-risk infant is anticipated, systematic, uniform, risk assessment throughout the pregnancy leads to recognition of problems that permit referral/transport to a specialized center.

*Perinatal Services.* Although not without negative aspects, especially expenses of hospital-based perinatal services, those relating to delivery and the neonatal period can be credited with a substantial proportion of the recent decline in neonatal mortality. Great interest has arisen because of the drama of the neonatal transport and high-tech intensive care unit which has contributed to the survival of increasingly smaller infants and newborns with more complex or severe anomalies. It must also be recognized that deaths due to birth injuries and to asphyxia have decreased and suggest a more general diffusion of the techniques for managing many unexpected problems of delivery and support of the infant.

*Follow-up Care/Special Centers.* Evidence suggests that the increased survival of high-risk infants as a result of perinatal technology has led to sizeable increases in the numbers of children with severe disabilities. All children surviving high-risk pregnancies and the birth process are at increased risk of a number of health problems. Moreover, such children are living to much older ages as a result of continued application of modern medical care. Several groups of these children have been found to benefit in terms of longevity and physical and psychosocial development from intensive, often multidisciplinary, follow-up care. Examples include the team care provided by special centers for children with severe congenital problems, such as cystic fibrosis and spina bifida, and special educational intervention programs for children at risk of environmental deprivation, eg, the child of an adoles-
Primary Care

**Immunizations.** Many of the most common infectious diseases which resulted in infant loss in the past have all but disappeared. This disappearance is due, of course, to the indispensable use of vaccines. Immunizations are among the simplest, cheapest, and most effective means of preventing illnesses. The prevention of traditional childhood diseases not only eliminates unnecessary morbidity and mortality among children, but also serves to protect future generations by lowering the risk of birth defects from rubella, for example. The potential that the extension of this type of primary prevention to other conditions is encouraged by the emergence of new vaccines against other common pathogens such as *Haemophilus* and *Streptococcus pneumoniae*.

**Screening.** When the term screening is used in the context of primary care, it generally refers to the regular periodic examination and assessment of the individual infant, child, or youth. Screening vulnerable populations, often referred to as mass screening, is another approach of unquestioned merit because it attempts to identify those persons at risk of developing a disorder before more overt signs or symptoms occur.

Several inherited metabolic or endocrine disorders exist that can lead to permanent mental retardation. If these disorders can be detected soon after birth, their disabling consequences can be minimized or avoided altogether. The most widely known of these disorders is phenylketonuria. The phenylketonuria program is a model for the development of screening for conditions that can be identified at birth. Other such disorders include homocystinuria, galactosemia, tyrosinosis, and hyperthyroidism. Screening tests are available for application at other ages, including some for prenatal diagnosis. Screening for conditions such as sickle cell disease, lead poisoning, and tuberculosis have proved valuable and effective. Referral of those children failing the screening process for definitive diagnoses and treatment is an inherent component of these programs.

Emergency Medical Services

Among the causes of mortality in the postneonatal period are accidental injuries. Critically ill patients in the pediatric age group have rapidly progressive emergencies differing significantly in pathophysiology from emergencies in adults. The development of an available emergency medical system having the special knowledge, skills, personnel, and equipment to meet the needs of pediatric patients is an important component of a community program to combat infant mortality.

Financing Medical Care

There is a pluralistic character to the contemporary system of health care in the United States, in keeping with the precept of liberty in the American social and political philosophy. In contrast to the primary and secondary education system which is free and compulsory, personal health care relies on the family’s assuming responsibility for the cost and the seeking of care for the child. The role of government in health is far more limited than in education, and except for the traditional public health and safety measures, the state has circumscribed responsibilities relative to personal health services for the general population. One of these responsibilities involves the population segment that is poor.

The uneven distribution of risk is a primary variable affecting the delivery of adequate personal health care in the United States. Poverty is a proxy for several manifestations of need, and children are disproportionately represented in the poor population. It is clear that third-party payment for care from whatever source increases access to care, and thus those persons with insurance (public or private) obtain more and, in some instances, better care. In the past 20 years, Medicaid has been reasonably successful in eliminating the gap in services between poor and nonpoor populations for those persons eligible for Medicaid. Indeed, even with the common fragmentation represented by various governmental programs with a focus on personal child health care, eg, Title V (Social Security Act), the nutritional program for women, infants, and children (WIC), and others, there is some evidence of proven benefits.

Access to and the securing of appropriate personal medical care are important components of a community’s attention to the health of children during the period of fetal growth and development and throughout childhood and adolescence. When interpreting the large disparities in health expenditures between children and other age groups, it is important to emphasize the different frequencies in hospitalization between these groups that accounts for the difference in expenditures. Health costs reflect the treatment of illnesses more than the important considerations of the prevention of illness and health promotion or health supervision which are judged essential tenents of pediatrics.
CONCERNS

Vulnerable Groups Within the General Population

The rate of infant death is significantly higher among some groups in the large general population. In these groups with increased infant mortality rates, one often finds higher aggregations of persons with low income, limited access to health care and little understanding of the benefits of early and regular health care. Manifestations of higher frequencies of compromised nutritional status judged by lower prepregnancy weight and weight gain during pregnancy, greater numbers of existing medical conditions that are associated with poor pregnancy outcomes, more medical complications during pregnancy, and shortened intervals between pregnancies are more common in these vulnerable groups.

The above factors, when examined for their association with low birth weight, postneonatal infections, and injuries, produce higher neonatal and postneonatal mortality rates. As noted above, many of these factors are amenable to modification. Lowering the infant mortality rate for these groups of people who are vulnerable because of social, educational, cultural, and economic circumstances requires more than episodic efforts or programs focused solely on care after pregnancy begins or after the compromised infant is born. An ongoing commitment to use effective techniques is necessary if progress is to occur.

Policies on Financing Health Care

The strong association of poverty and infant mortality prompts close attention to policies and their implementation with reference to the financing of personal health care. Cost containment efforts are focused primarily on hospitalization and generate shortened hospital stay, restricted admissions, and reduction of services. The effect of such efforts imposes greater dependence on ambulatory and home health care services. Low income families are least likely to be able to negotiate a system requiring multiple facilities, locations, eligibility requirements, payment arrangements, second opinions, and other rules or regulations required of the patient to gain available benefits.

Shifts in public funding of personal health care services between federal and state sources invariably threaten continued eligibility for some groups who are dependent on public support for their health care. New arrangements in the organization of health care are frequently combined with changes in the financing, eg, Health Maintenance Organization, Independent Practitioners Association, Preferred Providers Organizations, and although these efforts improve some aspects of providing services, they also create new considerations and problems. Inclusion of Medicaid-enrolled families in some of these new health systems has not succeeded in eliminating fragmentation of care for poor people. Reports on improvements in admission rates to hospitals and shortened hospital stays are not uniform and they do not give adequate assurance that populations with increased vulnerability to infant mortality are being adequately served. Indeed, infants with special problems and from middle economic groups can experience difficulty obtaining special services within a health maintenance organization.

Malpractice

The issues of malpractice insurance and liabilities related to the use of prenatal care and immunizing agents are but two important manifestations of problems that threaten the provision of recommended standards of child health and prenatal care. Although the impact of these issues is far reaching, it includes potential compromises to persons already at high risk for inadequate health and a predictable association with increases in the infant mortality rate.

Actions and Directions

Factors influencing infant mortality are numerous and diverse, and they extend beyond a conventional or parochial understanding of medical care. The mission of the American Academy of Pediatrics is the welfare of children and requires that it develop and sustain an appropriately broad interest and involvement in matters affecting children and young families.

Within the Academy, it is necessary to isolate issues and problems to ensure that proper attention is given by experts. Infant mortality, with its manifestations involving every aspect of Academy affairs, requires that attention be given to bringing the many important fragments together in a way that retains close study of components and promotes an understanding of their interrelatedness. New directions and coordination of Academy committees may be required to develop a higher priority for the problem of infant mortality and to effect a concerted effort to bring about change. The Academy cannot, by itself, prevent adolescent pregnancy, lower the infant mortality rate in the United States, or decrease the incidence and effects of disabilities, infections, and accidents. There must be involvement of many diverse groups, founda-
tions, and agencies, both governmental and non-governmental.

A national purpose and coordinated efforts are required if infant mortality is to be significantly reduced in the near future. Developing a national purpose requires concern at the highest level of government and creation or implementation of methods designed to achieve the objective.

National Structure and Focus in Government

The concept and philosophy found in the establishment of the former Children's Bureau should be reexamined for its relevance to the current circumstances. That bureau was developed as the national focal point for public programs affecting children. It combined attention to what are now specific agendas of several national agencies, ie, health, social welfare, and education. The growth of public programs in the various units of the national government has resulted in a diminution of a coordinated focus on children. In the late 1970s, and again when the current Title V Block Grant was being formulated in 1981, the American Academy of Pediatrics recommended a higher organizational position for the Maternal and Child Health program and an aggregation of several relevant health programs in such an expanded Maternal and Child Health office. The Congress, in public law 97-35, the Omnibus Budget Reconciliation Act of 1981, required the Secretary of Health and Human Services to administer the block grant through an identifiable administrative unit with expertise in maternal and child health with responsibility for coordinating federal maternal and child health efforts and for providing technical assistance and information to the states. It was assumed that this administrative unit would function much in the manner as the Children's Bureau and at a higher level within the present organizational plan.

The Academy believes the intent of the law has not been implemented. The name of the Children's Bureau still exists within the Department of Health and Human Services, but any semblance of the former organization is very much deemphasized. According to existing law, the Children's Bureau can be rejuvenated or the Division of Maternal and Child Health can be elevated to bureau status and assume a far greater role in child health and in lowering infant mortality. Either governmental unit could convey the absolute need for improving the interrelation of programs focusing on children and aid in achieving coordination of efforts made by the states, foundations, agencies, and other interested groups.

Liaison With Professional Organizations

Reproductive health care continues to be a critical component of services required to address infant mortality. The Academy is particularly interested in prevention of early sexual activity and pregnancy in children and also in the availability of appropriate prenatal health care for pregnant adolescents. Association with other professional organizations, both medical and nonmedical, can be valuable, and current liaison of the American Academy of Pediatrics with the American College of Obstetricians and Gynecologists provides proof of this concept. With great needs and limited funds, duplication of efforts and programs greatly decreases achievements and complicates planning. If a centralized clearinghouse, such as a rejuvenated Children's Bureau or elevation of Maternal and Child Health to bureau status does not come about, perhaps the Academy, working with other organizations, could provide such services.

The states must accept their responsibility if infant mortality is to decrease. There is great diversity in state priorities for child and reproductive health care, and many states do not seem convinced that financial investment in the prevention of high-risk pregnancies and damaged infants is far less costly than caring for them. Legislators often respond to large lay organizations more than to small professional groups, and local interest and participation can be of great value in achieving child health goals.

Local Responsibility

Infant mortality is not an issue that can be properly addressed simply at a national level by either the Academy or government. It involves groups within the population and in communities. It is considered important for the Academy to find ways to stress to Academy Fellows and assist them in recognizing the emphasis that must be given locally. An unacceptable infant mortality rate in subsets of the production and in local communities must become a responsibility of Academy Fellows in their communities. Actions planned to be taken locally by various organizations, churches, and interested persons can be aided and, in some instances, coordinated by Academy Fellows. Education of communities is necessary if action is to be taken, and the problem of infant mortality directly or indirectly affects everyone in that community or state. High infant mortality is more than a medical problem.

Education and Research

Education takes many paths. Physicians as a group may have little understanding of the signifi-
cance or problems of pregnancy and the neonatal/postnatal periods of life. Many preventable handicaps adversely affect individuals when they become adults and complicate delivery of health care by their physicians. All physicians should have substantive understanding of what is involved when the infant mortality rate is excessive. The lay public can be educated by physicians and other health personnel to familiarize them with the factors present in societies that interfere with adequate health of children that culminate in high mortality rates. It is likely that understanding these problems can bring a demand for change.

There is urgent need for research support in basic areas such as the mechanisms explaining congenital malformations, low birth weight, and the limiting effects of poverty on child health. Similarly, aggressive attention should be given to support research in applied problems of financing, structuring health care delivery, and the outcomes of adequate and inadequate health care.

FUTURE PROGRESS

If we are to eliminate the disparities in the mortality rates among the black and white populations, ensure early prenatal care for pregnant adolescents and adult women to decrease the incidence of low birth weight infants, reverse a recent slowing in the rate of decline in infant mortality, and decrease the slow increase in postnatal mortality, coordinated efforts must occur in our society.

The greatest risks to the fetus and newborn infant occur in the most poorly educated segment of society. The assumption of responsibility for personal health and that of one’s potential children, with improved general and family life education, can decrease many risk factors currently contributing to the increase in infant mortality. The feeling of self-worth increases as dependency on welfare decreases, and this is related to the availability of employment. A high divorce rate, single-parent families, and early sexual activity is the milieu in which there is high infant mortality. These are general social problems that cannot be solved by a single professional group and require the combined efforts and resources in our society that have been previously discussed.

Research directed toward the prevention of damaged infants and new or improved methods of diagnosis and treatment, more genetic counseling, screening for specific conditions, and availability of health care are necessary if progress is to occur.

We must have the determination to see that what we already know to be of value will be better applied to those segments of the population not presently benefiting from that knowledge and skill. We must convey both an intolerance to the episodic concerns when new data reveal that some population groups have an increased neonatal or postnatal mortality rate and an insistence that policies and resources that promote the health of children is the pathway to improvement rather than simply excellent care when pregnancy occurs. We must be adequately educated on the breadth of factors influencing this measure and work to see that society is appropriately educated in this matter.

The American Academy of Pediatrics is concerned about the infant mortality rate in the United States, and in many other countries, and will, as in the past, assume a leading role in future progress.

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