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New Reductions in Infant Mortality: The Challenge of Low Birthweight

Fifteen years of uninterrupted decline has cut the infant mortality rate in the United States almost in half, to below 13 per 1,000 in 1980—a level that only the most optimistic believed to be within our grasp not too many years ago.[1] The decrease not only broke away from the prolonged stagnancy in the rate over the previous 10–15 years, but its steepness rivals the experience in any earlier period.

Aside from the identification of a relatively small contribution made to this decline by reductions in the proportions of births among older women and at high birth orders, it is not possible to partition the credit among the many changes that occurred between 1965 and 1980. These were the years when accessibility to medical care increased, maternal and infant care programs expanded, health insurance coverage increased, living conditions improved, family planning was heavily promoted, and abortion was liberalized. Also, new approaches and technology for the care of high risk mothers and infants were developed (e.g., maternal and infant transport systems, neonatal intensive care units, and regionalization of perinatal care), and earlier practices which were proven harmful and may have contributed to the stagnation of the mortality rates were discontinued (e.g., uncritical restriction of oxygen administration in response to the high rate of retrolental fibroplasia and routine administration of chloramphenical to prevent sepsis in high risk infants).[2,3]

The fact that decreases occurred in both the neonatal and postneonatal periods reinforces the view that we are dealing with a highly complex interaction of environmental and medical care conditions. Nevertheless, there are indications that changes in obstetrical and pediatric management in the intrapartum and immediate postpartum periods have been far more important in explaining the decreases in neonatal mortality than actions aimed at improving the course of pregnancy in the antenatal period. The best evidence in support of this conclusion is that the large reduction in neonatal mortality has been due mainly to the saving of lives among infants born at low birthweights (2500 grams or less); whereas the risk of low birthweight has decreased only modestly.

Further reductions in infant mortality can be expected through improvement and wider application of the measures that have produced successes in recent years. However, long-term maintenance of this downward trend in mortality for the population as a whole and major reductions in the excess mortality among economically disadvantaged groups and in many rural and urban areas may depend even more on the ability to reduce the incidence of low birthweight. This is not a new thought. It is an important aim of demonstration projects in high mortality areas supported by the Department of Health and Human Services and the Robert Wood Johnson Foundation and was a focal point of the Surgeon General's 1980 Conference on Maternal and Infant Health.[4]

A relevant question is whether, in developing strategies to reduce low birthweight incidence in populations that have an adequate supply of obstetrical services, it matters very much to direct attention at patterns and sources of prenatal care. Clearly, a parallel question is not very useful for subgroups of the population for whom availability and accessibility of obstetrical care are still a problem and prenatal care is significantly deficient. But, the supply issue is not important for most of the country and it is within this context that the article by Quick, Greenlick, and Roghmann in this issue of the Journal is of interest.[5]

The study on which the paper was based had, as its primary objective, a reexamination of the observation in the late 1950s that low birthweight and perinatal mortality rates were lower in a prototype prepaid group practice variety of health maintenance organization (HMO), The Health Insurance Plan of Greater New York, than among other patients of private physicians living in New York City.[6,7] This finding helped to end the speculation at the time that quality of care suffered in this type of Plan and raised the counter possibility that quality measured by indices of health status was relatively high in such programs. The source of the information was routine vital statistics, which could not answer the why question but did show that earlier start of prenatal care was not a factor.

Another time (almost 20 years later), in another place (Kaiser-Permanente Health Care Program in the Portland, Oregon area), we again see a small difference in the incidence of low birthweight in favor of the HMO; neonatal mortality is the same in the HMO and the rest of the community. Although the rates are subject to large chance variation because of small numbers, it seems safe to accept the conclusion that "pregnancy outcome tended to be equivalent or more favorable among the HMO members." While not as sweeping as the HIP results, it offers reassurance about quality of care in the HMO studied, especially since

the Portland area has been marked by low infant mortality rates compared with other urban areas of the United States.

This will be the main point behind the paper for those concerned with the competition between HMOs and other systems of care. However, the study serves the more general purpose of assessing the influence of prenatal care on the incidence of low birthweight, an issue that was debated inconclusively during the 1960s and early 1970s. A three-category prenatal care index shows unequivocably that in both the general population and the HMO members, the probability of low birthweight increases with decreased prenatal care. This relationship is especially convincing because it appears among pregnancies with sociodemographic or medical-obstetric risks and those without such risks.

But the situation is not as simple as it seems. Despite the lag in starting prenatal care and the smaller number of prenatal visits in the HMO, birthweight was more favorable in the Plan than in the general population, suggesting that content of care may override the effect of small differences in timing and frequency of prenatal care and that we will not fully understand the potential of prenatal care in reducing the risk of low birthweight unless we consider jointly the timing, frequency, and content of care which increasingly is being defined to include counseling on health habits. The margin for reduction may actually be large. The Kaiser-Permanente study was able to identify a subgroup (absence of sociodemographic or medical-obstetric risk with a prenatal care index at Level I) that had a low birthweight rate of less than 2 per cent, compared with an overall rate of 5 to 6 per cent. Classification rules may account for this low rate. However, a substantial proportion of the births in the general community (40 per cent) fall in this category.

Vital statistics—despite problems of accuracy—once again performed the valuable function of separating the population into high and low risks, giving us a clue for future inquiry. In this case, it points to the need to go beyond the birth record for an intensive study of the extent to which management in the prenatal period and behavioral and educational characteristics of the pregnant women (behavioral and attitudinal risk factors inimical to the fetus) explain the large differentials in incidence of low birthweight. The paper also recommends that additional studies of HMO vs non-HMO populations be carried out. If they are, a central reason should be to throw more light on the more general question of what specifically contributes to reduced risk of low birthweight.

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The World Health Organization will make available to citizens of the United States a limited number of short-term travel/study fellowships for 1982. The purpose of the fellowship is to provide a contribution which will improve and strengthen health services in the United States.

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