

## CHILD HEALTH CARE AND SOCIAL FACTORS: POVERTY, CLASS, RACE\*

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SOCIAL factors have always played a large role in the genesis and course of disease. Even the biomedical science that makes it possible to prevent disease, to diagnose it early, or to prevent or reverse its progression depends on social factors to translate new knowledge into effective action. The issue, of course, is not whether social factors are important. It is, rather, whether we as scientists and health practitioners have an obligation to consider them in our professional work.

It has not always been that larger social forces were recognized as central in the ills of mankind. Until the Renaissance, disease was an individual phenomenon, generally attributed to poor living habits or to the sinfulness of the afflicted individual. Even later, the invention of the compound microscope revealed more and more things about human anatomy and histology, and the discovery of disease-associated microbes placed even further emphasis on individual factors as responsible for disease. Now we know better; we know quite clearly that genetic and biologic factors are not all-determining. We know clearly that they operate within a social context, enhanced, modified, or neutralized by social forces.

The impact of social conditions on child health was explicitly recognized at least by the middle of the 19th century, when Engels documented the higher death rates from smallpox, measles, scarlet fever, and whooping cough among working class as compared to upper class children. He even linked the greater likelihood of childhood falls, drownings, and burns to suitable child care in families where both mother and father had to work: the still-existing problems of the latchkey child were noted 150 years ago.

The most powerful and pervasive social factor is social class, and one of its byproducts is poverty. The British, who have always been more conscious

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of social class than we, have published extensively on the subject: The Black Report<sup>1</sup> of 1980, which was quickly made unavailable by the Tory government, its sequel in 1987, and the wonderful book edited by Wilkinson<sup>2</sup> are cases in point. In contrast, it is remarkably difficult to find the literature in the United States that deals with the relationship between social class and health. A literature on race and health is more easily identified, but race, although an important correlate of health, is not a proxy for class. Most of the poor are white.

A study of the relationship between poverty and health will, for us, serve to demonstrate how important it is explicitly to consider social forces in our research and in our interventions to improve health.

About one child in 20 is reported to be in fair or poor health and about one in 25 is limited in his activities because of some persistent health problem. We also know that the prevalence of problems is related to family income, low income children experiencing a much greater frequency of problems, both acute and chronic, than middle income children, who in turn experience more than children in higher income families.<sup>3</sup>

The frequency of some specific problems of childhood in low income children is high compared with other children. The frequency of low birth weight is double, the frequency of teen-age births is triple, and the frequency of delayed immunizations is triple. Asthma is more common; very recent studies show it twice as frequent among poor children than among other children.<sup>4</sup> Bacterial meningitis is twice as common in low income children, rheumatic fever is more than twice as common, lead poisoning is three times as common.

Problems, when they occur, are also more likely to be severe in poor children. Death rates are higher among low income children, and the differential becomes greater with age during childhood. In the first year of life after the neonatal period, death rates are double to triple those of other children; after the first year, death rates due to disease are triple to quadruple among low income children. Low income children are two to three times more likely to have complications from appendicitis, twice as likely to experience ketoacidosis if they are diabetic, two to three times more likely to have complications if they contract bacterial meningitis, two to three times more likely to have a condition that limits their school activities, 40% more likely to be absent from school with their health conditions, two to three times more likely to have severely impaired functional vision, and twice as likely to have severe iron deficiency anemia.

Blood lead levels are higher among black children than in white chil-

dren, but within each racial group blood lead levels are higher the lower the family income. However, the frequency of elevated blood lead levels (defined as 30 mg/dl or higher) is not insubstantial among higher income children—1 to 2%. Since the time these data were analyzed, the Centers for Disease Control has lowered the cutoff point for dangerous levels to 25 mg so that an even greater proportion of children (9%) are in the danger zone.

In fact, very recent data indicate no threshold level for the adverse effects of blood lead (from 5 to 35 mg/dl) on height, weight, and chest circumference. Elevated blood levels, even if minimal, are associated with impaired growth.<sup>5</sup>

Mental health problems are of considerable frequency in the population of children. Most epidemiological studies, including those using well standardized instruments, indicate that about 15% of children have a mental health problem that requires at least some professional attention;<sup>6</sup> the prevalence of mental health problems in poor children is double this.

In many senses, all children are at high risk; because they are biologically and socially relatively plastic, they are vulnerable to prevailing forces surrounding them. But there clearly are children at special risk. Poor children (20 to 25% of all children) are certainly among them.

Does access to adequate health services ameliorate the damage to children imposed by these social risks? In fact, evidence is accumulating that medical care, when targeted at those who need it, has a major beneficial impact. And much of the improvement in access to care is a direct result of public policy commitments made in the 1960s and early 1970s in the form of Medicaid and other public programs.

In the early 1960s, before such entitlement programs as Medicaid were instituted, poor children were hospitalized less frequently than nonpoor children, but when they were hospitalized, they stayed much longer—evidence that they were much sicker. After Medicaid, hospitalization rates of poor children increased to levels surpassing those of nonpoor children (and more commensurate with their greater health needs), and their lengths of stay were reduced, becoming more similar to those of their more fortunate peers.<sup>7</sup>

Before Medicaid a much greater proportion of poor children had not seen a doctor at all in the previous two years than was the case for other children, and this was true for both black and white children. After Medicaid the rates became much more similar.

The gap in utilization of physician services was greatly reduced as a result of public policy. In the early 1960s poor children made only 57% of the number of visits (controlled for their higher prevalence of chronic illness) as

nonpoor children; by 1978 their relative number of visits had increased to 93% of the nonpoor child visit rate.

We have ample evidence that public policy—public commitment—has made a difference not only in increasing access to medical services, but in improving health and well being. Health services, while they cannot alone make up for social disadvantage, can make important contributions to reducing the impact of social disadvantage.

Rates of immunization for preschool children are lower than we generally believe—as low as 40 to 50% in our central city areas. For all but mumps vaccine, the percent of two year olds fully immunized with the basic set of vaccines further declined from 1982 to 1985, the last year for which we have data.<sup>8</sup> The number of cases of measles and pertussis increased between 1982 and 1985.<sup>8</sup>

But public policy can and does make a huge impact on the rate of occurrence of communicable diseases. The importance of a public commitment is demonstrated by an increase in measles rates in periods immediately following reductions in federal vaccine expenditures and a decrease in the rates immediately following a resumption of federal expenditures.<sup>9</sup> Between 1982 and 1985 the number of vaccine doses administered in the public section declined; as of 1986 it still had not returned to 1982 levels, although doses purchased under federal grants by the private sector reached early 1980 levels in 1985.

Case fatality from meningococcal diseases plummeted with the introduction of antibiotics starting in the mid 1930s, then plateaued in the 1950s, then fell again with the introduction of that very important “technology”, Medicaid, in 1965.

The benefits of a public commitment to adequate nutrition for children in the form of school lunch programs and the WIC (Women, Infants and Children) Program has also been demonstrated. The prevalence of anemia, particularly severe anemia, fell markedly during the 1970s. Evaluations show that infants whose mothers participated in WIC during pregnancy were less likely to be born prematurely and that children who receive WIC supplements have increased iron intake, increased verbal ability, and increased digit memory. Mean birth weight is also increased, although all evaluations show the magnitude of this effect to be rather small, undoubtedly because the antecedents of low birth weight derive from the mother's health and health care prior to pregnancy.

Public support for the organization and operation of comprehensive health programs in socially deprived areas in the mid-1960s was associated

with a decline in rates of first attacks of rheumatic fever.<sup>10</sup> The recent reappearance of rheumatic fever in several areas of the country bears watching, for it may signal new problems with access to adequate services.

Improved access to services, such as occurred after the institution of Medicaid and other public commitments to improving access, was associated with more rapid receipt of care and fewer complications or sequelae in the case of other conditions as well: bacterial meningitis, diabetic crises, asthma, and appendicitis.<sup>11</sup>

Early contributions of maternal and child health services after the original Social Security legislation of 1935 and the maternal and child health programs set up to take care of the families of servicemen in the early and mid-1940s led to marked declines in the infant mortality rate, especially in the postneonatal component. In the case of infant mortality, there have been many scientific advances, but mortality declined sharply only following programs to enhance the financing and delivery of care to pregnant women and their offspring. The sharp downturn in postneonatal mortality just after 1965 (when Medicaid was instituted) is a case in point. During the same period the disparity in postneonatal mortality rates between the poor and the nonpoor and between blacks and whites narrowed. The translation of technical knowledge into family planning services was associated with a decline in neonatal mortality after a decade of stagnation, and the availability of legal abortions in an increasing number of states between 1968 and 1973 was associated with another downturn in the rates. Unfortunately, decreases in coverage by Medicaid in the early 1980s were followed by another stagnation, first in postneonatal mortality—that component of infant mortality so responsive to access to health services—and then in neonatal mortality. Between 1981 and 1984 postneonatal mortality rate did not decline at all, increased in many places, and the rate of decline in neonatal mortality slowed markedly over that for many years.<sup>8</sup>

The United States ranks 19th in the world in infant mortality.<sup>12</sup> Eighteen countries do better, some of them with infant mortality rates half that of the United States. The common rationale for this is that our population is racially and ethnically heterogenous, which is supposed to explain and perhaps to excuse poor health levels. But the racial composition of our population does not explain our low standing in the world. Our infant mortality rate for white babies alone is still higher than that in 12 other countries. Others blame the high infant mortality on our highest rate of births to teen-agers. Even if all births to teen-agers were eliminated, our infant mortality rates would still be higher than the infant mortality rates of 17 other countries. Some explain our

higher infant mortality by technological feats, particularly our ability to keep very tiny newborns—weighing one to two pounds at birth—alive for brief periods instead of having them stillborn. Even if all of these presumably excessive live born infants died during the first year of life (which they do not), our infant mortality rate would still be higher than the infant mortality rates in 18 countries.

And, even though it is true that the excess deaths in the first month of life are attributable to our much larger proportion of infants who are born weighing less than five pounds, itself a problem requiring serious social attention, this is not the case for our excess of deaths of older infants.

We are currently basing much of our collective efforts at modifying factors with relative risks not much above one; there is certainly less evidence for the harmful effects of cholesterol than there is for the harmful effects of poverty with its relative risks of two to four. Where is the research on the mechanisms by which poverty operates?

Illness is a function of predisposing and modifying external forces and host factors. Social conditions such as low income act through heightened exposure to adverse environmental conditions, through induced behaviors related to living in deprived circumstances (such as the inability to afford adequate diets), through predisposition to stress and its consequent biologic correlates, through sociopsychologic conditions that engender perceptions of coherence and controllability, and through decreased exposure to medical care. Social isolation, a mediating factor, also is related to stress and decreased exposure to medical care. And inadequate exposure to medical care, both directly and indirectly through its preventive activities, influences both the occurrence and the manifestations of ill health. Genetic substrate is explicitly recognized as a factor, of course, but its expression is modified by other coexisting influences.

Although the research literature is sparse on the mechanisms of operation of the various factors that mediate between predisposing factors and health in children, evidence is accumulating of the particularly vulnerable situation of children to environmental hazards. The situation with regard to accidents resulting from exposure to motor vehicles and to farm machinery is well known and hardly needs repeating. What may be less well recognized are the hazards from environmental pollution and exposure to chemicals such as pesticides among rural residents and, especially, migrant farm worker children. For example, the interactions among area of residence, family income, age, and blood carboxyhemoglobin levels have been vividly documented. Carboxyhemoglobin levels are higher in central city residents and

among the poor, and they are highest in poor, inner city children. The effects are much more marked for children than adults. A study in Toronto demonstrated that children living in socioeconomically deprived areas were far more symptomatic than the adults in these areas from exposure to ambient air pollution from emissions from industrial plants in or near their neighborhood.<sup>13</sup> The effect of exposure to environmental pollutants does not stop at symptomatology; several studies have linked pesticide exposure in childhood to increased rates of leukemia and brain cancer.<sup>14,15</sup> The increasing rates of employment of youth under 18, which now reach 15% of those of ages 14 and 15 and 50% of 18 year olds, is additional cause for concern regarding their new exposure to occupational hazards (Landrigan, personal communication, 1987).

The pervasive importance of social class in the origins and impact of illness dictate an agenda for public policy. There are signs that children are being increasingly recognized as important. The Research and Policy Committee of the Committee for Economic Development commented "We cannot continue to compete and prosper in the global arena when more than one fifth of our children live in poverty and a third grow up in ignorance. . . If we continue to squander the talents of millions of our children, America will become a nation of limited human potential."<sup>16</sup>

To this audience I would like to suggest an additional imperative. The United States is fortunate in having the best established and esteemed medical research enterprise in the world. Congress has steadfastly and wisely refused to reduce the budget of the National Institutes of Health even while almost everything else has felt the budget knife. Despite its aura of supreme science, however, the vast majority of the medical research falls short in a critical area. No theory of the etiology or progression of disease could fail to take note of the central role of social phenomena, including social class. Yet we have solicitations from the various national institutes for research grants to discover the antecedents of conditions where the solicitations do not require the inclusion of important social causes as variables, or even require that at least some of the variables studied have a known relationship to social class. In the past we had the luxury of research support that permitted us to examine whatever excited our fancies. This era no longer exists. Dr. Frank Press, the president of the National Academy of Sciences, recently called on scientists to set priorities for research that would give priority to issues of national crisis;<sup>17</sup> he said it would be "reckless and destructive" for budget-seeking scientists to claim priority over funds for the care of the homeless.<sup>18</sup> In my view, the very least we can do is to make sure that relevant social variables

are included in all research where the subject concerns some aspect of health. It is relatively inexpensive to do so, and unconscionable not to.

Inroads into the understanding of the relationship between social factors and health require a plan of research just as concerted as that devoted to the understanding of biological factors in the last 50 years. We need to think about how to build *this* enterprise and to make it equally successful.

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