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## Working Paper Series

### Infant Mortality and Social Policy

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Infant mortality is one of the most universally applied indices of community health because of its direct relation to environmental factors and community services and because it reflects the general standard of living, quality of life and health status of a nation. And yet, given this axiom, we find an inverse relationship between the high rate of infant death in the United States and other high indices of national well-being. This inherent paradox of American society calls into question our national values and presents a formidable challenge to marshal the national political will to correct this substantial and persistent disparity of American life.

Years of concerted effort to reconcile differentials and to more closely align rates of infant death with other leading indicators of national success were coming to fruition when, in 1981, the Omnibus Reconciliation Act (OBRA) (P.L. 97-35) was enacted and became law. The Act preserved most government health programs developed during the less conservative 1960s and 1970s that were aimed at improving the health status of poor women and children. However, at the same time, the Act mandated the reorganization of long established maternal and child health services by consolidating eight categorical health programs into two block grants to states; it substantially cut back funds to these block grants which, in turn, severely limited the amount of dollars for programs, services, and providers. In addition, cutbacks of support to community health centers (CHC) and the initiation of more restrictive eligibility criteria for Aid to Families with Dependent Children (AFDC) and Medicaid coverage were also implemented.

Less than two years after the implementation of the OBRA, a rise in the incidence of unfavorable maternal and child outcomes was detected in national health data. And, for the first time in two decades, the slow, but steady, downward trend in infant mortality rates stopped; the infant mortality rate plateaued; and, in some communities, rates began to increase.

Although the complexity of associated factors known to influence and contribute to the problem of infant mortality make it difficult to establish a direct causal link between the impact of the OBRA and adverse birth outcomes, the temporal relationship between these events appears to be more than mere coincidence and data suggests at the very least an inferential correlation between the effects of the OBRA and health outcomes.

To explore this issue, the ensuing discussion examines the impact of the Omnibus Reconciliation Act of 1981 upon the occurrence of infant deaths in three Boston neighborhoods. Using extant data sources and drawing upon prior research which has addressed aspects of this problem, the discussion:

1. Frames the background and policy context of the Omnibus Reconciliation Act of 1981

2. Describes national population dynamics and trends, their influence and implications for infant mortality in Massachusetts, and in Boston, with special focus on three close-in Boston neighborhoods with predominantly black populations: Roxbury, Dorchester, and Mattapan
3. Reviews relevant research, reports, and supporting documents that have investigated the problem
4. Updates institutional and programmatic efforts designed to respond to the effects of the OBRA

## **BACKGROUND AND CONTEXT OF THE OMNIBUS RECONCILIATION ACT OF 1981**

A confluence of economic trends and political events, among them deep recession, record unemployment, unprecedented inflation, fundamental changes in the job structure of the economy, and a growing awareness of rising federal deficits, became the impetus for the New Federalism. This approach to fiscal policy shifted responsibility for the financing and provision of social programs from the federal to state and local governments.

Empowered by the resounding electoral mandate of 1980, New Federalism translated the emerging conservative sentiments of the country into a national fiscal policy and sought to radically change the course of domestic and social policy by reordering national priorities and reducing the federal commitment to social programs and health entitlements.

By turning over these programs to local jurisdictions, proponents of new Federalism promised the trade-off of money for greater local autonomy and control, citizen involvement in decision making, flexibility and specificity in program and service mix which better reflected the needs of local target populations. At first, seduced by the notion of greater authority, local officials embraced New Federalism but were quickly disillusioned when confronted by the limits of their own resources. They soon discovered that the short-term gain of local autonomy was not a substitute for money (Buka, et. al, 1982)

For example, following a 30 percent cut in federal maternal health care programs, the City of Boston allocated \$150,000 to the Department of Health and Hospitals to augment "Healthy Babies," a program that delivers services to high-risk mothers in areas of the city where approximately 70 percent of the low birth weight babies are born (Health Sciences Report, 1985). Similarly, the Massachusetts Legislature allocated \$21 million to initiate Healthy Start, a statewide program designed to reach the same target population (Boston Globe, 2/15/87). These local efforts, however, did not begin to make up for federal cuts. Rather, they further underscored the need for a strong, sustained federal presence, commitment and continuation of federal funding.

In substantially reducing the role of the federal government in health care, provisions of the Omnibus Reconciliation Act mandated that over a three year period, federal matching payments to state Medicaid programs be decreased by \$1 billion per year: 3 percent in FY 1982, 4 percent in FY1983, and 4.5 percent in FY 1985 (Lawton, 1981). This was accomplished mainly by restricting eligibility requirements for the Aid to Families with Dependent Children (AFDC) program, reorganizing twenty categorical health programs into four block grants, placing caps on hospital expenses, and introducing a system of co-payments (Buka, 1982)

As a result of these cuts, nationally, between 1982 and 1985, some 725,000 people, mostly women and children, had lost services at community health centers due to federal cuts (Health Sciences Report, 1985). Additionally, there was a decrease in the number of community health centers by 200 from 872 that existed in January, 1981; there was a reduction of health center funds by 30 to 40 percent which would have served an estimated 1.3 million fewer people than in 1981; a reduction in funds to categorical maternal and child programs which received 29 percent less real dollars in FY 1982 and closer to 40 percent less considering inflation; a reduction in childhood nutrition programs by \$660 million, including \$325,000,000 for the Women, Infants and Children (WIC) program; a 12 percent cut in funds to the Centers for Disease Control including a 10 percent decrease in immunization programs; a 55 percent reduction in environmental health activities and the total elimination of all fluoridation activities.

Similarly, essential associated benefits and non-medical services such as counseling and psychosocial services and out- reach activities were severely reduced. The long-term effects of these cuts were particularly devastating because it has long been recognized that such environmental and lifestyle problems as child abuse and neglect, failure to thrive, teenage pregnancy, learning disabilities, behavioral disturbances, family violence, accidents, alcohol and drug abuse, to name a few, are preventable and cannot be addressed through medical intervention alone. These types of problems are to a great extent more responsive to non-medical support services and the effects of curtailing or eliminating them will likely show up in problems inside and outside the health system in other more costly, less efficacious systems such as welfare, unemployment, the criminal justice and corrections systems.

## **POPULATION EVENTS AND DYNAMICS**

In 1985, two unrelated yet coincidental events converged and had a far reaching and lasting impact on infant mortality incidence and trends in Massachusetts and in Boston. One, a natural phenomenon, which resulted in a marked transition in the demographic character of the population. The other, a secular event, which was the result of larger political forces at work in the nation at the time.

The first, an unprecedented high in the total number of registered live births, was a pivotal point in the contemporary childbearing history of Massachusetts women. This exceptional increase represented a growth spurt in the birthrate unexceeded since 1970. The second event was the felt consequences of the implementation of funding reductions to MCH programs precipitated by the OBRA.

Over the previous sixteen year period, from 1970 to 1985, the birthrate was at a post World War II low, dropping to its lowest point in 1976, but rebounding, shifting upward, and thereafter gradually increasing, reaching up to 3 percent in 1978 to 1979. There, the rate stabilized and held steady during the ensuing years up to 1984. It was in 1985 that the birthrate surged and surpassed the 3 percent level and reached a record 4 percent.

This turning point in childbearing activity occurred across all demographic and areal categories and was largely attributable to the entry of the second wave of the baby boom cohort into their prime childbearing years. This cohort consisted of women who were born between 1950 and 1964, and who in 1984 and 1985 ranged in age from 20 to 35 years, and who greatly out-numbered those born in the first boom of the late 1940s. More than 4 million babies were born each year between 1954 to 1964 compared to 3.6 million born in 1948 and 1949 (Population Reference Bureau, 1984). This dramatic rise in the number of women in their childbearing years greatly enlarged the estimated population base of women likely to give birth. And, the expected and actual result was a commensurate dramatic rise in the crude birth rate, that is, the total number of registered live births, which in turn, greatly expanded the estimated population of infants at risk for death. The consequent outcome was a record number of infant deaths.

In sum, with more women in their peak years of childbearing, more infants were born, and therefore more were at risk, and subsequently more infant deaths occurred. The New England Region as well as Massachusetts and Boston natality and mortality generally paralleled this trend. In addition, Massachusetts was one of seventeen states that experienced overall increases in infant mortality rates between 1984 and 1985 and the most marked increase in the number of deaths occurred in Boston and in the neighborhoods of Roxbury, Dorchester, and Mattapan.

Albeit this population dynamic, while offering a partial explanation of larger contributing factors to infant mortality, does not explain the differences in the magnitude nor the substantial and persistent inequity in the distribution of deaths to infants according to place of residence and race.

To gain a keener understanding of the implications of the OBRA, it is important to place its enactment and implementation into the context of larger population dynamics. Although the bill was passed in 1981, and its effects were detected as early as 1982, it was not until the years 1984 and 1985 that evidence of its real-life consequences were quantified in hard data.

## NATALITY IN MASSACHUSETTS AND BOSTON

As previously noted, 1984 and 1985 were pivotal years in the childbearing activity of American women. Across all segments of the population and all areal units, national, state, and local, women born during the post World War II baby boom and in their prime childbearing years began to give birth. The result of this was a pronounced increase in the number of births and a commensurate record number of infant deaths. Massachusetts and Boston natality and mortality trends reflected this pattern.

For example, data show that historically and at present, among all states, Massachusetts has the lowest fertility rate, 1680 children/1000 residents compared to 1865 children/1000 for the nation; the lowest birthrate, 12.3 births/1000 residents compared to 15.6 births/1000 residents for the nation; and the state infant mortality rate is generally lower than that of the nation as a whole, 10.3/1000 compared to 10.6/1000 (Shortridge, 1987). However, in 1984, the total number of births to Massachusetts women was 78,198; in 1985, the total number of births rose to 81,776. This was an increase of 4.4 percent in births and was the largest increment since 1970 (MDPH, 1987; Boston Dept. of Health and Hospitals, 1987)

## INFANT MORTALITY IN MASSACHUSETTS AND BOSTON

During the same time period however, nationally as well as in Massachusetts, in 1985, what was a well established downward trend in infant mortality rates stopped. This marked a temporary end to what had been a steady decline in infant deaths that had been occurring since 1981 (Children's Defense Fund, 1988). Massachusetts was one of 17 states where infant mortality suddenly accelerated. Statewide infant mortality increased from 8.9 deaths/1000 live births in 1984 to 9.1 deaths in 1985, an increase of 2.2 percent (MDPH, 1987)

This increase was most marked in Boston where the absolute number of infant deaths rose from 100 in 1984 to 138 in 1985, a rate increase from 11.7/1000 to 15.4/1000 live births. In fact, deaths of infants in the City of Boston alone largely accounted for the statewide increase with 18 percent of all deaths occurring in Boston, and 13 percent of the state total occurring in the close-in neighborhoods of Roxbury, Dorchester and Mattapan (MDPH, 1987; Boston Dept. of Health and Hospitals, 1984).

Moreover, Boston was one of the twenty-two largest cities in the nation that experienced an overall increase in infant mortality between 1984 and 1985 and was one of two cities where the 1985 rate of 15.6/1000 was higher than the 1980-1985 average of 13.3/1000. The alarming overall 33 percent increase in Boston infant deaths was largely driven by the astounding 73 percent increase in the number of deaths of black infants which jumped from 14.6 to 25.3/1000 and was even higher than the 1980-1985 average rate of 19.5/1000 live births nationwide (Children's Defense Fund, 1988).

## NEONATAL MORTALITY IN MASSACHUSETTS AND BOSTON

Even more disturbing was the fact that in 1985, there was a striking rise in black neonatal deaths across all areal units. Nationally, black neonatal mortality increased by 3 percent; in Massachusetts it was up from 8.8 to 14 deaths/1000 live births, a shameful 59 percent increase in a single year; and, in Boston alone, neonatal deaths rose approximately 47 percent, from 7.7/1000 in 1984 to 11.3/1000 in 1985 (MDPH, 1987). That is, of the 8938 live births in Boston during 1985, and of the 239 infants who died, 101 of these deaths occurred in the first 28 days of life. This was 73 more total deaths and 35 more neonatal deaths than during the previous year (MDPH, 1987).

Of the total 66 neonatal deaths recorded in Boston in 1984, 40 were to residents of Roxbury, Dorchester and Mattapan, 14 to white residents and 26, almost twice the number, to non-white residents (Boston Dept of Health and Hospitals, 1987). These same neighborhoods accounted for 66 of the total 98 neonatal deaths recorded in 1985 (MDPH, 1987).

### **RACE AND PLACE**

#### PLACE

In light of these data, it is therefore clear that race and place are significant indicators of infant mortality and it is not surprising that residents of poor close-in neighborhoods of urban areas are at greater risk and more severely affected than their counterparts in more affluent communities. In fact, there is an almost three-fold differential in infant mortality rates between the commonwealth's wealthiest and poorest towns (MDPH, 1987). Indeed, the rates of infant death in the state's poorest communities, and in the poorest neighborhoods of those communities are comparable to those of developing countries such as Costa Rica, Trinidad and Portugal, and slightly worse than those of Jamaica, Greece and Cuba. In Roxbury's Mission Hill housing project alone, the average infant mortality rate in the past several years has been over 50 deaths/1000 live births (Health Sciences Report, 1985). Equally alarming is the high rate of post neonatal mortality ( infant deaths occurring one to eleven months after birth) in Mission Hill. Among all births in this area between 1980-1984, the postneonatal rate was double the state-wide rate (Health Sciences Report, 1988).

#### RACE

Similarly, in assessing the racial aspects of infant mortality, wide disparities between blacks and whites persist. Perusal of mortality trends illustrates the failure to reduce the gap even moderately over the years. For example, National Center of Health Statistics (1985) data show that since the mid-1960's, there had been a lessening of racial disparity

in infant death rates. In fact, overall rates for blacks and whites dropped markedly after 1965. However, while over the years the absolute differences in rates between blacks and whites had been cut in half, the relative margin has remain substantial. That is, after a brief period, from 1965 to 1970, of reduction in relative differences, by 1980, the ratio between black and white rates returned to the same level that it occupied in 1965. In 1980, the black infant death rate returned to the same point as the white rate had been 15 years earlier. In addition, if post neonatal mortality rates (deaths from four weeks after birth) are considered separately, the black rate is two times that of whites and at the same level the white rate occupied 30 years ago (Health Sciences Report, 1985).

At present and over time, state data show that the black infant mortality rate has remained generally double that of white infants. And, in 1985, black infants died at two and a half times the rate of white infants. Additionally, the neonatal mortality rate for blacks increased to 15.1 in 1985 from 9.2 in 1984 compared with a smaller increase for whites to 6.4 from 6.1/1000 live births (MDPH, 1987).

Similarly, Boston's black infant mortality rate as of 1985 was nearly double that of whites, 22.7/1000 and 10.1/1000 respectively (Boston Dept of Health and Hospitals 1987; MDPH,1987).Roxbury, Dorchester and Mattapan lost 129 infants in 1985 compared to 88 in 1984 (Brookline Tab, 5/3/88).

1986 figures indicate that overall "Boston infant death rates may have plateaued however, substantial differentials by race remain. Of 9077 babies born to Boston women in 1986, 51 percent to white women 35.3 percent to blacks women, a total of 219 deaths occurred, down from the 239 in 1985. However, statewide, black infant and neonatal rates were respectively 149 and 173 percent higher than mortality rates for whites" (MDPH, 1987, Brookline Tab 5/3/88).

Given the fluctuating nature of infant mortality trends, determining whether or not this plateau in rates represents a levelling off and stabilization in the upward climb, and heralds true abatement and eventual downturn in the rates, requires close and vigilant scrutiny of health data as well as attentive monitoring of the myriad attendant social, political and health risks.

### THE EFFECTS OF BUDGET CUTS OF THE OBRA: PRIOR RESEARCH

It was during the same period that budget cuts were set in motion that the effects of these cuts began to be felt across the state and in localities, and in neighborhoods. In Massachusetts the loss of federal dollars resulted in a 30% reduction in direct services; a 30% cut in funds to community health centers, most of which are located in Boston; and a 17% cut in AFDC to Boston recipients (Health Sciences Report, 1985). And, it was during this same time period that the pronounced upturn in infant deaths was noted.

Concern about these disturbing events prompted several efforts to investigate the effects of resource losses and constraints on MCH programs and the health outcomes of mothers and children.

One study, commissioned by the governor and undertaken by the Task Force on Prevention of Low Birthweight and Infant Mortality, (Closing the Gaps: Strategies for Improving the Health of Massachusetts Infants; Report to the Massachusetts Department of Public Health, May, 1985) used 1982 data to present a descriptive overview of the occurrence of infant mortality and low birth weight in Massachusetts. The study identified gaps in rates of low birth weight and mortality among vulnerable populations as well as in resources and services available to pregnant women, infants and their families. Among the findings, the study noted:

- o An overall decline in rates of LBW and infant mortality but a widening disparity between black and white rates.
- o IMF rates in poor communities consistently exceed state rates and are more than double those of well-off communities
- o Infants born to poor women are 1-1/2 times more likely to die than those of high income women
- o Rates for teens, particularly young teens, are consistently higher than older women
- o A decline in the percentage of women receiving adequate prenatal care
- o High infant mortality and LBW rates are found among women and children where they are less likely to obtain regular early and adequate prenatal care
- o Infants born to women who receive no prenatal care have a neonatal mortality rate 10 times greater and a LBW rate 5 times greater than women who receive adequate care
- o Approximately 6000 women are uninsured by either Medicaid or private insurance for maternal care

At the local level, two studies focused on the impact of budget constraints on Boston populations. In one study, using AFDC eligibility as a marker for poverty, Lamb, et. al. (1985) found that between the first six months of 1980 and the same period of 1982, in the Boston neighborhoods of Roxbury, the South End, and Jamaica Plain, there was a decrease in prenatal maternity visits; an increase in the number of women who came to the hospital delivery room with no prenatal care (a rise from 2% in 1980 to 4% in 1982); a decrease in postnatal pediatric visits (from 1980 to 1982); and an increase in infant mortality in the same population.

In the other study whose focus was Boston populations, Feldman (1984) assessed the impact of the reorganization of what had been eight, separate categorical programs specifically targeted to various services for women and children into a single MCH block grant and how the aggregation of these programs along with cutbacks in funding of this block grant affected not only the overall financial health of the five community health centers, but the health status of the women and children they served.

The study measures changes in the financial status of the five centers by analyzing trend data of sources and amounts of revenue and costs and expenditures of providing services between 1980 through 1983. During this same time period trend data on the provision and utilization of obstetrical services by women and pregnant adolescents and pediatric visits by children was analyzed. The need for these services in the catchment areas served by the five centers was measured by analyzing neonatal and infant mortality rates during 1980 through 1982 (data for 1983 was not available).

The 1980-1983 figures on the utilization of maternity services and pediatric well child services in the five centers were not available. However, Feldman found that the figures for FY 1982 on the number of maternity and well child visits show a substantial decline, an overall decrease in the number of visits of 14%. Moreover, in FY 1982, in spite of the fact that there was a 4% increase in the total number of births to women served by the five centers, there was a drop of 14% in maternity visits. Similarly, the centers reported a 12% decrease in the number of pediatric visits.

At the same time, corresponding to the decrease in the number of maternity and pediatric visits, the neonatal mortality rate in these neighborhoods increased from 9.8/1000 in 1981 to 15.7/1000 in 1982; Furthermore, the infant mortality rate rose from 14.7/1000 in 1981 to 21.5/1000 in 1982, an alarming increase of 46%. Feldman notes that in 1980, the infant mortality rate in these catchment areas was 16.7 deaths per 1000 live births, nearly one-third higher than the national rate of 12.6 per 1000 live births. By 1982, the 21.5/1000 infant deaths was approximately twice the national rate of 11.2/1000.

During this period of growing adverse maternal and child outcomes, the community health centers were responding to the loss of dollars by cutting back on staff and by limiting the number and range of services offered in critical preventive and support services such as outreach to high risk individuals and families, social services, and educational activities.

Feldman's study presents convincing evidence of the importance of the relationship between economic and manpower resources and health status outcomes and specifically the delicate balance between the failure to provide reasonable, low-cost, high-yield preventive and educational services as opposed to employing costly, high-technology, extraordinary means of treatment which may eventuate in death.

## **COSTS AND BENEFITS OF MATERNAL AND CHILD HEALTH PROGRAMS**

History and numerous studies document the efficacy of federal interventions in reducing risk factors and improving birth outcomes associated with infant mortality. There is clear and convincing proof that the federal role is not only appropriate, but is necessary. We know that MCH programs work, and that they work in a way that returns funds to the federal treasure thereby reducing the need for later and more costly expenditures; and that they are a sound, long-term investment in the future.

For example, a report of the Select Committee on Children, Youth and Families (US House of Representatives, August, 1985) examined the program effects, costs and benefits of key MCH programs that have been in operation for a number of years and have been found to be effective. The following summarizes four important programs treated in that report and their impact on improving maternal and child health status over the years: WIC (Special Supplemental Food Program for Women, Infants, and Children) established in 1972 (with an amendment to the Child Nutrition Act of 1966) distributes funds to states to provide supplemental foods to low-income, pregnant, postpartum, and nursing mothers, and infants and children up to age 5 who are diagnosed as being at nutritional risk.

- o In 1985, 3.1 million participants received WIC services
- o For every \$1 invested in the prenatal component of WIC, as much as \$3 are saved in short-term hospital costs
- o Improved birth outcomes include: increase in birthweight of infants born to program participants, reduction in the incidence of births of low birthweight infants, reduction in neonatal mortality, increase in gestational age and reduction in prematurity among infants born to program participants. Largest improvements for populations at high risk (teenage, unmarried, black, or Hispanic women)

Maternal and Child Health Services Block Grants (Title V of the Social Security Act) provides support for prenatal care services for low-income pregnant women.

- o In 1982, 23.9% of live births were to mothers who did not begin prenatal care in the first trimester of pregnancy. Of that proportion, the rate for white births was 20.7% and the rate for black births was 38.5%.
- o For every \$1 spent, \$3.38 can be saved in costs of care for low birthweight infants; \$6.12 saved in newborn intensive care costs; \$9 saved in medical expenses of premature infants.

- o Improved maternal and child health outcomes include: reduction in infant mortality, reduction in low birthweight, decrease in prematurity. The most effective reduction in low birthweight births were among high risk women, whether the risk derives from medical factors, sociodemographic factors, or both.

Medicaid (Title XIX of the Social Security Act) is a federal- state matching program which provides medical assistance to members of families with dependent children, including Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) and is the largest single source of payment for routine newborn deliveries.

- o In 1983, an estimated 9.5 million dependent children under 21 years were served including 2.2 million screened under the EPSDT program
- o Every \$1 spent on comprehensive prenatal care added to services for Medicaid recipients has saved \$2 in the infant's first year, in lower health care costs for children receiving EPSDT services
- o Improved health outcomes include: reduction of neonatal and infant mortality rates, fewer abnormalities at periodic exams among children who receive EPSDT preventive services than among those not receiving them

The Childhood Immunization Program (Public Health Service Act, Section 317J) helps states and localities establish and maintain immunization programs for the control of vaccine-preventable childhood diseases

- o In 1983, an estimated 3.4 to 3.8 million children were immunized with vaccine purchased under the Childhood Immunization Program; 50% of poor children under the age of 6 got immunized at some type of public clinic.
- o Every \$1 spent on childhood immunization programs saves \$10 in later medical costs; \$180 million spent on measles vaccine program saved \$1.3 billion in medical and long-term care by reducing hearing impairments, retardation, and other chronic problems.
- o Reductions in childhood diseases because of immunization include: decrease in number of reported cases of rubella; drop in reported cases of mumps; decrease in reported cases of measles, polio, diphtheria, pertussis, tetanus.

To be sure, the success of these programs is indisputable. However, problems of out-reach and access persist and millions of children and women and families who are eligible for and who could greatly benefit from these services are not receiving them.

## **EFFORTS TO OFFSET LOSSES CREATED BY THE OBRA**

Policy makers, now cognizant of the difficulty of reordering need and service priorities once budget shifts and cuts have been set into motion, called upon a variety of constituency groups to mobilize to combat the upward trend in infant mortality. Efforts took a number of forms, each tailored to fit the needs of diverse target populations. Using new as well as existing mechanisms to reach and deliver services, the problem was addressed by state and local governments as well as community and neighborhood organizations.

### **STATEWIDE EFFORTS: HEALTHY START**

For example, Healthy Start (MDPH, 1988), a state initiative, was developed as an insurance payor source targeted to reach uninsured women in Massachusetts. These women, uninsured for maternity and infant care benefits, constitute a high risk population for inadequate prenatal care and likely adverse birth outcomes. In Massachusetts, for a variety of reasons, an estimated 6,000 to 7,000 women fall into this category. These women do not have maternity and infant care benefits either because they are not insured by Medicaid or private insurers; or because they are self-insured, but have health policies that exclude coverage for maternity services; or because they are insured under individual rather than family policies; or because they are minor dependent teenagers.

The goal of Healthy Start is to promote early and continuous utilization of prenatal care by low income uninsured women to improve birth outcomes. The women must be residents of the commonwealth, uninsured for pregnancy-related care, ineligible for Medicaid, and have incomes at or below 200 percent of the federal poverty level.

To encourage utilization and continuity of care, participants were offered a wide selection of health care providers including private physicians, community health centers, certified nurse midwives and hospital prenatal programs. And, to ensure wide geographic availability of services, providers were vigorously recruited to enroll in the program and were guaranteed timely payment by the state for services rendered. To date, all Massachusetts hospital-based prenatal clinics, all Massachusetts health centers with prenatal care services, and an estimated 2,056 physicians and midwives (of which 476 are obstetricians, 424 pediatricians, 86 family physicians, and 1,076 from other specialties) are signed-up as providers.

Preliminary findings of the evaluation study of Healthy Start show that, as of 1986, 65 percent of all uninsured pregnant women and approximately 85 percent of the uninsured, income eligible women in the state were enrolled in the program. The caseload represents all regions of the state and the proportional distribution of enrollees is relatively even across Health Service Areas (HSA), ranging from a high of 70.5 percent in the Central HSA, (includes Worcester, Springfield), to 67.5 percent in the Metro-Boston HSA, to a low of 52.9 percent in the North Shore HSA. Those HSAs which include urban centers and

have large concentrations of at-risk women had levels of participation which ranged from 53.6 percent to 87.2 percent, an average of 70.5 percent of urban women participants.

Women with social and economic status characteristics known to have higher-than-average risk predictors responded to Healthy Start in substantial proportions. Of the total enrollment, 78.1 percent were black; 80.0 percent were uninsured teenage mothers; 79.3 percent unmarried; 30 percent had not graduated from high school.

Improvement in prenatal care utilization was a major objective of Healthy Start. And, while there is not consensus on what constitutes optimal prenatal care, there is general agreement that care should begin early and should continue throughout pregnancy. Yet, many women get insufficient prenatal care; either they do not obtain care early enough, do not make enough prenatal visits, do not get care throughout pregnancy, or do not get care at all. The recommended number of anticipated and desirable prenatal visits is 13, initiated in the first trimester (American College of Obstetricians and Gynecologists). However, on average, women make 10.5 prenatal visits and at least 80 percent of the recommended number of visits initiated during or before the fourth month of pregnancy is considered adequate. While the initiation of care is a critical factor in the efficacy of prenatal care, even more critical is the number of visits women make after care is begun.

Early evidence of the level of Healthy Start participant compliance to the proscribed protocol for adequate prenatal care was modest and mixed. Overall, 78.2 percent of Healthy Start women received adequate care compared to 77.5 percent of women who had no insurance at all. Early access to care (month care is initiated) was not appreciably improved and continuity of care (number of visits after care is initiated) was only slightly improved. Figures show that 85.5 percent of those in Healthy Start and 81.5 percent of uninsured women started care during or before the fourth month of pregnancy; 77.6 percent and 75.5 respectively, received an adequate number of visits. However, it does appear that utilization was improved among those subgroups identified as most vulnerable, blacks, teens, and unmarrieds.

The effect of Healthy Start on curtailing the incidence and prevalence of infant deaths is yet undetermined. Preliminary results of the evaluation do not allow for an analysis of whether or not Healthy Start has been influential in reducing infant mortality, and if so, to what extent and in what ways.

In addition, a number of medical and environmental risk factors are known to be corroborated with infant mortality. For example, infectious diseases, hypertension, anemia, diabetes and others; social and environmental problems such as the lack of available, affordable housing, inadequate, over-crowded housing conditions, growing homelessness among single women; unemployment, unstable employment, relegation to jobs that require strenuous physical labor which requires long, continuous hours often "on-the-feet", exposure to workplace hazards and injuries constitute stressors which taken separately or in combination in and of themselves condition maternal health status and are inextricably tied to birth outcome.

Nevertheless, preliminary evidence indicates a favorable association with two primary risk factors, low birthweight and prematurity. The proportion of LBW among Healthy Start women was 4.8 percent, 6.2 percent among non-participants, 5.3 percent for the state as a whole. Similarly, the incidence of prematurity among participants was substantially lower than that of non-participants and practically identical and not statistically different from the state rate, 9.7 percent, 12.0 percent and 9.4 percent respectively. Again, the greatest effects were among the most vulnerable subgroups.

By and large, Healthy Start is a new program which has been in operation only since December 2, 1985. It is therefore premature, after little more than four years, to project outcomes into long-term predictions of its effectiveness. Nevertheless, these results do suggest that the fundamental assumptions upon which the program is based is sound, the direction of its aims are reaching their targets, and it is making steady, sustained progress in attaining its goal.

### **COMMUNITY BASED EFFORTS**

While Healthy Start is the most far-reaching, encompassing initiative of its kind, a number of state, city-sponsored and community-based programs, though smaller in scope, and targeted to other neglected components to access to prenatal care, are underway to complement and augment it. All of these programs share common goals but employ varying approaches which better reflect the needs of localized populations.

Among these programs are the Boston Area Coalition on Infant Mortality and Low Birth Weight (Edelin, et. al.), one of twelve in the Department of Public Health-formed statewide coalition of community organizations. The Boston Coalition is comprised of over 150 community agencies which serve families in the target areas of Roxbury, Dorchester, Mattapan, Jamaica Plain and the South End.

A similar effort is Project Mattapan (Medical Foundation Reports, 1988), a collaboration of community agencies whose specific focus is service to families in Mattapan.

Another effort is Project Life (Boston Globe, 5/7/87) which targets women in the Mission Hill housing project identified as a zone of excess mortality, and is based on the assumption that every women in Mission Hill could be at risk. The program trains lay-women residents of the housing project as comadres (a Spanish word meaning godmother or co-mothers). It is believed that comadres will be less threatening and more accessible to pregnant women in the neighborhood. This type of peer approach to prenatal care is different from that of two other programs, the Boston Health and Hospitals-sponsored Healthy Baby program which uses professional counselors to advise pregnant women in areas with a history of infant death problems, and the Boston Institute for Social Therapy and Research which sends a health care team into high risk neighborhoods to train residents in prenatal care, nutrition, and parenting.

Similarly, Community Health Centers were vital in the provision of MCH services and though the enactment and implementation of the OBRA had grave implications for the financial viability of CHCs, they continued to play an important role in the delivery of primary health care to low-income and disadvantaged groups in undeserved areas. And moreover, "their importance increased during those difficult years in terms of the proportion of primary care they provided, (15 percent overall, and increasing to perhaps 25 to 33 percent in urban centers)" (Boston Foundation, 1985) even while sustaining severe budget losses.

In addition to suffering losses in federal funding, from 1980 to 1984, bad debt and free care increased in Boston centers by an alarming 122 percent. Yet, under Massachusetts law, health centers are prohibited from incorporating these losses into their fees unless they are billing under a hospital license (Boston Foundation, 1985) and of the 45 centers located in the Greater Boston HSA, only 17 are hospital-licensed facilities and only one of these (Martha Elliot) is located in the neighborhoods under discussion in this paper.

However, despite these obstacles, in 1983, local health centers experienced steadily increasing utilization and continue to be a critical component of primary care delivery to Boston's poor and minority populations, those at greatest risk and in greatest need.

## CONCLUSION

As stated at the outset, the intent of the foregoing discussion was to present an overview that examined the effects and consequences of the OBRA on the geographical distribution of infant mortality in Massachusetts, in Boston, and in three core neighborhoods hard hit by funding and resource restrictions. Treatment of the panoply of risk factors to infant mortality was not within the scope of this analysis. Nevertheless, in focusing on geographic distribution it becomes clear that location and place of residence significantly indicate social and economic status as well as demographic and environmental characteristics which impinge on the occurrence of infant death. Inasmuch as Roxbury, Dorchester and Mattapan are neighborhoods of high vulnerability, as would be expected, the aftermath of OBRA had devastating consequences for its residents.

Reiteration of national infant mortality trends shows that, overall, despite considerable success in reducing the absolute differences between infant mortality rates for whites and blacks, and modest success for a brief period, between 1965- 1970, in reducing relative differences, by 1980, absolute and relative rates between blacks and whites had plateaued and by 1985 suddenly accelerated (Health Sciences Report, 1985).

Whereas, historically, Massachusetts had the lowest fertility rate of all the states, 1985 brought an increased number of births to all women and a concomitant marked increase in the number of infant deaths. The extremely high occurrence of infant deaths however, shows wide disparity between the place of residence and the race of mother. That is.

inordinately high rates of infant mortality are clustered in those neighborhoods with predominantly black populations who most depend upon those health services most affected by the cuts in resources imposed by the OBRA.

In conclusion, while the 1981 federal funding cuts in health care were initiated with the stated intent to protect the truly needy while reversing the alarming upward spiral in health costs, the cuts were targeted to those individuals on the margins of poverty and to health facilities and providers who serve them. The combined effect has been to force hundreds of thousands of the most vulnerable individuals and groups even further below the poverty line and to restrict their access to health care. These programs, designed to address health problems of the poor and near-poor suffered a series of cutbacks at both the federal and state level and the long-term impact of those cuts is not yet completely known.

However, we do know that since the implementation of the budget cuts, we have seen an erosion in health status, particularly among mothers and children and a dramatic increase in infant deaths. It is with the realization of these facts that we urge policy makers to invest in the health of women during pregnancy and childbirth as a prudent and relatively low- cost commitment to the future well being of children, families and society as a whole.

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Table 1

Outlay Changes for 1982-85 Resulting from  
Legislative Changes Between 1981-83

	\$Billions	Percent
Unemployment Insurance	-7.8	-7
AFDC	-4.8	-13
Food Stamps	-7.0	-13
Child Nutrition	-5.2	-28
Medicare	-13.2	-5
Medicaid	-3.9	-5
WIC	+ 0.2	+ 4
Other Health (family planning, migrant health, primary care, maternal and child health)	-1.4	-22