Summary

Statement of the Problem

Hawaii’s Healthy Start Program is a well-established outreach program providing (1) community-based screening to identify newborns at environmental risk for child abuse and neglect, and (2) home visiting by paraprofessionals to promote healthy family functioning and child development through role modeling, education, and linkage with pediatric primary care and other needed community resources during the child’s first 5 years of life.

Nationally, home visiting programs in general and the Healthy Start Program in particular receive strong endorsement. Efforts to establish community-based home visiting programs have been impeded by several unresolved issues: (1) Mixed results of past evaluations, (2) limited study of non-nurse home visiting, (3) evaluation of demonstration projects rather than established programs, (4) little research on the types of families most likely to benefit, and (5) uncertain cost benefits of home visiting. These issues render evaluation findings essential for informed policy and program development.

Research Questions or Hypotheses

This evaluation addresses four questions:

1. How closely does program implementation mirror program design?
2. How successful is the program in achieving intended benefits for children and families?
3. How does fidelity of implementation influence...
program achievement of intended benefits?

4. How do achieved benefits compare to direct and indirect program costs?

**Study Design and Methods**

This project, which began in May 1994, will be conducted over 5 years. At each hospital, Healthy Start Program early identification workers follow the usual screening/assessment protocol to identify infants born into environmentally at-risk families. All families living in Healthy Start Program catchment areas are screened and assessed. Those scoring $\geq 25$ on Kempe's Family Stress Checklist are defined as being at risk. If the family is at risk, the early identification worker describes the Healthy Start Program and this evaluation project according to a standardized informed consent protocol, and invites the mother to participate in the evaluation.

If the mother agrees to participate, the family is randomly assigned to a Healthy Start intervention group, a main control group, or a testing control group. Each intervention group family is referred to the Healthy Start Program site serving its community and is offered home visiting services following the usual Healthy Start Program protocol. Each main control group family is referred to other community programs as usual. Members of the testing control group differ from the main control group in that they are interviewed at baseline and at year 3 only. This will allow us to assess the effects, if any, of repeated measurements on outcomes by comparing the testing control group with the main control group.

Families will be followed for 3 years, with baseline and annual data collected (for intervention and main control groups) for six key outcome variable indicators: Adequacy of pediatric health care, coordinated use of community resources, parent functioning, child health, child development, and school readiness. Adequacy of pediatric health care is operationally defined as achievement of primary care and adequacy of preventive care. This will be measured through a review of medical records for first contact of care and longitudinality, comprehensiveness, and coordination of pediatric health care as well as adherence to American Academy of Pediatrics guidelines for well-child care visits and immunizations.

Coordination of community resources will be measured through medical records review and social services review of the use of community resources. Parent functioning is also examined and is defined by (1) problem-solving ability, measured by the Wasik Problem Solving Rating Scale; (2) parent-child interaction, measured by the Nursing Child Assessment Satellite Training (NCAST) Scales; and (3) home environment, measured by Caldwell’s and Bradley’s Home Observation for Measurement of the Environment (HOME) Scale. Child health (another outcome variable indicator) is defined as general health status, measured by the Rand Health Inventory Scale. In addition, morbidity will be measured by determining emergency room use, hospitalizations, hospital days, illnesses and injuries, and abuse and neglect reports from Child Protective Services, and by administering the Conflict Tactics Scale and the Hart/Brassard Psychological Maltreatment Rating Scale.

Data are also collected on child development, which is defined by (1) physical development, measured by the Bayley Motor Scale Index, and (2) mental development, measured by the Bayley Mental Scale Index and the Stanford-Binet Intelligence Test. School readiness, the final outcome variable indicator, is defined by (1) language development, measured by the Zimmerman Preschool Language Scale, and (2) social development, measured by the Vineland Adaptive Scales.

Additionally, data on maternal characteristics, maternal and paternal employment, maternal social sup-
port, maternal health and psychological well-being, maternal health care, child health care, need for parenting services, maternal and paternal substance abuse, paternal characteristics, and family income will be collected at baseline and at followup interviews.

**Population Description and Sampling Plan**

Families are eligible for this study if (1) the mother gives birth at a hospital during the period of intake (November 1994–October 1995), (2) the family is eligible for the Healthy Start Program, (3) the family is identified as being at risk by an early identification worker following usual Healthy Start Program protocol, (4) the family is not currently enrolled in the Healthy Start Program for a prior birth, and (5) the mother does not need a translator. (Less than 3 percent of those eligible for the Healthy Start Program need a translator.) To ensure that all eligible families are invited to participate in the study, the evaluation fieldwork coordinator maintains a log of all families at risk. This log is compared monthly with the Healthy Start Program computerized log of all family screening/assessments and their disposition, to assure that recruitment is carried out according to evaluation protocol.

The study sample is drawn over 12 months from families living in catchment areas for the six programs with geographically defined target areas on Oahu. An estimated 5,232 babies will be born to families living in these catchment areas during this 12-month period. The projected number of eligible families identified as being at risk will total 1,560. We would need to offer study participation to 848 families in order to achieve the total desired recruitment of 720 families (assuming an 85 percent initial participation rate). Disproportionate stratified sampling is used to generate equal sample sizes within the intervention group, main control group, and testing control group for each of the six programs in Oahu. The necessary sample size has been determined, based on preliminary study findings on program-specific enrollment and retention rates. The goal is to follow a sufficient number in each program site to allow assessment of program efficacy as well as effectiveness and to be able to conduct meaningful analyses of population subgroups.

With respect to attrition, we project that 80 percent of families enrolling in the evaluation will be followed successfully for 3 years. This will yield final sample sizes of 288 in the Healthy Start group (48 in each of the 6 Healthy Start Program sites), 240 in the main control group (40 per program), and 48 in the testing control group (8 per program). The following steps will be taken to minimize attrition: (1) Recruitment procedures will emphasize the responsibilities of participation and the importance of remaining in the study all 3 years, (2) participating families will be reimbursed for the baseline and followup interviews, (3) ample tracking information will be obtained at baseline and updated at followup, (4) parental permissions will be obtained to gain access to identifying information in existing information systems to aid tracking and followup, and (5) families will be sent a small gift every 4 months to maintain their commitment to the study and to allow early detection of changes in address.

All Healthy Start Program families will be followed for 3 years, regardless of whether they move to another area of Hawaii or drop out of the program. Control group families will maintain their control group status for 3 years. We expect that some control group families will have a subsequent birth during the 3 years of followup. To avoid contamination, these births within the control group families will not be eligible for the Healthy Start Program.

The racial/ethnic composition of the sample is as follows: 26 percent of the mothers report their pri-
mary ethnic affiliation as Native Hawaiian, 23 percent Filipino, 16 percent Samoan or Tongan, 15 percent white, 7 percent Chinese, 5 percent Japanese, and 8 percent other. More than half (57 percent) of the mothers were adolescents (≤ 19 years old) at the time they gave birth to their first child. Forty-five percent of the families experience some form of domestic violence. In 55 percent of the families, either the mother or father abuses alcohol or other drugs.

Analysis Plan

The comparability between study participants and nonparticipants will be examined using standard techniques for the types of variables measured (e.g., Student’s t-test for normally distributed variables after necessary transformations, chi-square tests for binary and count data) through measures available for all at-risk families at the time of the child’s birth. In the same way, the initial comparability of the Healthy Start Program and control groups will be assessed for these measures and for baseline interview variables.

Overall program process estimates will be derived from sample statistics (proportions, means) and 95 percent confidence intervals. Fidelity of implementation will be assessed by determining whether interval estimates span program process standards. Summary process measures will be compared among Healthy Start Program sites, parent agencies, and population subgroups using standard tests of significance (e.g., chi-square, analysis of variance).

Outcome variables measured in this study will be of three basic types: Binary (e.g., any emergency room use), counts (e.g., number of emergency room visits), and indexes or scales to determine appropriate transformations and groupings. The methodology will employ exploratory data analysis in the context described by Hoaglin, Mosteller, and Tukey. Internal consistency of composite scores for scaled indexes will also be investigated.

For each of the basic outcomes, the techniques of generalized linear models will be used to investigate the relationships between the outcome and covariant. Depending on the nature of the outcome measure, logistic regression, log-linear models, or multiple regression will be used for the analysis. To investigate the relationships over time, the methods of longitudinal data analysis for generalized linear models developed by Liang and Zeger will be used.

Within both the Healthy Start Program and the control groups, families will be categorized in terms of characteristics at the time of the child’s birth. These include family ethnicity, initial risk assessment score, family substance abuse, family violence, and maternal age. For each outcome, multivariable models will be used to test for differences in outcome between the Healthy Start Program group and the control group in the presence of differences in initial risk and the degree of resolution of other outcomes. For normally distributed outcomes, the general linear model will be used; for dichotomous outcomes, the logistic model will be used; and for low incidence outcomes measured as counts, the log-linear model will be used.

Results of the process assessment will be used to categorize the families in the Healthy Start Program group by the intensity and adequacy of services received, compared to program standards of care. As described above, generalized linear models will be used to relate program outcomes to the adequacy of services provided.

Within both groups, levels of use and associated costs will be measured for health services, child protective services, police and legal services, and other community services. For families in the Healthy Start Program group, direct program costs will also be measured. Tests for significant differences in total costs per child between program and control group fami-
lies will be computed using t tests; controls for other factors influencing costs can be introduced via regression analysis. Alternative statistical tests may also be applied if the distribution of the cost data does not allow for transformation to normality. Significance of cost differences also will be tested for the specific cost categories listed above and for portions of cost paid directly by government sources.
Injury Prevention in an Urban Pediatric Clinic

Grantee
Johns Hopkins University

Investigator
Andrea C. Gielen, Sc.D.
School of Hygiene and Public Health
615 North Wolfe Street
Baltimore, MD 21205
(410) 955-2397
(410) 614-2797 fax
e-mail: agielen@phnet.sph.jhu.edu

Project Number MCJ-240638
Project Period 05/01/1994–04/30/1998

Summary

Statement of the Problem

It is widely known that injury is the leading cause of death for children in the United States and that children ages 0–4 have especially high injury morbidity and mortality rates. A significant proportion of these injuries occur in and around the child’s home. Such injuries have been found to disproportionately affect low-income and ethnic minority families.

Pediatricians have been identified as key players in childhood injury prevention efforts, yet little is known about the extent and effectiveness of their counseling on parents’ efforts to “child-proof” the home. Moreover, limited attention has been paid to gaining a better understanding of the unique needs of low-income, inner-city families in relation to modifying injury hazards in a home.

Research Questions or Hypotheses

The overall aim of this research is to identify interventions that enhance parents’ injury prevention practices with regard to fall, burn, and poisoning injuries to infants and toddlers. This study will evaluate the extent to which clinic-based interventions of varying levels of resource intensity improve parents’ injury prevention practices in a sample of economically disadvantaged families living in an urban area.

Year 2000 Objectives
9.1, 9.2, 9.4, 9.8, 9.21

Study Design
Experimental

Time Design
Longitudinal

Care Emphasis
Interventional

Population Focus
Neonates, Infants, Toddlers, Parents

Race/ Ethnic Focus
None
Study Design and Methods

Advancing our understanding of the unique needs of the participating families involves (1) the study of improved pediatric counseling, (2) an onsite resource center, and (3) a home visit by injury prevention specialists. Enhanced anticipatory guidance is designed to heighten parents’ perceptions concerning the risk and seriousness of injury and to help them overcome specific injury prevention barriers associated with living conditions in the inner city. The onsite resource center developed through this study will improve access to needed safety supplies at cost. The home visit intervention used in this study will provide technical assistance for using and/or installing safety supplies.

The study design is a randomized controlled trial involving two cohorts of parents to be enrolled during well-child visits when their infants are between 2 weeks and 6 months of age and followed until 12 months of age. Cohort 1 (N=200) will be randomized to receive standard care or enhanced anticipatory guidance. When cohort 1 followup has been completed, an onsite resource center will be opened and cohort 2 (N=200) will be recruited. All cohort 2 parents will receive anticipatory guidance and access to the resource center; one-half of cohort 2 will also be randomly assigned to receive a home visit intervention. All parents will be interviewed at enrollment and when their child is 12 months of age. In-home observations will be used to confirm self-reported injury prevention practices. Data also will be collected to examine the relationship between parents’ injury prevention practices and risk perceptions, beliefs about barriers, and housing quality.

Findings from the evaluation of these interventions will have important implications for the provision of injury prevention services in well-child clinics, especially those operating with limited resources and serving families living in impoverished urban areas.

Population Description and Sampling Plan

Parents (or female caregivers) who bring their children to the primary care clinic are the target population for this study. The Harriet Lane Primary Care Clinic (HLPC) provides health supervision and acute care health services to 6,300 children, 86 percent of whom receive medicaid benefits or have no health insurance. The majority (82 percent) of patients receiving care are African American and live in the surrounding East Baltimore neighborhood, one of the most economically disadvantaged areas of the city. Nearly two-thirds of East Baltimore’s adult population has not completed high school; one in three families lives below the Federal poverty level.

Any HLPC parent whose child is 0–6 months of age and whose pediatrician is a first-year or second-year resident is eligible to participate unless (in the pediatrician’s judgment) the child has a significant clinical reason to be excluded (e.g., severe developmental delay). Participants are recruited as they come to HLPC for a scheduled or walk-in visit. Each participant is approached in the waiting room by the interviewer, who explains the study to the parent, completes the informed consent process, and conducts the baseline interview. Two hundred parents (primarily the female caregivers), have been recruited for cohort 1; an additional 200 parents will be recruited for cohort 2.

Analysis Plan

An analysis plan for the study data was developed in keeping with the study design, which randomizes parents into different treatment conditions within
two cohorts. Thus, for group comparisons within each cohort, standard chi-square tests and t tests are appropriate for testing intervention effects. For group comparisons across cohorts, probability distributions of the sociodemographic factors from each treatment group will be examined to identify potential cohort bias. In the absence of cohort bias, the four control/experimental groups will be treated as four randomized groups and standard testing techniques will be applied for analysis. In the presence of cohort bias, statistical techniques such as analysis of variance (ANOVA) and regression will be used to control confounding factors/covariants and to identify the intervention effects.

Standard t tests will be used to test the difference between two groups when the outcome variable is defined to be the total practices (score=0, 1, 2, 3, 4, or 5). The t test can be applied to either normally distributed or nonparametric data. When the total practices scores are not normally distributed, sufficiently large sample sizes (≥30 for each group) are required to guarantee the validity of asymptotic t tests. Exploratory techniques using statistical software packages (SAS or SPSS) will be used to examine parametric/nonparametric features of the data. For each of the six dichotomous outcome variables, chi-square tests will be employed for two sample comparisons.

Some of the complex comparisons, such as the overall intervention effect, will be analyzed using ANOVA to compare the mean number of total practices across all four study groups. For multiple comparisons of intervention and control groups, a multiple t test will be used to test the potential difference among groups. Critical values of the tests will be determined by the Dunn-Bonferroni tables.

To explore the general relationships of the intermediate variables (i.e., predisposing, reinforcing, and enabling factors) to individual injury prevention practices, logistic regression models will be employed to examine their correlation and to identify the statistical significance of their influence on the dichotomous outcomes. With respect to the total practices score (a continuous outcome variable), linear regression models will be used to determine correlation and statistical significance. In some analyses, the influence of the interventions on the intermediate variables will be examined. When these variables are ordinal measures (e.g., satisfaction with pediatric advice), regression models for ordinal-level response variables will be used. In all regression analyses, appropriate transformations of the response variable and the covariants will be searched in order to identify the best regression model fit.
Development of Monitoring Methods for Perinatal Outcomes

Grantee
Johns Hopkins University

Investigator
Patricia O’Campo, Ph.D.
School of Hygiene and Public Health
Department of Maternal and Child Health
624 North Broadway
Baltimore, MD 21205
(410) 550-5448
(410) 955-2303 fax

Project Number MCJ-240639

Project Period 04/01/1994–03/31/1997

Costs
<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Costs Awarded</th>
<th>Indirect Costs Awarded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>49,864</td>
<td>29,502</td>
<td>79,366</td>
</tr>
<tr>
<td>Year 2</td>
<td>42,083</td>
<td>27,513</td>
<td>69,596</td>
</tr>
<tr>
<td>Year 3</td>
<td>50,786</td>
<td>32,834</td>
<td>83,620</td>
</tr>
<tr>
<td>Year 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Year 2000 Objectives 14.1, 14.5

Study Design
Observational

Time Design
Longitudinal

Care Emphasis
Noninterventional

Population Focus
Neonates, Infants

Race/ Ethnic Focus
None

Summary

Statement of the Problem

Monitoring rare health events such as adverse perinatal outcomes presents program planners and researchers with a challenging task. Despite decades of experience with monitoring national or statewide rates of infant morbidity and mortality in the United States, adequate methods are not available to monitor short-term changes in perinatal outcomes in smaller jurisdictions such as cities or counties.

Research Questions or Hypotheses

The overall goal of this research is to contribute methodological advancements for monitoring rare perinatal outcomes in small geographic areas such as counties, cities, ZIP Codes, or census tracts. Currently, such monitoring methods are not widely available to maternal and child health practitioners and policymakers.

Study Design and Methods

Two distinct monitoring techniques will be developed: Spatial stochastic process methods and industrial quality assurance methods. Spatial stochastic process methods are one of the most sensitive tools available for detecting unusual events or changes in the underlying rate of events. The method we develop will be geographically based, since the spatial stochastic process methods will be coupled with current computerized mapping technology. Industrial qual-
ity assurance methods, on the other hand, are advantageous in that they have few data and computer resource requirements and are simple to implement and perform.

Data for developing these monitoring methods will come from four sources: Baltimore City vital records, U.S. Census (1990), routinely available data from various Baltimore City government agencies, and commercially available data on social characteristics of Baltimore’s ZIP Codes, census tracts, and census block groups. Both methods, once developed, will be assessed and compared with respect to data requirements, computer resource requirements, ease of implementation, and monitoring utility. The monitoring methods will enhance current efforts toward identifying high-risk communities and detecting short-term changes in rates of adverse outcomes in small geographic areas. The developed monitoring methods will not be limited to perinatal outcomes; rather, results from this research should have widespread application to surveillance systems and evaluation activities in all realms of maternal and child health.

**Population Description and Sampling Plan**

Computerized vital records (both birth and death files) for Baltimore City for the period 1985–95 will be used for this study. For many of the analyses, all births in Baltimore City will be used; for some of the analyses, selected high-risk areas of the city will be used.

**Analysis Plan**

The spatial methods will incorporate risk factors and autocorrelation of space-time characteristics. Mapping of events will provide changing patterns of infant mortality in the city and identification of clusters of events in space and time. Secondary data from births, infant deaths, census records, and Healthy Start prenatal and pediatric data bases will be available for analysis over the years 1988–92. Simulation of data will also be used to evaluate the methods with respect to implementation and ease of use.
Preventing Mental Health Problems in Ill Children

Summary

Statement of the Problem

More than two decades of epidemiologic and clinic-based studies indicate that children with disabilities and chronic illnesses and their mothers are at high risk for secondary mental health problems. Despite this extensive body of work, few community-based interventions have been developed to reduce the risk of poor mental health outcomes, and few have been evaluated comprehensively.

Research Questions or Hypotheses

The goal of this study is to implement and evaluate a 15-month parent-professional intervention designed to reduce the risk of poor mental health outcomes for children with disabilities and chronic illnesses and for their parents. This study aims to (1) assess the intervention’s success in reaching specific objectives, (2) assess the intervention’s impact on participants’ mental health, and (3) document which children and parents benefit most from the intervention.

Study Design and Methods

The intervention will be evaluated using a longitudinal, repeated measures, randomized controlled trial design. Participants will be randomized to either a comprehensive intervention group or a low-dose control group. The intervention will be delivered through a structured protocol by a team consisting of

Grantee
The Johns Hopkins University

Investigator
Henry T. Ireys, Ph.D.
Department of Maternal and Child Health
Hampton House
624 North Broadway, Room 187
Baltimore, MD 21205
(410) 550-5442
(410) 955-2303 fax
e-mail: HIreys@phnet.sph.jhu.edu

Project Number MCJ-240804

Project Period 10/01/1995-09/30/1999

Costs Direct Costs Indirect Costs Total

Awarded Awarded Total

Year 1 177,223 120,512 297,735
Year 2 233,469 158,759 392,228
Year 3 224,952 143,688 368,640
Year 4 177,621 110,125 287,746
Year 5

Year 2000 Objectives
6.3, 17.14, 17.20

Study Design
Experimental

Time Design
Longitudinal

Care Emphasis
Interventional

Population Focus
School Age Children, Parents

Race/Ethnic Focus
None
a child life professional and a “veteran parent” (a parent who has raised a child with chronic illness).

The specific objectives of the intervention are to (1) strengthen two important sources of self-esteem (body-esteem and perceived social acceptance) in children, and (2) enhance types of support (informational, affirmational, and emotional) and parenting confidence in mothers. The child life professional will work with enrolled children; the veteran parent will work with their mothers.

Data will be collected via interviews with children and parents at enrollment (T1), 12 months (T2, just prior to the end of intervention), and 20 months (T3). Through brief telephone calls every 4 months, contact will be maintained with the participants and data will be gathered on health and mental health service use. Data will also be gathered from teachers and specialty care providers.

**Population Description and Sampling Plan**

A sample of 300 families with children ages 7–10 will be recruited for this study.

**Analysis Plan**

We will address the question of whether the intervention was implemented as planned by conducting an administrative discrepancy analysis, in which intentions are compared with actual events in four key areas: Program staffing, frequency of contacts between the intervention team and program participants (i.e., the “delivered dose”), content of these contacts, and quality of relationships between the team and the participants.

These areas were chosen because they relate to three key threats to implementation: (1) Threats to fidelity (was the intervention faithful to the underlying conceptual model?); (2) threats to potency (was the program delivered with the intended power?); and (3) threats to administrative integrity (did the administration of the program support its objectives?).

The first aim of the study is to assess the intervention’s success in reaching its specific objective, which is to enhance psychological and social resources for the participants. We will compare the experimental and control groups for each resource variable at each time point. Means will be compared using t tests. In addition, we will compare the experimental and control groups using resource measures collected at T2, controlling for baseline independent variables (e.g., condition-related variables). Multivariate analyses of covariance (MANCOVAs) will be completed. The independent variables will include a variable that indicates the group (experimental or control) and covariants measured at baseline. These covariants will include T1 scores, diagnostic subsample, context factors (e.g., family composition), and condition-related variables (e.g., severity of illness), depending on results of bivariate analysis. Separate analyses will be run for children and mothers.

The second aim of the study is to evaluate the intervention’s effect on short-term and longer-term mental health. We will undertake analyses similar to those described above. Analyses focused on child mental health will include baseline indices of maternal mental health, and vice versa. Concordance between different data sources (e.g., teacher versus parent) will be determined using paired t tests. If concordance is small, separate analyses will be run using data from the different sources (e.g., teacher versus parent responses for the Child Behavior Checklist). The study’s conceptual framework suggests that the intervention will have its effects by increasing psychological and social resources. Therefore, if the intervention is found to have effects, we will conduct additional analyses to examine whether the intervention’s effects occurred...
via the postulated route.

The third aim of the study is to document which children and parents benefit most from the intervention in terms of enhancing psychological resources. A series of exploratory analyses will be conducted separately for mothers and children. These analyses will focus only on data from participants assigned to the experimental group. Differential effects will be analyzed using change scores in resource variables from T1 to T2. Depending on the number of variables and interactions that are significantly related to outcomes, analyses of variance (ANOVAs) or multiple regression analyses will be used to examine different effects of the intervention.
Social Context of Puerto Rican Child Health and Growth

Summary

Statement of the Problem

This study focuses on the healthy development of Puerto Rican children living on the mainland of the United States. The research is grounded in a cultural-ecological framework, which views children as embedded in their family, surrounded by an ethnic community, school, and peers, which in turn are embedded in a larger society. Moreover, as a consequence of migration, Puerto Ricans become minority group members, and this can make them vulnerable to discrimination.

This research is designed to be responsive to Maternal and Child Health Bureau priorities for studying the healthy growth of minority children as well as to the research agenda set forth in the Surgeon General’s National Hispanic/Latino Health Initiative. Thus, the study employs culturally appropriate theories, models, and methodologies involving Hispanic researchers at all levels of research activities and uses a multidisciplinary approach.

Research Questions or Hypotheses

The specific aims of this study are to: (1) Describe the life patterns of children of Puerto Rican origin living on the U.S. mainland, considering variations in socioeconomic status (SES), gender, and color; (2) describe Puerto Rican children’s experiences with migration and the impact of migration on their healthy development (physical and mental) and school performance; and (3) examine the relationships between...
migration, social contexts, and Puerto Rican children’s development, both cross-sectionally and longitudinally.

Specifically, the following hypotheses will be tested:
1. Other things being equal, healthy child outcomes are positively related to the resources available to the family and the child.
2. To the extent that migration, racism, and discrimination diminish these resources, children’s healthy development will be jeopardized.
3. Families and external institutions can moderate the impact of migration, prejudice, and racism on children’s healthy development.

**Study Design and Methods**

This is a prospective, longitudinal study led by a multidisciplinary team of researchers. The project is designed to be a 5-year study of 125 boys and 125 girls (in grades 1–3 at the beginning of the study) and their primary caregivers from two socioeconomic strata (working class and welfare recipients). Data will be gathered annually through face-to-face interviews with the children and their primary caregivers and through survey and archival research on demographic and economic conditions of their residential neighborhoods and the larger metropolitan area. Components of healthy development to be examined include physical health, self-esteem, school performance, behavioral adjustment, and ethnic identity.

Special emphasis will be placed on the influence of migration, racism, and prejudice on the healthy development of children. Child variables of interest are subjective perception of skin color, perception of social support, coping strategies, self-esteem, ethnic identity, and perception of safety at school. Family variables to be examined include socioeconomic status, parental job stress, racial identification, family structure, parental depression and anxiety, home environment, and parenting styles. Other variables of interest are the use of traditional and nontraditional health practices and the utilization of the child as a translator and negotiator of the “anglo” world.

The final survey instrument is a composite of some existing measures, translated and modified by others so that they are culturally syntonic with Puerto Rican populations, as well as new measures developed for this study. Three new measures are The Color of My Skin, Self Esteem, and Ethnic Identity and Discrimination, for children ages 6–10. The final survey instrument is available in English and Spanish. The study uses the dual focus technique for translation and new item development. In this method, a concept is developed simultaneously in English and Spanish, with the method guided primarily by concept rather than language.

**Population Description and Sampling Plan**

An initial sample of 291 children and their primary caregivers was recruited, with an attrition rate of 5 to 10 percent expected at each data collection point. Attrition is expected to be highest for the lowest SES group, so these families were oversampled. Families were identified through schools and community agencies and through door-to-door contact in communities with a large Puerto Rican population. These families were screened for inclusion in the study. The study children are considered Puerto Rican if they so identify themselves or if one of their parents is Puerto Rican.

**Analysis Plan**

Cross-sectional data will be analyzed using multivariate techniques such as multiple regression and analyses of covariance. Longitudinal data will be
analyzed using hierarchical linear modeling techniques to examine the impact of changes in social context on child development over time.
Summary

Statement of the Problem

Contemporary early intervention services, guided by Part H of the Individuals with Disabilities Education Act, are designed to enhance the responsiveness of the caregiving environment in a way that is assumed to have an impact far beyond the brief early intervention experience. Little longitudinal research has been conducted to evaluate the relationship between child and family outcomes and characteristics of children and families enrolled and services provided in early intervention programs. Currently, little is known about how the children who received such early intervention services will perform during their school years, and which children and families are most likely to do well or do poorly (thus requiring more professional assistance).

Research Questions or Hypotheses

The broad goals of this study are to (1) identify predictors and mediators of child development and family adaptation over time; and (2) construct an integrated, empirically validated conceptual framework to inform public policy, aid the design of service programs, and guide further research for children with special health needs and their families. The study also aims to elucidate predictors of long-term vulnerability and resilience among recipients of early intervention services in order to inform policy decisions regarding short-term resource allocation and long-term service planning for children with special health needs and their families.
Study Design and Methods

This study is a continuation of a nonexperimental, prospective, longitudinal investigation funded by the Maternal and Child Health Bureau: MCJ-250583, Early Intervention Collaborative Study: Preschool Phase (Apr. 1, 1989 through Dec. 31, 1993) and MCJ-250533, The Early Intervention Collaborative Study: Phase One (Jan. 1, 1986 through June 30, 1989). Six waves of in-home and school-based assessments have been completed for an initial sample of 190 children and families from their entry into an early intervention program (mean age 10.6 months) through age 5. Early study outcomes included aspects of children’s cognitive and social development and family adjustment.

Follow-up home-based child and family assessments and school-based data collection will be conducted at age 10. Core child outcomes include three aspects of social competence: Adaptive skills, behavior problems, and social connectedness. Core family outcomes include three aspects of parent well-being: Marital satisfaction, sense of competence as a parent, and depression.

Population Description and Sampling Plan

The sample comprises children with early developmental delays or disabilities and their families who received early intervention services from community-based programs in Massachusetts and New Hampshire between 1985 and 1991. The study sample is 55 percent male and 89 percent Caucasian. At age 5, the sample included 50 children with Down syndrome, 61 children with I.Q. scores ≤75 (excluding children with Down syndrome), and 50 children with I.Q. scores >75. Seventeen percent of the families had annual incomes below $15,000 and 49 percent had incomes above $35,000.

Analysis Plan

Both descriptive analyses and hypothesis testing will be conducted using analysis of variance, multiple regression, structured equation models, and hierarchical linear modeling.