

MCH EXCHANGE

RESEARCH

Welcome to the MCH Research Exchange

Welcome to this new edition of the *MCH Research Exchange*, a newsletter of the Maternal and Child Health Bureau (MCHB) Research Program. The *MCH Research Exchange* serves two broad purposes. The first is to inform the maternal and child health community about the MCHB Research Program—including how priorities are determined, how the grant review process operates, what research has been funded by the program, and what findings have resulted from active and completed research projects. The second is to foster an open dialogue among members of the MCH community.

This issue retains many features of the previous editions, including the director's corner, a description of grantees' articles recently published in peer-reviewed journals, and a description of the newly funded research grants. Other features describe the longitudinal research being conducted by grantees and the MCHB-supported research on nurse home visiting. Three members of the Maternal and Child Health Research Grants Review Committee are profiled, including their tips for presenting a successful research application.

The issue summarizes the revised guidance materials and the comprehensive research agenda for the Maternal and Child Health Bureau. A brief summary of the applications received by the program for the November 1997 review cycle is also included. Projects chosen for funding during the November 1997 review cycle will be profiled in a future edition of the *MCH Research Exchange*.

We value the enthusiastic response from our readers and encourage your comments and suggestions about topics of interest for future issues. Please forward your comments and suggestions to Jolene Bertness at the National Center for Education in Maternal and Child Health at (703) 524-7802 or address comments via e-mail to jbertness@ncemch.org.

Michelle Keyes-Welch, M.H.S.A.

National Center for Education in Maternal and Child Health

MCHB-SUPPORTED RESEARCH ON NURSE HOME VISITING PRAISED BY MEDICAL JOURNAL AND THE POPULAR PRESS

The two leading articles in the August 27, 1997, issue of *JAMA: The Journal of the American Medical Association* (Vol. 278, No. 8) report on the findings of studies supported by the MCHB Research Program. The first article, "Long-term Effects of Home Visitation on Maternal Life Course and Child Abuse and Neglect," represents a 15-year follow-up of a cohort of pregnant women and their children who participated in the first randomized clinical trial of nurse home visitation (Elmira, NY). This classic "child health outcome research" clinical trial was first submitted to and reviewed by the MCHB Research Grants Review Com-

mittee in 1977 and funded by the Bureau that same year after the Study Section recommended a pilot phase and changes in scope, methods, and study design for the execution of the full-blown investigation. Postward program guidance and monitoring improved the execution of the study in the field and were influential in shaping the rigorous analyses for which the study is known.

The second article, "Effect of Prenatal and Infancy Home Visitation by Nurses on Pregnancy Outcomes, Childhood Injuries, and Repeated Childbearing: A

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FOURTEEN NEW RESEARCH PROJECTS FUNDED IN FY 1997

Fourteen of the 88 new research applications reviewed by the MCHB Research Review Committee in FY 1997 were recommended for approval and subsequently funded by the Bureau. First-year costs totaled \$3,195,263, of which \$1,181,914 represented funds obtained through cooperative agreements with other federal agencies, private foundations, and Bureau programs. Three of the 14 projects are concerned with inappropriate hospitalization or early discharge of mothers and children from hospitals; six address issues of special significance for minority mothers and children, using study designs that will allow for race- and ethnicity-specific analyses.

A short description of each new project follows:

Home Nursing to Avoid Pediatric Hospitalization, a three-year randomized clinical trial to be conducted at the University of Rochester School of Medicine,

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LONGITUDINAL RESEARCH

Research can be described according to various characteristics. Six characteristics are most commonly used today: (1) reasons for doing the research (basic versus applied); (2) study design employed (experimental versus observational); (3) sample size (large versus small); (4) disciplinary orientation (medical versus behavioral); (5) time orientation (longitudinal versus cross-sectional); and (6) care emphasis (interventional versus noninterventional). These characteristics function primarily as descriptors of "what is," without any value judgment implied. Occasionally, however, they are used to connote undesirability, as in the case of small-sample studies (which are sometimes unfairly described as unreliable).

The research projects supported by the Maternal and Child Health Bureau are diverse, but have a common theme of practicality. That is, the research for the most part is concerned with being able to do something better or more efficiently, preventing the undesirable from happening, or ameliorating the undesirable once it has happened. This type of research is often labeled *applied research*. Examples of this research include developing new and better psychosocial interventions to prevent spouse and child abuse, and evaluating through randomized clinical trial conditions, an existing drug for its suspected ability to act as a powerful lead-chelating agent in children.

Over the years, longitudinal research has been well represented in the portfolio of MCHB research projects. Longitudinal research is generally defined as that type of research concerned with the measurement of change as a function of time. In the past, this type of research was primarily concentrated in the field of developmental psychology; today, it is increasingly used by other disciplines, including clinical medicine. Thus, clinical medicine concerns now include the long-term consequences of treatments and of exposure to environmental agents (such as secondhand smoke).

Werner's classic studies on the children

of Kauai provide one example of the success of MCHB-supported longitudinal research. The Kauai studies underscored key factors in the prenatal, natal, and postnatal environments that may have cumulative long-term consequences for the health and development of children. Findings from the studies have been used extensively to support the need for a national system of preschool health programs and periodic early childhood screening. Of great importance, the studies demonstrated that social context, interacting with factors related to perinatal health and use of medical care, determines later outcomes along a variety of domains. These results have influenced the deployment of public health resources and also identified risk factors that signal the need for follow-up and early intervention efforts.

Currently, one in five active projects in the MCHB research portfolio is longitudinal. A large number of MCHB research

projects did not originate as longitudinal investigations but became longitudinal in scope after the findings from the original cross-sectional investigations made long-term followup advisable. Not all of the current longitudinal research projects in the MCHB portfolio were initially supported by MCHB. In some cases, the projects represent the common practice of moving from one support source to another to avoid exhausting the good will of the original funding agency; in other cases, they are the result of conscious efforts from the outset to spread the costs among funding agencies because one funding agency alone cannot be expected to support the entire cost of the longitudinal project.

The 10 longitudinal studies that are currently part of the MCHB's FY 1996-97 research projects portfolio are described on subsequent pages.

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MCH RESEARCH EXCHANGE

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MCHB'S NEW COMPREHENSIVE RESEARCH AGENDA: FIRST REVIEW CYCLE RESULTS

The November 1997 review cycle was the first to be guided by MCHB's new comprehensive research agenda. This agenda was developed at the Fourth National Title V Maternal and Child Health Research Priorities Conference held in 1994, and published as part of the proceedings in early 1996. The November 1997 review cycle was also the first to use the new application guidance material, which includes the research agenda exactly as developed at the conference and then as a reconfigured document developed by the Research Program staff according to program-relevant topics.

The new guidance approach represents the first time that the Bureau has adopted formally the dual approach to generating new research applications. Under this dual approach, applicants are given the option of addressing within the research agenda (1) issues/questions of immediate programmatic relevance to the Bureau (program-directed priorities), or (2) issues/questions of interest to prospective applicants such

as clinicians, scientists, and scholars (investigator-initiated priorities). For applications recommended for approval, a funding score adjustment of .5 is being used as an incentive for applicants choosing option 1.

Historically, there has been considerable debate among MCH professionals both within the Bureau and in the larger MCH community as to which of these two approaches should be used when allocating the limited Title V research funds. After careful evaluation of the benefits and limitations of each approach, the MCHB Research Program opted for using both approaches simultaneously, believing that the dual approach permits research to capitalize on the know-how and accumulated experience of Bureau professionals as well as on the ingenuity and imagination of the applicant community.

Following are the issues and questions selected as program-directed priorities for the FY 1997-99 research agenda: (1) the development of instruments to measure racism and/or study

its consequences; (2) the role that fathers play in caring for and nurturing the health, growth, and development of children; and (3) the impact of health reform and managed care on access to and use of health services by mothers and children.

The dual approach appears to be a success. Fifteen of the 44 applications (34.1 percent) accepted for review at the November 1997 cycle chose the program-directed priorities option, and 29 (65.9 percent) opted for the investigator-initiated category. Among the 15 applications addressing program-directed priorities, health care reform and managed care was the overwhelming choice of issue/question, followed by research applications related to the role of fathers in child health and development.

*Gontran Lamberty, Dr.P.H.
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INTERVIEWS WITH MATERNAL AND CHILD HEALTH BUREAU RESEARCH GRANTS REVIEW COMMITTEE MEMBERS

Each research application submitted to the MCHB Research Program for review is assigned to one or more content specialists (e.g., a pediatrician, developmental psychologist, nutritionist, or other specialist) as well as to one specialist in study design/research methods/statistics. The review processes that characterize the workings of the MCHB Research Grants Review Committee, including the face-to-face deliberations, represent a critical assessment of how these two areas (content and methodology) are covered in the application and how well they will help to ensure that MCH-relevant and scientific

ally strong research findings are obtained.

In January, Michelle Keyes-Welch of the National Center for Education in Maternal and Child Health interviewed three of the MCHB Research Review Committee members who do the bulk of the methods/study design/statistics evaluation of the applications. These three scientists—Ellice Lieberman, M.D., Dr.P.H., Frances Mather, Ph.D., and Robert A. Terry, Ph.D.—bring a wealth of expertise and experience to their review responsibilities, as well as a commitment to fairness and constructiveness in their reviews. Following are synopses of the interviews.

Please describe your background and training for the *Research Exchange* readers.

Dr. Lieberman: I am a physician and epidemiologist. I attended medical school at the University of Florida College of Medicine and completed my residency training in pediatrics at Brown University. I also attended Harvard University where I received an M.P.H. and Dr.P.H. in epidemiology. In addition, I completed a residency in preventive medicine and am board certified in public health and general internal medicine.
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FOURTEEN NEW PROJECTS FUNDED

will seek to evaluate a home nursing intervention program, Home Nursing Enhanced Primary Care (HNEPC). The program is designed to avoid hospitalization for common acute childhood illnesses. Specifically, the randomized trial will seek to determine (1) the potential for implementation of HNEPC on a community-wide basis; (2) acceptance of HNEPC by providers and families; (3) the net impact of HNEPC on hospitalization rates; (4) estimates of cost savings; and (5) quality of care as measured by patient outcomes. The project is jointly funded by MCHB and the National Institute for Nursing Research (NINR).

Principal Investigator: Kenneth M. McConnochie, M.D., Associate Professor, Department of Pediatrics, University of Rochester School of Medicine and Dentistry, 601 Elmwood Avenue, Box 777, Rochester, NY 14642. Phone: (716) 275-7813; fax: (716) 273-1079; e-mail: hmim@uhura.cc.rochester.edu.

Home versus Group Visits after Early Postpartum Discharge, a three-year randomized clinical trial at Kaiser Permanente in Oakland, CA, will test the hypothesis that low-risk mothers and newborns will be at reduced risk for an adverse health outcome if assigned to receive a home visit rather than a group clinic visit on the third postpartum day following discharge from the hospital. An adverse health outcome is defined by the study to include any of the following six events during the first 14 days postpartum: (1) an urgent clinic visit by the newborn; (2) an urgent clinic visit by the mother; (3) discontinuation of breastfeeding; (4) maternal depressive symptoms; (5) rehospitalization of the newborn; or (6) rehospitalization of the mother. Group clinic visits are considered a trend of the future since they are believed to be less costly than other services; however, evidence of their effectiveness is limited. The study findings are expected to be highly generalizable because the clinical protocols are carefully specified and the services will be delivered by the usual providers of a

large health maintenance organization with an ethnically and socioeconomically diverse patient population. The study is being funded by MCHB, the Center for the Future of Children, the Permanente Medical Group Innovation Program of Northern California, and the Garfield Memorial Fund.

Principal Investigator: Tracy A. Lieu, M.D., Division of Research, Kaiser Permanente, 3505 Broadway, Oakland, CA 94611-5714. Phone: (510) 450-2063; fax: (510) 450-02071; e-mail: tal@dor.kaiser.org.

Predicting the Need for Hospitalization in Childhood Asthma, a prospective, two-year study to be conducted at the Children's Hospital of the University of Pennsylvania School of Medicine, proposes to develop and validate an actuarial rule to differentiate between children who present to an emergency room with acute asthma and are capable of being discharged following treatment, and those who need additional hospitalization. The investigators argue that given changes in medical treatment and the development of more effective clinical tools, the time is ripe for reevaluating the possibility of developing an effective actuarial rule for evaluating hospitalizations in children with asthma. The benefits to be derived from the availability and use of such an actuarial rule include cost savings from reduced incidence of inappropriate care and increases in the quality of life and functional health of children. In total, 780 children ages two years and older will participate in the study. All children will be given a standardized treatment according to national guidelines and will be discharged or admitted as a result of clinical judgments based on national standards. This study is being supported through funding contributed by MCHB's Pediatric Emergency Medical Services Program.

Principal Investigator: Mark Gorelick, M.D., Children's Hospital, Emergency Department Offices, 34th Street and

Civic Center Boulevard, Philadelphia, PA 19104-4399. Phone: (215) 590-1620; fax: (215) 573-5315; e-mail: Gorelick@cceb.med.upenn.edu.

Reducing Preterm Birth by Bacterial Vaginosis Screening, a four-year community-based intervention study by The Johns Hopkins University, seeks to reduce the incidence of preterm low-birthweight births by identifying and treating asymptomatic African-American pregnant women who have bacterial vaginosis (BV). BV is a highly prevalent disorder present in up to 93 percent of nonpregnant women and 58 percent of pregnant women. The study's main hypothesis is that pregnant African-American women presenting at a neighborhood prenatal care clinic without symptoms of BV and who are then screened, confirmed to have BV, and treated, will have a lower incidence of preterm and low-birthweight babies than unscreened asymptomatic women. Using a four-period cross-over quasi-experimental design, all prenatal care clinics serving The Johns Hopkins University neighborhood in Baltimore will have two six-month periods during which they screen and treat all eligible asymptomatic pregnant women for BV, and another two six-month periods during which they do not treat asymptomatic BV. The use of the quasi-experimental cross-over design permits the implementation of a single protocol at each study site for a fixed period of time, thereby eliminating the community's concern that some women at the same study site will be denied treatment while others will be treated. By introducing a cross-over design, each clinic can serve as its own control. This study is being supported through funding from MCHB's Community Integrated Services Systems (CISS) Program.

Principal Investigator: David M. Paige, M.D., M.P.H., Professor, The Johns Hopkins University School of Hygiene and Public Health, Department of Maternal and Child Health, 624 North Broadway, Baltimore, MD 21205. Phone: (410) 955-3804; fax: (410) 955-2303.

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Fourteen New Projects Funded

Office Systems to Improve Preventive Care for Children, a three-year randomized clinical trial to be conducted by the Medical School of the University of North Carolina at Chapel Hill, adds an MCHB-supported anticipatory guidance component to an ongoing intervention study supported by the Agency for Health Care Policy and Research (AHCPR). The current AHCPR-funded study is designed to assist private pediatricians in adopting more organized ways of providing preventive services and patient education in their practices. The AHCPR intervention component of the study focuses on four basic preventive services usually performed in the first year of life: immunization, and screening for anemia, tuberculosis, and lead poisoning. The secondary intervention component will now include several anticipatory guidance activities that are important to carry out in the first 15 months of life. The MCHB-funded component incorporates anticipatory guidance on health and safety measures, such as the use of car seats and smoke detectors, smoking cessation, appropriate hot water temperatures at home, and adequate amounts of fluoride for infants older than six months. Funding is being shared by MCHB and AHCPR.

Principal Investigator: Peter A. Margolis, M.D., Ph.D., Clinical Associate Professor, UNC Center for HPDP, 255 Rosenau Hall, CB#7400, UNC—Chapel Hill, Chapel Hill, NC 27599-7400. Phone: (919) 966-2504; fax: (919) 966-3852; e-mail: across@unc.edu.

Satisfaction with and Utilization of Prenatal Care, a three-year study at the

University of Illinois at Chicago, will study the relationships between prenatal care characteristics and satisfaction, and between satisfaction and subsequent use of prenatal care. The study subjects are 590 African-American women obtaining prenatal care at one of four health centers that are part of Humana Health Care Plan, Inc., a large managed care organization. Half of these women (295) receive Medicaid assistance, and the other half do not. The information gained from the study is expected to help design interventions and develop policy changes to increase prenatal care use among pregnant women, particularly African-American women.

Principal Investigator: Arden S. Handler, Ph.D., Associate Professor, Prevention Research Center, University of Illinois at Chicago, 850 West Jackson Boulevard, Suite 400 M/C 275, Chicago, IL 60607. Phone: (312) 996-5954; fax: (312) 996-3551; e-mail: u5975@uicvm.edu.

Health Care Utilization: Pediatric Organ Transplantation, a five-year study at the University of California at Los Angeles, seeks to identify pretransplant family psychosocial factors predictive of increased medical and psychosocial health care utilization or poor functional outcomes. Using a longitudinal design, the study follows a group of 150 pediatric patients ages 1–18 years at time of transplant who have received liver, heart, or kidney transplants. The study sample will be ethnically diverse, with Hispanics (Mexican immigrants, U.S.-born Mexican Americans, and Central American immigrants) constituting approximately one-third of the study participants. Data collection approaches and instruments have

been selected to maximize validity and reliability within an ethnically diverse sample; they have been translated and tested in Spanish with the forward-back translation technique. The study aims to produce the first research documentation of the pediatric organ transplantation experience of Hispanic children residing on the U.S. mainland.

Principal Investigator: Margaret L. Stuber, M.D., Associate Professor, Neuropsychiatric Institute, University of California at Los Angeles, 760 Westwood Plaza, Los Angeles, CA 90024-1759. Phone: (310) 825-5213; fax: (310) 206-4446; e-mail: mstuber@npimain.med-sch.ucla.edu.

Crossing Cultural Boundaries, a three-year study at the Department of Occupational Therapy, University of Southern California, seeks to examine how the problems of inner-city African-American children with special health care needs are understood or culturally “framed” by their family members and health care practitioners. Specifically, the research questions explore the problems associated with misunderstandings and miscommunication between the family and the child’s health care providers. The methodological approach of the study is ethnographic.

Two major hypotheses will be explored in the study. The first states that difficulties in collaboration between families and health care providers is a major contributing factor to ineffective treatment of inner-city African-American children with special health care needs. Investigators note that “although family members are often involved in initiating a referral or expressing concerns, their involvement in establishing the frame for the problem is often limited.” The second hypothesis states that poor collaborative relations derive from the different cultural world views to which the professional and family caregivers belong. Since African-American mothers often assume the role of culture broker, interpreting complex information and meanings for other family members, this study may shed further light on the complexities of the mother’s role in negotiating family-centered care.

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GUIDANCE & APPLICATION KITS NOW ON THE WEB

Interested applicants can download the Research Program’s grants guidance and application kits electronically. These materials can be accessed through the MCHB’s home page at www.os.dhhs.gov/hrsa/mchb. Hard copies can be obtained from the Health Resources and Services Administration (HRSA) Grants Application Center at 1-888-300-HRSA.

FROM THE RESEARCH PROGRAM DIRECTOR

1. MCJ-370632. Role of Early Family Supports in Adult Self-Sufficiency, a four-year study by the University of North Carolina at Chapel Hill, seeks to identify the ecological, personal, and situational factors associated with young adult (age 21) outcomes in subjects who had participated in the Abecedarian Project, a randomized clinical trial of early childhood intervention. The study provides a unique multigenerational perspective on the effects of extensive family support (high-quality educational child care and free pediatric care in early childhood) on later-life success of low-income African-American children and their parents. To date, for children ages 18 months through 15 years who participated in the preschool intervention, the researchers have consistently detected significant positive effects, including prevention of mild mental retardation, increases in IQ scores, higher scores on academic achievement tests, lower rates of grade retention, and fewer placements in special education. FY 1996 award: \$180,881; FY 1997 award: \$169,065.

Principal Investigator: Frances A. Campbell, Ph.D., Frank Porter Graham Child Development Center, University of North Carolina at Chapel Hill, 105 Smith Level Road, CB#8180, Chapel Hill, NC 27599-8180.

2. MCJ-420633. Psychosocial Sequelae of Bronchopulmonary Dysplasia and Very Low Birthweight, a four-year study at Case Western Reserve University School of Medicine, is investigating the school-age outcomes associated with bronchopulmonary dysplasia (BPD), a chronic pulmonary disease associated with prematurity. The study will focus particularly on the influence of BPD on pulmonary, cognitive, language, neuropsychological, and behavioral outcomes at seven-and-a-half years of age and the relationship of BPD to other medical, neurologic, and sociodemographic risks factors. The study will use a cohort of 302 children (110 children with BPD, 80 very-low-birthweight [VLBW] children without BPD, and 112

healthy term children). All of these children were prospectively, longitudinally followed from birth to three years of age through two separate studies funded by the Maternal and Child Health Bureau and the National Institute of Mental Health. Prior studies of this cohort to three years indicated that children with a history of BPD had higher rates of mental/motor retardation, and performed significantly more poorly than VLBW children without BPD in both cognitive and motor outcomes. Motor outcomes were uniquely deficient for BPD children at three years, while VLBW children without BPD and term infants performed equally well. Poorer child outcomes were related to higher levels of depressive symptoms in mothers and to less optimal maternal-child interactions in the first year of life, in addition to medical risk variables. FY 1997 award: \$348,250.

Principal Investigator: Lynn Twarog Singer, Ph.D., Professor, School of Medicine, Case Western Reserve University, Rainbow Babies & Children's Hospital, 11100 Euclid Avenue, Cleveland, OH 44106.

3. MCJ-530589. Behavior Problems in School-Age Children of Teen Mothers, a four-year longitudinal study at the University of Washington, will continue to follow a sample of children of adolescent mothers. The overarching long-term objectives are to (1) identify pathways for the development of conduct problems in these young school-age children, and (2) identify risk and protective factors in the home, school, and other environments that may contribute to or inhibit the development of conduct problems. The project has been funded by MCHB, beginning with MCJ-530535, *Mothering in Adolescence: Factors Related to Infant Security (1986-89)*, followed by MCJ-530589, *Adolescent Mothering and Preschool Behavior Problems*. This research will continue to follow the 114 mother-child pairs (who have participated since the children were infants) through the children's first three years of elemen-

tary school (grades 1-3). FY 1996 award: \$259,883.

Principal Investigator: Robert J. McMahon, Ph.D., Department of Psychology, University of Washington, Box 351525, Seattle, WA 98195.

4. MCJ-240621. Growth and Development: Longitudinal Followup, a five-year study, seeks to evaluate the cognitive, sociocultural, emotional, and academic development of two cohorts of African-American children at four and six years of age, using a longitudinal design. The sample of children comes from studies previously funded by MCHB and the National Center for Child Abuse and Neglect (NCCAN). The MCHB study consisted of a randomized trial of a home intervention targeting non-organic-failure-to-thrive (NOFTT) infants. The NOFTT infants were the matched control group for the MCHB intervention study, which had tested several developmental outcomes. The follow-up study will collect and provide longitudinal data on more than 200 African-American children between the ages of eight months and six years who come from a low-income, inner-city population. FY 1996 award: \$140,722.

Principal Investigator: Maureen Black, Ph.D., Professor, Department of Pediatrics, University of Maryland School of Medicine, 700 W. Lombard Street, Baltimore, MD 21201.

5. MCJ-250809. Homeless Mothers and Children: A Longitudinal Study, a two-year extension of a cross-sectional study at the Better Homes Fund, adds a longitudinal component to an ongoing National Institute of Mental Health-funded study of 250 homeless and 250 housed families in Worcester, MA. The longitudinal component builds on an existing population-based, case-control comparative study. The MCHB-supported component focuses on data analyses and preparation of manuscripts relevant to maternal and child health and parenting, and an in-depth examination of the data pertaining to U.S. mainland Puerto Rican women and children. FY 1996 award: \$83,633.

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Research Program Director

Principal Investigator: Ellen L. Bassuk, M.D., President, The Better Homes Fund, 181 Wells Avenue, Newton, MA 02159.

6. MCJ-250644. Early Intervention Collaborative Study: Age 10 Follow-Up, a four-year study to be conducted at Brandeis University, plans to continue the longitudinal follow-up (until age 10) of a sample of 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 broad study goals 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 in the design of service programs, and guide further research for children with special needs and their families. FY 1996 award: \$241,422; FY 1997 award: \$262,389.

Principal Investigator: Jack P. Shonkoff, M.D., Professor and Dean, Heller Graduate School, Brandeis University, P. O. Box 9110, Waltham, MA 02254-9110.

7. MCJ-250643. Social Context of Puerto Rican Child Health and Growth, a five-year study at Wellesley College, is a prospective, longitudinal study of healthy development in Puerto Rican children living on the U.S. mainland. The study examines the specific components of healthy development, including physical health, self-esteem, school performance, and behavioral adjustments. The project takes a comprehensive approach to the health and development of Puerto Rican children, including studying the effects of back-and-forth migration on developmental competencies, and does so with an orientation toward understanding the strengths of these children and their families. FY 1996 award: \$246,699; FY 1997 award: \$251,843.

Principal Investigator: Odette Alarcon, M.D., Research Associate, Wellesley

College, Center for Research on Women, 106 Central Street, Wellesley, MA 02181.

8. MCJ-370649. African-American Children's Transition to School, a five-year project at the University of North Carolina at Chapel Hill, seeks to determine why African-American children of low-income status are at greater risk for failure upon entry into primary school. The study focuses on the social, psychological, and biomedical liabilities of the children to be studied, as well as the issue of individual variability in outcomes and the observation that many children from disadvantaged backgrounds do remarkably well. The study also addresses an increasingly important environmental influence on cognitive development—the quality of extra-familial child care. FY 1996 award: \$205,745; FY 1997 award: \$213,509.

Principal Investigator: Joanne Erwick Roberts, Ph.D., Research Associate Professor, Frank Porter Graham Child Development Center, University of North Carolina at Chapel Hill, 105 Smith Level Road, CB#8180, Chapel Hill, NC 27599-8180.

9. MCJ-540635. Infant Temperament: Neonatal–5 Years in Rural Appalachia is a five-year study that will continue to follow a sample of children and families originally recruited for an MCHB-supported project on the poverty-related risks experienced by Appalachian children and families. Two research questions are addressed in this continuation study: (1) Is there a connection between certain temperament and mother-infant relationship qualities identified in infancy and preschool behavior problems and early school adjustment; and (2) If these children continue to show good functioning in the family context, then what is the trajectory leading to the 50% school dropout rate in this population? Results are expected to dispel stereotypes and provide the information needed to better understand both risk and protective factors in this research-neglected cultural group, as well as what types of interventions might inform the design of culturally relevant intervention programs. FY 1996 award: \$81,158; FY 1997 award: \$78,531.

Principal Investigator: Margaret Fish, Ph.D., Clinical Assistant Professor, Department of Family & Community Health, Marshall University School of Medicine, Huntington, WV 25755.

10. MCJ-240622. Regulatory Disorders and Developmental Outcomes, a five-year study at the University of Maryland, College Park, will study the development of infants with regulatory disorders (i.e., infants who have difficulty sleeping, eating, self-consoling, making transitions, and/or responding appropriately to normal sensory stimulations). The major question to be addressed is whether such infants, identified at nine months of age, are at greater risk than normal infants for behavior problems and poor outcomes at three years of age. Eighty infants with regulatory disorders and 80 infants without such disorders, matched on sex, race, and SES, will be assessed longitudinally at 9, 24, and 36 months. A variety of standardized psychological assessments and a measure of physiological functioning will be given at each age. Two child psychiatrists will make independent diagnoses at 36 months. These diagnoses are to be supplemented by information from the Child Behavior Checklist and a checklist of clinical symptoms. FY 1996 award: \$154,041.

Principal Investigator: Stephen W. Porges, Ph.D., Professor, Department of Human Development, University of Maryland, College Park, MD 20742-1131.

*Gontran Lamberty, Dr.P.H.
Maternal and Child Health Bureau*

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NURSE HOME VISITING

Randomized Controlled Trial,” reports on the Elmira study replication conducted in Memphis (Shelby County), TN. The replication sought to test the generalizability of the Elmira study findings and to reevaluate the effectiveness of the interventions used in the study by shifting the site of services from a sparsely populated rural setting to a densely populated urban/metropolitan site. Unlike the Elmira study, the nurses participating in the

Memphis replication study were county health department nurses without graduate degrees who had larger patient caseloads.

These two MCHB-funded investigations have been instrumental in promoting the adoption of nurse home visiting as a cost-effective way to prevent multiple maternal and child health problems. The 15-year follow-up of the Elmira study participants underscores the advisability of

supporting longitudinal research, often overlooked because of cost and time requirements. An editorial on the two studies in the same issue of *JAMA* praises the scientific rigor as well as the significance of the studies and asserts that “the trials are remarkable for demonstrating that the program improved not just poor mothers’ infant care, but an array of health and social outcomes, as long as 15 years following childbirth.”

Gontran Lamberty, Dr.P.H.
Maternal and Child Health Bureau

ARTICLES PUBLISHED BY RESEARCH GRANTEEES

The findings of a number of MCHB-supported research studies have been published in peer-reviewed journals since our last issue of the *MCH Research Exchange*. Nine of the articles have been summarized below as a sample of the range of MCHB research projects; the remaining articles are listed by reference citation so readers may retrieve items of interest.

Blood Pressure Response to Sodium in Children and Adolescents

Falkner et al. studied the relationship between sodium intake, blood pressure, sodium resistance, and sodium sensitivity. The research team indicated that in children (as with adults), there has been a progressive increase in the sodium content of diets. However, the research team concluded that significant correlations have not been shown between sodium intake and blood pressure in children and adolescents. In certain groups of adolescents, blood pressure sensitivity to sodium can be detected, and the sodium sensitivity appears to be associated with other risks of hypertension, including race, family history, and obesity; it is unlikely that sodium as an isolated factor contributes to hypertension in children. The research team concluded by suggesting that more research is needed on the dietary and environmental issues of dietary sodium and hypertension in children and adolescents.

(American Journal of Clinical Nutrition
65(Suppl.):618S–621S.) MCJ-420610

Body Fat and Water Changes During Pregnancy in Women with Different Body Weight and Weight Gain

Lederman et al. measured the fat deposited during pregnancy in women gaining weight according to the Institute of Medicine’s 1990 guidelines. The research team also examined the relationship of weight gain to fat gain in women of different pre-pregnancy weights (underweight, normal weight, overweight, or obese). The research team found that higher weight gain increased fat gain. Body water gain, however, was not different among the four pre-pregnancy weight groups. The research team concluded that adhering to the recommended guidelines should not result in obesity in any weight group. Underweight women would normalize their body composition if they gained as recommended, and obese women would have little or no change in body fat. However, the research team found that the majority of women do not gain as recommended by the guidelines during pregnancy; this finding has implications for health care professionals as they counsel women on dietary habits and behavior during pregnancy and the postpartum period. (*Obstetrics and Gynecology* 90(4, Part 1):483–488.) MCJ-360601

The Cumulative Effect of Neglect and Failure to Thrive on Cognitive Functioning

Mackner et al. used a cumulative risk model to determine the relationship between neglect, failure to thrive (FTT), and cognitive functioning in low-income children. The research team found that the cognitive performance of children who experienced both neglect and FTT was significantly below that of children who experienced neglect only, FTT only, or neither. The cognitive functioning of children with one risk factor was not significantly lower than that of children with neither risk factor. These findings highlight the need for thorough evaluation of risk factors in children, since the accumulation of risk factors is particularly detrimental to cognitive functioning. (*Child Abuse & Neglect* 21(7):691–700.) MCJ-240621

Determinants of Behavior in Homeless and Low-Income Housed Preschool Children

Bassuk et al. studied the family and environmental determinants of behavior in low-income housed and homeless preschool children. Approximately equal numbers of children from both groups scored in the clinical range on the Child Behavior Checklist. Differences in adverse behaviors were minimal between the two

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ARTICLES PUBLISHED BY GRANTEES

groups, although homeless children were more likely to have experienced stressful life events or to have been placed in foster care than were the low-income housed group of children. When the study analysis controlled for housing status, the research team found that the child's age, child's history of physical abuse, parenting practices, and specific life stressors predicted externalizing behavior outcomes. (*Pediatrics* 100(1):92–100.) MCJ-250809

Erythrocyte Incorporation of Iron Is Similar in Infants Fed Formulas Fortified with 12 mg/L or 8 mg/L of Iron

Fomon et al. studied whether iron absorption in infants fed formulas fortified with an iron concentration of 12 mg/L is greater than that in infants fed formula with an iron concentration of 8 mg/L. Previous research has indicated that high intakes of iron may adversely affect absorption of zinc and copper, yet few research studies have explored whether iron fortification at a lower level will result in equivalent iron absorption without affecting zinc and copper absorption. The research team concluded that the difference between the quantity of iron incorporated into the erythrocytes of infants fed formulas with an iron concentration of 8 mg/L and that of infants fed formulas with 12 mg/L of iron was not statistically significant. This outcome led the research team to conclude that it may be reasonable to decrease the level of iron concentration of iron-fortified infant formulas. (*Journal of Nutrition* 127(1):83–88.) MCJ-190606

Hospital Infant Formula Discharge Packages

Dungy et al. used a randomized clinical trial to determine whether the content of hospital discharge packages had an effect on the duration of breastfeeding. Three different discharge packages were used: (1) a discharge package containing a manual breast pump only; (2) a discharge package containing commercially prepared infant formula and a manual breast pump; and (3) a discharge package containing commercially prepared formula only. The

research team found that the content of the discharge package did not affect the duration of breastfeeding, and the findings did not support the study hypothesis that including infant formula in the discharge packet decreases the duration of breastfeeding. (*Archives of Pediatric and Adolescent Medicine* 151:724–729.) MCJ-190624

A Longitudinal Study of Developmental Outcome of Infants with Bronchopulmonary Dysplasia and Very Low Birthweight

Singer et al. studied the developmental outcomes of very-low-birthweight infants with bronchopulmonary dysplasia (BPD) during the first three years of life. The research team found that in very low birthweight infants (weighing < 1,500 grams at birth), BPD predicts poorer motor outcomes at age three. Infants with BPD also had higher rates of mental retardation and associated higher neurological and social risk. These data indicate the important need for extensive preventive and rehabilitative efforts for an increasing number of low-birthweight survivors. (*Pediatrics* 100(6):987–993.) MCJ-390592

Results at Age 8 Years of Early Intervention for Low-Birthweight Premature Infants

McCarton et al. followed eight-year-old children who had previously participated in a randomized clinical trial of specialized services for low-birthweight infants during the first three years of life. The research team found that the intervention and follow-up only groups were similar on all primary outcome measures in the lighter low-birthweight group and the entire cohort. The study team found higher full-scale IQ scores, verbal IQ scores, performance IQ scores, mathematical achievement scores, and receptive vocabulary scores within the heavier low-birthweight group who had received the intervention. On the physical functioning subscale, the entire intervention group received less favorable ratings. These data indicate the need to develop

additional intervention strategies for low-birthweight infants to provide sustained benefits well into childhood. (*JAMA* 277(2):126–132.) MCJ-360593

Socioeconomic Variation in Discretionary and Mandatory Hospitalization of Infants: An Ecological Analysis

McConnochie et al. studied the geographic variation in the rates of infant hospitalization in Monroe County, NY. The research team found that the hospitalization rate for inner-city infants was higher than that for infants in the suburbs. Some of the difference in hospitalization rates could be attributed to mandatory admissions, reflecting higher rates of serious illness in the inner-city population. Differences in hospitalization rates for discretionary admissions also may be caused by higher rates of serious illness. However, the research team also theorized that the differences in hospitalization rates for discretionary admissions may reflect less effective health services. (*Pediatrics* 99(6):774–784.) MCJ-360571

Other articles published by research grantees include the following:

Bassuk EL, Buckner JC, Weinreb LF, Browne A, Bassuk S, Dawson R, Perloff JN. 1997. Homelessness in female-headed families: Childhood and adult risk and protective factors. *American Journal of Public Health* 87(2):241–248. MCJ-250809

Dalton MA, Sargent JD, O'Connor GT, Olmstead EM, Klein RZ. 1997. Calcium and phosphorus supplementation of iron-fortified infant formula: No effect on iron status of healthy full-term infants. *American Journal of Clinical Nutrition* 65:921–926. MCJ-330597

Drotar D. 1997. Relating parent and family functioning to the psychological adjustment of children with chronic health conditions: What have we learned? What do we need to know? *Journal of Pediatric Psychology* 22(2):149–165. MCJ-390611

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Articles Published by Grantees

Haas JS, McCormick MC. 1997. Hospital use and health status of women during the 5 years following the birth of a premature, low-birthweight infant. *American Journal of Public Health* 87(7):1151–1155. MCJ-360593

Kitzman H, Olds DL, Henderson CR, Hanks C, Cole R, Tatelbaum R, McConnochie KM, Sidora K, Luckey DW, Shaver D, Engelhardt K, James D, Barnard K. 1997. Effect of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing. *JAMA* 278(8):644–652. MCJ-360579 (See related article on home visiting and this research project.)

Mitchell WG, Lynn H, Bale JF, Maeder MA, Donfield SM, Garg B, Tilton AH, Willis JK, Bohan TP. 1997. Longitudinal neurological follow-up of a group of

HIV-seropositive and HIV-seronegative hemophiliacs: Results from the Hemophilia Growth and Development Study. *Pediatrics* 100(5):817–824. MCJ-060570

Patterson DL. 1997. Adolescent mothering: Child-grandmother attachment. *Journal of Nursing Research* 12(4):228–237. MCJ-530589

Porges SW. 1997. Emotion: An evolutionary by-product of the neural regulation of the autonomic nervous system. *Annals of the New York Academy of Sciences* 807:62–77. MCJ-240622

Porges SW, Doussard-Roosevelt JA, Portales AL, Greenspan SI. 1996. Infant regulation of the vagal “brake” predicts child behavior problems: A psychobiological model of social behavior. *Developmental Psychobiology* 29(8):697–712. MCJ-240622

Riniolo T, Porges SW. 1997. Inferential

and descriptive influences on measures of respiratory sinus arrhythmia: Sampling rate, R-wave trigger accuracy, and variance estimates. *Psychophysiology* 34:613–621. MCJ-240622

Smith JR, Brooks-Gunn J. 1997. Correlates and consequences of harsh discipline for young children. *Archives of Pediatrics and Adolescent Medicine* 151:777–786. MCJ-060515

Stehbens JA, Loveland KA, Bordeaux JD, Contant C, Schiller M, Scott A, Moylan PM, Maeder M. 1997. A collaborative model for research: Neurodevelopmental effects of HIV-1 in children and adolescents with hemophilia as an example. *Children's Health Care* 26(2):115–135. MCJ-060570

Watterberg KL, Scott SM. 1997. Lower serum cortisol correlates with increased protein leak and evidence of inflammation in tracheal lavage fluid in very low birthweight (VLBW) infants. *Pediatrics* 100(3, Part 2):495. MCJ-420627

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INTERVIEWS WITH MATERNAL AND CHILD HEALTH BUREAU RESEARCH GRANTS REVIEW COMMITTEE MEMBERS

al preventive medicine. For many years, I served as a consultant to the Rhode Island Department of Health, where I was involved in research and program planning.

Currently, I am an associate professor of obstetrics, gynecology, and reproductive biology at Harvard Medical School and an associate professor of maternal and child health at the Harvard School of Public Health. I am also director of the Center for Perinatal Research in the Department of Obstetrics and Gynecology at Brigham and Women's Hospital in Boston.

Dr. Mather: It sounds a little weird, but I have an undergraduate degree in mining engineering! I received a masters degree in math statistics from the University of Michigan and a Ph.D. in biostatistics from Tulane University. Most of my work

and previous research have focused on public health, family planning, maternal and child health, cystic fibrosis/pulmonary diseases in children, and prognostic factors in cancer studies. I have been a collaborator with other investigators in the areas of epidemiologic study designs and statistical analysis. Most recently, I have been involved in the local evaluation of the Healthy Start project. I also teach courses in clinical trials, survival analysis, and database management at the School of Public Health and Tropical Medicine at Tulane University.

Dr. Terry: My background is in quantitative psychology and psychometrics. I received my Ph.D. from the University of North Carolina at Chapel Hill in 1989. My training there took place at the L. L. Thirstone Psychometric Laboratory. My dissertation advisor was Mark Appelbaum,

who is known for his work in applying statistical models to problems in analyzing developmental data.

While at UNC–Chapel Hill, I was also fortunate to pursue biostatistics as an area of concentration. This required 18 hours of course work, as well as having one of the biostatisticians serve on my dissertation committee.

I next did a two-year postdoctoral at Duke, which extended into a five-year appointment as a research professor. There, I worked mainly with John Coie, who conducts research on the prevention of mental health problems in youth. This experience gave me the opportunity to look at methodological problems that often arise when working with high-risk populations and the kinds of statistical and methodological innovations that were useful in helping attenuate some of these problems.

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RESEARCH ROUNDTABLE PRESENTATIONS DISSEMINATE THE RESULTS OF FUNDED PROJECTS

The purpose of the Research Roundtable Series is to disseminate the results of MCHB-funded research to policymakers, researchers, and practitioners in the public and private sectors. The Research Roundtables provide an opportunity for researchers to discuss their findings with MCH professionals and others interested in the field.

Two Research Roundtable presentations were held this fall. Summaries of these two presentations follow, together with a 1998 schedule of presentations for 1998.

Research Roundtable #17

Evaluation of the Guidelines for Maternal Transport

September 23, 1997

Presenter: Donna Strobino, Ph.D., Professor, Department of Maternal and Child Health, The Johns Hopkins University

Reactor: Pierre Buekens, M.D., Ph.D., Professor and Chair, Department of Maternal and Child Health, University of North Carolina at Chapel Hill

The purpose of this study was to evaluate the guidelines for transporting high-risk mothers from community hospitals to perinatal centers. The project evaluated the extent to which the guidelines were followed, and whether outcomes improved for the mother and her newborn when the guidelines were followed.

This study used a nonconcurrent prospective epidemiologic design. The population-based sample included transported and nontransported mothers and their newborns from level I and level II Southern New Jersey Perinatal Cooperative hospitals in 1984 and part of 1985. The study focused on both the process and outcome of transport.

In general, the study findings support the hypotheses that the predictors of transport conform to the guidelines for transport and that differences in transport rates between hospitals are greatest for women with severe complications. The

findings suggest that the availability of immediate intensive postpartum care can improve the outcomes of both mother and newborn. The findings also support the continued need to utilize the resources of tertiary centers in an area.

The findings that may have the most important policy implications address the selective retention of private patients at level I and level II hospitals. There may be a need to repeat this population-based study in a more contemporary population since issues of managed care and selective retention of patients have become more pertinent today than in 1984–85.

Research Roundtable #18

Infant Temperament: Stability and Change in Rural Appalachia

November 5, 1997

Presenter: Margaret Fish, Ph.D., Clinical Associate Professor, Department of Family and Community Health, Marshall University School of Medicine

Reactor: Keith Crnic, Ph.D., Professor, Department of Psychology, Pennsylvania State University

This investigation sought to identify infant and family characteristics and interactional processes associated with stability and change in temperament in a group of economically disadvantaged rural Appalachian infants. Infant temperament and individual differences in the caregiving environment were then related to infant attachment security and verbal communications skills early in the child's second year.

This longitudinal, multimethod investigation began with prenatal assessments of mothers and neonatal assessments of infants, and included interviews, questionnaires, and a variety of videotaped behavioral observations. Subjects were women receiving prenatal care at the Lincoln Primary Care Center in Hamlin, WV, from May 1992 to December 1993.

The study was successful in identifying infant, maternal, and caregiving environ-

ment factors that significantly distinguished between infants of stable and changing temperament, secure and insecure attachment relationships, and high and low verbal communication skills. The results suggest that some degree of prediction of temperamental trajectories is possible, and identify potential protective and risk factors in a low socioeconomic-status population.

Analysis of groups of infants identified as high or low on a temperament dimension indicated that both maternal and infant characteristics contributed to prediction of future temperament. There were four general findings: (1) social support of the mother is associated with decreasing infant negative emotionality and stable high positive and social behavior in this population; (2) both an increase in infant negative emotionality and stable high negative emotionality were more likely in families receiving public assistance; (3) maternal experience, as indexed by parity, was a predictor only for infants who were more negative early in life; and (4) perinatal risk was consistently higher in infants who subsequently changed in temperament.

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I am now at the University of Oklahoma in the Department of Psychology. I am a member of our quantitative psychology area, in which we continue to work on solutions to applied research problems.

How has your work on the review committee evolved/changed over time?

Dr. Lieberman: I have been a member of the review committee for just over a year. Being a member of this multidisciplinary group has given me the opportunity to gain further knowledge and appreciation of the diversity of approaches that contribute to our understanding of maternal and child health.

Dr. Mather: In the beginning, I was primarily reviewing study designs and statistical methods. With time, I have become more familiar with the standards in the different disciplines and am better able to evaluate the content of the application.

Dr. Terry: I am not sure my work on the review committee has changed in any significant way. I find the members of the research committee a pleasure to work with and think that we have much expertise to offer in helping researchers try to make their studies as sound as possible.

Whereas my areas of expertise are in methodology, statistics, and psychology, I

have found it very interesting and enlightening to hear from others regarding their views on what constitutes a strong research design. I only hope that some of the training and views that I bring to the committee will inform the other members as much as they have informed me.

What are the greatest challenges as a member of the review committee, in your opinion?

Dr. Lieberman: I believe that the greatest challenge facing me as a reviewer is being certain that I understand the research proposed from the perspective of the investigator submitting the grant. The more completely I appreciate what the investigator is trying to accomplish, the more objectively I can evaluate the research and the more constructively I can comment.

Dr. Mather: To read carefully and to make that extra effort in order to present the proposal in the best possible light are challenges. The proposal must also be presented carefully to the committee, and the reviewer must be able to respond to questions from the committee. It can also be challenging to write coherent critiques that are helpful, not hurtful, and to refrain from rewriting someone else's work.

Dr. Terry: Because of the heterogeneous nature of the applications that we review, I would have to say that it becomes a great challenge to review applications that address areas beyond my sphere of expertise. Even though at least one other reviewer will be an expert in the content area being addressed, sometimes understanding the discipline-specific literature and the principles underlying a particular field can be awfully difficult. In these situations, I usually apply a set of methodological and statistical principles to the problems being assessed under a set of assumptions supplied by the investigators submitting the application. If those assumptions are questionable, usually another committee member will pick this up in the discussions and we can work as a group toward some sense of common understanding.

What advice would you give to researchers submitting applications for the first time? To researchers resubmitting previously disapproved applications?

Dr. Lieberman: In the first submission, I would urge investigators to explain their work as clearly and simply as possible. It is important to keep in mind that the individual reviewing the proposal, though experienced in research, is unlikely to work in the very specific area addressed by the proposal. Also, the goals of the proposal should be very specific and achievable within the proposed timeframe and budget. An application that proposes too much for too little is viewed as unrealistic, not a bargain. In addition, the investigator should address the limitations as well as the strengths of the proposal. The reviewers are likely to be aware of such limitations, and it is important for reviewers to know that they have been considered by the investigator. Finally, prepare the proposals in a way that is "reviewer friendly." Keep in mind that each proposal is one of many that the reviewer must read. Follow type size guidelines, make the flow easy to follow by use of devices such as subheadings, and avoid overcrowded pages.

For resubmission, I would recommend that the investigators directly respond to all comments made by reviewers even if they disagree or believe that the reviewers

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MATERNAL AND CHILD HEALTH JOURNAL

The new quarterly *Maternal and Child Health Journal* has begun production. This peer-reviewed publication aims to provide a forum to advance the scientific and professional knowledge base in the field of MCH.

For submission information, contact: Milton Kotelchuck, Ph.D., Editor, *Maternal and Child Health Journal*, University of North Carolina, School of Public Health, Chapel Hill, NC 27599-7400; phone (919) 966-5981; fax (919) 966-0458. Dr. Kotelchuck can also be reached via e-mail at mkotelchuck@sophia.unc.edu.

Subscription information can be obtained by contacting Journals Customer Service, Plenum Publishing Corporation, 233 Spring Street, New York, NY 10013; phone (212) 620-8470 or (800) 221-9369.

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have “missed the boat.” The materials should be organized in such a way that the response to each issue can be easily determined. Responding does not necessarily mean making all of the requested changes, especially if the researcher believes that doing so will compromise the study. If no change is made, the reasons why should be clearly explained. In addition, if the investigator does not understand any of the comments, he/she should obtain clarification from the MCHB Research Program staff.

Dr. Mather: For first-time submissions, have good ideas and build upon the work of others. Applicants should spend plenty of time on the literature review and rationale; they need to convince me as a reviewer that this is a good idea. Applicants must define the problem. Using the best methodologies available, applicants should show how they are going to answer the research questions/problems outlined earlier in the proposal. How does the methodology being proposed help to ensure that the appropriate questions are answered? Critiques are often built upon the gap between the answers and the methodologies being proposed to provide these answers.

For second submissions, respond to the questions the committee has proposed. Do this up front, one comment after another—after you have stopped being angry or disappointed at not receiving initial funding! Providing rationale for the new methods being proposed/changes to the proposal, etc., are critical. In the body of the proposal, bold any new material and set it off from the original text; then the reviewer can find what the applicant has done to address these questions. These approaches make for happy reviewers. They know what the issues were from their last review, and they can see how the applicant has approached problem areas. Reviewers will be able to check and see whether the proposal covers the issue appropriately and in enough detail.

Dr. Terry: Applicants submitting proposals to this committee should keep in mind that because of our varied back-

grounds, some issues or questions might be raised that perhaps would have gone unnoticed among researchers in their particular specialty field. The strength in this heterogeneity is that it makes those submissions that ultimately get funded virtual paragons of study design, efficiency, and methodological rigor—which makes for much better research in general.

Yet it might be frustrating to the researcher who is already known for strong methodological rigor. What is important to keep in mind is that to meet the extremely high standards of the review committee is to have met the expectations of researchers with different perspectives on what constitutes a strong design.

In what ways can methodological issues weaken or strengthen a proposal?

Dr. Lieberman: Methodological issues can greatly strengthen or weaken a proposal since even the most important question will not be answered if the study is not carefully designed or the data are not correctly analyzed. In examining a proposal, I look for evidence that investigators have considered the feasibility and potential pitfalls of their study design and possible biases that the design may introduce. With regard to data analysis, I evaluate the appropriateness of the method of analysis, whether there is adequate consideration of potential confounding, and whether the study has adequate power to address the study question. It is best to use the simplest design and analytic methods that will answer a particular question, not the most complex.

Dr. Mather: Failure to follow up the research question with solid methods will surely weaken the proposal. Threats to validity, use of inappropriate tests and instruments, and bias in the selection process are also threats. A thorough discussion of the variables to be measured and a discussion of the suitability of these measures are essential. On the other hand, excellent methods will not save a proposal if the sample size is not available. If the investigators have not been forthcoming in their estimates to ensure that they will

reach that sample size, serious methodological weaknesses will threaten the study. Buddha’s Eightfold Path of Biostatistics says:

- Right Research Question
- Right Conceptual Model
- Right Variables
- Right Study Design
- Right Sample Size
- Right Data Collection
- Right Follow-Up
- Right Analysis

Dr. Terry: A proposal in which the methodology and statistical analysis plan are well-suited to the proposed research is obviously a big plus. The fundamental issue is how to do this!

Frequently, applications submitted to the review committee are characterized by a proposed methodology and plan for analysis that exceed the realities that exist within the proposed plan of study. For example, a researcher may propose to test a rather complicated structural equation model (SEM) with a sample size that is too small to legitimately consider SEM. Yet other small-sample analyses might be perfectly appropriate for the study. The biggest single thing researchers can do to strengthen a proposal is to ensure that they have assembled a research team that is strong with respect to methodology and statistics and that the methodologists and statisticians have worked closely with the PI in terms of a seamless integration of both the substantive and methodological aspects of the grant proposal.

Applicants should remember that there are numerous aspects to methodology, ranging from design to sampling to measurement to statistical analysis. Falling down on any of these aspects will weaken a proposal that is otherwise strong.

Finally, it is important to recognize that no research proposal is perfect and that some limitations will apply. The important point to remember is to justify your decisions and tradeoffs.

Are there any topical areas, subjects, or populations for which you would like to see more applications?

Dr. Lieberman: Not really. The Maternal and Child Health Bureau already

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Fourteen New Projects Funded

Principal Investigator: Cheryl Mattingly, Ph.D., Associate Professor, Department of Occupational Therapy, University of Southern California, 1540 Alcazar, CHP-133, Los Angeles, CA 90033. Phone: (213) 342-2820; fax: (213) 342-1540.

Alternatives for Developmental Screening in Primary Care, a three-year randomized clinical trial to be conducted by the Medical and Health Research Association of New York City, Inc., a service and research arm of the New York City Department of Health, will examine the relative effectiveness of three different approaches to the periodic screening of at-risk children: (1) Denver Developmental Screening Test (Denver II) screening, traditionally administered by a provider; (2) Ages & Stages Questionnaire (ASQ), administered by mail; and (3) ASQ plus monthly parenting newsletter and toys, by mail. Families with at-risk children ages 3–18 months attending a pediatric primary care center in New York City and eligible for I-CHAP (New York's P.L. 99-57 Part H Child Find Program) will be offered enrollment in the study by their pediatrician. Those who accept will be randomized to one of the three groups. The study will examine follow-up rates, the rate of positive screenings, and the rate that at-risk children remain engaged in care for the three groups. The degree to which income, maternal education, risk status, and other factors predict outcomes within the three groups will also be analyzed.

Principal Investigator: Harris Huberman, M.D., I-CHAP Medical Director, Medical and Health Research Association of New York City, Inc., 40 Worth Street, Room 728, New York, NY 10013. Phone: (212) 766-2535; fax: (212) 766-2542.

Psychosocial Sequelae of Bronchopulmonary Dysplasia and Very Low Birthweight, a four-year study at Case Western Reserve University School of Medicine, plans to investigate the school-age outcomes associated with bronchopulmonary dysplasia (BPD), a chronic pul-

monary disease associated with prematurity. The study will focus particularly on the influence of BPD on pulmonary, cognitive, language, neuropsychological, and behavioral outcomes at 7.5 years of age, as well as its relationship to other medical, neurologic, and sociodemographic risks factors. The study will use a cohort of 302 children (110 with BPD, 80 very-low-birthweight [VLBW] children without BPD, and 112 healthy, term children). All of these children have been prospectively followed longitudinally from birth to three years of age through two separate studies funded by the Maternal and Child Health Bureau and the National Institute of Mental Health. Prior studies of this cohort to three years indicated that children with a history of BPD had higher rates of mental/motor retardation and performed significantly less well than VLBW children without BPD in both cognitive and motor outcomes. Motor outcomes were uniquely deficient for BPD children at three years; VLBW children without BPD and term infants performed equally well. Poorer child outcomes were related to higher levels of depressive symptoms in mothers and to less optimal maternal-child interactions in the first year of life, in addition to medical risk variables.

Principal Investigator: Lynn Twarog Singer, Ph.D., Professor, School of Medicine, Case Western Reserve University, Rainbow Babies and Children's Hospital, 11100 Euclid Avenue, Cleveland, OH 44106. Phone: (216) 844-6212; fax: (216) 844-6233.

Interparental Conflict and Adolescent Violence, a study to be conducted by the School of Medicine, University of California at San Francisco, requests 3.75 years of additional funding to continue a currently funded project investigating the association between marital conflict and adolescent risk behaviors. The research is using a cognitive/emotional theoretical model to examine how parental conflict influences adolescent peer violence, dating violence, and sexual aggression. Both violent behavior and victimization among adolescents will be studied. The theoretical model will be tested separately in 129 European-American and 129 Mexican-American families. Hypotheses for Mexi-

can-American families include cultural values relevant to family processes and violence. The results of this study are expected to have immediate use in the development of primary and secondary prevention programs for parents and adolescents and the development of prevention programs tailored to the needs of Mexican-American families.

Principal Investigator: Jeanne Marie Tschann, Ph.D., Associate Professor, School of Medicine, CSBS-204, Box 0844, University of California at San Francisco, San Francisco, CA 94143-0844. Phone: (415) 476-7761; fax: (415) 476-7744.

Factors Associated with Nutritional Intake in Adolescents, a three-year study at the University of Minnesota, seeks to identify socioenvironmental, personal, and behavioral factors associated with nutritional intake and weight status among adolescents, as outlined in the *Healthy People 2000* Objectives for Nutrition Health Status and Risk Reduction. Findings are expected to lead to the development of more effective interventions aimed at improved eating behaviors in youth. The study will include three separate but integrated components: (1) focus groups with 150 adolescents; (2) survey completion and anthropometric assessments of 5,500 adolescents in 7th and 10th grade; and (3) parental telephone interviews with 900 parents of the adolescent respondents.

Principal Investigator: Dianne Ruth Neumark-Sztainer, Ph.D., Assistant Professor, Division of Epidemiology, School of Public Health, University of Minnesota, 1300 South Second Street, Suite 300, Minneapolis, MN 55454-1015. Phone: (612) 624-0880; fax: (612) 624-0315; e-mail: epivax.epi.umn.edu.

Maternal Birthweight and Reproductive Outcomes, a one-year extension of an ongoing MCHB-funded project, is investigating the relationship between (1) mother's birthweight and other maternal factors and (2) future maternal complications of pregnancy, labor, and delivery, as well as infant low birthweight and various

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receives applications on a wide array of topics addressing a range of high priority issues.

Dr. Mather: Prematurity of African-American women.

Dr. Terry: As a psychometrician, my main interests have been in the role of individual differences in the elicitation and maintenance of behavior. Yet, it is

also becoming increasingly clear that contextual influences play a major role in behavior as well. Proposals designed to integrate the influences of both sociocultural markers (e.g., racism, poverty, culture) with individual characteristics (resiliency, academic functioning, health-related behaviors) seem much more likely to enable us to design programs that have a greater probability of success.

What we see now typically are proposals

that excel in one realm, yet fall short in the other. A well-integrated proposal would seem to have all the benefits of both approaches with very little added cost.

Given my area of interest, I would love to see more applications that focus on the measurement of important constructs (e.g., racism, health care utilization) and the problems of the early adolescent population.

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newborn morbidities. The investigators plan to extend the ongoing study by linking their multisource database to the Washington State drivers license data tapes. This would permit a three-generational study of pregnancy outcome and the determination of the comparative contribution of maternal and paternal height and birthweight to infant birthweight. The diverse racial/ethnic composition of the study populations will allow for group-specific analyses based on socioeconomic status, race, and ethnicity, and will likely elucidate the factors responsible for known racial and ethnic differentials in birthweight.

Principal Investigator: Irvin Emanuel, M.D., Professor, Department of Epidemi-

ology, University of Washington, Box 357236, Seattle, WA 98195-7236. Phone: (206) 543-8827; fax: (206) 616-8370; e-mail: emanuel1@u.washington.edu.

Effects on Breastfeeding of Pacifiers and Bottle Feeding, a competing extension of an ongoing randomized clinical trial supported by MCHB, seeks to evaluate the effects of artificial nipple exposure in breastfed infants on the incidence of breastfeeding complications and breastfeeding duration. Based on preliminary findings from a companion antenatal formula study also funded by MCHB, the investigators believe that study subjects will need longer follow-up than originally planned. The long period is expected to ensure that assessment of the duration of

breastfeeding will be completely ascertained, allowing a more complete analysis of overall duration and the factors that influence it. In addition, more complete information will be collected on the relationship of pacifier use to otitis media and on the effect of feeding choice on maternal employment and other outcomes.

Principal Investigator: Cynthia R. Howard, M.D., Assistant Professor, Rochester General Hospital, Box 238, 1425 Portland Avenue, Rochester, NY 14621. Phone: (716) 336-3926; fax: (716) 336-3929; e-mail: choward@rgh-net.edu.

Gontran Lamberty, Dr.P.H.
Maternal and Child Health Bureau

Schedule of 1998 Research Roundtable Presentations

Free- β and hCG in Screening for Down Syndrome

January 28, 1998
George Knight, Ph.D.
Foundation for Blood Research

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Infants after Divorce: Overnight Visitation and Family Relationships

[date to be announced]
Judith Solomon, Ph.D.
Center for the Family in Transition

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Impact of Maternal Lead Stores on Fetal Lead Exposure

[date to be announced]
Morri Markowitz, M.D.
Montefiore Medical Center

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If you would like to receive announcements about the Research Roundtable presentations, please contact Beth Preston at the National Center for Education in Maternal and Child Health, (703) 524-7802.

Jolene Bertness
Beth Preston
Michelle Keyes-Welch, M.H.S.A.
National Center for Education in Maternal and Child Health

COMING SOON: NEW RESEARCH PUBLICATIONS

Maternal and Child Health Research Program: Completed Projects 1994–96 will be available this spring. This publication features abstracts of the projects that submitted final reports in 1994–96 as well as a description of the publications, presentations, and abstracts generated by each project.

A companion volume, *Maternal and Child Health Research Program: Active Projects FY 1996 and FY 1997*, will be available later this year. This book contains summaries of research projects funded in FY 1996–97 as well as a pre-award evaluation synopsis of each project newly approved during those years.

These publications will be available at no charge. To order, please contact the National Maternal and Child Health Clearinghouse by phone: (703) 356-1964; fax: (703) 821-2098; or e-mail: www.circsol.com/mch.