

Completed Projects

1994-96

Maternal and Child Health **RESEARCH PROGRAM**

U.S. Department of Health & Human Services
Public Health Service



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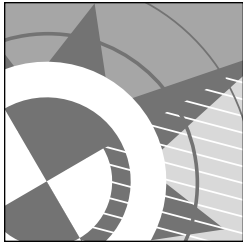


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Preface

Safeguarding and improving the health of mothers and children is a demanding national responsibility. It requires significant expenditures of funds, highly trained and dedicated professionals, private and State-supported professional schools to educate new practitioners and update seasoned clinicians, systems of vital statistics, and laboratory and hospital data to monitor morbidity and mortality when and where they happen. Above all, safeguarding and improving the health of mothers and children requires an expanding scientific knowledge base and the means for scientists and practitioners to draw upon this knowledge quickly and accurately.

Research is the mechanism that expands our scientific knowledge base. Our knowledge base is expanded when new knowledge is generated or existing scientific information is validated or rejected. These activities do not materialize overnight, and at the research project level, they often do not produce more than modest gains in knowledge.

Quality research requires more than the application of the scientific method to data collection and careful monitoring of research in the laboratory or the field. With few exceptions, it is essential that each research proposal be peer reviewed and assessed at the planning stage for originality, importance, and technical quality. Only research proposals that can pass this scrutiny should be approved and funded, since they involve a significant commitment of national resources. When completed, the research project should again meet the standards of peer review before the findings are published in professional journals—a prerequisite for acceptance by the scientific community.

After being accepted by the scientific community and incorporated into the knowledge base, research findings need to advance to the application stage. As with formulating and executing research, translating research findings into clinical application calls for careful planning, imaginative thinking, and hard work. Publishing findings in scientific journals does not automatically lead to clinical application. Sometimes, professional inertia may delay application of new findings; at other times, the potential for clinical application may not be fully realized. Not infrequently, an additional piece of knowledge may be needed in order to apply a body of findings to clinical settings. Often, research findings are not applied in health care delivery settings simply because prospective users are not aware of new findings—a problem addressed through this continuing series of MCH research publications.

About This Publication

This edition of completed research abstracts, the fifth in the series, is a companion volume to *Maternal and Child Health Research Program: Active Projects*. The volume of completed abstracts informs MCH practitioners and scientists of the availability of findings from the MCHB-supported research projects whose principal investigators submitted a final report to the Research Program during 1994–96.

The research projects in this book are listed according to grant number. The first two digits of the grant number represent the State where the grantee institution is located (e.g., MCJ-01 = Alabama). Thus, the projects are also arranged alphabetically by State.

This edition also features a project classification system to help readers understand the nature of each research project at a glance. Each study is classified according to the *Healthy People 2000* objectives addressed, study design, time design, care emphasis, population focus, and racial/ethnic focus (if applicable). The completed projects are also indexed by title and by research topic at the back of this book.

In addition, this volume contains a cumulative list of publications generated from all MCHB research projects that submitted a final report in 1992 or later. Principal investigators who submitted a final report in 1992 or 1993 were asked to provide an updated list of products relating to their grant.

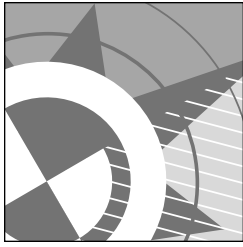
This publication also contains a section listing all final reports received by the Maternal and Child Health Bureau for completed research projects since 1980. The final reports of these projects are available through the National Technical Information Service (NTIS); price and ordering information is included at the end of the book. In addition to presenting substantive findings in great detail, these final reports include technical information on how the investigators approached their research projects. This should be instructive for both new and experienced investigators. Frequently, the final reports include extensive critical reviews of the pertinent literature and sometimes include reports of “no findings.” Reports of “no findings” are seldom published in peer-reviewed journals, yet they can be as important as positive findings in advancing our knowledge.

We believe this publication will promote increased knowledge as well as enlightened discussion of state-of-the-art research in the field of maternal and child health.

Gontran Lamberty, Dr.P.H.

Director, Maternal and Child Health Bureau Research Program

April 1998



Maternal and Child Health Bureau Completed Research Projects 1992–96 *Products and Project Highlights*

Introduction

Assessing the performance of health and medical care research at the project or program level can be approached in different ways. One approach involves comparing the cost of conducting the research to the benefits produced, measured by indicators such as number of lives saved, number of years of life added, amount and types of disabilities prevented, quality of life achieved, and health care dollars saved. A second approach is to determine the clinical importance of the findings produced and their direct and indirect contributions to the scientific knowledge base. This analysis can be made by expert panels or through criteria such as number of scientific awards received, spin-off investigations generated, articles and books published, formal citations received in refereed journals, and other measures. The method chosen depends on the goals for the assessment as well as on the amount and types of resources available. By analyzing the products of MCHB-supported research projects, this publication provides valuable information for assessing the performance of the Maternal and Child Health Bureau Research Program.

As part of its routine program monitoring activities, the MCHB Research Program asks principal investigators to report, for each research project completed, the number and types of products generated (e.g., presentations at professional meetings, articles published in peer-reviewed journals, books or chapters published, abstracts published, doctoral dissertations). The first reporting is part of the final report, a requirement for receiving Federal research grant awards. Since a period of 1–5 years is needed to fully analyze the data collected in an investigation, a special followup query takes place 5 years after the study's completion to capture any additional products. For peer-reviewed articles, the principal investigators are also asked to provide the titles and publication dates of the journals that published their articles. The review process includes locating a sample of the reported publications, then reading the articles to determine whether the content corresponds to the research questions on record for the project. Although imperfect, such indicators as the number and types of products generated and the types of journals that published the research findings provide valuable clues to the quantity and quality of the products generated by the MCHB Research Program.

Table 1 shows that the projects in the completed portfolio are producing many products. The products were generated by the MCHB completed research projects that submitted final reports during the past 5 years (34 projects whose abstracts are included in this publication, and 18 projects that submitted final reports in 1992–93). In total, these research projects generated 839 products. Of the products reported, 43.4 percent were presentations at professional meetings and conferences, 25.0 percent were articles published in peer-reviewed journals, and 17.6 percent represented abstracts. Notably, 210 articles on MCHB-supported research were published in peer-reviewed journals, averaging slightly more than 4 journal articles per project; 148 abstracts were published by the projects submitting final reports in the last 5 years, an average of 2.8 abstracts per project. The principal investigators delivered 364 presentations on their research, averaging 7 presentations per project. In addition, 16 books and reports and 51 book chapters were developed as a result of the MCHB-

TABLE 1

Type and Number of Products Generated by MCHB-Supported Research, Based on Final Reports and Followup Queries: 1992–96

Type of Products	1992	1993	1994	1995	1996	Total
Presentations	55	60	73	114	62	364
Peer-Reviewed Published Articles	43	32	49	53	33	210
Chapters in Books	7	10	—	23	11	51
Books/Reports	3	6	2	4	1	16
Abstracts	28	26	18	44	32	148
Dissertations	1	0	1	0	2	4
Other Products	32	3	3	6	2	46
Total No. Products	169	137	146	244	143	839
No. of Projects	12	6	9	19	6	52
Average No. of Products Per Project	14.1	22.8	16.2	12.8	23.8	16.1
Average No. of Peer-Reviewed Published Articles Per Project	3.6	5.3	5.4	2.8	5.5	4.0

funded research. Four dissertations and 46 other products such as newsletters and editorials were also produced. These data indicate that the products of MCHB-funded research are being disseminated in a variety of ways, including publication in peer-reviewed journals, indicating a high degree of scientific rigor and quality.

The types of journals in which MCHB research findings are published are also important. Table 2 depicts the number and percentage of articles published by type of journal. Of the 210 peer-reviewed articles included among the products in the last 5 years, 81 articles (38.6 percent of the peer-reviewed publications) appeared in medical journals. Of these 81 articles, 10 were published in general medical journals, 66 in pediatric medical journals, and 5 in obstetric/gynecologic journals. In addition, 51 articles were published in journals with a behavioral focus—24 in general behavioral journals and 27 in pediatric behavioral journals. The remaining 39 articles were published in basic, laboratory, and clinical sciences journals representing a broad spectrum of disciplines and focuses.

Table 3 shows that grantees published their results in highly acclaimed journals with rigorous peer-review procedures. The largest number of MCHB research articles (25) were published in the journal *Pediatrics*. The *Journal of Pediatrics* also published 13 articles by grantees.

TABLE 2		
<i>Number and Percentage Distribution of Peer-Reviewed Articles Generated by MCHB-Supported Research by Type of Journal, 1992-96</i>		
Type of Journal	No. of Articles	Percentage
Medical	81	38.6
General	10	4.8
Pediatrics	66	31.4
Obstetrics/Gynecology	5	2.4
Behavioral	51	24.3
General	24	11.4
Pediatrics	27	12.9
Epidemiology and Public Health	12	5.7
Nursing	5	2.4
Allied Health Professions	19	9.0
Basic, Laboratory, and Clinical Sciences	39	18.6
Other	3	1.4
TOTAL	210	100.0

TABLE 3

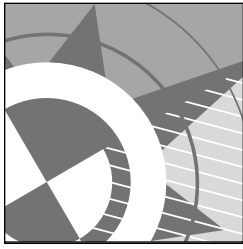
Articles Published from MCHB-Funded Research, by Title of Journal, 1992-96

Type	Title	No. of Articles	Type	Title	No. of Articles
MEDICAL			BEHAVIORAL		
<i>General</i>			<i>General</i>		
	Abstracts of Clinical Care Guidelines	1		Addiction	1
	Journal of the American Medical Association (JAMA)	6		Child, Youth, and Family Services Quarterly	2
	Journal of Controlled Clinical Trials	1		Criminal Justice and Behavior	1
	Lancet	1		Criminology	1
	Medical Decisionmaking	1		Family Perspectives	1
	TOTAL	10		Health Psychology	2
<i>Pediatrics</i>				Journal of Biosocial Science	1
	Acta Pediatric	1		Journal of Consulting and Clinical Psychology	1
	Adolescent Medicine	1		Journal of Marriage and the Family	3
	American Journal of Diseases of Children	2		Merrill-Palmer Quarterly	2
	American Journal of Pediatric Hematology/Oncology	2		Patient Education and Counseling	1
	Archives of Disease in Childhood	1		Psychology and Health	1
	Archives of Pediatrics and Adolescent Medicine	2		Research in the Sociology of Health Care	1
	Children's Health Care	1		Social Biology	1
	Clinical Pediatrics	1		Social Psychology Quarterly	1
	International Journal of Pediatrics Otolaryngology	1		Sociological Focus	1
	Journal of Adolescent Health	7		Sociological Forum	1
	Journal of Adolescent Health Care	1		Sociological Perspectives	1
	Journal of Adolescent Research	1		West Virginia Journal of Psychological Research and Practice	1
	Journal of Early Adolescence	1		TOTAL	24
	The Journal of Pediatrics	13	<i>Pediatrics</i>		
	Journal of Research on Adolescence	1		Child Development	4
	Pediatric Annals	1		Developmental Psychology	3
	Pediatric Clinics of North America	1		Infant Behavior and Development	1
	Pediatric Research	2		Infants and Young Children	1
	Pediatric	25		Journal of Applied Developmental Psychology	1
	Pediatrics-in-Review	1		Journal of Autism and Developmental Disability	1
	TOTAL	66		Journal of Clinical Child Psychology	2
<i>Obstetrics/Gynecology</i>				Journal of Developmental and Behavioral Pediatrics	2
	American Journal of Obstetrics and Gynecology	1		Journal of Early Intervention	1
	Clinics in Perinatology	1		Journal of Pediatric Psychology	5
	Obstetrics and Gynecology	3		Journal of the American Academy of Child and Adolescent Psychiatry	2
	TOTAL	5		School Psychology Review	1
				Topics in Early Childhood Special Education	1

TABLE 3

Articles Published from MCHB-Funded Research, by Title of Journal, 1992-96

Type	Title	No. of Articles	Type	Title	No. of Articles
BEHAVIORAL (cont'd)			BASIC, LABORATORY, AND CLINICAL SCIENCE (cont'd)		
<i>Pediatrics (cont'd)</i>			Annals of the New York Academy of Sciences		
	Young Children	1		of Sciences	1
	Zero-To-Three	1		Assessment in Rehabilitation and Exceptionality	1
	TOTAL	27		Clinical Anatomy	1
EPIDEMIOLOGY AND PUBLIC HEALTH				Contributions to Nephrology	1
	American Journal of Epidemiology	2		Council Perspectives	1
	American Journal of Public Health	4		Critical Care Medicine	4
	Environmental Health Perspectives	1		Diabetes Care	1
	Injury Prevention	1		Family Medicine	1
	Journal of Primary Prevention	1		Haemophilia	3
	Population Research and Policy Review	1		Health Physics	1
	Public Health Reports	2		Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology	2
	TOTAL	12		Journal of Clinical Endocrinology and Metabolism	1
NURSING				Journal of Clinical and Experimental Hypertension	1
	Journal of Nurse Mid-Wifery	1		Journal of Controlled Clinical Trials	1
	Journal of Pediatric Nursing	1		Journal of Gerontology	1
	Nursing Investigator	2		Journal of Human Lactation	1
	Pediatric Nursing	1		Journal of Inherited Metabolic Disease	1
	TOTAL	5		Journal of Inherited Metabolic Disorders	1
ALLIED HEALTH PROFESSIONS				Journal of Nervous and Mental Disease	1
	American Journal of Clinical Nutrition	3		Journal of the Association for Academic Minority Physicians	1
	American Journal of Speech-Language Pathology	3		Medical Physics	2
	Journal of Nutrition	1		Metabolism	1
	Journal of Nutrition Education	1		Neurotoxicology	1
	Journal of Speech and Hearing Research	4		Proceedings of the National Academy of Sciences	2
	Journal of the American Academy of Audiology	1		Proceedings of the New York Academy of Sciences	1
	Journal of the American College of Nutrition	1		Radiation Protection Dosimetry	2
	Journal of the American Dietetic Association	3		Radiology	1
	Seminars in Hearing	1		Science	1
	Topics in Language Disorders	1		TOTAL	39
	TOTAL	19	OTHER		
BASIC, LABORATORY, AND CLINICAL SCIENCE				International Migration Review	1
	American Journal of Hematology	1		Journal of Educational Computing Research	1
	Annals of Otolaryngology, Rhinology and Laryngology	1		Journal of Immigrant Health	1
				TOTAL	3



Selected Project Highlights

While all of the projects included in this publication provide important information about selected aspects of maternal and child health, six are of particular interest. Pollack's study on reducing pediatric intensive care mortality showed that risk-adjusted mortality is influenced by the hospital's teaching status and presence of a pediatric intensivist. This study also showed that the characteristics indicative of overall hospital quality may not be associated, or may be negatively associated, with quality of care in specialized care areas, including the pediatric intensive care unit.

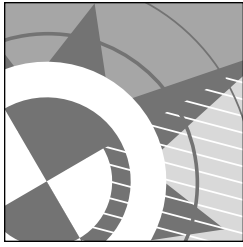
Murphy's study of an educational intervention for rural children with asthma showed that a structured self-management education program can help decrease asthma morbidity and health care utilization. The telephone followup intervention did not show any significant advantages compared with the educational program alone, offering valuable data for hospitals, communities, and States considering intervention programs in this area.

Lederman's study on body composition in pregnancy included sufficient numbers of subjects to be able to relate weight gain and fat gain to the outcome of pregnancy as reflected in birthweight. Lederman was also able to show that the recommended amounts of gain were not disadvantageous to her research subjects. This provides strong support for the current weight gain guidelines. This project also included data on African-American and Hispanic women; pregnancy weight gain data for these racial/ethnic groups has been scarce.

Roberts determined that there was a direct association between otitis media with effusion and associated hearing loss and measures of children's language and cognition at 1 and 2 years of age. However, these relationships were no longer significant when the quality of home and child care environments were taken into account. Further analyses examined how other factors, including the quality of child care and the level of stimulation within the home environment, influenced children's cognitive and language development during early childhood.

Watterberg's study of early cortisol deficiency and bronchopulmonary dysplasia strongly supported the hypothesis that decreased cortisol effect during the first week of life is causally linked with adverse respiratory outcome. This study provides a theoretical basis to support a clinical trial to evaluate the effectiveness of low-dose replacement therapy.

Fish was successful in identifying infant, mother, and caregiving environment factors that significantly discriminated between infants of stable and changing temperament, secure and insecure attachment relationships, and high and low verbal communication skills. This study also provides valuable information about parent-child interaction in an understudied population: Appalachian families of low socioeconomic status.



Project Classification Guide

Each project in this book is classified according to the *Healthy People 2000* objectives addressed, study design, time design, care emphasis, population focus, and racial/ethnic focus (if applicable). These categories are described below.

Healthy People 2000 Objectives

This category lists the *Healthy People 2000* objective(s) addressed by each project. The number of the objective(s) is listed for each abstract and a complete listing of the objectives corresponding to these numbers is provided in the appendices of this book. An asterisk (*) next to the number indicates duplicate objectives that appear in two or more priority areas.

Study Design

The study designs are divided into three subcategories: (1) Experimental, which includes randomized clinical control trials; (2) quasi-experimental, which includes case/matched control, case/unmatched control, case/historical control, and interrupted time-series studies; and (3) observational, which includes studies that are purely descriptive or that seek to elucidate cause-and-effect associations without the investigator controlling the situations under which these associations unfold or take place.

Time Design

This category includes three components: (1) Cross-sectional, (2) longitudinal, and (3) mixed. Cross-sectional studies describe or examine cause-and-effect relationships through measurements taken at one point in time. Longitudinal studies seek to ascertain through serial measurements how cause-and-effect associations change or do not change over time. Mixed studies include both longitudinal and cross-sectional components.

Care Emphasis

This category distinguishes between interventional and noninterventional studies. In interventional studies, the investigator, through a particular effort, treatment, or program, seeks to purposely influence the outcome(s) in an individual or a

group. In noninterventional studies, the investigator merely observes, measures, and describes a situation without purposely manipulating or seeking to alter in any way the ensuing outcomes.

Population Focus

This category describes the investigation's primary population group in terms of age, sex, family role, pregnancy status, or other dimensions or characteristics. Within these stated dimensions, particular subgroups (e.g., neonates, preschool children, pregnant women) have specific relevance to maternal and child health program issues and concerns.

Racial/Ethnic Focus

This category classifies projects according to whether they describe or elucidate issues related to racial and/or ethnic status by using either a within-group or between-group study format. Studies that do not meet this definition are classified as having no racial/ethnic focus.