

Active Projects

FY 1996
AND
FY 1997

Maternal and Child Health RESEARCH PROGRAM

Maternal and Child Health **RESEARCH PROGRAM**

Active Projects FY 1996 and FY 1997



Supported by

Maternal and Child Health Bureau
Health Resources and Services Administration
U.S. Department of Health and Human Services

Published by

National Center for Education in Maternal and Child Health
Arlington, Virginia

Cite as

National Center for Education in Maternal and Child Health. 1998. *Maternal and Child Health Research Program: Active Projects FY 1996 and FY 1997*. Arlington, VA: National Center for Education in Maternal and Child Health.

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Library of Congress Catalog Card Number 98-68259
ISBN 1-57285-054-X

Published by:

National Center for Education in Maternal and Child Health
2000 15th Street, North, Suite 701
Arlington, VA 22201-2617
(703) 524-7802
(703) 524-9335 fax
Internet: info@ncemch.org
World Wide Web: www.ncemch.org

Single copies of this publication are available at no cost from:

National Maternal and Child Health Clearinghouse
2070 Chain Bridge Road, Suite 450
Vienna, VA 22182-2536
(703) 356-1964
(703) 821-2098 fax

This publication has been produced by the National Center for Education in Maternal and Child Health under its cooperative agreement (MCU-119301) with the Maternal and Child Health Bureau, Health Resources and Services Administration, U.S. Department of Health and Human Services.

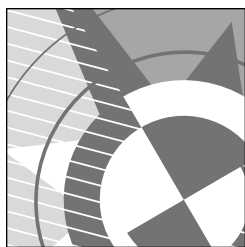


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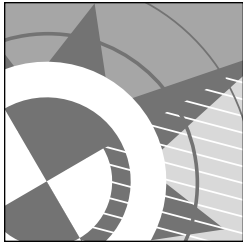
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Preface

This publication presents information for each of the 51 research projects active under the support of the Maternal and Child Bureau (MCHB) Research Program in FY 1996 and FY 1997. The information is presented in summary form similar to that used for a companion publication reporting on research completed in 1994–1996. The variety of research topics and the diversity of research traditions represented by these projects mirror the broad mandate of the MCHB Research Program as well as the multidisciplinary approaches historically used by MCHB to carry out its mission. An underlying characteristic of the projects, as a group, is the applied nature of the research. This is consistent with the mandate authorized in an amendment to Title V of the Social Security Act, which established the MCHB Research Program in the early 1960s.

This publication is broadly divided into two sections—new and continuation projects. Within each of these sections, projects are ordered according to grant number. The first two digits of the grant number represent the State where the grantee institution is located (i.e., MCJ-01 = Alabama). Thus, new and continuation projects are also arranged alphabetically according to State.

This edition also features a classification system for quick identification of abstracts. Each study is classified according to the *Healthy People 2000* objectives addressed, study design, time design, care emphasis, population focus, and racial/ethnic focus. The projects are indexed by title and by subject at the back of this publication.

Except for the information in the pre-award evaluations (new projects only), the content of the abstracts in the two sections is similar. The specific items in the summaries represent requests and suggestions from users of this information, both within and outside the Federal Government. Many of the intended users are concerned with the production of discipline-specific knowledge and with the overall technical aspects of conducting research and interpreting research findings; thus, the publication presents detailed descriptions of the research plan, particularly as it refers to the research study design, measurement approaches, sample size, and data analysis plan.

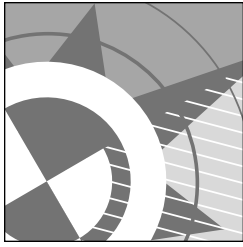
The information in the pre-award evaluation contains a synthesis of the written comments of the assigned reviewers as well as notes taken during the discussion that precedes the collective recommendation of the MCHB Research Grants Review Committee. This information is made available for several reasons. First, it attests to the significance of the research questions and the technical quality of the research plan, as judged by a panel of peers who are guided by a set of procedures designed

to minimize bias and promote fairness and objectivity during the review process. Second, the pre-award evaluation indicates the strengths as well as the weaknesses of the proposal. This approach gives a more balanced view of the nature of funded research and emphasizes that, for the most part, it is less than perfect. Third, the pre-award information also attests to the contribution of the peer review process in improving the research that is ultimately funded. While the reviewers' recommendations for improvement are not binding on the investigators (unless issued as conditions of the awards), the recommendations are usually adopted before the research is begun. Fourth, the pre-award evaluation is instructive for those who practice or plan to practice the research crafts, particularly for graduate students and new doctoral-level professionals seeking to establish themselves in an extremely competitive field.

Gontran Lamberty, Dr.P.H.

Director, Maternal and Child Health Bureau Research Program

October 1998



An Analysis of Selected Performance Indicators for the Maternal and Child Health Bureau Research Program: FY 1996 and FY 1997

I. Introduction

Supporting an applied research program is one of the many ways that MCHB meets its national responsibility to promote and improve the health of all mothers, children, and families. The MCHB Research Program, which has supported researchers since 1964, is administered by the Division of Systems, Education and Analysis, MCHB, Health Resources and Services Administration (HRSA). HRSA is an agency of the Public Health Service, which is part of the U.S. Department of Health and Human Services (DHHS).

The research supported by MCHB Research Program has traditionally been guided by a research agenda developed by a consensus of national experts. The research agenda, which was updated at a conference held in 1994, was first published as chapter 3 in the *Proceedings of the Fourth National Title V Maternal and Child Health Research Priorities Conference* (1996).¹ The research agenda, along with a subject index, is also part of the guidance materials sent to perspective applicants to the program. The guidance materials can also be accessed via the World Wide Web at www.os.dhhs.gov/hrsa/mchb. Since many of the investigators included in this publication had already begun or were just beginning their projects when the new research priorities agenda was released, a discussion of how these projects address the research priorities identified and published in 1996 will not be included in this publication. Future editions of this publication will contain a discussion of the research priorities being addressed by each of the projects.

Research projects are selected for support by the MCHB Research Program through the use of a peer review system similar to but independent of the National Institutes of Health (NIH) review system. This review group, or study section, called the Maternal and Child Health Bureau Research Grants Review Committee, is composed of non-government experts appointed by the Secretary of DHHS, plus an ex officio member from the National Institute of Child Health and Human Development (NICHD). The committee members are nationally recognized research scientists who are also experienced and knowledgeable in maternal and child health programs. Members are

¹For a copy of the *Proceedings*, contact the National Maternal and Child Health Clearinghouse, (703) 356-1964.

selected from the fields of biostatistics, developmental psychology, epidemiology, medical anthropology, nursing, nutrition, child development, obstetrics, pediatrics, sociology, social work, and public health. Special and collateral reviewers are sometimes used to supplement the Review Committee's expertise, when required by the volume and/or content of the applications received.

II. Applications Reviewed and Approved

A total of 201 applications were reviewed by the Research Program during the FY 1996 and FY 1997 review cycles. Fifty-seven (28.4 percent) of these applications were classified as noncompeting (i.e., continuations), and the remaining 144 (71.6 percent) as competing (see table 1).

Of the 144 competing applications reviewed in FY 1996 and FY 1997, 137 were new and 7 were competing extensions. The overall category of new applications comprises four subcategories: (1) new applications submitted to the MCHB Research Program for the first time; (2) new applications from the previous cycle, for which the review committee deferred recommendation for action; (3) revisions of previously disapproved new applications; and (4) revisions of previously approved applications that had remained unfunded because of an insufficient priority score. Competing extension applications are requests for additional funds to extend the project period of an ongoing project.

The rate of approval for all new applications combined was 16.8 percent. The approval rate was lowest for applications submitted for the first time (7.1 percent) and highest for competing extension applications (42.9 percent). The approval rate of 41.0 percent for the resubmission of previously disapproved applications reflects the conscious efforts of the Review Committee to be constructive in their reviews as well as the willingness of disapproved applicants to profit from the criticisms and suggestions for improvement made by reviewers. In general, the "gross" approval rate of 16.8 percent (the number of new applications recommended for approval by the committee, divided by the total number of new applications reviewed) is relatively low when compared to other Federal research programs such as those of NIH. The "net" approval rate (the number of new applications actually funded, divided by the total number of new applications reviewed) compares quite well with other Federal research programs, including those of NIH.

Of all new applications accepted for review during FY 1996 and FY 1997, 4 (12.1 percent) addressed medical concerns; 7 (16.7 percent) addressed behavioral health concerns; 8 (19.5 percent) addressed health services organization, use, and delivery; and 4 (19.0 percent) addressed epidemiological issues (see table 2). This distribution mirrors the MCHB's programmatic emphases on prevention, treatment, remediation,

TABLE 1				
<i>Number and Percentage of Applications Reviewed, by Type and Committee Recommendation: FY 1996 and FY 1997</i>				
Type of Application	Approved, No. (%)	Disapproved, No. (%)	Deferred, No. (%)	Total No.
All Types	83 (41.3)	108 (53.7)	10 (5.0)	201
New	23 (16.8)	105 (76.6)	9 (6.6)	137
New	7 (7.1)	86 (87.8)	5 (5.1)	98
Revised	16 (41.0)	19 (48.7)	4 (10.3)	39
Competing Extension	3 (42.9)	3 (42.9)	1 (14.3)	7
Continuation	57 (100)	0 (0.0)	0 (0.0)	57

program evaluation, and problem definition.

Unless there has been a significant departure from the originally approved project plan, a request for increased funding, and/or evidence that the project is experiencing difficulties in execution, continuing applications are ordinarily reviewed by program staff and, for the most part, are assured of continuing support for the duration of the originally approved project plan.

Approval rates by type of research ranged from a low of 12.1 percent to a high of 19.5 percent. Applications addressing health services had the highest approval rate (19.5 percent), followed by epidemiological (19.0 percent), behavioral (16.7 percent), and medical concerns (12.1 percent). Overall, the amount of variation in rates of approval by type of research is sizable but not necessarily suggestive of bias in the review process. The variation is likely to represent differences in research experience and capability in conducting research among those who apply. For example, applications addressing epidemiological and health services may come from service organizations with a lower level of documented experience and capacity in conducting research.

TABLE 2			
<i>Number and Percentage of New Applications, by Type of Research and Committee Recommendation: FY 1996 and FY 1997</i>			
Type of Research	Approved, No. (%)	Disapproved or Deferred, No. (%)	Total No.
All Types	23 (16.8)	114 (83.2)	137
Medical	4 (12.1)	29 (87.9)	33
Behavioral Health	7 (16.7)	35 (83.3)	42
Health Services	8 (19.5)	33 (80.5)	41
Epidemiological	4 (19.0)	17 (81.0)	21

III. Active Projects

Table 3 describes the active projects according to type of grantee. As expected, the grantees represented are those defined as eligible by the Research Program's authorizing legislation. Recipients of MCHB research grants are predominantly institutions of higher learning (70.6 percent), compared with children's hospitals and other research hospitals (13.7 percent) and other grantees (15.7 percent). Within institutions of higher learning, the schools of public health received the largest number of grants (25.4 percent). Schools of medicine and other subdivisions within institutions constitute 19.6 percent of the research grantees.

During FY 1996 and FY 1997, no State, county, or city health department received a grant through the MCHB Research Program, reflecting the small number of research applications submitted annually by these government entities. It is clear that much needs to be done to increase the level of participation by State, county, and city health departments in the MCHB Research Program.

The geographic distribution of the funded applicants favors Federal Regions in the Atlantic, Pacific, and Midwest (as shown in table 4). During FY 1996 and FY 1997, as in FY 1994 and FY 1995, only one grant was awarded to an institution in Region VI, and no grants were awarded to institutions in Region VIII. The factors that create unbalanced award distributions according to geographic region are difficult to pinpoint. However, geographic distribution is highly related to concentrations in population and wealth, which in turn are related to corresponding concentrations of institutions of higher learning as well as research and development centers.

During FY 1996 and FY 1997, approximately 53.2 percent of the principal investigators funded through the MCHB Research Grant Program are Ph.D.s and 38.3 percent are M.D.s (table 5). One investigator earned a joint M.D./Ph.D. degree. The M.D./Ph.D. disparity is typical of Federal extramural research programs in biomedical and health services. The traditional public health degrees, Sc.D. and Dr.P.H., are represented by about 6 percent of the principal investigators. The low percentage of degrees in the public health category is due, in part, to the relatively small

TABLE 3		
<i>Number and Percentage of New Applications, by Type of Grantee: FY 1996 and FY 1997</i>		
Type of Grantee	Number	Percentage
All Types—Total	51	100.0
Research Hospitals	7	13.7
Institutions of Higher Learning	36	70.6
Schools of Medicine	10	19.6
Schools of Public Health	13	25.4
Schools of Nursing	2	3.9
Other Subdivisions	11	21.5
All Other Grantees	8	15.7

TABLE 4		
<i>Active Projects by Federal Region: FY 1996 and FY 1997</i>		
Federal Region	Number	Percentage
All Regions	51	100.0
Region I	4	7.7
Region II	5	11.5
Region III	13	25.0
Region IV	4	7.7
Region V	10	19.2
Region VI	1	1.9
Region VII	3	5.8
Region VIII	0	0.0
Region IX	7	13.5
Region X	4	7.7

FY 1995, 28 percent of the projects used an experimental study design, and 24 percent used a quasi-experimental design. The remaining 48 percent employed an observational study design. These percentages indicate a high degree of scientific rigor for the research supported by the MCHB Research Program.

A high degree of scientific rigor is also reflected when the time dimension of the study design is taken into consideration. As figure 2 indicates, the majority (78.9 percent) of the projects

number of such degrees awarded nationally. In total, 47 principal investigators have undertaken the research described in the 51 projects presented in this book. More women (61.7 percent) than men (38.3 percent) received MCHB research grants in FY 1996 and FY 1997.

Figure 1 presents the 51 active projects according to three study design characteristics: Experimental, quasi-experimental, and observational. The experimental category includes randomized clinical control trials; the quasi-experimental category includes case/matched control, case/unmatched control, case/historical control, and interrupted time-series studies. Observational design studies are purely descriptive or correlational. Slightly more than half (51 percent) of the active projects employ either an experimental or quasi-experimental study design; the remaining 49 percent are observational. During the previous cycle in FY 1994 and

TABLE 5		
<i>Academic Degrees of Principal Investigators: FY 1996 and FY 1997</i>		
Types of Degree	Number	Percent
All Degrees	47	100.0
Ph.D.	25	53.2
M.D.	18	38.3
M.D./Ph.D.	1	2.1
Sc.D./Dr.P.H.	3	6.4

currently funded by the MCHB Research Program are longitudinal. These include short-term as well as long-term longitudinal studies and reflect the nature of the research supported by the program. This research, for the most part, is concerned with characterizing, defining, and measuring risk factors for unwelcome outcomes. This type of research requires that the agent or exposure thought to define risk precede the outcome of concern. During the FY 1994 and FY 1995 cycles, 76 percent of the projects were longitudinal, and 9 percent were cross-sectional, mirroring the distribution among the FY 1996 and FY 1997 projects.

Figure 3 shows the 51 active projects according to care emphasis. The care emphasis distinguishes projects that are interventional from those that are noninterventional in nature. In medicine and public health, intervention is used for a variety of activities designed to prevent, limit, or improve conditions in order to enhance the health of individuals and groups. As a group, intervention studies address a variety of maternal and child health problems and represent an inadequately tapped resource of tested approaches to solving maternal and child health problems at the State and community levels. In the FY 1996 and FY 1997 cycles, slightly less than half (46.2 percent) of the projects are interventional in nature, compared with 33 percent during the FY 1994 and FY 1995 cycles. The majority of the interventional studies presented in this publication are preventive rather than remedial or curative in intention; most of these projects use experimental designs with blind measurements and employ standardized protocols for delivering and mon-

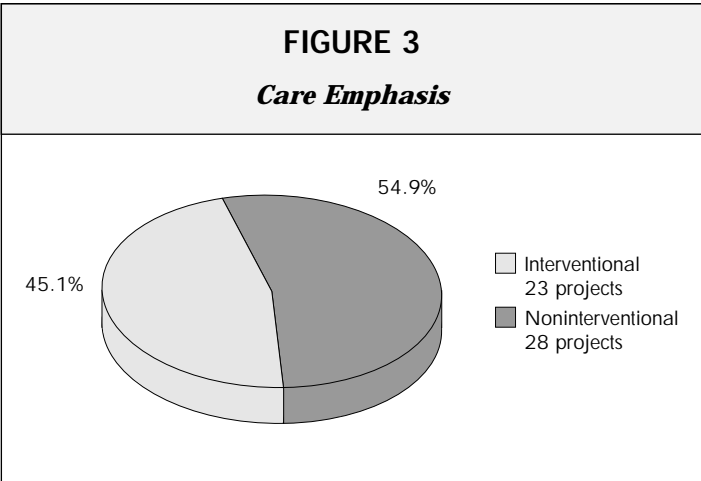
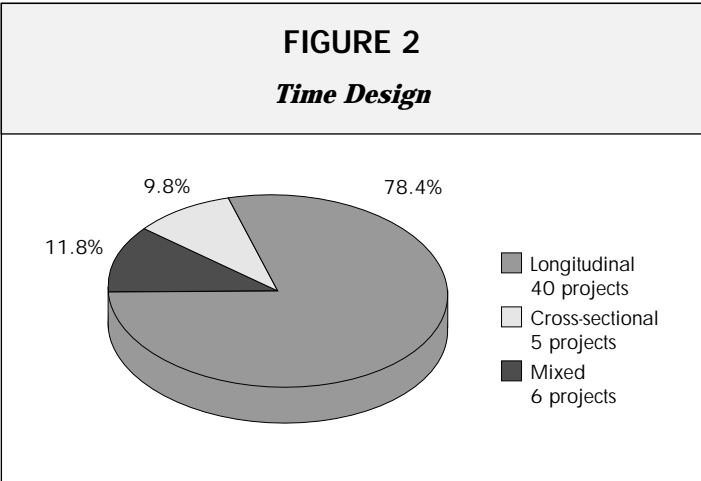
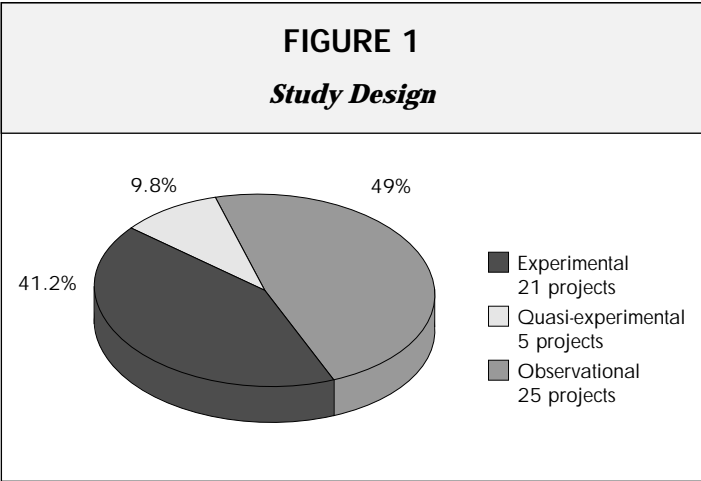


TABLE 6		
<i>Population Focus: FY 1996 and FY 1997</i>		
Population	Number of Projects	Percentage of Projects Studying Specific Populations
Neonates	16	31.4
Infants	24	47.1
Toddlers	16	31.4
Preschool Children	16	31.4
School-Age Children	16	31.4
Adolescents	8	15.7
Adolescents (Pregnancy-related)	1	2.0
Pregnant Women	11	21.6
Parents/Mothers/Fathers (Adolescent Parents)	22 1	43.1 2.0
Other		
Grandparents	1	2.0
Physicians	1	2.0
Postpartum Women	5	9.6
Young Adults (older than age 21)	1	2.0

TABLE 7		
<i>Racial and Ethnic Group Focus: FY 1996 and FY 1997</i>		
Racial/Ethnic Focus	Number of Projects	Percentage
Total	51	100.0
Racial/Ethnic Focus	29	56.9
Group-Specific	18	35.3
Between Groups	11	21.6
No Stated Racial/Ethnic Focus	22	43.1

itoring the array of services constituting the interventions.

Table 6 shows the populations being studied by the 51 projects. Many of the active projects described in this publication focused on more than one population (e.g., infants and toddlers) within the same scope of research. Of the 51 projects listed here, 24 (47.1 percent) chose infants as a population focus. Twenty-two projects (43.1 percent) studied populations of parents, mothers, and fathers. Only one project focused on pregnancy in an adolescent population.

Research grants are routinely tracked to determine whether they have a racial/ethnic focus. Projects are classified as such if the investigators have stated that they seek to elucidate some aspect of the health of minority women and children, using either a within-group or a between-group study

design. Table 7 shows the distribution of all active projects according to whether they have a stated racial/ethnic focus. Of the 51 projects, 29 (56.9 percent) have a racial/ethnic focus; this represents a 10-percent increase over the number of such studies in FY 1994 and FY 1995 (45.7 percent). Of the 29 projects having a racial/ethnic focus, 18 use a group-specific study design, and 11 use a between-group study design. Twenty-two of the projects (43.1 percent) have no stated racial or ethnic focus. However, some of these projects have sufficient numbers in

their samples to conduct minority analyses, and the principal investigators of these projects have been so informed.

As indicated in table 8, the research projects having a racial/ethnic focus are predominantly studying African-American populations. Twenty-four of the 29 projects with a racial/ethnic focus have identified African Americans as one or more of their minority study populations. Nine of the projects focus on Mexican Americans, and seven projects focus on Puerto Ricans. However, more research needs to be conducted to elucidate maternal and child health concerns among Alaskan Native, Chinese, Japanese, Pacific Islander, and Hawaiian Native populations.

Research projects are also tracked according to the specific *Healthy People 2000* objectives addressed by each study. The number of objectives addressed by the project ranged from zero to 19. (This does not imply that projects addressing fewer objectives are less rigorous or of less interest to the MCH community.) Not surprisingly, 43 of the 51 projects address *Healthy People 2000* objectives in maternal and infant health; 32 address objectives in diabetes and disabling conditions, and 25 address objectives in mental health and mental disorders. Table 9 lists the 22 topic areas addressed in *Healthy People 2000* and indicates the number of MCHB active projects conducting research in these topic areas during FY 1996 and FY 1997. (A listing of the specific *Healthy People 2000* objectives related to the current research studies can be found in the back of this publication.)

TABLE 8	
<i>Specific Racial and Ethnic Group Focus: FY 1996 and FY 1997</i>	
Racial/Ethnic Focus	Number of Projects
Total	29
African-American Only	14
Mexican-American Only	2
Puerto Rican Only	1
Mexican-American and Puerto Rican	1
African-American and Mexican-American	2
African-American and Puerto Rican	1
African-American and Hispanic (Hispanic overall)	1
African-American, Mexican-American, Puerto Rican, and Native American	1
African-American, Alaskan Native, Mexican-American, Puerto Rican, and Native American	1
Japanese, Filipino, and Hawaiian Native	1
African-American, Asian (Asian overall) Mexican-American, Puerto Rican, and Native American	1
African-American, Chinese, Filipino, and Hispanic (Hispanic overall)	1
African-American, Asian (Asian overall) Mexican-American, Puerto Rican, and Native American	1
African-American, Pacific Islander, Hispanic (Hispanic overall), and Native American	1

TABLE 9

***Healthy People 2000 Objectives
(by Topic Area and by Number of Projects
Addressing Specific Topic Area):
FY 1996 and FY 1997***

Topic Area	Number of Projects Addressing This Topic Area
1. Physical Activity and Fitness	5
2. Nutrition	16
3. Tobacco	5
4. Alcohol and Other Drugs	1
5. Family Planning	2
6. Mental Health and Mental Disorders	25
7. Violent and Abusive Behavior	13
8. Educational and Community-Based Programs	17
9. Unintentional Injuries	9
10. Occupational Safety and Health	0
11. Environmental Health	7
12. Food and Drug Safety	0
13. Oral Health	3
14. Maternal and Infant Health	43
15. Heart Disease and Stroke	4
16. Cancer	4
17. Diabetes and Chronic Disabling Conditions	32
18. HIV Infection	1
19. Sexually Transmitted Diseases	2
20. Immunization and Infectious Diseases	7
21. Clinical Preventive Services	11
22. Surveillance and Data Systems	12

IV. Summary

The distribution of active projects by geographic region and by type suggests that an initiative is needed to generate strong applications from certain regions of the country as well as from State, county, and local health departments.

Information on the study design indicates a high degree of scientific rigor in the research studies supported by the MCHB Research Program. This is corroborated by the high rate of publications per project and the quality of the peer-reviewed journals publishing findings from the research projects supported by the MCHB Research Program.² The number of intervention projects represented in this publication suggests that the MCHB Research Program is fulfilling its responsibility to develop new program components for MCHB. Efforts should be expanded to increase both the awareness and adoption of these research-tested interventions at State, county, and local levels.

Data on the racial/ethnic focus of the active projects support the conclusion that the MCHB Research Program has made progress in addressing the health of minority mothers and children, particularly among African-American populations. Although more research studies are needed to address the MCH concerns of other minority populations, this should not obscure the fact that the MCHB Research Program provides crucial support for research in minority health issues.

²See *Maternal and Child Health Research Program: Completed Projects 1994-96*.

The diversity of the populations being studied in the 51 projects indicates that the MCHB Research Program is funding a broad portfolio of research, with projects focusing on populations throughout the developmental continuum as well as on maternal and women's health issues. The number of *Healthy People 2000* objectives addressed by the current projects attests to the fact that maternal and child health is a multidisciplinary, cross-cutting field encompassing education, nutrition, mental health, chronic disabling conditions, and other areas of special interest to the MCH research community.

Gontran Lamberty, Dr.P.H.

Director, Maternal and Child Health Bureau Research Program

October 1998



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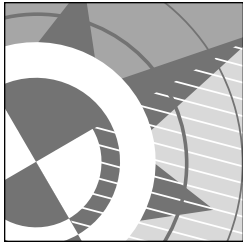
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Project Classification Guide

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

Healthy People 2000 Objectives

This category lists the *Healthy People 2000* objective(s) addressed by the 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.

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 seek to elucidate cause and effect associations without the investigator actually seeking to control 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, however, seek to ascertain through serial measurements how cause and effect associations change or do not change over time. Mixed studies are those that 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 purposively influence the outcome(s) in an individual or a group. In noninterventional studies, the investigator merely observes, measures, and describes a situation without purposively manipulating or seeking to alter in any way the ensuing outcomes.

Population Focus

This category describes the investigation's primary population, including age, gender, family role, and pregnancy status dimensions or characteristics. The particular dimensions and subdivisions within these stated dimensions or characteristics (i.e., neonates, preschool children, pregnant women, etc.) are specific to maternal and child health program issues and concerns.

Race/Ethnic Focus

This classification sorts projects according to whether they are able to describe or elucidate issues related to race and/or ethnicity status, using either a within-group or a between-group study format. Studies that do not fall under this definition are classified as having no racial/ethnic focus.