AMERICAN INSTITUTES FOR RESEARCH®

NINR Health Disparities Program Feasibility Study for Outcomes Evaluation Final Report

Maureen E. Maurer, M.P.H.
Margarita Hurtado, Ph.D., M.H.S.
Megan Bookhout
Jennifer Richmond
Rikki Mangrum, M.L.S.

March 30, 2011

Submitted to:
Amanda Greene, Ph.D., M.P.H., R.N.
Science Evaluation Officer
National Institutes of Health, National Institute of Nursing Research
6701 Democracy Boulevard, Suite 710, Room 724
One Democracy Plaza
Bethesda, MD 20892

Submitted by:
American Institutes for Research
1000 Thomas Jefferson Street, NW.
Washington, DC 20007-3835

Executive Summary

The results of the feasibility study described in this report were useful in assessing whether an outcomes evaluation of the National Institute of Nursing Research (NINR) Health Disparities Program could be conducted; the results of the study also contributed limited information on some of the outcomes themselves. The study period is Fiscal Year (FY) 1999 to FY 2008, during which 360 health disparities projects were funded. With respect to *feasibility*, the key findings of the study are:

- The Program is mature enough for an outcomes evaluation to be feasible and useful in assessing both the accomplishments of the Health Disparities Program and continuing gaps in order to make informed decisions regarding future research funding.
- Publications linked to specific grant awards are the best source of information readily available on health disparities research-related outcomes.
- Grant abstracts are a poor source of data for an outcomes evaluation.

With respect to the secondary goal of the feasibility study, key findings related to *outcomes* are limited but include the following:

- Productivity appears to be limited, as only about one-half (53 percent) of projects funded were linked to publications.
- Influence and impact of research, as reflected in journals publishing research in health disparities that was funded by NINR, are comparable to those from similar disciplines, but a considerable proportion (31 percent) of NINR-funded research is being published in a subset of journals with a lower level of recognition and impact.
- In a sample of publications, research is explicitly designated or framed by authors as health disparities research in only about one-half of the publications.
- In a sample of publications, research focused on a variety of areas, but particularly aspects related to reproduction, HIV/AIDS, mental health, and health promotion/disease prevention/risk reduction.

The study also shows that an *outcomes evaluation is needed* to increase validity, reliability, and usefulness of the findings to define funding priorities. Additional activities beyond the feasibility study may include:

- Full content analysis of relevant research publications linked to grant awards, rather than the limited sample used for the feasibility study.
- Primary data collection through a Web-based survey of grantees to gather information on outcomes for training, career development, and center grant awards, particularly those awards explicitly designed to address nursing research on health disparities.
- Interviews with a sample of grantees to gather information on community involvement in research and the degree of adoption of interventions to reduce health disparities.

This approach will allow NINR to define programmatic and funding activities to augment the contribution of nursing research to the elimination of health disparities.

Purpose of the feasibility study

Health disparities, an area of research emphasis in the NINR's current strategic plan, has been a focus area in the NINR portfolio for much of the Institute's nearly 25-year history. In May 2010, NINR awarded a contract to the American Institutes for Research® (AIR®) to conduct a feasibility study for an outcomes evaluation of the NINR Health Disparities Program. The purpose of this feasibility study was (1) to determine if the NINR Health Disparities Program was mature enough to conduct an outcomes evaluation, and (2) if mature, to recommend the optimal approach for conducting an outcomes evaluation.

Methods

This feasibility study included several tasks:

1) Reviewing the literature on the conceptualization and measurement of disparities in health and health care.
2) Developing a preliminary logic model and conceptual framework.
3) Conducting interviews with key stakeholders.
4) Conducting a bibliometric and content analysis of publications produced as a result of grant funding from the NINR Health Disparities Program.
5) Reviewing grant abstracts for projects funded through the Health Disparities Program.

Once all tasks of the feasibility study were completed, the AIR team met to synthesize findings across tasks and to define the evaluation goals for the NINR Health Disparities Program and the corresponding outcomes to be measured. On the basis of these findings, we determined that an outcomes evaluation would be possible. To define the approach, we began by examining the goals of the NINR Health Disparities Program as identified in the 2006 strategic plan. Based on our discussions with NINR, these goals are equivalent to those for the prior years, given that the evaluation period covers health disparities projects primarily funded by NINR from FY 1999 to FY 2008. For each goal, we identified relevant evaluation questions, outcomes related to each evaluation question, and potential data sources for those outcomes, as identified through the feasibility study.

In addition, a group of evaluation experts and representatives from other Institutes as well as additional stakeholders were engaged in the development of the evaluation plan. NINR organized an ad hoc Evaluation Advisory Committee that provided input on various aspects of the project. The committee first met in July 2010 and provided feedback on the project plan, the preliminary conceptual framework, the logic model, the plans for the literature review, and the initial list of individuals for interviews of key stakeholders. The committee met again in February 2011 to provide input on this evaluation plan.

Addressing feasibility study questions

This feasibility study addressed four questions. For each question below, we include further specifics of the question and present the main findings and corresponding recommendations.

Question 1. Outcomes evaluation: Has the NINR Health Disparities Program been in operation long enough to have measurable effects?

- How will the short-term, intermediate, and long-term goals of the outcomes evaluation be determined?
- What are the appropriate outcomes of interest? What indicator variables will serve as measures of program success?
- Of identified outcomes, which are feasible to measure, and which will demonstrate most effectively whether or not the NINR Health Disparities Program goals are being achieved?

Findings: The feasibility study indicated some measurable effects of the program that can be examined as part of an outcomes evaluation, particularly with respect to publications linked to the research funded. The feasibility study also better defined the evaluation questions related to outcomes. To assess the NINR Health Disparities Program comprehensively, outcomes examined must address research, training, and institutional capacity. As part of this study, multiple measures and indicators of program success for each outcome were also identified.

Recommendations:

- The NINR Health Disparities Program is mature enough to demonstrate some measurable effects, particularly regarding short- to medium-term outcomes.
- The main purpose of the outcomes evaluation would be to collect information useful in making future funding decisions related to specific health disparities research areas where gaps exist in the evidence necessary for action. For example, it is unclear to what extent research is being conducted to address social identifiers beyond race and ethnicity. The outcomes evaluation should examine what is being funded with respect to research (e.g., research focus, target populations) and research capacity (that is, training and career development programs and institutional capacity as well as, to some degree, community involvement) for health disparities research in nursing. The results can be used to identify what gaps remain and provide guidance on how NINR should apply future funding resources to address these gaps.
- We identified two overarching evaluation questions related to the goal areas of the NIH Health Disparities Strategic Plan, with subquestions related to specific goals of the NINR Health Disparities Program. The two overarching evaluation questions are:
    - How has research funded by the NINR Health Disparities Program contributed to furthering current knowledge and understanding regarding health disparities?
    - How has the NINR Health Disparities Program contributed to building research capacity for health disparities research?
- Outcomes identified through the feasibility study were derived from a logic model that addresses:
    - Outputs (such as volume of publications and other research dissemination strategies, number of trained nurse scientists and other scientists conducting health disparities nursing research, institutional research capacity)

- Short-term outcomes (such as intervention development and testing, translation of research knowledge into practice, increased awareness of health disparities)
- Medium-term outcomes (such as knowledge and science advances, policy changes, training, clinical practice, health promotion practice)

Question 2. Evaluation design: What type of design would yield high-quality information and be efficient?

- Are data or information available that could indicate the state of NINR-identified disparities prior to the initiation of the Health Disparities Program?
- Are there comparable health disparities research programs within the NIH, other Government agencies, or philanthropic organizations from which comparison measures could be obtained?
- Are there recognized standards of performance that could be used to assess program outcomes?

Findings: For several reasons, no identifiable data are available to indicate the state of NINR-identified disparities prior to the Health Disparities Program. The disparities of interest are not always well defined. Even disparities that are identifiable can be influenced by many factors and cover a wide range of areas. In addition, given NINR's extended history in funding research related to health disparities and the lack of consistently collected data regarding projects across different time periods, it would be difficult to assess the state of research prior to the initiation of the Health Disparities Program. This study did not uncover comparable health disparities research programs that could provide comparison measures or recognized performance standards for an outcomes evaluation. Therefore, possible evaluation designs are limited and less than ideal for attributing the outcomes to the program because of the lack of control for either confounding factors or competing explanations.

Recommendations:

- We recommend using a retrospective one-group design. Although this approach is less than ideal, it appears to be the best option, given the constraints and available data.
- In terms of scope of the evaluation, we recommend using a combination of approaches to examine outcomes across the whole portfolio as well as more in-depth data collection activities appropriate to specific funding mechanisms—namely, research, training and center grants.

Question 3. Data collection and analysis: What data collection instruments are needed to assess program outcomes?

- What existing data sources should be used to evaluate the program?
- What new data are needed to evaluate program outcomes? What is the best way to collect these data?

Findings: The feasibility study examined three data sources: publications associated with grants identified as part of the NINR Health Disparities Program, IMPAC II data, and grant proposal abstracts. Publications appear to be the best source of extant data for the evaluation, but only slightly over one-half of all grant awards were linked to a publication. IMPAC II data provide descriptive information for all grants, which would be complemented with information from

grant abstracts, particularly for those grants without publications. Grant abstracts, however, only provide information on planned research activity, not outcomes. Other secondary sources considered were grant final reports and curriculum vitae (CVs) of principal investigators.

Recommendations: A comprehensive outcomes evaluation requires a review of IMPAC II data to characterize the sample as well as bibliometric and content analysis of grant-related publications. Such an evaluation will also require new data collection activities and further analyses, including one or more of the following: (1) survey of grantees and trainees; (2) interviews with a sample of research grantees and trainees; and (3) site visits to institutional grantees who received center awards.

We do not recommend using grant abstracts for the evaluation, as they do not provide information on outcomes, only on planned activities. A *Web-based survey* would be the best option; in its absence, CVs with a review of final reports could complement data from IMPAC II and publications.

Question 4. Next steps: What actions might be taken as a result of the feasibility study?

Recommendations: Given the information above, the feasibility study findings indicate that a limited outcomes evaluation is possible. Section 6 of this report fully describes several outcomes evaluation options that could follow this feasibility study.

Recommended approach for an outcomes evaluation

Different approaches to evaluation will produce different types and volumes of information that will affect the comprehensiveness, validity, and reliability of the data collected. The feasibility study revealed limitations of data currently available to evaluate the program. Thus, further data collection, using a survey of principal investigators and trainees, is recommended. Although the content analysis of the publications was the most time-consuming data analysis task, it was one of the richest sources of information regarding the nature of the research conducted, so this process should be maintained.

Our recommended approach balances comprehensiveness with resource requirements, while providing information across all grant mechanisms funded through the NINR Health Disparities Program. It applies a mixed methods approach to understanding the projects funded and associated outcomes. Our approach includes the following tasks:

- Web-based survey of all grantees that receive NINR health disparities funding
- Content review of all publications associated with the NINR Health Disparities Program, and additional bibliometric analysis of these publications
- Telephone interviews with a sample of NINR grantees from the various grant mechanisms
- Review of IMPAC II and final reports of completed projects

Applying this approach to an outcomes evaluation will provide NINR with specific information on many of the contributions of the Health Disparities Program to research on health disparities including research capacity as well as the development, testing, and application of interventions designed to address health disparities.

Contents

List of Figures

List of Tables

Section 1: Introduction

1.1 Background

Health disparities is an area of research emphasis in the National Institute of Nursing Research's (NINR's) current strategic plan (1) and has been a focus area in the NINR portfolio for much of the Institute's nearly 25-year history. The long-term goal of the existing NINR Health Disparities Program is to support research and program activities to reduce, and ultimately eliminate, health disparities in underserved and disadvantaged populations. The Program seeks to accomplish this goal through research into improving methods of health promotion and disease prevention, enhancing the management of chronic illness, and furthering the understanding of the interaction between biology and behavior.

As part of its dedication to reducing and eliminating health disparities, NINR set forth the following organizational goals in its 2006 strategic plan.(1) The Institute stated that that it will support research that will:

1. Elucidate mechanisms underlying disparities and design interventions to eliminate them, with particular attention to issues of geography (rural and remote settings), minority status, underserved populations, and persons whose chronic or temporary disabilities limit their access to care.
2. Design culturally appropriate interventions to communicate risks and susceptibility to at-risk populations.
3. Apply findings from biobehavioral, descriptive, and intervention studies to factors influencing health disparities among youth and adolescents.
4. Identify strategies that will reduce the long-term adverse consequences of poor maternal and reproductive health in minorities and underserved populations.
5. Evaluate and modify partnership and training programs to build capacity in minority-serving institutions and expand the pool of investigators from underrepresented groups.

These goals can be applied to the period of interest for this feasibility study, Fiscal Year (FY) 1999–FY 2008. In developing a revised National Institutes of Health (NIH) Health Disparities Strategic Plan, NINR will develop revised goals, but these goals may not apply explicitly to research already conducted.

1.2 Purpose of feasibility study

In May 2010, NINR awarded a contract to the American Institutes for Research® (AIR®) to determine whether it is feasible to conduct an outcomes evaluation for the NINR Health Disparities Program and, if so, to determine the best approach for doing so. This evaluation required AIR to determine whether the Health Disparities Program was mature enough to conduct a full program evaluation and, if it was, to define an appropriate approach for conducting such an evaluation. In the event that the program was not yet ready for a full program

evaluation to be conducted, AIR was tasked with providing recommendations to improve the program's structure so that an evaluation could be feasible in the future.

This feasibility study addressed the following questions:

Question 1. Outcomes evaluation: Has the NINR Health Disparities Program been in operation long enough to have measurable effects?

- How will the short-term, intermediate, and long-term goals of the outcome evaluation be determined?
- What are the appropriate outcomes of interest? What indicator variables will serve as measures of program success?
- Of identified outcomes, which are feasible to measure and which will demonstrate most effectively whether or not the NINR Health Disparities Program goals are being achieved?

Question 2. Evaluation design: What type of design would yield high-quality information and be efficient?

- Are data or information available that could indicate the state of NINR-identified disparities prior to the initiation of the Health Disparities Program?
- Are there comparable health disparities research programs within the NIH, other government agencies, and philanthropic organizations for which comparison measures could be obtained?
- Are there recognized standards of performance that could be used to assess program outcomes?

Question 3. Data collection and analysis: What data collection instruments are needed to assess program outcomes?

- What existing data sources should be used to evaluate the program?
- What new data are needed to evaluate program outcomes? What is the best way to collect these data?

Question 4. Next steps: What actions might be taken as a result of the feasibility study?

1.3 Organization of this report

Section 2 details the methods used in the feasibility study and describes the process for developing this evaluation plan. Section 3 presents the revised logic model and conceptual framework for the evaluation. Section 4 provides a summary of the feasibility study results. Section 5 focuses on the design and plan for a future outcomes evaluation, addressing the feasibility study questions posed above. Section 6 discusses the tradeoffs of different approaches to an outcomes evaluation. Section 7 provides recommendations to improve the evaluability of the NINR Health Disparities Program for the future.

Section 2: Methods

In this section, we provide an overview of the methods used in this feasibility study, describe the development of this evaluation plan, and note the limitations of this study.

2.1 Overview of feasibility study methods

This feasibility study consisted of several tasks to determine if the NINR Health Disparities Program is mature enough to be able to conduct a full program evaluation. These include: including:

- Reviewing the literature on the conceptualization and measurement of disparities in health and health care.
- Developing a preliminary logic model of the NINR Health Disparities Program and conceptual framework of the determinants of health disparities (appendix A).
- Conducting 10 interviews with key stakeholders to obtain input on the conceptualization and definition of health disparities and the evaluation of health disparities research programs.
- Conducting a bibliometric analysis and content analysis of publications produced as a result of grant funding from the NINR Health Disparities Program. AIR conducted bibliometric analysis of 639 article citations and a content analysis of a random sample of 220 article citations associated with R and P grant mechanisms.
- Reviewing grant proposal abstracts and IMPAC II data for projects funded through the Health Disparities Program between 1999 and 2008 to identify information that would be useful for an outcomes evaluation and to describe the health disparities program projects.

Appendix B discusses in more detail the methods for each task. More detailed descriptions of methods used can be found in each individual task report.

2.2 Focusing the outcomes evaluation plan

To focus the evaluation plan, AIR defined evaluation goals and outcomes through an iterative process of input and feedback as an internal team, with NINR, and with the ad hoc Evaluation Advisory Committee.

2.2.1 Defining evaluation goals and outcomes

Once all tasks of the feasibility study were complete, the AIR team met to synthesize findings across tasks and define the evaluation goals and outcomes for the NINR Health Disparities Program. On the basis of these findings, we determined that an outcomes evaluation would be possible. To define the approach, we began by examining the goals of the NINR Health Disparities Program identified in the 2006 strategic plan, which is the most recent version available publicly on the NINR Web site. For each goal, we identified relevant evaluation questions, outcomes related to each evaluation question, and possible data sources for those outcomes, as discovered through the feasibility study. During the writing of the report, the team

continued to refine the evaluation approach through team meetings and discussions. Also, NINR reviewed and provided feedback on a draft plan to examine whether the evaluation plan is actionable and feasible.

2.2.2 Obtaining input from the Evaluation Advisory Committee

NINR organized an ad hoc Evaluation Advisory Committee that was asked to provide input on various aspects of the project. This committee consisted of stakeholders in the fields of program evaluation and health disparities, including NINR staff members, as well as representatives from the Center for Minority Health, National Cancer Institute, National Institute of Child Health and Human Development, the National Institute on Minority Health and Health Disparities, and university researchers. This committee met initially in July 2010 to provide feedback on the project plan, preliminary conceptual framework and logic model, plans for the literature review, and initial list of potential stakeholders for the interviews of key stakeholders. The committee met in February 2011 to provide input on a draft version of this evaluation plan.

2.3 Limitations of the feasibility study

A number of limitations were associated with this feasibility study. These limitations were in three general categories: data quality, data validity, and data analysis. More information about limitations is discussed in greater detail in each of the individual task reports.

Data quality. Problems with data quality affected both the grantee publications study and the IMPAC II/grant abstract study. In some cases, large amounts of data were missing. For example, percentile ranking scores that measure how well a particular grant did in comparison to other grants reviewed in the same standing study section were available for only 11 percent of grant abstracts. Data were also inconsistent in content (for example, some grant abstracts were less detailed than others) and in formatting (for example, inconsistencies in naming conventions prevented certain analyses by author name or institution). Through the context of this feasibility study, it was possible only to identify these issues; these issues may be addressable by finding missing data or addressing formatting problems.

Data validity. Each task of the feasibility study was limited by the validity of the available data. In relation to the grantees' publications, it is not possible to state with certainty that the list of citations used in the bibliometric analysis was complete. Furthermore, the content analysis was limited to a sample from the two most frequent grant mechanisms. Through the context of a feasibility study, it was not possible to conduct a full-text review of all articles in the set. Although the findings are representative of what the data can reveal, the analysis may not be indicative of what a complete analysis would find.

In the review of grant abstracts and IMPAC II data, we note that grant abstracts describe what is proposed and may not give a complete picture of the types of research actually conducted. Therefore, this analysis is limited with respect to the timing of the data collection and the actual conduct of the research.

Data analysis. As a feasibility study, the analyses' depth and specificity were limited. For both the review of grantee publications and grant abstracts, we note additional analyses that could be conducted as part of the larger evaluation. For example, in a full outcomes evaluation, it would be possible to make links between articles reporting on the same study or between article content and grant abstract content that were not possible in this feasibility study.

Section 3: Evaluation framework for the NINR Health Disparities Program

As noted in the "Methods" section above, we developed a preliminary logic model and conceptual framework as part of this feasibility study, as there were no previous model and framework used by the NINR Health Disparities Program. This section presents the logic model and the conceptual framework that will guide the evaluation.

3.1 Revised logic model

Figure 1 presents the revised logic model developed for the NINR Health Disparities Program. This model was adapted from one developed by Holmes and colleagues (2) for the NIH Centers for Population Health and Health Disparities program and revised based on feedback from the Evaluation Advisory Committee.

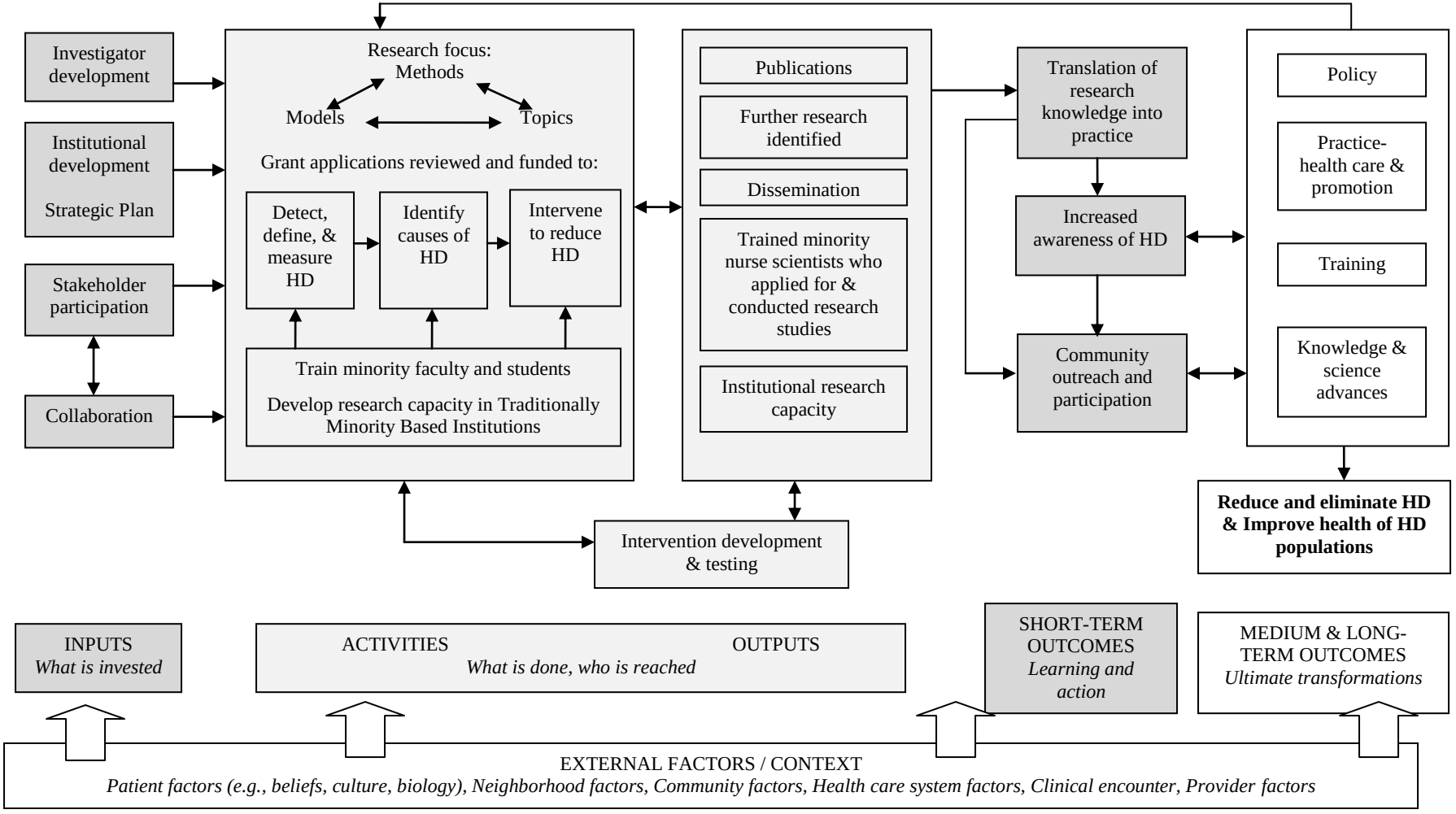
The model illustrates several components of the NINR Health Disparities Program—inputs, activities, outputs, and the hypothesized outcomes (short-, medium-, and long-term)—resulting from the research program and its areas of emphasis: research, research capacity (training), and community outreach. All of these components are influenced by the context of the research program, which is the lowest bar.

3.2 Revised conceptual framework

Figure 2 presents a conceptual framework for this project, which was revised based on feedback from the Evaluation Advisory Committee meeting and interviews of key stakeholders. The purpose of the framework is to provide a basis for understanding different points at which research on health disparities could elucidate some of the mechanisms that lead to or accentuate disparities in health care and health status. The framework attempts to integrate elements from various models in the literature (e.g., ecological; epidemiological; individual versus social factors).(3-6) This framework has not been tested empirically, and the elements of the model may not be congruent with particular theories or concepts as a whole.

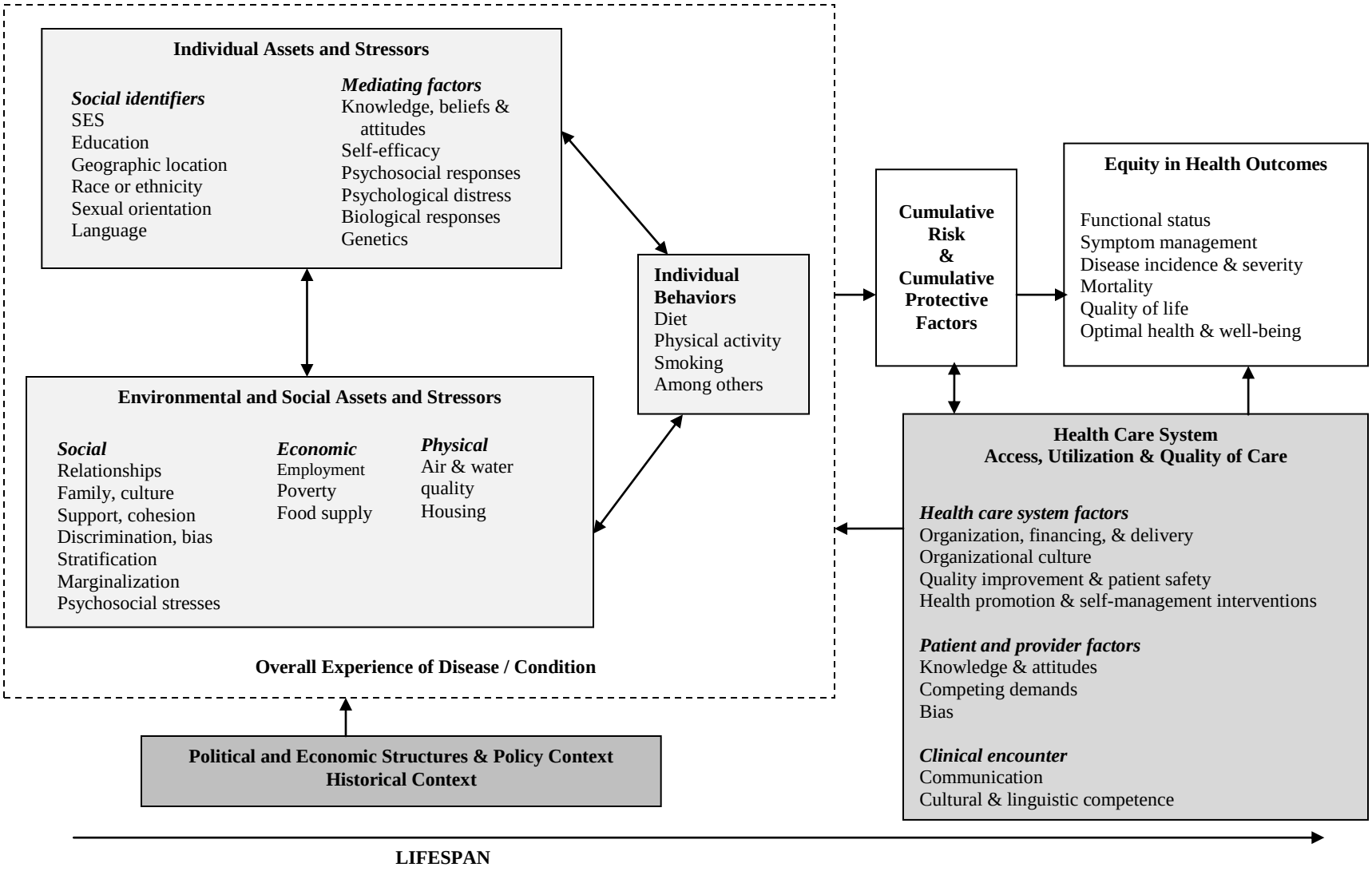
As indicated at the bottom of the model, examining disparities across the lifespan is important as many of the factors associated with disparities are cumulative over time. The left-side of the model presents individual and societal level assets and stressors, which ultimately are manifested as individual behaviors. The social identifiers are aspects that characterize individuals within a population and which can be associated with disparities (they are in the top "individual" box for convenience). The whole set of assets and stressors as well as individual behaviors can then result, over time, in cumulative risk and protective factors, which independently or in combination with factors related to access and utilization of health care services result in health outcomes. Political and economic factors as well as the historical context can affect most of the components of the model. These outcomes, when examined by social identifiers, can translate into potential disparities in health status or health care.

Figure 1. Revised logic model for the NINR Health Disparities Program



Sources: Holmes et al., 2008; Kilbourne et al., 2006; Stokols et al., 2008; NIH Health Disparities Strategic Plan, 2004–2008 (2, 7-9)
Key: HD = Health disparities

Figure 2. Revised framework of health disparities



Sources: James 2009; Myers 2009; Rew et al., 2009; Sanders-Phillips et al., 2009 (3-6)

Section 4: Summary of feasibility study findings

This section summarizes the main findings of this feasibility study as they relate to conceptualizing and measuring health disparities, describing the NINR Health Disparities Program, determining an evaluation approach, identifying evaluation outcomes, and identifying the benefits and limitations of data sources.

4.1 Conceptualizing and measuring health disparities

Findings related to conceptualizing and measuring health disparities generally come from the literature review and key stakeholder interview tasks. Below, we summarize findings on defining health disparities, reviewing conceptual frameworks of health and health care disparities, measuring health and health care disparities, and clarifying what is meant by health disparities research.

4.1.1 Defining health disparities

Among articles reviewed from our literature review and from participants in our interviews of key stakeholder, several terms were used to discuss differences in health status between population groups: "health disparities," "health care disparities," "health inequalities," and "health inequities." Overall, there was little consensus among specific definitions; occasionally, authors or participants would use the terms interchangeably. Variations between the definitions fell into two main categories: (1) definitions that focused only on differences between population groups, usually labeled "health or health care disparities," and (2) definitions on differences between groups that incorporated moral or ethical values related to fairness and justice, usually labeled "health inequities." In the interviews of key stakeholder, some participants preferred the term "health disparities," because it was possible to measure differences in the health status of populations, but they did not think the elements of social justice or fairness within health inequities could be easily measured. Of note, although previous U.S. Government definitions of health disparities did not include values related to fairness and justice, the current definition used by *Healthy People 2020* (10) and the National Plan for Action (11) (one component of the National Partnership for Action To End Health Disparities) does so:

> *Health disparity is a particular type of health difference that is closely linked with social or economic disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater social and/or economic obstacles to health and/or a clean environment based on their racial or ethnic group, religion, socioeconomic status, gender, mental health, cognitive, sensory or physical disability, sexual orientation, geographic location, or other characteristics historically linked to discrimination or exclusion*.

This definition is more in line with the World Health Organization's view on health inequities where "*Social and economic conditions and their effects on people's lives determine their risk of illness and the actions taken to prevent them becoming ill or treat illness when it occurs*." (12)

4.1.2 Reviewing conceptual frameworks of health and health care disparities

In the literature review, among the articles describing conceptual frameworks of health disparities, almost every article proposed a new or different conceptual framework, indicating that little consensus in the research about a framework for conceptualizing health disparities. Even with these vast numbers of frameworks, however, several key elements or characteristics were reflected in the frameworks or models reviewed that differentiated specific frameworks from one another: overall focus, theoretical or conceptual basis, types of factors or domains, the nature of the relationship of these factors to outcomes, the inclusion of social identifiers, the linkages among model components, and the analytic approach.

As noted above, AIR developed a preliminary conceptual framework based on several frameworks from the literature review. Key stakeholder interview participants selected this preliminary framework as their preferred framework more often than other frameworks found in the literature review that were proposed as alternatives.(13, 14)

4.1.3 Measuring health and health care disparities

Our literature review highlighted issues related to measurement of health disparities, including: 1) measuring health status; 2) measuring the total population variation in health versus measuring disparities between specific a priori social groups; 3) comparing social groups in terms of selecting a reference group, understanding absolute versus relative measures, and choosing a measure of disparity; and 4) measuring race, ethnicity, and socioeconomic status. In most of these cases, different approaches are appropriate and depend not only on the definition of health disparities that is used but also on the main objectives of the study or program. This review emphasized the need to clearly explain and justify whichever approach is chosen.

In addition to the issues surrounding measuring of health disparities, the availability of data to make comparisons—either at the local level or for specific subgroups—is limited. *Healthy People* (15) and the annual National Healthcare Disparities Report (16) are two mechanisms at the Federal level for reporting U.S. data related to health and health care disparities. These two examples illustrate Federal-level decisions on how to define and measure progress of health disparities over time. During the interviews of key stakeholders, several participants noted that it is difficult to see reductions in or elimination of disparities in the short term, but that it is possible to identify trends. Short-term benchmarks could focus on specific health indicators or metrics for certain conditions.

4.1.4 Clarifying health disparities research

In the key stakeholders' interviews, some participants discussed what should be considered health disparities research. Many of these participants stated that research examining a single priority area where disparities have been found or focusing on a specific vulnerable or underserved population group (e.g., the elderly, rural populations) should be considered health disparities research, even if the research is not measuring *differences* between groups. However, other participants did not think that that all research focusing on a single population should be considered health disparities research. These participants emphasized that the research needed to

be framed within a health disparities context from the start, and they stressed the importance of establishing a consistent definition of health disparities research.

As we conducted the content analysis of the grant proposal abstracts funded by the NINR Health Disparities Program and the sample of 220 publications linked to funding from the NINR Health Disparities Program, we examined whether the research was explicitly framed within a health disparities context. Abstracts or publications were marked "yes" for this field if they mentioned health disparities as a focus or if they discussed a particular disease, condition, or other research focus in the context of how a certain population is disproportionally affected when compared to another population. Nearly one-half of the grant proposal abstracts (47 percent) and publications reviewed (48 percent) explicitly framed their research within the context of health disparities. Of note, the emphasis on health disparities is not always explicit on the part of Principal Investigators (PIs).

4.2 Describing the NINR Health Disparities Program

To establish a picture of the NINR Health Disparities Program, AIR reviewed grant abstracts of the 360 projects funded by the NINR Health Disparities Program as well as publications associated with the NINR Health Disparities Program. Although the grant abstract review and bibliometric analysis included all types of grant mechanisms (R, P, T, K, and F grants), the content analysis of a random sample of publications provides a picture of only R and P grant mechanisms, as these two were the most common among publications. The NINR Health Disparities Program, as elucidated by these two tasks, is described below.

4.2.1 Projects funded

The review of the grant proposal abstracts portrays the types of projects funded by the NINR Health Disparities Program. However, these abstracts allowed only for analysis of anticipated projects and not for the analysis of completed research. Nonetheless, the summaries below convey a broad description of the NINR Health Disparities Program in terms of grants awarded, research focus of projects, target populations, research study designs and methods, and information specific to center and training grants.

Grants awarded. Analysis of grant abstracts revealed which grant mechanisms commonly fund health disparities projects, trends in health disparities projects awards over time, the distribution of grants among States and universities, and ranking of each grant.

- The majority (55 percent) of projects from the NINR Health Disparities Program is funded by R grant mechanisms. There were no consistent trends over time in the absolute or relative number of grants awarded by type of grant mechanism.
- There was a wide distribution of the number of grants awarded to each State, and the southern region of the United States received the largest percentage (39 percent) of all health disparities grants awarded from Fiscal Year (FY) 1999 to FY 2008. The Johns Hopkins University and the University of Illinois at Chicago were awarded the most health disparities grants between 1999 and 2008.

- The majority of the health disparities projects received high-priority scores and in terms of scientific and technical merit were in the 11th percentile of grant proposals in their study sections.

Research focus. Additionally, the abstracts provided information on whether projects were framed within a health disparities context, the project foci related to specific diseases, and projects had foci that were not disease-specific.

- Nearly one-half (47 percent) of the funded projects framed their research within a health disparities context.
- Projects focused most heavily on topics which disproportionally affect disadvantaged populations. The most frequent focus was on HIV/AIDS (19 percent), followed by reproduction such as contraception and postpartum health issues (15 percent), cardiovascular disease (12 percent), cancer (11 percent), and diabetes (11 percent).
- Almost all projects (95 percent) addressed a research area that is not disease specific. Almost one-half of these were classified as projects addressing health promotion, disease prevention, or risk-related topics.

Target populations. The vast majority of grant abstracts did not provide information related to the sociodemographic characteristics of the target population. For example, more than one-half of abstracts did not specify a target population's gender or age. The findings below represent only abstracts that provided specific information related to the target population.

- Overall, grant abstracts tended to refer more frequently to projects targeting female, adult populations across multiple races and ethnicities.
- Target populations were identified as rural, urban, or living in inner city areas in nearly equal proportions.
- Only a relatively small proportion of abstracts specified a vulnerable population beyond racial/ethnic group or focused on other sources of disparities beyond social identifiers.

Research study designs/methods. Grant abstracts generally included enough information to determine the type of study proposed and the study design. However, as with target populations, this was not the case for analytic methods and much less so for the level at which the study would be conducted (i.e., local, State, national, international) or whether there was participation of the community in the study. Where data were available, results overall indicate that:

- Most abstracts reported empirical research and intervention study types. Many abstracts reported descriptive, cross-sectional study designs and plans to use quantitative methods for data analyses.
- Although most abstracts included at least some discussion of the research sampling approach, few studies mentioned community participation in the design or execution of the related study. Most often, projects were at the local level.

Training and center grants. Almost all centers (90 percent) are located at universities. The remaining centers' grant abstracts either did not specify a location or indicated a partnership

between a university and a research institute. The majority (77 percent) of training grant abstracts identified conducting a research study as the main training method.

4.2.2 Publications resulting from funding

As noted above, 360 grants were identified as funded by the NINR Health Disparities Program; of these, 192 grants (or 53 percent) had associated publications. The review of publications resulting from NINR project funding contributed to the feasibility study, particularly for examining the impact of this research in the field. This review permitted analysis of publications that were based on completed research funded by NINR.

Bibliometric analysis. Bibliometric data for NINR-funded health disparities publications was available for nearly three-quarters of journals and articles. However, it was difficult to draw conclusions from journal bibliometric data because the data drew from a wide range of disciplines.

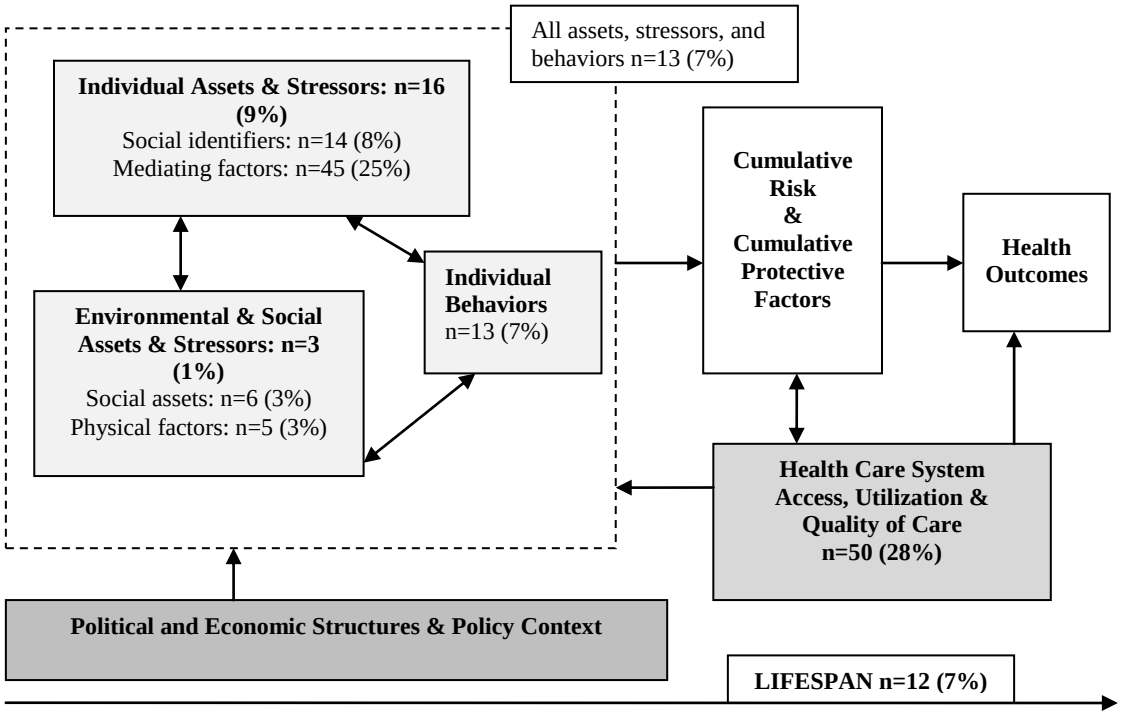
- Compared with journals in other disciplines, the journals publishing NINR-funded articles compared well with respect to influence and impact. However, a large percentage (31 percent) of NINR-funded research is being published in a subset of journals with a lower level of recognition and impact as measured by the journal bibliometric scores.
- In terms of article bibliometrics, the majority of these articles have been cited more than once. The first author of articles published with funding from the NINR Health Disparities Program (n = 639) had published other articles and cited a substantial number of other references in the set of publications.

Content analysis. Of the 639 citations associated with funding from the NINR Health Disparities Program, we selected a sample of 220 publications for in-depth content and quality analysis. Almost one-half of the articles in the sample for content analysis were published between 2006 and 2008. On the basis of full text review, 4 percent of articles were linked to a NINR health disparities grant, but the articles did not report on health disparities.

- Applicable articles generally reported research on a variety of conditions and topic areas, with large numbers focusing on reproduction, HIV/AIDS, mental health, and health promotion or prevention/risk. Slightly less than one-half of these articles framed the research in terms of health disparities.
- Articles reported research in local communities, targeting adult populations of both genders and multiple races. In terms of other potential population groups experiencing disparities, low-income (21 percent), rural (18 percent), and urban (17 percent) were the most common target populations represented by these studies.
- The majority of articles reported empirical research with results from descriptive, cross-sectional studies using quantitative methods and purposive sampling. Only 8 percent of articles reviewed reported results of randomized control trials. About 11 percent reported results of observational studies, using cohort, quasi-experimental, or no control study designs, and 3 percent described interventions without reporting results. Only 6 percent of studies reviewed reported including community participation in the study design.

We used the conceptual framework to identify aspects of health disparities research that are being addressed across publications (figure 2 on page 7). This application of the framework was not done as part of the abstraction process; rather, we used the abstraction data to assign conceptual framework categories to articles as a means of organizing them by content. Articles were classified based solely on the purpose statement and thus may not reflect each article's full content. Articles were not classified into the two categories on the right side of the model (i.e., cumulative risk and cumulative protective factors and health outcomes), as these indicate the ultimate outcomes of health disparities research. Also, classifications were not mutually exclusive; a number of articles were classified in more than one category. In figure 3, we have overlaid a simplified version of the preliminary conceptual framework with an indication of how many articles in each classification were included in each part of the framework.

Figure 3. Applying sample publications to preliminary framework* (n=177)



* Sample totals 177 because some articles were classified in more than one category, and articles focused on research methods were excluded. Does not total 100 percent due to rounding.

Articles focused on the health care system account for 28 percent of the 177 classifications. About one-half of the articles (49 percent) focused on facets of the conceptual framework related to individual characteristics, such as individual behaviors, individual assets and stressors, social identifiers, and mediating factors. Just 7 percent focused primarily on elements external to the individual, such as environmental factors like housing, or social factors like community support. Articles focusing on broad examinations (the lifespan experience or examining all assets, stressors, and behaviors) account for the remaining 14 percent.

4.3 Determining an evaluation approach

This feasibility study raised questions and provided some information for determining an approach to an outcomes evaluation of the NINR Health Disparities Program. In particular, the interviews of key stakeholders elicited recommendations for an overall evaluation approach:

- ***Align the evaluation with the strategic plan***. Findings indicated the importance of aligning evaluation objectives with the goals in the NINR strategic plan. In this way, the results of the evaluation can be used to address the degree to which goals have been accomplished as related to resources used.
- ***Consider alternative evaluation designs***. Among interview participants, there was no knowledge of comparable health disparities programs that could serve as a comparison group for an evaluation. One participant recommended a pre/post evaluation design to examine the impact of research funded for a period of time before the establishment of the NINR Health Disparities Program and then to compare it to the impact of research funded after the program was established.
- ***Recognize trade offs when determining the scope of the evaluation***. Several interview participants pointed out that the scope of the evaluation is one aspect that will determine its feasibility, and in particular, whether to examine the research portfolio as a whole, or to delve into individual grants to identify particular findings with respect to their impact on health disparities. There is clear trade off between breadth and depth of the outcome evaluation between these two approaches.

4.4 Identifying evaluation outcomes

The interviews of key stakeholders elicited information on potential outcomes for evaluation, as these outcomes relate to the three main types of grant mechanisms associated with the NINR Health Disparities Program. Table 1, summarizing the findings from the key stakeholders' interviews and the literature review, describes possible evaluation outcomes across all grant mechanisms, and then by research, center, and training grants.

Table 1. Evaluation outcomes as identified in key stakeholders' interviews

Outcome	Description
Across all grant mechanisms used in the NINR Health Disparities Program	
Journal publications	Publications associated with NINR Health Disparities Program grants, including number of journal publications, topic(s) addressed in publications, and the impact of research findings.
Sustainability of funding	Determining the sustainability of research funding infrastructure over time and examining the institutional infrastructure at the end of a grant.
Community partnerships	Number and nature of community partnerships developed and maintained; collaboration within an institution; and collaboration with other groups in the community.
Grant-specific outcomes	Outcomes that are tied to the objectives or aims of individual grants or specific grant mechanisms.

Outcome	Description
Research grants (R)	
Research portfolio	Content of research portfolio—the balance of topics and types of research conducted.
Dissemination	Methods of disseminating research findings other than publications, such as presentations at conferences or a media analysis of research findings in the popular press.
Uptake	Assessing whether the research resulted in "changes"—at the level of individual behavior, health care services, or policy, including changes in public behaviors related to risk reduction, how clinicians care for patients, how researchers conduct research, or policy.
Center grants (P)	
Other funding	New grants awarded to the centers or trainees in the centers once the grant was complete.
Researchers trained	Number of new researchers, including students, trained in the centers.
Training grants (T, K, and F)	
Continuation in research field	Whether trainees completed their degree program (graduate, Ph.D., post doc) and continued in the field of health disparities research.
Employment	Examining the employment location/place of work of the researchers awarded grants.
Faculty appointments	Obtaining either a faculty appointment or tenure at an academic institution.
Honors received	Obtaining honors or awards such as recognition awards.
Leadership activities	Acting as a leader in professional societies or other organizations.
Mentoring	Number of trainees receiving mentoring and the relationships between a trainee and mentor (e.g., whether they are publishing together).
Research funding	A researcher's ability to transition to other grants, either R01 grants within NIH or from other large, reputable research organizations.

4.5 Identifying benefits and limitations of data sources

The tasks used in this feasibility study highlighted and, in some cases, tested several possible data sources for an outcomes evaluation. Table 2 identifies these data sources, their potential uses, benefits, limitations, and lessons learned from the feasibility study, as applicable. The table groups possible data sources into those that collect data directly from NINR grantees and those from other data sources. Publications and a survey of PIs look the most promising, whereas there seem to be several limitations associated with data from the NIH databases, such as the grant proposal abstracts or the progress or final reports.

Table 2. Benefits and limitations of possible data sources for an outcomes evaluation

Data source	Uses	Benefits	Limitations	Lessons learned from feasibility study
Other data sources				
Publications	• Can be used to evaluate researcher productivity and impact • Examine outcomes of specific grants	• Most publications are easily accessible to NIH • Does not require primary data collection or Office of Management and Budget (OMB) clearance	• May not be fully representative because some researchers may not be able to publish without support • May be a delay in what can be evaluated due to lag time for publication	• Certain analyses may be difficult to conduct due to inconsistent formatting or information (e.g., analyses by PI name) • May be difficult to identify whether certain publications are linked to specific NINR grants
NIH databases	• Ability to track outcomes associated with specific grants and across grant mechanisms	• Data are readily available • Does not require primary data collection or OMB clearance	• Data quality (e.g., accuracy and reliability) • Cumbersome to access records	• Some data is not well standardized across grants or across years
Grant proposal abstracts	• Can provide description of what was funded, but not necessarily what was completed	• Does not require primary data collection or OMB clearance • Easily accessible to NIH	• Research aims and approach may have been modified • Actual outcomes cannot be determined	• Data is not well standardized across abstracts and years • Provides an incomplete picture of the NINR portfolio because of missing data
Progress or final reports	• Ability to track outcomes across grants and provide a description of the ultimate achievements of each grant, including significant findings.	• Does not require primary data collection or OMB clearance	• Data are often not completed in a consistent manner and therefore are not standardized • Can be lengthy and time consuming to abstract • May fail to capture information about additional achievements after the grant period ends	*Not applicable*

Data source	Uses	Benefits	Limitations	Lessons learned from feasibility study
From NINR grantee directly				
Survey of NINR grantees	• Obtain relevant information across funding mechanisms as well as grant-specific items • Obtain information about events after funding ended, such as additional grants received, publications, and so forth	• Potential for high response rate • Web-based survey seems feasible to implement	• Self-reported data may not be reliable • May require OMB clearance	*Not applicable*
In-person meeting of NINR grantees	• Obtain information about events after funding ended, such as current position and employment, additional grants received, publications, and so forth	• In addition to evaluation, serves as opportunity for networking, peer-to-peer learning, and dissemination of research findings	• May not be representative sample of all NINR-funded projects	*Not applicable*
Interviews with NINR grantees	• Examine grantees' experiences with research process, and facilitators and barriers to research and dissemination of findings	• Self-report essential for attitudinal, aspirational aspects • Greater depth and detail • More fully understand factors for success or lack of success	• May require OMB clearance • Limited scope • Limited representativeness	*Not applicable*
CVs of NINR grantees	• Physical documentation to link grants with publications, presentations, and other variables • Can assess current and prior position, other honors and awards	• Public information available through various sources (such as university Web sites or conference proceedings) • Does not require primary data collection or OMB clearance	• Access to CVs may be problematic • Difficult to determine whether or not CVs are current • Difficulty connecting employment, projects or publications with NINR funding	*Not applicable*

Section 5: Outcomes evaluation plan

This section describes our evaluation plan for an outcomes evaluation of the NINR Health Disparities Program, including the evaluation design and research questions, evaluation outcomes and measures, and data collection and analytic methods.

5.1 Evaluation design and questions

First, we assessed whether the program was mature enough to conduct a full outcomes evaluation. After that assessment, we defined a proposed evaluation design and evaluation research questions for an outcomes evaluation of the NINR Health Disparities Program.

5.1.1 Program maturity

The feasibility study findings demonstrate some measurable effects for an outcomes evaluation, particularly effects related to the impact of the research in the field as reflected in publications and related bibliometric analysis. Therefore, it can be determined that the NINR Health Disparities Program is mature enough to demonstrate at least some measurable effects, particularly with respect to short- to medium-term outcomes (see the program logic model, figure 1 on page 6).

5.1.2 Evaluation purpose and design

We recommend using a retrospective one group evaluation design to examine the impact of the NINR Health Disparities Program. Although such a design is not ideal from an evaluation perspective because of confounding factors in determining causation, the literature review and key stakeholder interview tasks did not uncover comparable health disparities programs that could serve as a comparison group for an outcomes evaluation using a different design.

As discussed during the final Evaluation Advisory Committee meeting, the purpose of an outcomes evaluation would be to help improve the program and to inform future funding decisions. At the start of this project, NINR specified that an outcomes evaluation should focus on the research and research capacity goals of the 2002–2006 NIH Health Disparities Strategic Plan. For an evaluation of this scope, we recommend using a combination of approaches to examine outcomes across the whole portfolio as well as using more detailed analyses for a smaller set of grant mechanisms.

5.1.3 Evaluation questions

We identified two overarching evaluation questions related to the research and research capacity goals of the NIH Health Disparities Strategic Plan, with subquestions related to organizational goals for the Health Disparities Program highlighted in the 2006 NINR Strategic Plan (and noted in the "Introduction," see page 1). The two overarching evaluation questions are:

1. Research: How has research funded by the NINR Health Disparities Program contributed to furthering current knowledge and understanding regarding health disparities?
2. Research capacity: How has the NINR Health Disparities Program contributed to building research capacity for health disparities research?

Table 3 shows the proposed evaluation questions. For each overarching evaluation question, we list subquestions that correspond with the NINR Health Disparities Program goals and related evaluation questions by outcomes per the logic model (see figure 1 on page 6). The associated grant mechanisms are also listed.

Table 3. Evaluation questions for the NINR Health Disparities Program, by program goal

Evaluation questions	Related evaluation questions by outcome	Associated grant mechanisms
RESEARCH GOAL: How has research funded by the NINR Health Disparities Program contributed to furthering current knowledge and understanding regarding health disparities?		
• **Goal 1.** How has the NINR Health Disparities Program contributed to identifying mechanisms underlying health disparities for each of the following populations: rural, racial and ethnic groups, persons with disability, and other underserved populations? • **Goal 2**. How has the NINR Health Disparities Program contributed to designing culturally appropriate interventions to communicate risks and susceptibility to at-risk populations? • **Goal 3**. How have the NINR Health Disparities Program researchers applied findings from biobehavioral, descriptive, and intervention studies in understanding health disparities among youth and adolescents? • **Goal 4**. How has the NINR Health Disparities Program contributed to identifying strategies that will reduce adverse consequences of poor maternal and reproductive health in underserved	• **Research focus.** What was the nature of research conducted by grantees (e.g., descriptive, intervention, evaluation)? What was the nature of research conducted by grantees for youth and adolescents? Which health disparities among youth and adolescents were targeted? Which adverse consequences of poor maternal and reproductive health was the focus of the research? Which strategies were identified as reducing adverse consequences of poor and maternal child health? • **Partnerships.** How were populations experiencing disparities involved or partnered with during the research process? What types of partnerships were established to accomplish the research? How were community-based organizations included? • **Intervention development and testing.** What types of interventions have been funded by NINR to eliminate health disparities? What was the focus of the intervention? For which populations were interventions developed? What types of risks and for what conditions were interventions developed? Which formats and languages were interventions developed? How effective are the interventions funded in addressing mechanisms underlying health disparities? How effective are the interventions funded in communicating risk and susceptibility to at-risk populations? How have NINR-funded researchers identified and addressed factors of cultural appropriateness in designing interventions? • **Dissemination and uptake.** Did funding from the NINR	• R01 (93 grants, 23%) • R03, R15, R21, R29 (106 grants, 29%) • R43, R44, U01 (4 grants, 1%)

Evaluation questions	Related evaluation questions by outcome	Associated grant mechanisms
populations?	Health Disparities Program result in journal publications or presentations of findings? What other "nontraditional" dissemination strategies were used? • **Policy and practice.** How did NINR-funded research influence policy or practice?	
RESEARCH CAPACITY GOAL: How has the NINR Health Disparities Program contributed to building research capacity for health disparities research?		
• **Goal 5-1**. How has the NINR Health Disparities Program contributed to building research capacity for health disparities research in traditionally minority-based institutions? • **Goal 5-2**. How has the NINR Health Disparities Program contributed to training or promoting career development for individual researchers in relation to health disparities research?	**Institutional** • **Institutional research capacity.** What research infrastructure was established or increased? How have grantee institutions been able to sustain this infrastructure? What is the nature of collaboration between partner institutions? What is the influence on collaboration on research at grantee sites? • **Training.** What types of training mechanisms were developed to build research capacity for health disparities?	• P20, P30 (29 grants, 8%)
	Individual • **Continuation in the field.** Have NINR trainees completed degree programs? Where are NINR grantees currently employed? Have NINR grantees continued in the field of health disparities research? What has contributed to or impeded NINR trainees' success in continuing research? How have NINR trainees been able to mentor or influence others? • **Continued funding.** Have NINR trainees transitioned to obtaining other sources of funding? How many NINR trainees have obtained funding through research grant mechanisms (R)?	• F31, F32, K01, K23, K99, T32 (128 grants, 36%)

5.2 Evaluation outcomes and measures

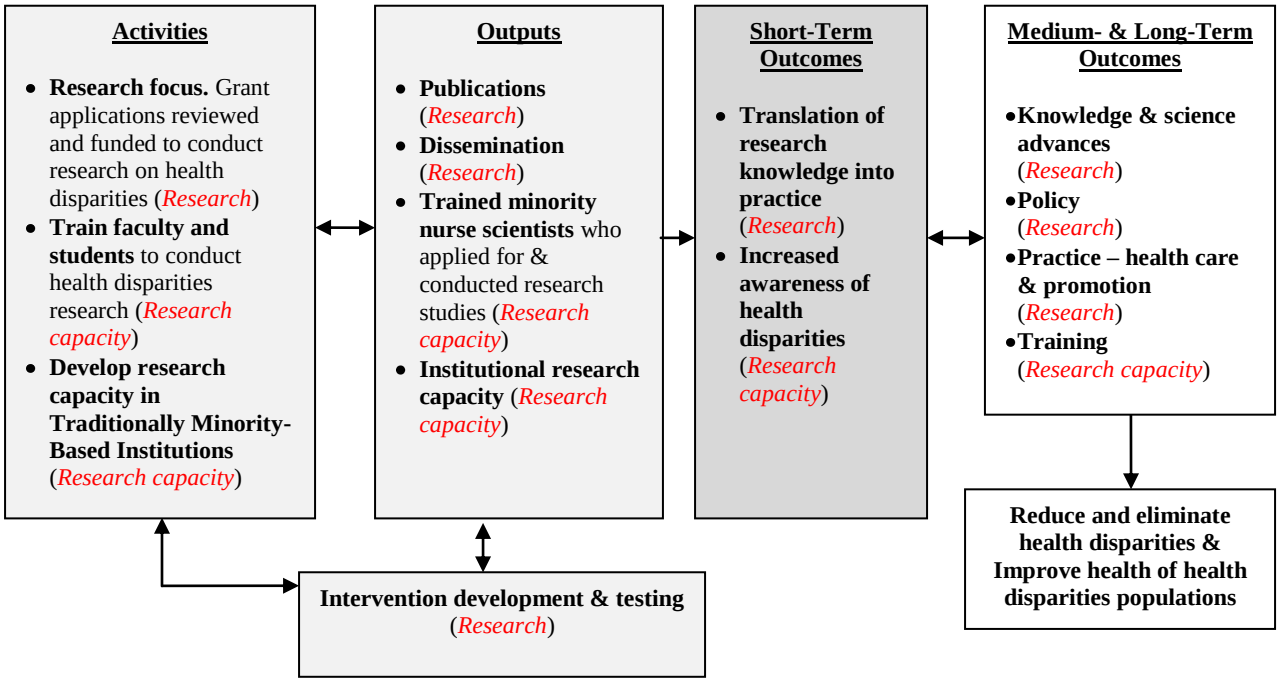
On the basis of the evaluation questions above, we examine potential evaluation outcomes and measures of those outcomes.

5.2.1 Evaluation outcomes

In determining which outcomes to measure for each overarching evaluation question proposed above, in table 3, we referred to the revised logic model developed for the project as part of the feasibility study for the evaluation (figure 1 on page 6). Figure 4 is a simplified version of the

logic model that shows how to operationalize the overarching evaluation questions by linking them to specific elements of the logic model. All grants funded through the NINR Health Disparities Program—whether a research, center, or training grant—appear to include a research component. Therefore, information on research-related activities, outputs, and short-, medium-, and long-term outcomes can be collected for each evaluation question proposed (for example, research focus, publications, translation of knowledge into practice, and knowledge and science advances). Because it may not be feasible to collect information on all outcomes, we would encourage the evaluator to work with NINR and the Evaluation Advisory Committee to prioritize outcomes of interest. Specific elements in the logic model are not addressed in the proposed evaluation questions, because they would be difficult to measure. These elements include further research identified within outputs, and community outreach and participation within short-term outcomes.

Figure 4. Revised logic model for the NINR Health Disparities Program, with corresponding overarching evaluation questions



Note: Text in red and italics indicates one of two corresponding overarching evaluation questions.

5.2.2 Measures identified

Table 4 lists possible measures for each type of outcome identified. Specific measures would vary by the goal or type of research being addressed. As noted above, it may be necessary to prioritize measures of interest with both NINR and the Evaluation Advisory Committee meeting.

Table 4. Measures identified for activities, outputs, and outcomes

Aspect of logic model	Measures
Activities	
Research focus	• Number of studies conducted • Volume and distribution across focus areas, research themes, study designs used, analytic methods used, and populations targeted
Research capacity in traditionally minority-based institutions	• Number of institutions participating • Number of partnerships established • Nature of and type of collaborations within institutions
Trained faculty and students on health disparities research	• Number of trainees in program • Number of students mentored • Number of trainees who completed degree programs • Number of trainees who published research findings
Outputs	
Intervention development and testing	• Number of interventions developed, tested, and implemented • Types of interventions developed and tested • Effectiveness of interventions
Publications	• Volume and topics of journal publications resulting from funding • Journal and article bibliometric measures
Dissemination	• Number of conference presentations • Types of other "nontraditional" dissemination strategies used (e.g., media releases)
Institutional research capacity	• Count of established or increased institutional research infrastructure (e.g., dedicated time for research) • Types of training mechanisms employed to build research capacity • Recruitment of minority nurse researchers • Number of grants received after completion of initial funding
Trained nurse scientists who conduct research studies	• Status of current employment of trainees • Number of trainees who currently do health disparities research • Number of trainees who applied for research funding • Number of trainees who received research funding • Types of research funding sought or obtained
Short-term outcomes	
Translation of research knowledge into practice	• Number of interventions adapted for new settings or populations
Increased awareness of health disparities research	• Citation of publications by other researchers • Change in number of applications for grant funding • Change in number of applications for training

Aspect of logic model	Measures
Medium- and long-term outcomes	
Knowledge and science advances	• Count of statistically significant findings from research studies • Number of effective interventions designed, categorized into priority areas • Journal and article bibliometric measures
Policy	• Instances in which NINR research or trainees influenced national policy initiatives (e.g., within health care reform)
Practice – health care & promotion	• Proportion of interventions adopted beyond research setting (e.g., nationally) • Citation of NINR research in practice guidelines
Training	• Number of training programs sustained at traditionally minority serving institutions

5.3 Methods for data collection and analysis

Below, we describe five proposed activities to elicit information on the proposed outcomes and measures. These data collection activities are not listed in any particular order. For each activity, we briefly describe the data collection and analysis methods, outcomes, and corresponding measures that could be addressed, and, as applicable, we describe different options for collecting or analyzing information. In most cases, we would consider Option A to be the most rigorous in terms of data quality. For each option, we provide an estimate of labor hours and other direct costs required.[1] Budget assumptions are provided in appendix D.

Activity 1: Survey of NINR grantees

Description of data collection and analysis: A survey can be conducted of the 317 PIs who received funding through the NINR Health Disparities Program (317 unique names of PIs occur across the 360 projects funded across all grant mechanisms by the NINR Health Disparities Program). Response rates to the survey may be high, as grantees would want to showcase their progress and improve the funding mechanism overall, but current contact information for grantees (e.g., e-mails, phone numbers, or addresses) may be difficult to obtain.

Outcomes and measures that could be addressed:

Activities	Outputs	Short-term outcomes	Medium- and long-term outcomes
• *Research focus*: Volume and distribution across focus areas, research themes, study designs, analytic methods used, and populations targeted • *Develop research capacity*	• *Intervention development and testing*: Number and types of interventions developed and tested, effectiveness of interventions • *Publications*: Volume and citation information of journal publications resulting from funding	• *Translation of knowledge into practice*: Number of interventions adapted to new settings	• *Knowledge and science advances*: Number of effective interventions designed • *Policy*: Instances in which NINR

[1] Labor estimates assume MOBIS rates across an 18-month time period, from June 2011 to December 2012. The exact cost may vary depending on timing, duration, and other aspects that may affect the assumptions used for these estimates.

Activities	Outputs	Short-term outcomes	Medium- and long-term outcomes
in traditionally minority-based institutions: Number of partnerships established, nature and type of collaborations within institutions • *Train faculty and students on health disparities research*: Number of students mentored, number of trainees who completed degree programs, number of trainees who published research findings	• *Dissemination*: Number of conference presentations and other dissemination strategies used • *Institutional research capacity*: Established research infrastructure at institution, types of mechanisms employed to build capacity, number of grants received after funding • *Trained nurse scientists*: Status of current employment of trainees, counts of trainees who currently do health disparities research, who applied for research funding, who received additional research funding, type of funding sought or obtained	or populations	research or trainees influenced national policy initiatives • *Practice*: Proportion of interventions adopted beyond research setting, citation of NINR research in guidelines • *Training*: Number of training programs sustained at traditionally minority serving institutions

Options:

A. Web-based survey with phone followup: Conduct a Web-based survey with phone followup of all PIs who received funding through the NINR Health Disparities Program, with overall questions for all grant mechanisms as well as specific questions tailored for each grant mechanism.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	150 hours	$34,334
Analyst	370 hours	$34,876
Junior analyst	525 hours	$34,264
Other direct costs		
Reproduction	500 pages	$40
Survey Monkey subscription	1 subscription	$200
Total estimate (6/2011–12/2012) [2]		$109,560

B. Web-based survey only: Conduct a Web-based survey of PIs who received funding through the NINR Health Disparities Program, with no followup.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	150 hours	$34,334

2 In this and other tables, total estimates are higher than the sum of the presented amounts because they include indirect rates on other direct costs, which are not included in the cost amount presented in the table.

Budget estimates	Quantity	Amount
Analyst	370 hours	$34,867
Junior analyst	435 hours	$28,390
Other direct costs		
Reproduction	500 pages	$40
Survey Monkey subscription	1 subscription	$200
Total estimate (6/2011–12/2012)		$97,864

C. Mail survey only: Conduct a mail survey of all PIs who received funding through the NINR Health Disparities Program, with mail followup.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	150 hours	$34,334
Analyst	400 hours	$37,694
Junior analyst	645 hours	$42,096
Other direct costs		
Reproduction	11,300 pages	$904
Supplies	1,080 envelopes	$50
Data entry	360 hours	$1980
Stamps	1,080 stamps	$475
Total estimate (6/2011–12/2012)		$117,990

Activity 2: Review of publications

Description of data collection and analysis: Applying lessons learned in this feasibility study, we could conduct a full text review and content analysis of all 639 articles associated with NINR Health Disparities Program funding. For all content analysis options, abstraction templates would be modified, based on the experience with the feasibility study. Several key constructs for abstraction could be added to the process (for example, gathering information to describe the intervention, and identifying whether the publication is part of a set of articles for a single study).

Bibliometric analysis uses bibliographic information (titles, authors, journals) to measure and explore the impact of research in a particular field of study, the impact of a set of researchers, or the impact of a particular article. Such analysis can be one tool to measure the quality and impact of publications resulting from the NINR Health Disparities Program. Options may also include additional bibliometric analysis.

Outcomes and measures that could be addressed:

Activities	Outputs	Short-term outcomes	Medium- and long-term outcomes
• *Research focus*: Volume and distribution across focus areas, research themes, study designs, analytic methods used, and populations targeted	• *Intervention development and testing*: Number and types of interventions developed and tested, effectiveness of interventions • *Publications*: Number and citation information of journal publications resulting from funding, journal and article bibliometric measures	• *Translation of knowledge into practice*: Number of interventions adapted to new settings or populations • *Increased awareness of health disparities research*: Citation of publications by other researchers	• *Knowledge and science advances*: Count of statistically significant findings from research studies, numbers of effective interventions designed, journal bibliometric impact measures

Options:

A. Content review of 639 publications, double coded: Conduct a content analysis of all 639 publications linked to the NINR Health Disparities Program grants. To maximize reliability and ensure the quality of the data, all publications would be double coded; that is, each publication would be abstracted independently by two coders, and any differences would be resolved jointly.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	84 hours	$19,227
Analyst	192 hours	$18,093
Junior analyst	1,690 hours	$110,297
Other direct costs		
Reproduction	19,670 pages	$1,574
Total estimate (6/2011–12/2012)		$149,404

B. Content review of 639 publications, single coded: Conduct a content analysis of all 639 publications linked to the NINR Health Disparities Program grants. Publications would be single coded. To increase quality and reliability of the data, a small sample (2 percent) would be double coded.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	84 hours	$19,227
Analyst	192 hours	$18,093

Budget estimates	Quantity	Amount
Junior analyst	1,052 hours	$68,659
Other direct costs		
Reproduction	10,085 pages	$806
Total estimate (6/2011–12/2012)		$106,893

C. Content review R01and R21 only, double coded: Conduct a content analysis of all 198 publications linked to the NINR Health Disparities Program R01 grants and all 17 publications linked to the NINR Health Disparities Program R21 grants. To ensure quality and reliability of the data, all publications would be double-coded.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	82 hours	$18,769
Analyst	182 hours	$17,151
Junior analyst	675 hours	$44,055
Other direct costs		
Reproduction	6,440 pages	$516
Total estimate (6/2011–12/2012)		$80,561

D. Content review R01and R21 only, single coded: Conduct a content analysis of all 198 publications linked to the NINR Health Disparities Program R01 grant and all 17 publications linked to the NINR Health Disparities Program R21 grants. Publications would be single coded. To ensure quality and reliability of the data, a small sample would be double coded.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	82 hours	$18,769
Analyst	182 hours	$17,151
Junior analyst	475 hours	$31,002
Other direct costs		
Reproduction	3,470 pages	$278
Total estimate (6/2011–12/2012)		$67,238

For all options: Additional bibliometric analysis could be conducted: The findings from the bibliometric analysis indicated that publications draw from a wide range of disciplines (such as nursing, medicine, or public health), making it difficult to draw conclusions about the impact of this research on the discipline. Additional bibliometric analysis could potentially distinguish publications by discipline and examine the impact of those publications on that discipline.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	16 hours	$3,662
Analyst	40 hours	$3,769
Other direct costs		
Reproduction	200 pages	$16
Total estimate (6/2011–12/2012)		$7,450

Activity 3: Interviews or site visits with NINR grantees

Description of data collection and analysis: Conduct in-depth, semistructured individual interviews with a sample of grant recipients. These interviews could be via telephone with a sample of grant recipients across mechanisms or could be via in-person site visits with those institutions that received a specific grant mechanisms (for example, the P20 center grants awarded in 2002 for the Nursing Partnership Centers on Health Disparities).

Outcomes and measures that could be addressed:

Activities	Outputs	Short-term outcomes	Medium- and long-term outcomes
• *Research focus*: Volume and distribution across focus areas, research themes, study designs, analytic methods used, and populations targeted • *Develop research capacity in traditionally minority-based institutions*: Number of partnerships established, nature and type of collaborations within institutions • *Train faculty and students on health disparities research*: Number of faculty trained, numbers of students mentored	• *Intervention development and testing*: Number and types of interventions developed and tested, effectiveness of interventions • *Publications*: Volume and citation information of journal publications that result from funding • *Dissemination*: Number of conference presentations and other dissemination strategies used • *Institutional research capacity*: Counts of research infrastructure, types of training mechanisms employed to build research capacity, number of grants received after completion of initial funding	• *Translation of knowledge into practice*: Number of interventions adapted to new settings or populations	• *Knowledge and science advances*: Number of effective interventions designed • *Policy*: Instances in which NINR research or trainees influenced national policy initiatives • *Practice*: Proportion of interventions adopted beyond research setting • *Training*: Number of training programs sustained at traditionally minority-serving institutions

Options:

A. Telephone interviews with 27 NINR grantees: Conduct telephone interviews with a sample of 27 NINR grantees across different grant mechanisms (for example, conduct telephone interviews with 9 grantees receiving grants through each of the following mechanisms: research (R), center (P), and training (T/K/F)).[3]

Budget estimates	Quantity	Amount
Labor		
Senior consultant	26 hours	$5,951
Analyst	116 hours	$10,931
Junior analyst	164 hours	$10,703
Other direct costs		
Reproduction	500 pages	$40
Transcription	40.5 interview hours	$4,455
Total estimate (6/2011–12/2012)		$32,685

B. Site visits of eight Nursing Partnership Centers: Conduct site visits with the eight traditionally minority-based institutions that received the P20 center grantees awarded in 2002, and there conduct interviews at the Nursing Partnership Centers on Health Disparities. During these site visits, interviews could be conducted with the PI, co-investigators, and other relevant staff to assess how the center grant affected health disparities research at these institutions.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	40 hours	$9,156
Analyst	272 hours	$25,632
Junior analyst	320 hours	$20,885
Other direct costs		
Reproduction	500 pages	$40
Transcription	72 interview hours	$7,920
Travel costs	8 trips	$20,192
Total estimate (6/2011–12/2012)		$87,603

C. Site visits of three Nursing Partnership Centers, telephone interviews with others: Conduct site visits with a sample of traditionally minority-based institutions (3) that received P20 center grants awarded in 2002 for interviews regarding the Nursing Partnership Centers on Health Disparities. During site visits, interview the PI and a small sample of co-investigators, and other

[3] Since the number would be limited to nine interviews per category (each would have a different interview protocol), OMB clearance would not be required.

relevant individuals (e.g., trainees). For those institutions not sampled for a site visit, conduct telephone interviews with the PI or one of the co-investigators to collect similar information.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	34 hours	$7,782
Analyst	180 hours	$16,962
Junior analyst	220 hours	$14,358
Other direct costs		
Reproduction	500 pages	$40
Transcription	27 interview hours	$2,970
Travel costs	3 trips	$8,712
Total estimate (6/2011–12/2012)		$52,398

D. Telephone interviews with 16 key informants across eight Nursing Partnership Centers (two individuals at each): Conduct two telephone semistructured interviews with two different types of key informants, from each of the eight centers (one per institution) that received the P20 center grants awarded in 2002, for interviews regarding the Nursing Partnership Centers on Health Disparities.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	26 hours	$5,951
Analyst	78 hours	$7,350
Junior analyst	150 hours	$9,790
Other direct costs		
Reproduction	500 pages	$40
Transcription	24 interview hours	$2,640
Total estimate (6/2011–12/2012)		$26,131

Activity 4: Review of NIH data

Description of data collection and analysis: Review of NIH data includes variables from the IMPAC II database, review of final project reports, or review and abstraction of grant abstracts. IMPAC II data provides descriptive information for the projects funded, the name of the PI, and the project period, among other variables. Grant abstracts can provide information to characterize the awards, but they do not provide data to measure outcomes. Final reports are more directly linked to outcomes. Because final reports are completed at the end of the grant, they are better than abstracts to be able to assess research outcomes, including significant findings, publications, and presentations.

Through the feasibility study, we learned that the quality of grant abstracts varies greatly and limits analysis. We anticipate that similar problems exist for the final project reports. Differential approaches could be used—for example, using final reports when they are available and of sufficient quality and using abstracts for others. Alternatively, projects without a final report could be excluded from this part of the analysis. Although this approach would limit the scope of the evaluation and the applicability of the findings, abstracts do not appear to be a valid measure of outcomes associated with the NINR Health Disparities Program projects. Therefore, our recommendation would be to use IMPAC II data for all grants in the sample, and in addition, use abstracted data from the final report, where available.

Outcomes and measures that could be addressed:

Activities	Outputs	Short-term outcomes	Medium- and long-term outcomes
• *Research focus*: Number of studies conducted, volume and distribution of focus areas, research themes, study designs, analytic methods used, and populations targeted • *Develop research capacity in traditionally minority-based institutions*: Number of institutions participating, numbers of partnerships established • *Train faculty and students on health disparities research*: Number of trainees in program	• *Intervention development and testing*: Number and types of interventions developed and tested, effectiveness of interventions • *Publications*: Number and citation information of journal publications resulting from funding • *Dissemination*: Number of conference presentations and other dissemination strategies used	• *Increased awareness of health disparities research:* Change in number of applications for grant funding, change in number of applications for training	*Not applicable*

Options:

A. IMPAC II and review of final reports for completed projects: Collect descriptive information from IMPAC II database on NINR Health Disparities Program projects. Conduct a review of final reports from projects that have been completed during the evaluation period. Exclude projects without a final report or if the final report is incomplete.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	30 hours	$6,867
Analyst	88 hours	$8,293
Junior analyst	300 hours	$19,579
Other direct costs		
Reproduction	500 pages	$40
Total estimate (6/2011–12/2012)		$34,785

B. IMPAC II only: Collect descriptive information from IMPAC II database on NINR Health Disparities Program projects only.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	14 hours	$3,205
Analyst	54 hours	$5,089
Junior analyst	90 hours	$5,874
Other direct costs		
Reproduction	500 pages	$40
Total estimate (6/2011–12/2012)		$14,213

C. IMPAC II, review of final reports for completed projects, and review of grant abstracts for ongoing projects: Collect descriptive information from IMPAC II database on NINR Health Disparities Program projects. Conduct a review of final reports from projects that have been completed during the evaluation period. For those projects without a final report, or if the final report is incomplete, review the grant abstracts to collect limited information. However, since the grant abstracts do not indicate findings, it would be difficult to compare proposal abstracts with final reports.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	40 hours	$9,156
Analyst	90 hours	$8,481
Junior analyst	302 hours	$19,710
Other direct costs		
Reproduction	500 pages	$40
Total estimate (6/2011–12/2012)		$37,393

Activity 5: Review of CVs from NINR grantees

Description of data collection and analysis: Content analysis of CVs from all NINR PIs as it relates to career development and publications. Only one option would be available, as described below.

Outcomes and measures that could be addressed:

Activities	Outputs	Short-term outcomes	Medium- and long-term outcomes
• *Train faculty and students on health disparities research*: Number of trainees who completed degree programs, numbers of trainees who published research findings	• *Publications*: Volume and citation information of journal publications • *Dissemination*: Number of conference presentations • *Trained nurse scientists*: Status of current employment of trainees, number of trainees who currently do health disparities research	*Not applicable*	*Not applicable*

Single Option: Conduct a Web-based search of CVs for each PI of projects funded through the NINR Health Disparities Program. This activity is only recommended if a survey will not be done.

Budget estimates	Quantity	Amount
Labor		
Senior consultant	24 hours	$5,493
Analyst	78 hours	$7,350
Junior analyst	272 hours	$17,752
Other direct costs		
Reproduction	2,095 pages	$168
Total estimate (6/2011–12/2012)		$30,786

Approvals needed for data collection activities

All data collection activities involving human subjects will require approval from an Institutional Review Board (IRB). Also, the Paperwork Reduction Act (PRA) of 1995 requires that each Federal agency obtain approval from the Office of Management and Budget (OMB) before undertaking to collect information from 10 or more persons. As such, an Office of Management and Budget (OMB) clearance package would be required if the survey or interviews surpass nine respondents per protocol. NINR estimates at least 4–6 months are needed to obtain OMB approval for noncontroversial data collection activities.

Section 6: Discussion of different approaches to outcomes evaluation

This section discusses the tradeoffs and uses of different approaches to an outcomes evaluation, as well as the resource requirements for each activity proposed.

6.1 Main tradeoffs and uses

Different approaches to evaluation will evidently produce different types and volumes of information that will affect the comprehensiveness, validity, and reliability of the data collected. Below we discuss several considerations to be taken into account in defining the approach for an outcomes evaluation.

6.1.1 Sample population of the NINR Health Disparities Program grants

One of the foundations of the evaluation will be, of course, the comprehensiveness and accuracy of the sample population of grants identified for analysis. In this case, we will be working with the sample or entire portfolio of grants already selected by NINR, using a complex search statement that is inclusive of most if not all search terms related to disparities. We do not have a standard to determine the accuracy of the approach, and this condition is a clear limitation, as we are assigning grants to the Health Disparities Program *after* they are funded and, in many cases, completed.

6.1.2 Information available across funded grants

As noted in several parts of this report, one of the greatest limitations to the analysis is that the volume and type of information available for individual grants varies greatly by the year the grant was awarded, its duration, and, to a lesser degree, the mechanism. Sources of variation include changes in the forms and data collected by NIH (e.g., grant abstract form) about individual grants as well as the time between completion of the research and publication. Given this variation, some of the analysis will need to be limited to grants that have such information available.

6.1.3 Stratification by grant type

It is apparent that the data collected, methods, and analyses will need to be stratified by grant type, as the goals and objectives of each type vary, along with the corresponding outcomes. In general, we can describe grants across mechanisms, but we can only compare outcomes across similar types of grants. This difference in basis for comparison is most evident when examining research grants, training grants, and center grants. For example, the career track of a trainee is not relevant to evaluate the outcomes of a research grant unless that research grant was part of the training program.

6.1.4 Content analysis

The most time-consuming data analysis task in the feasibility study was the abstraction and content analysis of the publications. However, this analysis is one of the richest sources of information regarding the nature of the research conducted. Therefore, the scope of content analysis will need to take into consideration the desired comprehensiveness or breadth of the sample as compared to depth of the analysis. In addition, content analysis outcome measures will vary by research topic, among other factors. Therefore, it will be necessary to define a limited set of grants and related publications for certain types of content analysis, for example, when examining research on HIV/AIDS, as done in the feasibility study. The sample for content analysis will need to take into consideration, among other aspects, priority areas of research and time from award of grant (to provide time for publication of research results).

6.1.5 Primary data collection is needed

The feasibility study has revealed the limitations of secondary data sources now available to evaluate the program. It is clear that much of the information needed for the evaluation can only be obtained directly from the PIs, preferably through a survey to increase yield and efficiency. For example, one of the outcome measures refers to interventions that may have been developed as a result of the research, or, at a later stage, the adoption of such interventions. In certain cases, investigators may have published an article that refers to the development and/or testing of the intervention, as was the case in the feasibility study. However, in the sample analyzed for the feasibility study, only about one-half of all grants funded were associated with a publication in the time period studied, so primary data collection from those who conducted the intervention research would be needed.

6.2 Outcome evaluation options

Below, we present three outcomes evaluation options: our recommended approach, an optimal or *top-end* approach if funding was unlimited, and a restricted or *low-end* approach if funding is minimal. For each, we describe what would be accomplished with each option, the nature of the sample, required data collection activities and recommendations for each, as well as estimated costs.

Any of these approaches will provide information to NINR that will be useful to identify the accomplishments of the Health Disparities Program and funding priorities. However, as noted above, each approach will evidently produce different types of information and level of detail. Thus, the approach selected will affect the comprehensiveness, validity, reliability, and usefulness of the data collected. Our recommended approach, listed as option 1, balances comprehensiveness and usefulness of information against resource requirements.

In determining the estimated costs for each evaluation approach, we did not include project management costs. These costs can be estimated at 5 percent to 10 percent of the total budget, depending on type of deliverables, management requirements (such as kickoff meetings, weekly meetings with the Project Officer, and so forth), and the length of the evaluation (for example, OMB clearance, if needed, would increase the project length by at least 4–6 months).

Option 1: Recommended approach

What information will this approach give to NINR? Our recommended approach balances comprehensiveness of information with resource requirements, while providing useful outcomes data across all grant mechanisms funded through the NINR Health Disparities Program. This option applies a mixed methods approach to understanding the research funded and outcomes associated with that research.

Specifically, we recommend using a Web-based survey of all 317 grantees, abstraction and content analysis of all 639 publications associated with grants awarded from FY 1999 to FY 2008 using single coding (with a 2 percent sample that would be double coded for quality control), additional bibliometric analysis of these 639 publications to determine impact by discipline (such as nursing, medicine, or public health), telephone interviews with grantees to complement the data gathered through the survey, and a review of progress reports for grants that have these available and IMPAC II descriptors for all awards. The detailed program outcomes evaluation matrix for this option is presented in appendix C.

Sample: All projects and grant mechanisms, with additional information for completed projects and projects with publications.

Data sources and resource requirements:

Data sources	Resource estimate
Activity 1, Option B: Web-based survey	$97,864
Activity 2, Option B: Content review 639 publications, single-code	$106,893
Activity 2: Additional bibliometric analysis	$7,450
Activity 3, Option A: Telephone interviews with 27 grantees	$32,685
Activity 4, Option A: IMPAC II and final reports for completed projects	$34,785
Total estimate	$279,667

Option 2: Top-end approach

What information will this approach give to NINR? This approach would be the most comprehensive; but, at the same time, this approach would be the costliest. It applies a mixed methods approach to understanding the research funded and the outcomes associated with that research. This approach includes all elements of the recommended approach above but includes double coding for all of the publications associated with grants funded through the NINR Health Disparities Program, ensuring the highest quality data abstraction. It also includes conducting site visits to eight traditionally minority-based institutions that received the P20 Nursing Partnership awards to assess the status and sustainability of these partnerships. We would recommend this approach, given unlimited resources, as it is the most comprehensive and would maximize the validity and reliability of the data collected.

Sample: All projects and grant mechanisms, with additional information for completed projects, projects with publications, eight traditionally minority-based institutions that received the P20 Nursing Partnership awards.

Data sources and resource requirements:

Data sources	Resource estimate
Activity 1, Option A: Web-based survey with phone followup	$109,560
Activity 2, Option A: Content review of 639 publications, double code	$149,404
Activity 2: Additional bibliometric analysis	$7,450
Activity 3, Option A: Telephone interviews with 27 grantees	$32,685
Activity 3, Option B: Site visit of eight P20 Nursing Partnerships, TMBI	$87,603
Activity 4, Option A: IMPAC II and final reports for completed projects	$34,785
Total estimate	$421,487

Option 3: Low-end approach

What information will this approach give to NINR? This approach provides the basic information required for an outcomes evaluation through IMPAC II data, coupled with final reports across all grant mechanisms, and content review of publications associated with the R01 and R21 grant mechanisms only. This approach is the least comprehensive, but it also uses the fewest resources.

Sample: Abstracts for all projects, final project reports for completed projects, and publications associated with R01 and R22 grant mechanisms.

Data sources and resource requirements:

Data sources	Resource estimate
Activity 2, Option D: Content review of 215 R01/R21 publications, single code	$67,238
Activity 4, Option A: IMPAC II and final reports for completed projects across all mechanisms	$34,785
Total estimate	$102,023

Section 7: Recommendations to improve evaluability of the NINR Health Disparities Program

Even without a full outcomes evaluation, NINR should consider the following factors to improve the evaluability of the Health Disparities Program in the future:

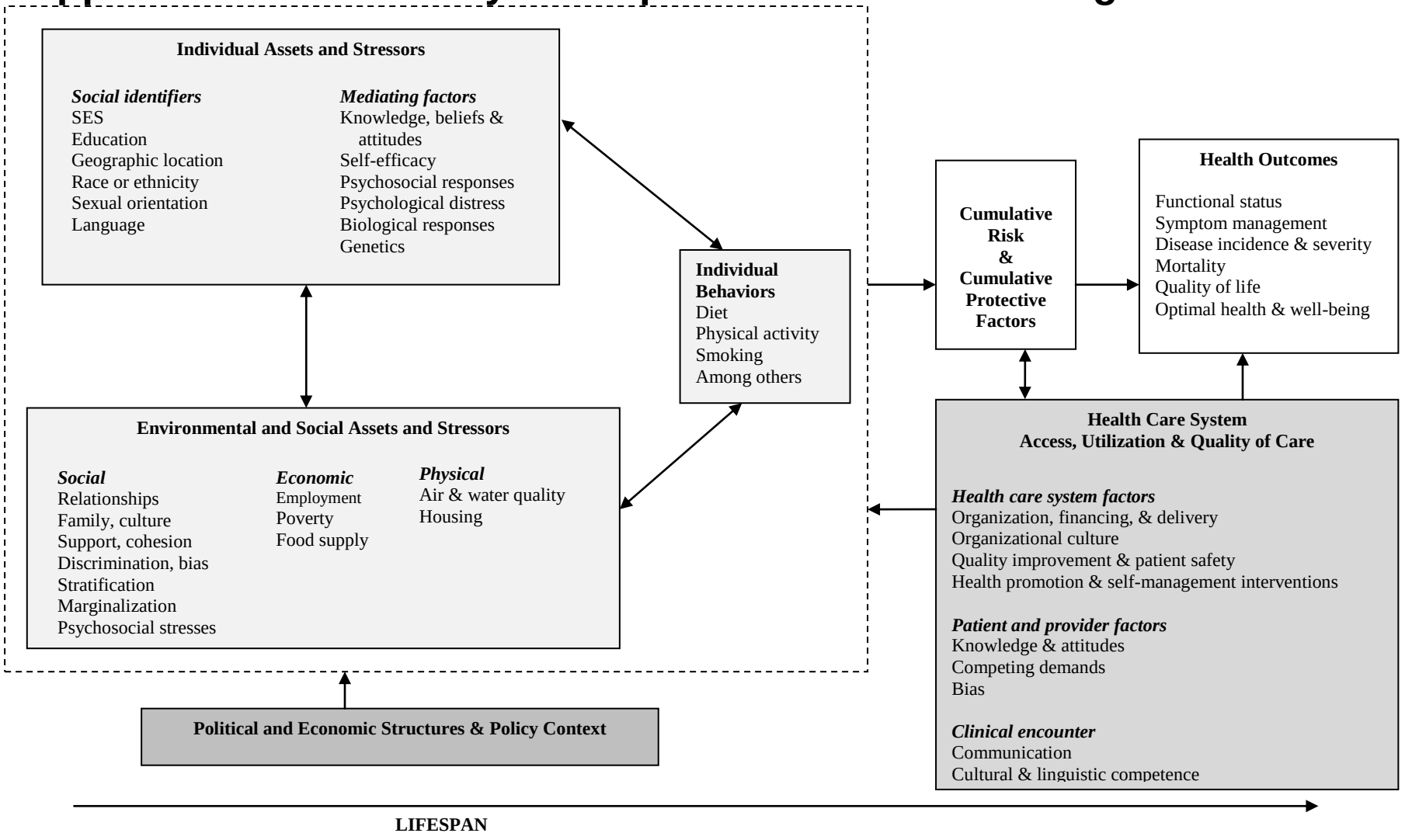
- **Develop a supplemental information form** to be included as part of all progress and final reports. This form could include questions and information on outcome indicators of interest, such as publications, conference presentations, notable findings, and so forth. This form would allow NINR to collect more standardized information of interest for a long-term evaluation. In developing this form, we would recommend cognitive testing of the form with previous NINR grantees to make sure the form is clear and is interpreted consistently by multiple individuals.
- **Identify health disparities projects** at the start of award to be able to track progress over time. Similarly, linking evaluation efforts to specific Request for Funding Announcements with clearly defined objectives and inputs that align with the NIH NINR Strategic Plan for Health Disparities will enable NINR to better track activities as well as specific goals and outcomes at the end of those projects.
- **Link publications to specific grants.** With the requirement to state the funding source in publications after 2008, it may be easier to link publications with specific grants. If a mechanism is not already available, NINR could consider establishing a mechanism that continually monitors publications associated with grant numbers of the NINR Health Disparities Program projects.
- **Hold an annual meeting of grantees funded by the NINR Health Disparities Program.** As recommended during the key stakeholders' interviews, an annual meeting would not only showcase and disseminate findings of relevant research conducted but also provide opportunities for connecting with trainees of the NINR Health Disparities Program and networking among grantees.
- **Conduct limited use of data mining services, called "fingerprinting," for projects where it is available.** Starting in 2008, NIH began using Collexis software services to conduct data mining, called "fingerprinting," of text-based grant information as part of an effort to identify experts in diseases and conditions. Because limited information is available to the public about this effort, it has not been possible within the context of a feasibility study to ascertain the exact scope of this project or the nature of the texts used. It is theoretically possible that this system could produce more accurate results in retrieving grants or publications related to health disparities research, but the success of the system for this purpose would depend entirely on which texts were included and how many years of data have been covered.

References

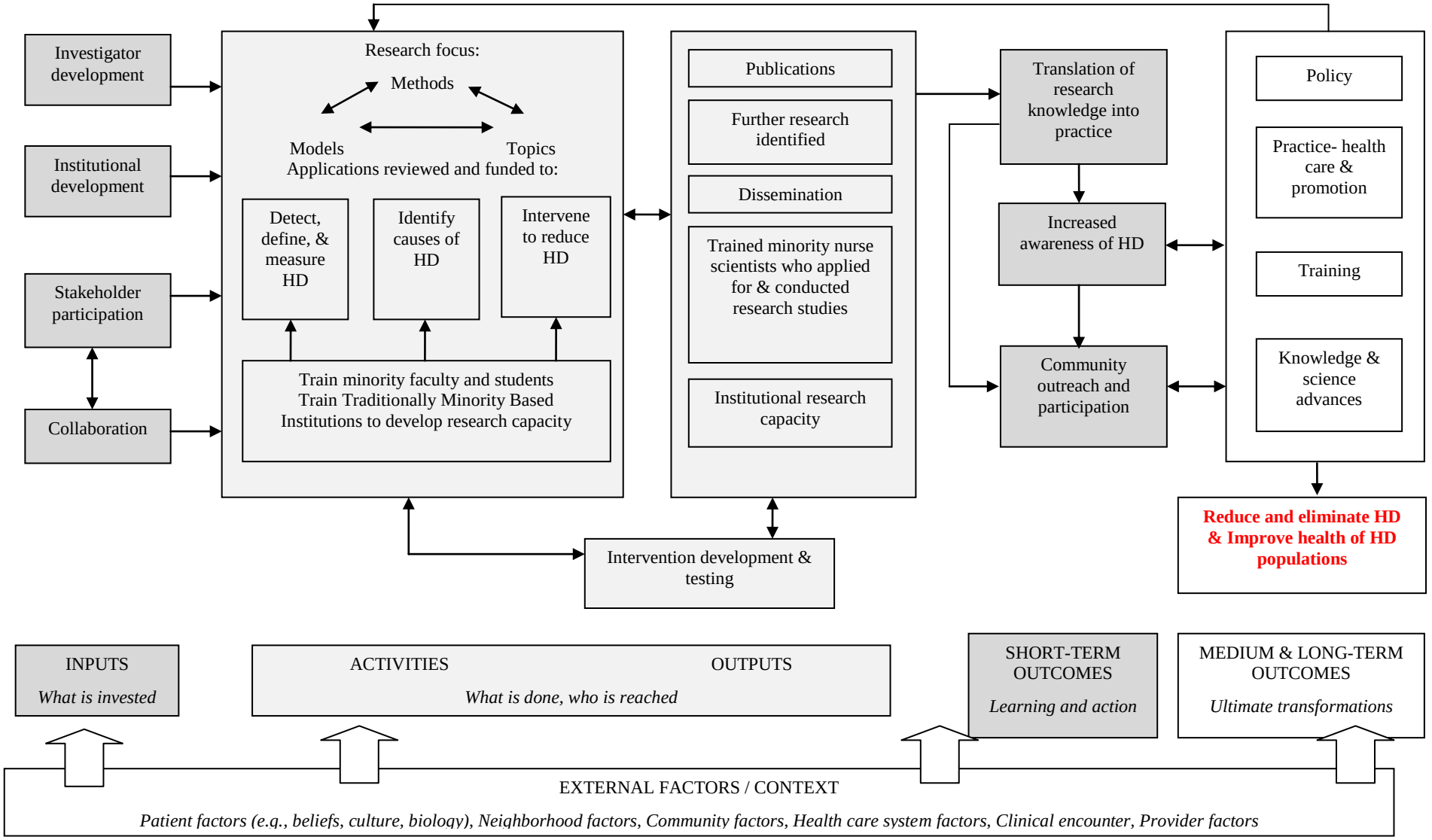
1. National Institute for Nursing Research. NINR strategic plan. Washington, DC: National Institutes of Health; 2006 [cited 2011 January 7]. Available from: http://www.ninr.nih.gov/NR/rdonlyres/9021E5EB-B2BA-47EA-B5DB-1E4DB11B1289/4894/NINR_StrategicPlanWebsite.pdf.
2. Holmes JH, Lehman A, Hade E, Ferketich AK, Gehlert S, Rauscher GH, et al. Challenges for multilevel health disparities research in a transdisciplinary environment. Am J Prev Med. 2008 Aug;35(2 Suppl):S182-92.
3. James SA. Epidemiologic research on health disparities: some thoughts on history and current developments. Epidemiol Rev. 2009;31:1-6.
4. Myers HF. Ethnicity- and socio-economic status-related stresses in context: an integrative review and conceptual model. J Behav Med. 2009 Feb;32(1):9-19.
5. Rew L, Hoke MM, Horner SD, Walker L. Development of a dynamic model to guide health disparities research. Nurs Outlook. 2009 May-Jun;57(3):132-42.
6. Sanders-Phillips K, Settles-Reaves B, Walker D, Brownlow J. Social inequality and racial discrimination: risk factors for health disparities in children of color. Pediatrics. 2009 Nov;124 Suppl 3:S176-86.
7. Kilbourne AM, Switzer G, Hyman K, Crowley-Matoka M, Fine MJ. Advancing health disparities research within the health care system: a conceptual framework. Am J Public Health. 2006 Dec;96(12):2113-21.
8. Stokols D, Hall KL, Taylor BK, Moser RP. The science of team science: overview of the field and introduction to the supplement. Am J Prev Med. 2008 Aug;35(2 Suppl):S77-89.
9. National Institutes of Health. NIH health disparities strategic plan fiscal years 2004-2008. Washington, DC: Department of Health and Human Services; n.d. Available from: http://www.nimhd.nih.gov/about_ncmhd/index2.asp.
10. U.S. Department of Health and Human Services. The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020. Phase I report: Recommendations for the framework and format of Healthy People 2020. Section IV. Advisory Committee findings and recommendations. 2010 [cited 2011 February 14]: Available from: http://www.healthypeople.gov/hp2020/advisory/PhaseI/sec4.htm#_Toc211942917.
11. U.S. Department of Health & Human Services, Office of Minority Health and Health Disparities. The national plan for action draft. 2010 [cited 2011 February 14]: Available from: http://minorityhealth.hhs.gov/npa/templates/browse.aspx?&lvl=2&lvlid=34.
12. Commission on Social Determinants of Health. Backgrounder 3: key concepts. A guide to closing the gap in a generation: health equity through action on the social determinants of health. Geneva: World Health Organization; 2008. Available from: http://www.who.int/social_determinants/thecommission/finalreport/key_concepts/en/index.html.

13. Centers for Population Health and Health Disparities. Cells to society: overcoming health disparities. Bethesda, MD: National Institutes of Health; 2007. Available from: http://cancercontrol.cancer.gov/populationhealthcenters/cphhd/documents/CPHHD_report.pdf.
14. Berkman LF. Social epidemiology: social determinants of health in the United States: are we losing ground? Annu Rev Public Health. 2009 Apr 29;30:27-41.
15. Office of Disease Prevention and Promotion. Healthy people 2010. US Department of Health and Human Services; 2010 [cited 2010 07 Sept]; Available from: http://www.healthypeople.gov/.
16. Agency for Healthcare Research and Quality. National healthcare disparities report. Washington, DC: U.S. Dept. of Health and Human Services; 2009. Available from: http://www.ahrq.gov/qual/nhdr09/nhdr09.pdf.
17. National Institute for Nursing Research. Portfolio analysis of NINR Health Disparities Extramural Program FY 1999-2008 [draft].
18. American Institutes for Research. NINR Health Disparities Program feasibility study for outcomes evaluation: literature review draft report. Washington, DC: American Institutes for Research; 2010.

Appendix A: Preliminary conceptual framework and logic model



Sources: James 2009; Myers 2009; Rew et al., 2009; Sanders-Phillips et al., 2009



Sources: Holmes et al., 2008; Kilbourne et al., 2006; Stockols et al., 2008; NIH Health Disparities Strategic Plan, 2004–2008

Key: HD = Health disparities

Appendix B: Additional information on methods

Literature review

The purpose of the literature review was to examine the conceptualization and measurement of disparities in health and health care. Specifically, the review sought to understand: (1) conceptualization and measurement issues related to health disparities research and (2) evaluations of health disparities research programs.

The literature review was conducted from June to September 2010 and gathered information through reviewing published and grey, or unpublished, literature. The team searched the medical and social science published literature using the Medline and CINAHL databases, limiting searches to English-language U.S. articles published between October 1, 1999 and April 30, 2010. To scan the grey literature, we conducted a targeted search of Web sites for federal agencies, foundations, and other organizations known to have programs on health disparities, limiting searches to the past five years: May 1, 2005 to April 30, 2010. A total of 84 published and 20 grey literature articles were reviewed and abstracted using an abstraction template. Findings were synthesized across topics of interest.

Preliminary logic model and conceptual framework

We developed a preliminary logic model of the NINR Health Disparities Program and a conceptual framework of the determinants of health disparities. Each one serves a different purpose but they are also complementary. The logic model acts as an organizing framework for the evaluation of the research funded by the NINR Health Disparities Program. The conceptual framework provides a basis for examining how the NINR Health Disparities Program-funded research findings may elucidate the mechanisms that result in disparities in health care and health outcomes as well as potential points of intervention.

To develop the logic model, we examined models discussed in the literature as well as documents related to the activities and purpose of the NINR Health Disparities Program. We adapted a preliminary logic model developed by Holmes and colleagues (2) for the NINR Health Disparities Program. The model reflects multi-level research and features, including inputs, activities, outputs, and short-, medium-, and long-term outcomes.

To define a conceptual framework relevant to NINR's disparities research, we examined a variety of models of disparities in health and health care discussed in the literature. The conceptual framework of health disparities developed by AIR draws upon four different models.(3-6) It attempts to integrate elements from various models (e.g., ecological; epidemiological; individual versus social factors), but is not based on any one theory or conceptual framework. NINR provided additional context in terms of NINR's research portfolio.

Key stakeholder interviews

The purpose of the key stakeholder interviews was to obtain input on the conceptualization and definition of health disparities and the evaluation of health disparities research programs, including the goals of a funding program, measures, and key outcomes.

Between October 25, 2010, and December 1, 2010, AIR staff conducted 10 one-hour individual interviews with key stakeholders in various areas related to health disparities research or evaluation of funding programs via telephone using a semi-structured interview protocol. From an initial list of interview candidates developed by AIR and NINR with input from the Evaluation Advisory Committee for this project, NINR selected 10 stakeholders to request an interview. One declined to participate, indicating limited knowledge on the topic areas, so another individual was selected to be interviewed. Of the 10 stakeholders that were interviewed, five were affiliated with federal government agencies, and five were affiliated with private institutes, organizations, or universities. Two stakeholders had received funding from NINR.

Review of grantee publications

The purpose of the review of grantee publications was to conduct a bibliometric and content analysis of publications produced as a result of grant funding from the NINR Health Disparities Program. This review sought to assess the impact of publications resulting from NINR funding using bibliometrics; to describe types of publications, research themes and focus, and significant findings of a sample of NINR-funded publications, and to examine the scientific quality and methodological rigor of the same sample of publications.

NINR provided AIR with 906 possible article citations. After removing duplicates and articles not clearly related to grants, a final set of 639 article citations remained. We conducted bibliometric analysis of all article citations in this final set focusing on five journal measures and three article measures. A random sample of 220 article citations was selected for a more in-depth content analysis and assessment of methodological rigor. We sampled articles associated with the two most common grant mechanisms (R and P) according to the relative proportion of each type of grant.

For the sample of 220 citations selected for content analysis, we identified key constructs for abstraction. AIR adapted categories from a NINR draft portfolio analysis (17), identified constructs from AIR's previous literature review, and included "other" categories to allow abstractors to note additional categories that may surface.(18) AIR developed a list of criteria for evaluating the scientific quality and methodological rigor of grantee publications by reviewing widely-used reporting guidelines developed by third-party organizations and synthesized a list of criteria from elements of various reporting guidelines.

AIR prepared an abstraction template and Microsoft Excel database that included key dimensions to abstract related to the content and scientific quality of publications. Once abstracted, AIR staff synthesized findings in three main content areas: study type and research methods, research themes, and key findings from grantee publications. To assign a "quality" score for each article, we counted the number of criteria met for type of study reported, and expressed it as a percentage of the total number of criteria applicable to the type of study.

Review of grant proposal abstracts and IMPAC II data

The purpose of the review of the grant proposal abstracts and IMPAC II data was to review regularly collected NIH IMPAC II grant-related information and examine grant abstracts to identify information that would be useful for an outcomes evaluation, and to describe health disparities projects funded by NINR between 1999 and 2008.

NINR provided AIR with information from the IMPAC II database including grant abstracts and other specific grant-related information for 360 unique health disparities related projects. AIR staff identified key variables for abstraction based on a draft portfolio analysis conducted by NINR (17), AIR's previous literature review (18), and AIR's review of grantee publications. AIR prepared an abstraction template and a corresponding Excel database that included a list of these key variables to abstract. AIR staff also conducted a bibliometric analysis for grant awards stratified by grant type using five journal measures and three article measures.

Appendix C: Evaluation matrix for program outcomes

Below, we present the evaluation matrix for the recommended evaluation approach.

Outcomes and measures	Data sources	Data analysis	Limitations	What the analysis will describe
1. **How has the research funded by the NINR Health Disparities Program contributed to furthering current knowledge and understanding regarding health disparities?**				
Research focus: Number of studies conducted; Volume and distribution across focus areas, research themes, study designs used, analytic methods used, and populations targeted	Review of final project reports; Web-based survey of NINR grantees; Content review of publications	Descriptive statistics	• Data quality (validity and reliability)	Description of research focus of projects and potential gaps in funding. Limited to projects with completed final reports, with associated publications, or those in which the principal investigator completed the survey.
Intervention development and testing: Number and types of interventions developed, tested and implemented; effectiveness of interventions	Review of final project reports; Web-based survey of NINR grantees, grantee interviews; Content review of publications	Descriptive statistics; Qualitative analysis of interviews; Content analysis	• Data quality (validity and reliability) • Need to determine classification scheme for interventions and standards for effectiveness	Description of interventions and research methods used to develop and test those interventions. Limited to projects with completed final reports, with associated publications, or those in which the principal investigator completed the survey or an interview.
Dissemination: Volume and topics of journal publications; Number of conference presentations	Web-based survey of NINR grantees; Content review of publications	Descriptive statistics	• Data quality (validity and reliability) • Self-report of conference presentations	For grants with publications, descriptive information and significance of research; for principal investigators who respond to survey, conferences where results were presented.

Outcomes and measures	Data sources	Data analysis	Limitations	What the analysis will describe
Translation of knowledge into practice: Number of interventions adapted for new settings or populations	Web-based survey of NINR grantees; Interviews of grantees; Content review of publications	Descriptive statistics; Qualitative analysis of interviews	• Data quality (validity and reliability)	Number and description of interventions adapted for new settings or populations.
Increased awareness of health disparities: Change in number of applications for grant funding; Change in number of applications for training	NIH IMPAC II data	Descriptive statistics	• Data quality (validity and reliability)	Over evaluation period, change in number of research and training grant applications by grant mechanism.
Knowledge and science advances: Number of publications with statistically or otherwise significant findings; Number of effective interventions designed; Journal and article bibliometric measures;	Content review of publications; Article and journal bibliometric reports; Grantee interviews	Descriptive statistics; Bibliometric analysis; Qualitative analysis of interviews	• May be biased toward positive findings due to publication and interviewee bias • Not all journals and articles are indexed for bibliometric measures	If published in journal, descriptions of interventions that have been shown to be effective and numbers of published studies with statistically significant findings, but not the impact of those findings. From publications, impact of research through journal publications as reflected in bibliometrics. From grantees, reports on knowledge and science advances and their significance.
Policy: Instances in which NINR research or trainees influenced national policy	Web-based survey of NINR grantees; Interviews with NINR grantees	Descriptive statistics; Qualitative analysis of interviews	• Anticipate small number of instances • Dependent on response rate and self-report	Instances where NINR-funded research or trainees have influenced national policy.
Practice: Proportion of interventions adopted beyond research setting	Web-based survey of NINR grantees; Interviews with NINR grantees	Descriptive statistics; Qualitative analysis of interviews	• Anticipate small number of instances • Dependent on response rate and self-report	Descriptions of interventions that have been adapted beyond research setting, included in practice guidelines or via national institutions.

Outcomes and measures	Data sources	Data analysis	Limitations	What the analysis will describe
2. **How has the NINR Health Disparities Program contributed to building capacity for health disparities research?**				
Institutional research capacity: Number of institutions participating, number of partnerships established, nature and type of collaboration, recruitment of minority nurse scientists	IMPAC II data; Review of final project reports; Web-based survey of NINR grantees; Interviews with NINR grantees	Descriptive statistics; Qualitative analysis of interviews	• Data quality (validity and reliability) • Limited to self-report	Numbers receiving grants, description of research capacity for individual institutions receiving center grants (P20/P30). Limited to projects with completed final reports or those in which principal investigator completed the survey or an interview.
Trained nurse scientists: Number of trainees in programs, status of employment of trainees, career development, numbers of trainees who currently conduct health disparities research, number of trainees who applied or received additional funding	Web-based survey of NINR grantees	Descriptive statistics	• Data quality (validity and reliability) • Limited to self-report	Description of volume and types of individual trainees, career development, and current research.
Training: Type of training mechanisms employed to build research capacity, number of training programs sustained at institutions	Web-based survey of NINR grantees; Interviews with NINR grantees	Descriptive statistics; Qualitative analysis and qualitative analysis of interviews	• Data quality (validity and reliability)	Description of training mechanisms and numbers of training programs sustained at individual institutions.

Appendix D: Budget assumptions

Activity 1: Survey of NINR grantees

- **Option A. Web-based survey with phone followup**:
  - Labor
    - Assumes data collection and analysis for 317 unique Principal Investigators (PIs), including phone followup for 90 percent of PIs. Includes cognitive testing of survey.
  - Other Direct Costs (ODCs)
    - Printing and reproduction costs for data collection and reporting
    - Survey website (Survey Monkey) subscription for programming Web-based survey
- **Option B. Web-based survey only**:
  - Labor
    - Assumes data collection and analysis for 317 unique PIs. Includes cognitive testing of survey.
  - ODCs
    - Printing and reproduction costs for data collection and reporting
    - Survey website (Survey Monkey) subscription for programming Web-based survey
- **Option C. Mail survey only**:
  - Labor
    - Assumes data collection and analysis for 317 unique PIs. Includes cognitive testing of survey.
  - ODCs
    - Printing and reproduction costs for data collection and reporting
    - Survey website (Survey Monkey) subscription for programming Web-based survey
    - Printing and reproduction costs for 10 pages per survey, and 2 followups, assuming 317 PIs
    - Stamps and envelopes for sending original survey and followups.
    - Assumes 360 hours for data entry of 317 paper surveys.

Activity 2: Review of publications

- **Option A. Content review of 639 publications, double coded**:
  - Labor
    - Assumes abstraction and analysis of 639 publications by two staff people each.
  - ODCs
    - Printing and reproduction costs for data collection and reporting, including printing 2 sets of articles assuming 639 articles at an average of 15 pages each.

- **Option B. Content review of 639 publications, single coded**:
  - Labor
    - Assumes abstraction and analysis of 639 publications by one staff person each.
  - ODCs
    - Printing and reproduction costs for data collection and reporting, including printing 1 set of articles assuming 639 articles at an average of 15 pages each.
- **Option C. Content review R01and R21 only, double coded**:
  - Labor
    - Assumes abstraction and analysis of 215 publications by two staff people each.
  - ODCs
    - Printing and reproduction costs for data collection and reporting, including printing 2 sets of articles assuming 215 articles at an average of 15 pages each.
- **Option D. Content review R01and R21 only, single coded**:
  - Labor
    - Assumes abstraction and analysis of 215 publications by one staff person each.
  - ODCs
    - Printing and reproduction costs for data collection and reporting, including printing 2 sets of articles assuming 215 articles at an average of 15 pages each.
- **For all options: Additional bibliometric analysis could be conducted**:
  - Labor
    - Assumes additional analysis of 639 publications by discipline.
  - ODCs
    - Printing and reproduction costs for data collection and reporting.

Activity 3: Interviews or site visits with NINR grantees

- **Option A. Telephone interviews with 27 NINR grantees**:
  - Labor
    - Assumes protocol development, interview and analysis time for 27 grantees.
  - ODCs
    - Printing and reproduction costs for data collection and reporting.
    - Transcription costs for 27 interviews at 1.5 hours per interview, assuming a cost of $110 per interview hour.
- **Option B. Site visits of eight Nursing Partnership Centers**:
  - Labor
    - Assumes protocol development, interview and analysis time. Includes travel time for visits to 8 traditionally minority-based institutions that were recipients of the nursing partnership centers grants.

- ODCs
  - Printing and reproduction costs for data collection and reporting.
  - Transcription costs for 48 interviews at 1.5 hours per interview, assuming a cost of $110 per interview hour.
- Travel
  - Eight trips with overnight travel (two nights) for two interviewers to conduct six interviews at each institution that was a recipient of a nursing partnership centers grant.

- **Option C. Site visits of three Nursing Partnership Centers, telephone interviews with others**:
  - Labor
    - Assumes protocol development, travel, interview and analysis time. Includes travel time for visits to 3 traditionally minority-based institutions that were recipients of the nursing partnership centers grants.
  - ODCs
    - Printing and reproduction costs for data collection and reporting.
    - Transcription costs for 18 interviews at 1.5 hours per interview, assuming a cost of $110 per interview hour.
  - Travel
    - Three trips with overnight travel (two nights) for two interviewers to conduct six interviews at institution that was a recipient of a nursing partnership centers grant.
- **Option D. Telephone interviews with 16 key informants across eight Nursing Partnership Center**:
  - Labor
    - Assumes protocol development, interview and analysis time for 2 key informants at each of the eight traditionally minority-based institutions that were recipients of the nursing partnership centers grants.
  - ODCs
    - Printing and reproduction costs for data collection and reporting.
    - Transcription costs for 16 interviews at 1.5 hours per interview, assuming a cost of $110 per interview hour.

Activity 4: Review of NIH data

- **Option A. IMPAC II and review of final reports for completed projects**:
  - Labor
    - Assumes abstraction and analysis of IMPAC II data for 360 grants and final reports for 333 grants that had been completed as of 2010.

  - ODCs
    - Printing and reproduction costs for data collection and reporting.
- **Option B. IMPAC II only**:
  - Labor
    - Assumes abstraction and analysis of IMPAC II data for 360 grants.
  - ODCs
    - Printing and reproduction costs for data collection and reporting.
- **Option C. IMPAC II, review of final reports for completed projects, and review of grant abstracts for ongoing projects**:
  - Labor
    - Assumes abstraction and analysis of: IMPAC II data for 360 grants; final reports for 333 grants that had been completed as of 2010; and grant abstracts for the 27 grants that had not been completed as of 2010.
  - ODCs
    - Printing and reproduction costs for data collection and reporting.

Activity 5: Review of CVs from NINR grantees

- **Single Option:**
  - Labor
    - Assumes abstraction and analysis of CVs from 317 grantees.
  - ODCs
    - Printing and reproduction costs for data collection and reporting.
    - Printing and reproduction costs for analysis of CVs at 5 pages per CV.