

**Feasibility Study to Evaluate
Minority Institution Research Development Programs
Awarded as Cooperative Agreements**

Final Report

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prepared for

**National Institutes of Health
National Institute of Neurological Disorders and Stroke
National Institute on Alcohol Abuse and Alcoholism**

by



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1. EXECUTIVE SUMMARY

The overarching goal of this feasibility study was to provide a scientifically sound design for tracking the performance of cooperative agreement programs designed to build research capacity and which could be useful for future outcome evaluations. The study was prompted by National Institutes of Health (NIH) administrators' interest in whether the key distinguishing feature of the cooperative agreement mechanism—the active partnership between NIH program staff and the awardee—makes a difference in program outcomes. Using the cooperative agreement mechanism rather than the grant mechanism to build research capacity is of interest to NIH program administrators. This interest, coupled with the relative newness of two NIH cooperative agreement programs designed to enhance research capacity at minority institutions, provided a unique opportunity to assess the feasibility of systematically tracking the performance of cooperative agreement awardees. In October 1999 the National Institute of Neurological Disorders and Stroke (NINDS) and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) initiated a 1-year feasibility study of the NINDS Specialized Neuroscience Research Program (SNRP) and the NIAAA Collaborative Minority Institution Alcohol Research Development (CMIARD) Program. The study, which was called the Feasibility Study to Evaluate Minority Institution Research Development Programs Awarded as Cooperative Agreements, was conducted during 1999–2000 by Quantum Research Corporation¹ (QRC), a research firm located in Bethesda, MD.

This report describes a study design and conceptual framework for tracking the progress of cooperative agreement programs on an annual basis, and recommends a data collection methodology that is feasible but not overly burdensome for program personnel and NIH administrators. The recommendations are suitable for adaptation to any NIH cooperative agreement program that is designed to enhance research capacity through collaborative pilot projects. The report also provides a baseline assessment of the 9 SNRP and CMIARD programs that had been funded when the study began in October 1999.

1.1 SNRP AND CMIARD PROGRAM DESCRIPTIONS

NINDS and NIAAA have each developed programs to enhance the research capacity of a group of academic institutions that historically have not been major participants in NIH programs—specifically, institutions with predominantly minority student enrollments. The SNRP and CMIARD programs focus on neuroscience and alcohol research, respectively. Both programs were designed to take advantage of the interest among investigators at minority institutions in research on minority health and health disparities, recognizing the importance of involving minority institutions in such research. An important long-term goal of each program has been to foster the capability of minority institutions to compete successfully within the NIH peer review process for research grants. Both programs have been implemented as cooperative agreements. Unlike the administration of a research grant or contract, a cooperative agreement award involves substantial scientific and/or technical interaction between NIH administrators and cooperative agreement awardees, since they work jointly in an active partnership designed to facilitate progress and assist awardees in achieving program goals.

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A Specialized Center Grant Cooperative Agreement program was originally funded at the Morehouse School of Medicine in September 1994 through a Developmental Neuroscience Research Program (DNRP) cooperative agreement. The purpose of the DNRP was to create an Exploratory Neuroscience Research Center. This program led to the creation of the SNRP program. As a result, the SNRP program was formally launched when NINDS, in collaboration with the National Center for Research Resources (NCRR) and the Office of Research on Minority Health (ORMH), awarded 5 additional² U54 cooperative agreements to Howard University, Universidad Central del Caribe, University of Hawaii at Manoa, University of Puerto Rico Medical Sciences, and University of Texas at San Antonio in September 1999. These programs were designed to provide broad-ranging support to strengthen neuroscience programs while fostering collaborative research opportunities and promoting training and affiliations. The U54 cooperative agreement awards provided direct costs ranging from \$939,000 to \$1.2 million in the first year (see **exhibit 1**, p. 11). For purposes of this Feasibility Study, the DNRP at Morehouse School of Medicine will be grouped with the SNRPs.

NIAAA, in collaboration with ORMH, established the CMIARD program by funding three mini-centers³ (Charles R. Drew University, Howard University, and North Carolina Central University) through U24 awards in September 1997. The long-range goal of the CMIARD program is to strengthen the alcohol research capacity of predominantly minority institutions by fostering collaborations with research-intensive institutions, and through this means, to expand the capabilities of the research scientists in these institutions to conduct research on alcohol-related health issues within minority communities. CMIARD awardees received first-year direct costs ranging from \$301,000 to \$397,000 (see **exhibit 1**, p. 11).

While both NINDS and NIAAA chose the cooperative agreement mechanism, the two research areas funded (neuroscience and alcohol research) differ in the type of research conducted, the facilities and equipment needed to conduct research, and the skills required. Moreover, there were substantial differences in the amount and type of terms and conditions of the awards, particularly with respect to release time for faculty and the amount of funding that was provided to the awardees. The eligibility criteria for the two programs also differed. The SNRP criteria stated that the program director (PD) be an established neuroscientist with administrative skills and experience with neuroscience research funding and research training. The CMIARD criteria stipulated that the PD be an experienced investigator from the awardee institution. The pilot projects for the CMIARD program were to be 2-year projects with the goal of submitting a developmental research grant application (i.e., an NIH R21). The SNRP pilot research projects were to take up to 5 years, but also included the goal of submitting an NIH R01 research grant application by Year 3 of the award. NINDS was very proactive in its approach to administering

the SNRP awards, including negotiating detailed and specific terms and conditions for each awardee and monitoring very closely compliance with these terms and conditions.

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U54s are Specialized Center—Cooperative Agreements that support any part of the full range of research and development from very basic to clinical, and may involve ancillary supportive activities such as protracted patient care necessary to the primary research or R&D effort. The spectrum of activities comprises a multidisciplinary attack on a specific disease entity or biomedical problem area. These differ from program projects in that they are usually developed in response to an announcement of the programmatic needs of an Institute or Division and subsequently receive continuous attention from its staff. Centers may also serve as regional or national resources for special research purposes, with funding component staff helping to identify appropriate priority needs.

³

U24s are Resource-Related Research Projects—Cooperative Agreements that support research projects contributing to improvement of the capability of resources to serve biomedical research.

1.2 FEASIBILITY STUDY DESIGN

The feasibility study for evaluating NINDS and NIAAA minority research development programs awarded as cooperative agreements focused on the 9 currently funded SNRP and CMIARD programs, and addressed the following three study questions:

1. What is the best design for NINDS and NIAAA administrators to use in tracking the progress of the SNRP and CMIARD cooperative agreement programs?
2. What is the most feasible way to collect the data needed without imposing an excessive burden on program staff or NIH administrators?
3. What was the baseline status of the 9 currently funded SNRP and CMIARD programs?

The organizing principle used to address the study questions was a conceptual framework identifying the key variables to be studied and the presumed relationships among them (see **exhibit 2**, p. 16). Of the 24 variables identified in the conceptual framework, 7 served as measures of intermediate and long-term success and were regarded as outcome variables. These are identified in the conceptual framework as the intermediate indicators of success and the long-term measures of success. The 15 variables assumed to be related to program success were regarded as predictor variables and consisted of 6 types of support provided by NINDS and NIAAA administrators to the SNRP and CMIARD awardees, 5 functional characteristics of each program, and 4 types of activities implemented by the programs. The framework also included two environmental variables outside the control of a SNRP or CMIARD program that could potentially influence its success. The study team developed an operational definition of each of the 24 variables identified in the conceptual framework (see **appendix B**). The conceptual framework also contained a feedback component from the SNRP and CMIARD programs to NIH administrators. The study team's data collection recommendations for tracking the progress of the SNRP and CMIARD programs provided the primary mechanism for feedback to NINDS and NIAAA administrators.

The variables in the conceptual framework were designed to be broad enough to be applicable to cooperative agreement programs having similar aims that are sponsored by other NIH Institutes and Centers (ICs). Each variable was operationally defined, and potential data sources for collecting information for each variable were identified by the study team. Using the study design and conceptual framework as a guide, the study team collected and analyzed baseline period information regarding the 9 SNRP and CMIARD programs. Several strategies were used to collect data for the SNRP and CMIARD baseline status assessment, including the following:

- Reviewing program record documents maintained by NINDS and NIAAA
- Performing database searches of NIH grant and trainee/fellow files, National Science Foundation (NSF) grant and fellowship files, and NIH publications databases
- Conducting site visits to each of the SNRP and CMIARD programs
- Conducting discussions with both NINDS and NIAAA administrators and external advisers to the SNRP and CMIARD programs

- Requesting the SNRP and CMIARD programs to submit information on individual programs and program participants, using a set of data collection forms designed for the study

In addition to providing a benchmark against which future observations could be compared, the baseline assessment served to pilot test the proposed approach and feasibility of collecting data on the programs, including specific data collection instruments.

1.3 ANALYSIS OF FEASIBILITY STUDY DATA

The unit of analysis for the feasibility study was the individual SNRP or CMIARD program—specifically, the group of investigators, student researchers, and administrative staff involved in neuroscience or alcohol research funded by NINDS and NIAAA through the U54 or U24 cooperative agreement award at each academic institution. Several different procedures were developed to summarize the data collected for each variable in the conceptual framework. Whenever possible quantitative data were used to score particular variables. However, for the variables that included the human dimension, such as the leadership variables, other techniques, including development of scoring guidelines and training sessions for the research analysts, were used to ensure that qualitative information was collected and coded in a consistent manner.

Each variable in the conceptual framework is defined by multiple data components. The quantitative components of particular variables were summed and/or averaged, as appropriate. The qualitative components of particular variables were assigned a 12-point Likert-scale score ranging from A+ to D-. The value of the score indicated the extent to which the SNRP or CMIARD program had been successful in that particular area based on the information obtained. A score of A+ indicated that the program had been exceptionally successful, and a score of D- indicated there was virtually no evidence of success in the specific area. To enhance the reliability and validity of the scores assigned, the analysts used written coding guidelines based on the operational definitions of the variables and coded only those components that were mentioned or observed.

After all of the baseline data for a particular SNRP or CMIARD program had been collected and reviewed, each analyst independently calculated a summary score for each of the qualitative predictor variables in the conceptual framework, based on their Likert-scale scores and other data they had collected from different sources. Because this was a baseline assessment, summary scores were not created for the outcome variables in the conceptual framework. Instead, baseline measures of the outcome variables were obtained for use in future studies designed to track progress and/or evaluate the achievement of the programs' long-term goals.

The feasibility study project director reviewed the analysts' summary scores for each variable, and in the relatively few cases where there were differences between the scores assigned by the research analysts, the study team discussed the particular variable until a consensus was reached. The means and standard deviations of the summary scores for each variable were calculated separately for the SNRP and CMIARD programs, and the scores for each SNRP and CMIARD awardee were converted to standard z-scores. Average summary scores for the SNRP and CMIARD programs were also calculated.

4.4. SELECTED FINDINGS OF THE BASELINE ASSESSMENT

MIARD programs each averaged nearly the same number of research faculty during the first year of funding (5.3 versus 5.7, respectively). The baseline status of the SNRP and CMIARD programs showed that the currently funded programs displays particular similarities and differences. CMIARD programs, possibly more so than SNRP and CMIARD programs provided by NINDS at the SNRP programs (see exhibit 12, p. 66) as the PI and Principal Investigator (PI) for each SNRP and CMIARD programs are provided in exhibit 13, in standard 7. The CMIARD PIs and PIs have scores indicating an above average rating and a high and z-score indicating a score above average rating. Yearly SNRP PIs published an average of 2.7 papers. Authors were calculated separately for the group of 6 SNRP programs and the group of 6 CMIARD programs. The degree of the baseline period CMIARD PIs averaged 0.8 to indicate the amount of paper found among the SNRP and CMIARD programs at baseline. It is worth noting here, however, that the recommended study design for tracking future progress for each SNRP or CMIARD program SNRP compared CMIARDs institutional status. The baseline status data can be used for this research with the provided NIH with each program's starting point institutions which is in future progress in each tracked and performance as compared to former institutions. The average number of NIH grant applications submitted per year during the baseline period by SNRP PDs and PLs was twice the number submitted by the CMIARD PDs and PLs (2.0 versus 1.0, see exhibit 15, p. 71). The average level of institutional support for research and research training during Year 1 was similar for the two programs, although summary scores for this intermediate indicator of success varied widely among the SNRP programs, substantially more involvement of NIH administrators than research or program project grants.

While the NINDS and NIAAA program administrators were very dedicated to their task and provided substantial pre-award, training, and scientific and technical assistance to the SNRP and CMIARD programs, their workloads were generally too great to provide the full amount of attention and support needed by most of the cooperative agreement awardees. The level and types of support that NIH administrators provided to the two programs were comparable.

- Regarding the **functional characteristics** of the SNRP and CMIARD programs during the baseline period, nearly all of the programs had one or more leaders in high-level academic positions who had good scientific credentials and demonstrated scientific leadership. In the areas of administrative leadership, strategic planning, management and communication systems, and clarity of organizational structure, the CMIARD programs as a group demonstrated slightly better operational functioning during the baseline period than the SNRP programs.
- Regarding the **activities implemented** by the SNRP and CMIARD programs during the baseline period, all of the programs actively pursued the implementation of collaborative pilot projects and research-related training activities, in accordance with program requirements. As a group, the SNRP programs demonstrated more new incentives and other institutional support to encourage faculty members to pursue research, and the CMIARD programs were judged to have more active and supportive external advisory committees.

Regarding **long-term measures of success**, the SNRP programs averaged about twice the number of NIH research grant, training, and other competitive awards as the CMIARD programs during the baseline period (0.5 versus 0.2). Notably, no CMIARD PD or PL received an NIH R01 or other R award (see **exhibit 16**, p. 75). The SNRP PDs published about 3 times as many peer-reviewed papers per year during the baseline period as the CMIARD PDs did (11.7 versus 4.0). The SNRP PDs also published a higher percentage of peer-reviewed papers per year with co-authors from outside institutions (88.7 percent versus 66.7 percent), and they were listed as the first author on a higher percentage of papers than the CMIARD PDs were (9.9 percent versus 0 percent, see **exhibit 17**, p. 77). The SNRP and CMIARD programs each had nearly the same number of PLs during the first year of funding (3.2 versus 3.3), and they published the same number of papers per year, on average, during the baseline period (2.0). The SNRP PLs published a higher percentage of their peer-reviewed papers with outside investigators (87.0 percent versus 54.9 percent). The SNRP and CMIARD PLs were listed as the first author on about the same percentage of papers (43.6 percent versus 49.7 percent, see **exhibit 18**, p. 78). For research faculty who were new to the SNRP or CMIARD institution in Year 1, co-authorship data may include peer-reviewed papers co-authored with colleagues at their former institutions at a point in the baseline period when they were still at their former institutions.

- Regarding **environmental characteristics**, the history of other research and capacity-building funding received by the awardee institutions was examined for a period of **25 years** prior to the first year of the SNRP and CMIARD awards. The SNRP institutions received, on average, nearly twice the amount of NIH research project grant funding per year as the CMIARD institutions (\$2.0 million versus \$1.1 million, see **exhibit 3**, p. 26). The SNRP institutions also received, on average, nearly twice the amount of capacity-building funding per year from NIH as the CMIARD institutions (\$4.3 million versus \$2.4 million, see **exhibit 4**, p. 27–28). Only one SNRP or CMIARD institution experienced a major unexpected event during the baseline period: Morehouse’s receipt of funding to build a drug testing and research facility that was used in the 1996 Olympic Games in Atlanta.

1.5 RECOMMENDATIONS

The study team found that it is feasible to evaluate minority institution research development programs awarded as cooperative agreements. The recommended study design for tracking the progress of the SNRP and CMIARD programs includes a conceptual framework that identifies

specific variables hypothesized to influence program effectiveness, and data collection and data analysis procedures designed to provide reliable and valid results. The study design also considers the differences in baseline status of the various SNRP and CMIARD programs and provides for each program's tracking data to be compared in subsequent years with its own baseline data.

The primary recommendation of the study team with respect to future data collection was for NIH administrators to develop, as part of the awardees' noncompeting continuation applications, a standard format for the annual SNRP and CMIARD progress reports. Standardized progress reports would ensure that NIH administrators have timely access to the information most relevant to monitoring SNRP and CMIARD performance. Annual collection of the type of information gathered for the baseline assessment would also position NINDS and NIAAA to conduct one or more outcome evaluations of the SNRP and CMIARD programs in the future. The data collection forms used in the baseline assessment are presented in **appendix E**. The core set of data for tracking the progress of SNRP and CMIARD programs should include the following:

- An updated organization chart
- Composition and activities of the external and internal advisory committees, including advisory committee meeting summaries
- Key information on research faculty, administrative staff, and student participants
- Key information on shared facilities and resources, including major purchases and renovations

- A description of the program's plans and activities in the areas of scientific leadership, administrative leadership, and management and communication systems
- A description of the program's strategic plan, including any changes made to the plan
- A description of institutional support and research incentives, including institutional policy and organizational changes
- Updated information on pilot research projects and training activities
- Updated information on peer-reviewed research papers and competitive research grant applications and awards

The study team also recommended that the NIH administrators develop standardized systems that would provide them with ready access to the following records:

- Relevant meetings and workshops held or attended by NIH staff
- Amount of assistance provided on-site at the SNRP and CMIARD programs
- Number of days SNRP or CMIARD program participants visited the NIH campus to discuss their research or receive training
- Major communications between NIH staff and SNRP and CMIARD awardees
- Fund allocations and any delays in release of funds

In addition, the study team recommended that NIH administrators emphasize the use of the Internet and electronic communication by SNRP and CMIARD program participants. In the near term, their ability to submit data collection forms and progress reports to NINDS and NIAAA in electronic format would greatly facilitate the tracking of the programs' progress. In the longer

term, the study team believes the strategic development of information technology expertise and capacity would substantially contribute to the research capabilities of the SNRP and CMIARD programs.

The study team found that NINDS administrators and the SNRP program participants have very different perceptions regarding the nature of the cooperative agreement mechanism and the role and significance of the awards' terms and conditions. This observation, which was one of the most important findings of the study, emphasizes the importance of the awardees' understanding the characteristics of a cooperative agreement (i.e., the partnership role of the NIH administrators and the accountability implied by the terms and conditions), including how a cooperative agreement differs from a grant or a contract.

In summary, this feasibility study report offers a study design and conceptual framework for tracking the progress of cooperative agreement programs and recommends a data collection methodology that is both feasible and not overly burdensome for program personnel and NIH administrators. The baseline assessment of the 9 currently awarded SNRP and CMIARD programs served to pilot test the study design and the data collection and analysis methodologies developed by the study team. The results of this feasibility study demonstrate that NIH administrators and decision-makers can document the baseline status and systematically track the progress of cooperative agreement programs designed to enhance research capacity at minority institutions.

2. INTRODUCTION

NINDS and NIAAA have each developed programs to enhance the research capacity of a group of academic institutions that historically have not been major participants in NIH programs—specifically, institutions with predominantly minority student enrollments. These programs, the NINDS SNRP and the NIAAA CMIARD, focus on neuroscience and alcohol research, respectively.

Both programs have been implemented as cooperative agreements, which differ in significant ways from both research grants and contracts. The key differences among the three funding mechanisms have important implications for the way in which both NIH administrators and awardees administer the cooperative agreement awards. Research grants, which are financial assistance awards, are the largest category of NIH research funding and are used by the NIH ICs to support research projects, centers, career development, and other research and research-related programs. Grants are used when the idea for the research project is initiated by the investigator; no substantial program involvement is anticipated between the funding IC and the recipient during performance of the activity; and there is no expectation on the part of the funding IC for delivery of a specified product or service for the use or benefit of the Government.

Research and development (R&D) contracts, which are acquisition awards, are awarded to academic institutions and other nonprofit and commercial organizations for specific inquiry directed toward particular areas of R&D needed by NIH. The contract request for proposals (RFP) provides a complete description of specific project requirements and the terms, conditions, and provisions that will apply to any resultant award. Contract performance is monitored closely by NIH to ensure accomplishment of contract goals. Contractors are required to furnish periodic progress reports on the status of work or completion of defined tasks, and provide complete accountability of the costs incurred.

Cooperative agreements, like grants, are financial assistance awards. They are awarded by NIH to assist and support research and research-related activities. They differ from grants, however, in that while grants require minimal or no involvement of the awarding IC during performance of the project activities, cooperative agreements involve a substantial IC programmatic (i.e., scientific and/or technical) role. This role may involve cooperation and/or coordination to assist awardees in carrying out the project. Moreover, the awarding IC may review and approve certain processes or phases in the scientific management of the project. In this respect, the role of the IC in oversight of the awardees' accountability is similar to the administration of a contract. The awarding IC issues a specific request for applications (RFA), inviting applications in a well-defined scientific area and to accomplish specific program objectives. The RFA describes the program, functions, or activities that it proposes to support by the cooperative agreement and the nature of the proposed IC staff involvement. Terms and conditions are outlined in the RFA, above and beyond those required for the usual stewardship of grants, to establish the rights, responsibilities, and authorities of the prospective awardees and the IC.

In 1999 NINDS and NIAAA initiated a 1-year feasibility study of the SNRP and CMIARD programs, **Feasibility Study to Evaluate Minority Institution Research Development Programs Awarded as Cooperative Agreements**. A contract to conduct the study was awarded to

QRC Research Corporation in Bethesda, MD. The QRC study team consisted of a project director, a senior evaluation consultant, two research analysts, and an editor. The overarching goal of the study was to provide a scientifically sound design for tracking the performance of cooperative agreement programs designed to build research capacity, which would also be useful for future outcome evaluations.

This report provides a study design and conceptual framework for tracking the progress of the programs on an annual basis, and recommends a data collection methodology that is both feasible and not overly burdensome for program personnel and NIH administrators. The recommendations are suitable for adaptation to any NIH cooperative agreement program that is designed to enhance research capacity through collaborative pilot projects. The report also provides a baseline assessment of the 9 SNRP and CMIARD programs that had been funded when the study began in October 1999. For clarity, a shortened version of each awardee institution's name will be used in this report, as follows:

Drew Charles R. Drew University of Medicine and Science
Hawaii University of Hawaii at Manoa
Howard Howard University
Morehouse Morehouse School of Medicine
NC Central North Carolina Central University
UC Caribe Universidad Central del Caribe
UPR Medical Sciences University of Puerto Rico-Medical Sciences Campus
UT San Antonio University of Texas at San Antonio

Note that although there are 9 SNRP and CMIARD programs, there are only 8 awardee institutions; Howard University received both a SNRP and a CMIARD award. The awardees' location and amount of Year 1 funding are shown in **exhibit 1**.

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Exhibit 1.—SNRP and CMIARD Institutional Awardees

Institution	Location	First Full Fiscal Year of Funding ¹	Direct Cost Funding for Year 1
SNRP			
Howard University	Washington, DC	2000	\$ 1,033,139
Morehouse School of Medicine (DNRP)	Atlanta, GA	1995	\$ 841,352
Universidad Central del Caribe	Bayamon, PR	2000	\$ 1,127,766
University of Hawaii at Manoa	Honolulu, HI	2000	\$ 939,263
University of Puerto Rico-Medical Sciences Campus	San Juan, PR	2000	\$ 1,159,340
University of Texas at San Antonio	San Antonio, TX	2000	\$ 1,107,521
CMIARD			
Charles R. Drew University of Medicine and Science	Los Angeles, CA	1998	\$ 300,947
Howard University	Washington, DC	1998	\$ 397,380
North Carolina Central University	Durham, NC	1998	\$ 310,619

¹

Funds were awarded in September 1999 (at the end of FY 1999) to Howard SNRP, Hawaii, UC Caribe, UPR Medical Sciences, and UT San Antonio; Morehouse DNRP funding was awarded in

2.1 OVERVIEW OF THE PROGRAMS

² September 1994 (at the end of FY 1994). All CMIARD funds were awarded in September 1997 (at the end of FY 1997). Both programs were designed to enhance the research capacity of minority institutions and to take advantage of the interest among investigators in research on minority health and health disparities, recognizing the importance of involving minority institutions in such research. Although the SNRP and CMIARD programs have similar goals, there are major differences in the amount of funding provided by the cooperative agreement awards and the way they have been implemented. The eligibility criteria for the two programs also differed. The SNRP criteria stated that the PD be an established neuroscientist with administrative skills and experience with neuroscience research funding and research training. The CMIARD criteria stipulated that the PD be an experienced investigator from the awardee institution. The pilot projects for the CMIARD program were to be 2-year projects with the goal of submitting a developmental research grant application (i.e., an NIH R21). The SNRP pilot research projects were to be up to 5 years, but also included the goal of submitting an NIH R01 research grant application by Year 3 of the award. NINDS was very proactive in its approach to administering the SNRP awards. For example, NINDS program administrators negotiated detailed and specific terms and conditions for each awardee and monitored very closely compliance with these terms and conditions.

2.1.1 SNRP Program

A Specialized Center Grant Cooperative Agreement program was originally funded at the Morehouse School of Medicine in September 1994 through a Developmental Neuroscience Research Program (DNRP) cooperative agreement. The purpose of the 3-year DNRP award was to create an Exploratory Neuroscience Research Center. This program, which received \$841,000 in direct cost funding in its initial year, led to the creation of the Specialized Neuroscience Research Program (SNRP). As a result, the SNRP program was formally launched in FY 1999 and five minority institutions (Howard, UC Caribe, Hawaii, UPR Medical Sciences, and UT San Antonio) were awarded 5-year U54 cooperative agreements ranging from \$939,000 to \$1.2 million in direct costs for Year 1.

The purpose of the SNRP program is to augment and strengthen the research capabilities of faculty, students, and fellows at minority institutions by supporting the development of basic and clinical neuroscience research projects and programs. The research objectives of the SNRP program are fourfold:

1. To help minority institutions develop state-of-the-art neuroscience research programs
2. To create more opportunities for researchers employed by minority institutions to establish research collaborations and professional networks with established investigators at research-intensive institutions
3. To increase the role of research and enhance the academic environment at minority institutions to inspire and prepare students and fellows to pursue research careers in neuroscience
4. To provide support for pilot research projects designed to help investigators obtain preliminary data, publish scientific papers, and compete successfully for traditional research project grants during the performance period of the award

Domestic, public or private, nonprofit academic institutions that offer Ph.D., M.D., and/or equivalent health professional degrees and that have more than 50 percent of enrolled students from cultural or racial minority groups are eligible for the SNRP award. SNRP PDs are expected to be neuroscientists with administrative skills and experience with neuroscience research funding and research training.

SNRP awardees are expected to propose and conduct up to three multidisciplinary pilot projects in neuroscience research in collaboration with NIH grantees from research-intensive institutions. The SNRP PLs are expected to devote a minimum of 50 percent of their time to the research projects, while the collaborative investigators are expected to devote a minimum of 20 percent research effort. Awardees are also expected to establish an Internal Advisory Committee (IAC) consisting of the PLs and collaborating investigators, and an External Advisory Committee (EAC) of distinguished senior neuroscientists from research-intensive institutions. The IAC is responsible for directing and monitoring the progress of the research projects and is expected to develop opportunities for information exchange, seminar presentations, and research training opportunities for students and fellows. The EAC is expected to assess the productivity of the SNRP program, help the investigators with planning, and provide advice and guidance about personnel matters and the allocation of resources to individual PLs. SNRP awardees are expected to work with NINDS administrators to establish a timeline for supported investigators to submit

traditional research grant proposals to NIH for review during the period of performance of the SNRP award. In practice, SNRP awardees are expected to submit an R01 grant application in Year 3 of the award.

2.1.2 CMIARD Program

The CMIARD program was initiated in FY 1997, and 3 minority institutions (Drew, Howard, and NC Central) were each awarded 5-year U24 cooperative agreements ranging from \$301,000 to \$397,000 in direct costs for Year 1. The long-range goal of the CMIARD program is to strengthen the alcohol research capacity of predominantly minority institutions by fostering collaborations with experienced investigators at research-intensive institutions and to enhance research being conducted on alcohol-related health issues within minority communities. The research objective of the program is to help the participating investigators at minority institutions submit applications for research support that are competitive within the NIH peer review process. It is anticipated that accomplishment of these goals and objectives will not only enhance the research careers of minority scientists but also attract qualified minority undergraduate and graduate students to careers in alcohol research.

Only predominantly minority institutions as defined in the RFA are eligible for the CMIARD award. CMIARD PDs are expected to be senior experienced investigators from the minority institution but are not required to have experience in alcohol research.

CMIARD awardees are expected to propose and conduct a minimum of three pilot projects in the field of alcohol research. Topics range from basic science to behavior, prevention, and health services research. Each project is limited to 2 years' duration and must involve the participation of one or more co-investigators from the predominantly minority institution and at least one established research investigator from an external research-intensive institution. Awardees are also expected to establish a Project Advisory Committee (PAC) composed of 4–6 external advisers to advise the PD on scientific and related issues pertinent to the operation of the CMIARD, facilitate collaborative interactions between the minority institution scientists and external collaborating scientists, assess the interim progress of all projects within the CMIARD, review projects proposed for future implementation, and make recommendations for new pilot and exploratory projects within the program.

In summary, the SNRP and CMIARD programs have similar goals, but there are major differences in the amount of NIH funding, eligibility criteria for the PD, and other aspects of program monitoring and implementation. In the present feasibility study, the 12-month period following the award (i.e., the fiscal year beginning in October immediately following the award) was considered to be the first year of funding, during which startup activities took place. **Exhibit 1** shows that the SNRP awards were substantially greater than the CMIARD awards. A more detailed comparison of the features and requirements of the SNRP and CMIARD programs is presented in **appendix A**.

2.2 NEED FOR A FEASIBILITY STUDY

Interest in using the cooperative agreement mechanism to build research capacity, combined with the relative newness of the SNRP and CMIARD programs, provided a unique opportunity

to assess the feasibility of systematically tracking the performance of cooperative agreement awardees using a scientifically sound study design. The National Center for Research Resources (NCRR) and the National Heart, Lung, and Blood Institute (NHLBI) each expressed a strong interest in the cooperative agreement mechanism as a means of funding research capacity enhancement. A recent full-scale evaluation of the NCRR Research Centers in Minority Institutions (RCMI) Program recommended that NCRR consider converting the RCMI grants to cooperative agreements to ensure the centers receive any additional technical assistance required.

The feasibility study, which was conducted during 1999–2000, was designed to provide a study design that would be useful in tracking program progress and in future evaluations of cooperative agreement programs that have a goal of building research capacity. Specifically, the feasibility study had the following goals:

- Develop a scientifically sound design and conceptual framework for tracking the progress of the SNRP and CMIARD cooperative agreement programs
 - Develop a methodology to collect data for tracking the progress of the SNRP and CMIARD programs that is feasible and not excessively burdensome on either the SNRP and CMIARD program staff or the NINDS and NIAAA staff
 - Provide a descriptive baseline status of the 9 currently funded SNRP and CMIARD programs, using the design, conceptual framework, and data collection methodologies developed for the feasibility study

In this study, the SNRP and CMIARD programs served as models for NIH's use of the cooperative agreement mechanism to provide research development support to minority institutions. Specifically, NIH administrators were interested in whether the key distinguishing feature of the cooperative agreement—the active partnership between NIH program staff and the awardee—makes a difference in program outcomes. The results of this feasibility study should serve as a guide to NIH administrators considering the use of cooperative agreements as a mechanism for funding the enhancement of research capacity at minority institutions.

3. STUDY DESIGN AND METHODOLOGY

The Feasibility Study to Evaluate Minority Institution Research Development Programs Awarded as Cooperative Agreements was an exploratory study. The organizing principle of the feasibility study was a conceptual framework identifying the key variables to be studied and the presumed relationships among them. An important goal of the feasibility study was to determine the best methods for collecting data on each of the variables included in the study's conceptual framework. The emphasis was on obtaining ideas and insights useful in designing the best strategy for NINDS and NIAAA to employ in tracking the future progress of the SNRP and CMIARD cooperative agreement programs. In addition, the variables in the conceptual framework are broad enough to be applicable to cooperative agreement programs having similar aims that are sponsored by other NIH ICs.

The feasibility study was designed to address the following questions:

- What was the baseline status of the 9 currently funded SNRP and CMIARD programs?
- What is the best design for NINDS and NIAAA administrators to use in tracking the progress of the SNRP and CMIARD cooperative agreement programs?
- What is the most feasible way to collect the data needed without imposing an excessive burden on program staff or NIH administrators?

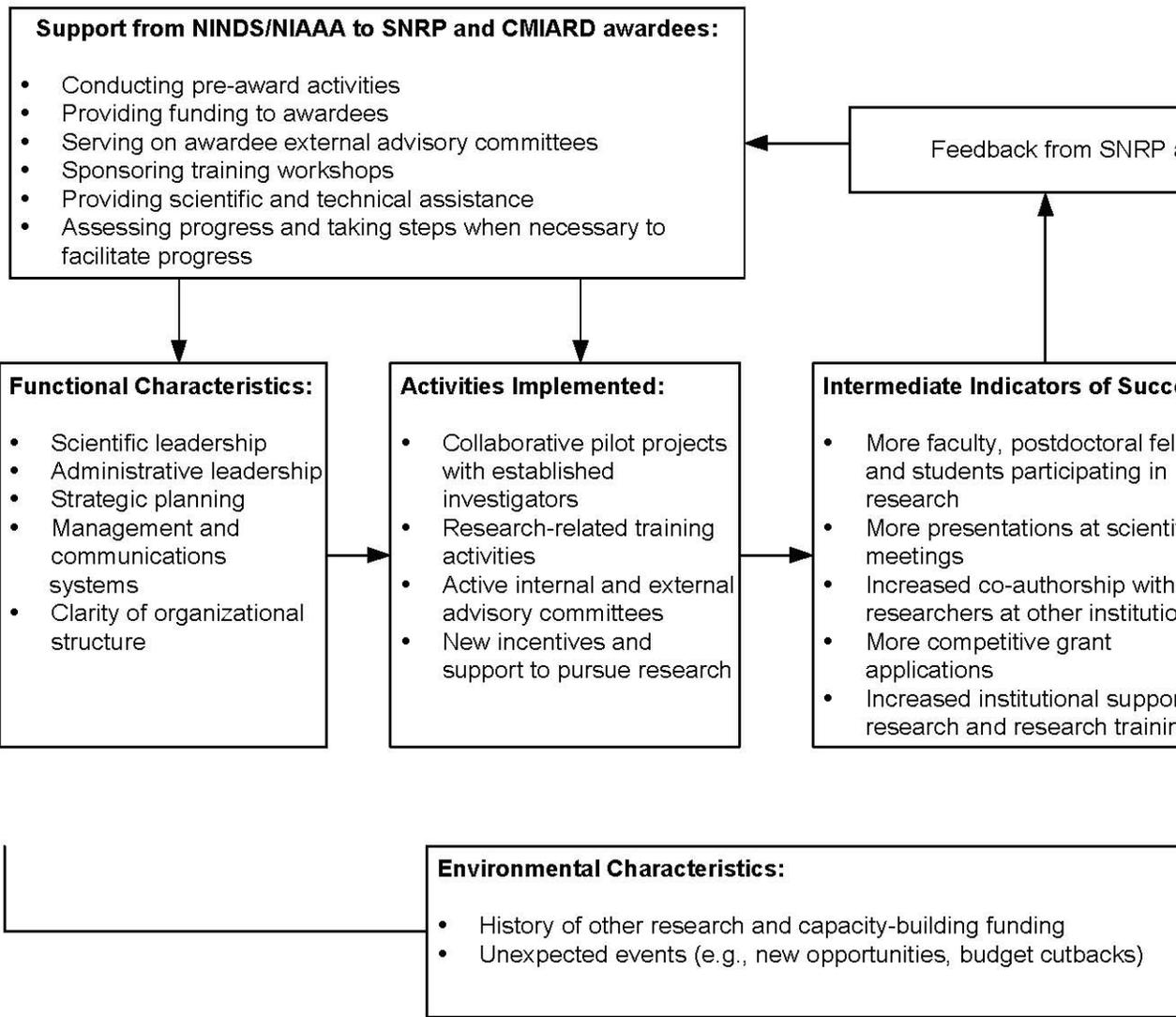
To answer the first study question, the study team conducted a baseline assessment of the 9 SNRP and CMIARD programs that had been funded at the time the study began in October 1999. In addition to providing a benchmark against which future observations and data could be compared, the baseline assessment served to pilot test a proposed approach for collecting data on the programs, including specific data collection instruments. The methodologies used by the study team to assess the SNRP and CMIARD programs' status during the baseline period are described in sections 3.2 and 3.3 of this report, and the results of the baseline assessment are presented in section 4. The baseline assessment was used to develop an improved design and methodology for NINDS and NIAAA to use in tracking the future progress of each program (study questions 2 and 3). In addressing each of the study questions, the study team endeavored to create the best design for NINDS and NIAAA administrators to collect data and track SNRP and CMIARD program progress, which would also be useful to other NIH administrators performing similar activities.

The recommended study design and data collection procedures are described in section 5. _

3.1 CONCEPTUAL FRAMEWORK OF THE STUDY

The study design was based on a conceptual framework of specific types of NIH support, program characteristics, and program activities hypothesized to influence program effectiveness. The framework is shown in **exhibit 2**.

Exhibit 2.—Conceptual Framework for the Feasibility of Evaluating Minority Research Development Programs Awarded as Cooperative Agreements



Of the 24 variables identified in the conceptual framework, 7 served as measures of intermediate and long-term success and were regarded as outcome variables. The 15 variables assumed to be related to program success were regarded as predictor variables and consisted of 6 types of support provided by NIH administrators, 5 functional characteristics of each program, and 4 types of program activities. The framework also included two environmental variables outside the control of a SNRP or CMIARD program that could potentially influence its success. The definitions of the 24 variables in the conceptual framework are presented in **appendix B**. Potential data sources for the variables in the conceptual framework are also shown in **appendix B**. In addition to being useful in the collection of baseline data, the conceptual framework was designed to serve as a guide in tracking the progress of the SNRP and CMIARD programs. It could also serve as a guide for a future outcome evaluation of these two programs or other similar cooperative agreement programs.

3.2 DATA COLLECTION PROCEDURES FOR BASELINE ASSESSMENT

Baseline data relevant to the different variables in the conceptual framework were collected for each of the 9 SNRP and CMIARD programs and were coded by the study team using a standard scoring sheet (see **appendix C**). In addition to the definitions presented in **appendix B**, each of the variables in the conceptual framework was operationally defined in terms of a set of 2 to 12 component variables for which quantitative or qualitative data were collected. The component variables are shown in the Baseline Snapshot and Scores column of the scoring sheet.

The purpose of the data collection and analysis was to establish a baseline assessment against which future observations and data could be compared to evaluate the progress of the SNRP and CMIARD programs. If a full-scale outcome evaluation is conducted after several years, comparisons could be made between each program's performance at that time and its baseline performance, with the pre-award capacities of the SNRP and CMIARD institutions serving as covariables. This approach would take into account the differences in each program's initial capacity and its scores on the predictor variables, recognizing that these differences may affect program outcomes.

In conducting the baseline assessment, information was collected for the component variables that operationally defined each of the 24 variables in the study's conceptual framework. Several strategies were employed to collect the baseline data:

- Reviewing program record documents maintained by NINDS and NIAAA
- Performing database searches of NIH grant and trainee/fellow files, NSF grant and fellowship files, and NIH publications databases
- Conducting site visits to each of the SNRP and CMIARD programs
- Conducting discussions with NINDS and NIAAA administrators and with external advisers to the SNRP and CMIARD programs
- Requesting the SNRP and CMIARD programs to submit information on their individual programs and program participants, using a set of data collection forms designed for the study

Each of these strategies is described in this section of the report.

3.2.1 Program Record Documents

The study team reviewed program record documents available from NINDS and NIAAA, including the initial SNRP and CMIARD applications, noncompeting renewal applications (progress reports), summaries of the meetings of the external advisory committees (EAC/PACs), program responses to EAC/PAC recommendations, Year 1 financial information for each program, and written correspondence between NINDS and NIAAA administrators and SNRP or CMIARD PDs. Key information in each document was summarized for later analysis, using a previously developed coding system to capture information relevant to the variables in the conceptual framework. **Appendix A**, the comparison of the SNRP and CMIARD programs, is based on a review of several different NINDS and NIAAA program record documents. Web sites for the SNRP and CMIARD institutions were also reviewed. The study found that during Year 1, only one program (Hawaii) had posted a Web site specifically dedicated to providing information about their SNRP program. The site provided information about the SNRP program and contained links to NINDS and other relevant neuroscience research information. The study team found that most of the programs were considering or in the process of creating Web sites specific to their programs.

3.2.2 Database Searches

Information was also collected from a variety of external databases, including the NIH Consolidated Grant Applicant File (CGAF); NIH Trainee and Fellow File (TFF); NIH PubMed publications database; and NSF Master Database of Proposals and Awards. Developed and maintained by the NIH Office of Extramural Research (OER), the CGAF and TFF contain records of Public Health Service (PHS) grants, contracts, cooperative agreements, traineeships, and fellowships. Results of the CGAF search indicated that there were no non-NIH records associated with SNRP and CMIARD PDs and PLs for the baseline period analyzed in this study. For NIH and NSF grant applications and awards, the baseline period was FY 1997–1999 for the SNRP PDs and PLs (FY 1992–1996 for Morehouse) and FY 1995–1998 for the CMIARD PDs and PLs. All searches were conducted using the names of the individuals submitted by SNRP and CMIARD sites on Research Faculty Forms or Research Personnel Forms. All NIH and NSF award mechanisms (including cooperative agreements and contracts) were included in the database queries.

To identify publications in peer-reviewed journals, the online PubMed database (<http://www.ncbi.nlm.nih.gov/pubmed/>) was queried with respect to peer-reviewed scientific papers published during the period ranging from 2 years prior to Year 1 of each program through the first full year of funding. Names of PDs and PLs who participated in the first year of a SNRP or CMIARD program were used to search the author field in the database, and the resulting publication records were visually inspected to verify correct attribution. Publications authored by other individuals having the same last names and initials as SNRP and CMIARD research faculty were identified and discarded. In addition a search was conducted specifically for publications listed in research faculty curricula vitae (CVs). These queries were based on the last name and initials of the research faculty member, a co-author's last name and initials, and/or text in the title of the publication, and were designed to verify publication information.

3.2.3 Site Visits

Two members of the study team visited each SNRP and CMIARD institution, conducted individual and group discussions with program participants and senior administrators, and toured SNRP and CMIARD facilities. The primary purpose of the site visits was to observe SNRP and CMIARD operations firsthand, to obtain different perspectives on the activities of the programs during their first year of funding, and to gain a deeper understanding of the relationships between the program and the institution, the program staff and collaborators, and the SNRP and CMIARD PDs and NINDS and NIAAA administrators.

Before the first site visit, a discussion guide was developed to serve as a focusing mechanism during the individual and group discussions. The discussion guide, presented in **appendix D**, includes an introduction designed to explain the purpose of the feasibility study and assure the participants that the information collected in individual discussions would be kept confidential. A relatively unstructured format was used to accommodate the variety of individuals participating in the on-site discussions. Most of the questions were deliberately open-ended in order to obtain the respondent's overall impression of different aspects of the SNRP or CMIARD program, with probes being used to understand the respondent's perception of factors related to the pre-award support from NINDS and NIAAA and the functional characteristics in the study's conceptual framework (scientific and administrative leadership, strategic planning, management/communication systems, and clarity of organizational structure). The discussion guide also included questions about other variables in the framework that had been identified by the study team as being unclear or problematic for a particular site.

In the cover letter that accompanied the data collection packet, the PDs were given written notification of the planned site visit, information on how to prepare for the visit, and the days scheduled for the visit. Telephone discussions were then held with the PD and, in most cases, with the site visit coordinator designated by the PD, to identify potential respondents, develop an agenda for the visit, and answer questions concerning the visit.

In keeping with the case study approach, each visit involved discussions with people having different perspectives on the SNRP or CMIARD program, including:

Individuals who provided scientific leadership in planning and developing the SNRP or CMIARD program and who were successful in establishing collaborative relationships with senior investigators in research-intensive universities

- Individuals, including senior administrators at the institution, who provided administrative leadership in planning and developing the SNRP or CMIARD program and who were knowledgeable about the initial organizational structure, administrative budget, and research support services
- Individuals who were involved with managing the logistics, communications, and operational functioning of SNRP- or CMIARD-related activities on a day-to-day basis

Each site visit also included a tour of the SNRP or CMIARD facilities and discussions with facility managers and the SNRP or CMIARD PLs.

During each visit, the discussions with the program's site visit team provided extensive information on the challenges the individuals and institution faced in strengthening research capacity, including lessons learned and strategies that had proven effective in establishing their neuroscience or alcohol research program. The group discussions were generally very lively and intense, providing an opportunity for the study team to observe how the members of the group interacted with each other and obtain key information. The SNRP and CMIARD participants reported that the group discussions also helped them to increase their understanding of the hypothesized relationship between long-term programmatic success and specific program characteristics and activities. Following each site visit, a letter of appreciation was sent to the PD, thanking the respondents for their help in conducting the site visit.

3.2.4 Additional Discussions

In-person discussions were held with three NINDS and three NIAAA administrators who were directly involved in the SNRP and CMIARD programs, for the purpose of obtaining pre- and post-award information related to the establishment and support of the programs. Most of the administrators interviewed had been instrumental in the initial development of these programs and had invested much time and effort in helping to ensure their success. The discussions focused on the following types of activities and events, all of which were included in the study's conceptual framework:

- Conducting pre-award activities such as meetings, workshops, and other training sessions
- Providing funding
- Serving on awardee external advisory committees
- Sponsoring training workshops
- Providing scientific and technical assistance
- Assessing progress and taking steps when necessary to facilitate progress

The discussion guide used during the interviews with NIH administrators is presented in **appendix D**. Within NINDS, discussions were held with the Director of the Office of Special Programs, a Program Director in the Office of Special Programs, and a staff member in the Grants Management Branch. Within NIAAA, discussions were held with the Director of the Alcohol Research Centers Program, the Associate Director for Collaborative Research, and one of the program staff members in that office responsible for working with the CMIARD programs.

Telephone discussions were also held with at least one EAC/PAC member from each SNRP and CMIARD program. The primary purpose of the external adviser discussions was to obtain and document their experience and personal views on which approaches worked better than others at different SNRP and CMIARD program sites. Questions focused on the challenges a particular site faced in strengthening its research capacity and the formation and effectiveness of the EAC/PAC. The discussion guide used during the telephone interviews with the external advisers is presented in **appendix D**.

3.2.5 Data Requested from the SNRP and CMIARD Programs

Data requested from the programs included detailed CVs for the SNRP and CMIARD investigators and a set of data collection forms designed to obtain key information that was not available from other sources. The following forms were used:

- Research Faculty Form
- Technical/Administrative Staff Form
- Student Researchers Form
- External Advisers and Collaborating Investigators Form
- Shared Facilities and Resources Form
- Organization Chart

For approximately half of the programs, a combined Research Personnel Form replaced the first three forms (Research Faculty Form, Technical/Administrative Staff Form, and Student Researchers Form) in order to assess the usefulness of a consolidated form. Each program therefore received a set of 6 forms or 4 forms, both sets of forms requesting identical information. For reasons discussed in section 4.10.1, the study team recommends use of the combined Research Personnel Form to collect data to track the progress of the cooperative agreement programs; this form is presented in **appendix E**. The External Advisers and Collaborating Investigators Form, Shared Facilities and Resources Form, and Organization Chart are also presented in **appendix E**.

A cover letter addressed to the PD accompanied the packet of data collection forms. The letter, which was also sent to the designated site coordinator, explained the purpose of the request, provided information on the due date and contact information for questions, and requested CVs for all research faculty members who had been involved in the SNRP or CMIARD program at any time since its inception.

3.3 ANALYSIS OF BASELINE STATUS DATA

The unit of analysis for the feasibility study was the individual SNRP or CMIARD program—specifically, the group of investigators, student researchers, and administrative staff involved in neuroscience or alcohol research funded by NINDS and NIAAA through a U54 or U24 cooperative agreement award to each academic institution. The baseline period was variously defined, depending upon the data collected. For most of the variables, it was defined as the first year of SNRP or CMIARD funding (Year 1), with one exception; because of the unique circumstances surrounding the initial funding of Morehouse’s neuroscience program, its baseline period is the first 2 years of funding (Years 1 and 2). For a few of the variables, the baseline period was defined as a multiyear period encompassing the first year of SNRP or CMIARD funding and several prior years. The baseline period for each variable for which data were collected is specified in section 4, which presents the results of the baseline assessment.

Several different procedures were developed to summarize the data collected for each variable in the conceptual framework. Whenever possible quantitative data were used to score particular variables. Examples include counts of research grant applications, awards, and peer-reviewed

publications. However, for the variables that included the human dimension, such as the leadership variables, quantitative information was not readily available and other techniques were used to ensure that this type of qualitative information was collected and coded in a consistent manner. For example, a system was developed and implemented to code program participants' CVs and measure the extent to which the SNRP or CMIARD research faculty at each institution had given presentations at national or international research conferences, served as members of NIH study sections or other external peer review panels, and received awards for their scientific contributions. The instructions for coding CVs are presented in appendix F. Systems were also developed to code the qualitative information collected from program documents, site visits, and discussions with program participants, using special scoring sheets developed for the study (see appendix G for the component variables that were coded by the study team).

After every data-gathering contact (i.e., each document review or discussion), the research analysts summarized their individual conclusions using a common coding strategy. Specifically, the qualitative components of particular variables were assigned a 12-point Likert-scale score ranging from A+ to D-. The value of the score indicated the extent to which the SNRP or CMIARD program had been successful in that particular area based on the information obtained. A score of A+ indicated that the program had been exceptionally successful, and a score of D- indicated there was virtually no evidence of success in the specific area. To enhance the reliability and validity of the scores assigned, the analysts used written coding guidelines based on the operational definitions of the variables, coded only those components that were mentioned or observed during the contact, and summarized their written notes to justify their scoring decisions. Several training sessions were held with members of the study team to ensure that the data collection strategies and coding procedures were well understood.

After all of the baseline data for a particular SNRP or CMIARD program had been collected and reviewed for accuracy and completeness by the research analysts, each analyst independently calculated a summary score for each of the qualitative predictor variables in the conceptual framework, based on their Likert-scale scores and other data they had collected from different sources. Because this was a baseline assessment, summary scores were not created for the outcome variables in the conceptual framework. Instead, baseline measures of the outcome variables were obtained for use in future studies designed to track progress and/or evaluate the achievement of the programs' long-term goals. Each analyst's completed scoring sheets were submitted to the feasibility study project director, who reviewed the analysts' summary scores for each variable, as well as the positive and negative comments and the component scores upon which they were based. In the relatively few cases where there were differences between the scores assigned by the research analysts, each analyst was asked to rescore the variable. If there continued to be differences, the study team discussed the particular variable until a consensus was reached.

4. BASELINE ASSESSMENT

The baseline assessment of the SNRP and CMIARD programs was based on a conceptual framework developed to support future assessments of minority institution research development programs awarded as cooperative agreements. Each of the variables in the conceptual framework was hypothesized to influence or measure SNRP and CMIARD program effectiveness. Three study questions were developed for the feasibility study, one of which addressed the baseline status of the 9 currently funded SNRP and CMIARD programs. This section presents an overview of each of the SNRP and CMIARD programs and describes their baseline status with respect to the variables in the conceptual framework.

In addition to helping NINDS and NIAAA administrators and decision-makers prepare for systematic tracking and assessment early in the life of the SNRP and CMIARD programs, the conduct of the baseline assessment served as a pilot test of the feasibility of collecting and analyzing data that are useful for tracking the progress of the programs. The baseline assessment also provided an opportunity for the study team to collect information that should be immediately useful to NINDS and NIAAA administrators, such as early successes and challenges encountered by the SNRP and CMIARD programs.

Both the conceptual framework, which guided the baseline assessment, and the baseline assessment methodology were designed to serve as guides in tracking the progress of the SNRP and CMIARD programs and for a future outcome evaluation of these two programs or other similar cooperative agreement programs.

4.1 OVERVIEW OF THE SNRP AND CMIARD AWARDEES

The feasibility study focused on the 5 SNRP programs, the DNRP program at Morehouse, and the 3 CMIARD programs that have received cooperative agreement funding from NINDS and NIAAA. Within this group 5 are medical schools and 3 graduate schools (Howard has received funding for both a SNRP and a CMIARD program). Four of the medical schools (Drew, Howard, Morehouse, and UC Caribe) are private institutions, while the remaining schools are state-supported public institutions.

Most of the institutions are located in urban areas, with half (Drew, Howard, Morehouse, and NC Central) in close proximity to research-intensive institutions. Three programs are located outside the continental United States on the islands of Puerto Rico and Hawaii. Funds were first available to 4 of the 5 SNRP programs in FY 2000, while the fifth, Morehouse, was first funded in FY 1995 as a pilot or demonstration project. The 3 CMIARD programs received their first funding in FY 1998.

More detailed information on each of the programs is presented in **appendix G**, including the following:

1. A one-page overview of the SNRP or CMIARD program, including:

- An overview of the institution, its student population, and key events
- A summary of the institution's funding allocation

- A list of the individuals who served as SNRP and CMIARD PDs and PLs during and subsequent to the baseline
2. An organization chart depicting the relationships of the key organizational components of the SNRP or CMIARD program in Year 1, including the institution's chief administrative officer, SNRP or CMIARD PD, Office of Sponsored Programs (or equivalent), IACs and EACs/PACs, areas of research focus, and shared facilities and resources. To illustrate the level of the PD within the institution's administrative structure, line positions between the PD and the institution's chief administrative officer are included in the organization chart.
 3. A pie chart showing the percentage of funding the SNRP or CMIARD program allocated to personnel, collaborative institutions and consultants, equipment and supplies, travel, other, and indirect costs during the first year of funding

In summary, the 9 SNRP and CMIARD programs display a great deal of diversity. Although they are all focused on developing their resources and collaborative relationships to conduct state-of-the-art neuroscience or alcohol research, and they are all interested in minority health issues, they are also very different from each other in many respects. The heterogeneity of the 9 programs is a significant consideration in assessing the feasibility of evaluating minority research development via cooperative agreement awards.

The following sections provide information on the baseline status of the SNRP and CMIARD programs with respect to the major components of the conceptual framework—environmental characteristics, support from NINDS or NIAAA, functional characteristics, activities implemented, and the intermediate and long-term measures of success.

4.2 ENVIRONMENTAL CHARACTERISTICS

The conceptual framework identifies two areas that are outside the control of a SNRP or CMIARD program, but could potentially influence program success. They are:

- History of other research and capacity-building funding
- Unexpected events

4.2.1 History of Other Research and Capacity-Building Funding

The SNRP and CMIARD institutions' experience with other research and capacity-building funding is an important element of the institutional context in which the SNRP and CMIARD cooperative agreement awards are implemented and managed. Prior receipt of research funding may have resulted in the development of new offices, staff, and procedures for grants management. The receipt of other capacity-building funding may have resulted in the development of research infrastructure and human resources that could be leveraged for the benefit of the SNRP or CMIARD program.

This environmental variable was defined as follows:

The extent to which the academic institution has received other funding to conduct research or enhance its research capacity prior to receiving SNRP or CMIARD support.

Potential data sources for this variable included the NIH CGAF, NSF Master Database of Proposals and Awards, initial SNRP and CMIARD cooperative agreement applications, initial summary statements, progress reports, on-site discussions, and discussions with NIH administrators. For the baseline assessment, data on the amount of other research and capacity-building funding were collected for a period of 25 years prior to the SNRP or CMIARD award. It was, however, beyond the scope of this feasibility study to assess the precise impact of this funding on awardee institutions or on the SNRP and CMIARD programs.

The study team summarized the amount of research awards (RPGs) and research capacity-building support that was received from NIH. In particular, the study team summarized the average dollars per year for various NIH capacity-building funding programs, including the RCMI, MBRS, and MARC programs, grants for construction projects, grants for training program projects, and grants for research-related programs.

A summary of NIH RPG funding received by the SNRP and CMIARD awardee institutions during the 25 years prior to the first year of SNRP or CMIARD funding is presented in **exhibit 3**. As a group, the SNRP institutions received RPG funding for slightly more years than the CMIARD institutions during the 25-year period that was examined (21.5 versus 17.7, respectively). The SNRP institutions also received nearly twice as much RPG funding per year (in the years in which they received funding) as the CMIARD institutions did (\$2.0 million versus \$1.1 million, respectively), although both groups show considerable variance in average RPG funding per year.

Exhibit 3.—RPG Funding Received by SNRP and CMIARD Institutions

		Research Project Grants ¹	
	Years of Support	Number of New/Comp RPG Awards ²	Average RPG Funding/Year ³
SNRP			
Howard	25	95	\$ 2,066,711
Morehouse	18	40	\$ 1,456,901
UC Caribe	11	5	\$ 344,576
Hawaii UPR Medical Sciences	25	234	\$ 5,738,665
	25	64	\$ 2,332,670
UT San Antonio	25	20	\$ 227,419
Average SNRP	21.5	76.3	\$ 2,027,824
CMIARD			
Drew	25	26	\$ 1,222,528
Howard	25	95	\$ 2,066,711
NC Central	3	3	\$ 152,504
Average CMIARD	17.7	41.3	\$ 1,147,248

¹ RPGs include R01, R03, R15, R21, R22, R23, R29, R35, R37, R41, R42, R43, R44, R55, P01, P42, U01, U19, U43, U44, and P41 (for NIGMS, FY 1980–present) grant activity codes. All M-grants are excluded for all years, as are grants awarded by NCI for FY 1990. NCI

A summary of other capacity-building funding received by the SNRP and CMIARD awardee institutions is presented in **exhibit 4**. The RCMI grants (G12 activity codes) represent an NCRR capacity-building program established in 1985 for eligible minority institutions. MBRS awards are part of NIH's research-related program grants (S activity codes), and provide support for the biomedical research and research training capability of minority institutions (S06); promote collaboration through programs that focus on specific research themes at minority institutions (S11); or enrich the research environment at eligible undergraduate minority institutions (S14). MARC Institutional awards provide training support through grants to minority institutions for undergraduate research training (T34) and for support of visiting professors (T36). The grants for construction include research facilities construction grants (C06) and grants for repair, renovation and modernization of existing research facilities (G20). The training program project grants (D activity codes) include AIDS Regional Education and Training Centers grants, Centers for Excellence in Minority Health Education grants, Health Education and Training Centers (HETC) Programs, and several other health training program grants.

Within the SNRP program all institutions had received RCMI, MBRS, and training program project funding prior to Year 1 of the SNRP award. All of the SNRP institutions except Morehouse and UT San Antonio had received RCMI funding since at least FY 1986; UT San Antonio was a recent RCMI awardee, receiving funding for only 2 years. On average, the SNRP institutions had received MBRS funding for nearly 19 years prior to the SNRP award; Hawaii, UPR Medical Sciences, UT San Antonio, and Howard had all received MBRS funding for at least 20 years prior to FY 2000. All of the SNRP institutions except UC Caribe and Morehouse had received MARC funding prior to the SNRP award.

Within the CMIARD program all 3 institutions had received MBRS, MARC, training program project, and research-related program grant funding, and all but NC Central had also received RCMI funding prior to the CMIARD award. The 3 CMIARD institutions had received MBRS funding for an average of nearly 25 years prior to the CMIARD award.

Most of the SNRP and CMIARD awardee institutions have a long history of receiving other research and capacity-building funding, although there is considerable variation in both the duration and level of support within each of the two programs. The study design developed for the feasibility study incorporates each institution's baseline experience with other funding, and as the progress of each SNRP and CMIARD program is tracked, each will be compared with its respective baseline status.

4.2.2 Unexpected Events

It was hypothesized that SNRP and CMIARD program success might be related to the occurrence of one or more unexpected opportunities and/or problems that had not been anticipated at the start of the programs. This environmental variable was defined as follows:

The occurrence of one or more unexpected opportunities and/or problems that had not been anticipated at the start of the SNRP or CMIARD program.

Potential data sources for this variable included progress reports, on-site discussions, and discussions with NIH administrators. For the baseline assessment, unexpected events occurring during the first year of the SNRP or CMIARD award were noted by the study team.

The study found that only 1 SNRP or CMIARD institution experienced a major unexpected event during the baseline period. Specifically, Morehouse was able to take advantage of a major opportunity to enhance its research capacity during the first 2 years of NINDS support. In FY 1995, Morehouse received an award of \$1 million from the Atlanta Committee for the Olympic Games and \$500,000 from Smith-Kline Beecham Company to create facilities to conduct drug testing of athletes performing in the 1996 Olympic Games in Atlanta and to conduct clinical pharmacological research. Much of this money was used to construct a pre-engineered building that would house drug testing laboratories, clinical pharmacology research space, a clinical research unit (CRU), and laboratories to support the expansion of its neurosciences research program.

4.3 OVERVIEW OF BASELINE ASSESSMENT SCORING

The methodology used for the analysis of baseline status data is described in section 3.3. Many of the variables in the conceptual framework have a qualitative component, particularly the predictor variables—support from NINDS/NIAAA to SNRP and CMIARD awardees, functional characteristics, and activities implemented.

To make these qualitative assessments, the study team developed and implemented coding systems to ensure consistent measurement of the variables that did not depend wholly on quantitative data. As described in section 3.3, each of the conceptual framework variables was operationally defined using several component variables, each of which was scored by at least two of the study team's research analysts. Each research analyst on the team independently calculated a summary score for each of the qualitative variables in the conceptual framework, based on the scores each had assigned to the component variables.

Exhibit 5 presents a summary of the baseline status of the SNRP and CMIARD programs expressed as z-scores. Z-scores were calculated separately for the two programs. A positive z-score indicates an above-average rating, and a negative z-score indicates a below-average rating compared with other awardees in the SNRP or the CMIARD program. The average summary score for each variable is also presented for the SNRP and CMIARD programs. These summary scores represent the average of the consensus summary scores assigned to each SNRP and CMIARD program by the research analysts and the feasibility study project director.

4.4 SUPPORT FROM NINDS/NIAAA

As predominantly minority institutions redefine their missions to become research institutions, they face sizable challenges. Changing an institution's culture from one of teaching and service to one including a substantial research component requires a major change in thinking by administrators, faculty, and staff. NINDS and NIAAA selected the cooperative agreement mechanism in part because it provided more technical support and assistance than a traditional grant mechanism for developing competitive scientific programs and overcoming administrative and other challenges.

The feasibility study's conceptual framework identifies six areas that measure the extent to which NINDS and NIAAA provided pre- and post-award support to the SNRP and CMIARD awardees. For the baseline assessment, data for each of the following indicators were collected and assessed:

- Conducting pre-award activities
- Providing funding to awardees
- Serving on awardee EACs/PACs
- Sponsoring training workshops
- Providing scientific and technical assistance
- Assessing progress and taking steps when necessary to facilitate progress

4.4.1 Conducting Pre-Award Activities

It was hypothesized that a predictor of SNRP and CMIARD success would be the level of NIH involvement with the potential awardees in the pre-award year. The pre-award activities were defined as follows:

The extent to which NIH administrators conducted meetings and workshops at NIH and at minority institutions, facilitated collaborations between potential awardees and research-intensive institutions, and provided other assistance to potential awardees during the year prior to the award of the SNRP or CMIARD cooperative agreement.

Potential data sources for this variable included on-site discussions at the institutions and discussions with NIH administrators. From these data sources the study team obtained baseline counts of meetings and workshops, the number of NIH administrators involved with the SNRP or CMIARD program, and the level of assistance given to institutions regarding their collaborations during the pre-award period. The component variables were scored by the study team for each of the 9 SNRP and CMIARD programs. A consensus score was reached for each component variable, and then these components were combined to produce a single score reflecting the extent to which NIH administrators conducted pre-award activities for each of the 9 programs. A list of component variables is provided in **Appendix C**, the Scoring Sheet.

NINDS Pre-Award Activities

NINDS, in consultation with investigators from the NCCR-supported RCMI centers, developed and published an RFA to solicit SNRP applications. Representatives from eligible institutions were then asked to attend a workshop at NIH in Bethesda, MD, and to generate a letter of intent if their institution was interested in applying for a SNRP cooperative agreement award. NINDS administrators also visited 1 institution that could not attend the workshop. A total of 13 institutions attended the initial workshop, and, as a result, NIH received 10 applications from 9 institutions. NINDS administrators assisted all 10 applicants, advising the institutions on science, leadership (e.g., 1 institution did not have a PD), and infrastructure. NINDS administrators also held pre-award negotiations at each institution so that potential IAC or EAC members could become acquainted with the SNRP program objectives.

During the pre-award year 2 NINDS administrators assisted the potential awardees, with 1 focusing on programmatic issues and the other on budgetary issues. The NINDS administrators assisted the minority institutions in setting up their collaborative relationships with research-intensive institutions. NINDS administrators also spent time explaining the SNRP program to potential collaborators, and explaining the importance of investing 20 percent of their time in the project. Some institutions found it challenging to identify collaborators who would accept such a time commitment to the pilot projects; however, the SNRP administrators seemed to understand the importance of including a well-known researcher on their project. A senior administrator at a SNRP institution remarked:

It's been gratifying for us to have researchers who are well known to NIH advising us. We're developing scientific friends.

The PD at a SNRP program outside the continental United States explained:

We learned that our science would apparently be driven a lot by the availability of collaborators who could devote 20 percent effort and would be willing to travel to our site.

During the pre-award year NINDS administrators were also very proactive in keeping the institutions on schedule with their responses to the RFA. One administrator noted that she kept a schedule of each program's tasks so that she could contact the PD to check on the status of each task.

NIAAA Pre-Award Activities

The research readiness of the institutions expressing interest in the CMIARD program varied, and NIAAA administrators anticipated that it would take some time to get the program going. The selection of the cooperative agreement mechanism was designed to encourage alcohol researchers participating in the CMIARD program to reach out to NIAAA for assistance with a wide range of scientific issues.

NIAAA administrators set up several workshops during the year prior to the release of the RFA. The main purpose of these workshops was to initiate an interest in alcohol research at non-

research-intensive institutions and to create an interest in collaborating on alcohol research at research-intensive institutions.

Prior to announcing the RFA, NIAAA contacted NC Central to spearhead a project involving Historically Black Colleges and Universities (HBCUs) in North Carolina that were performing alcohol research, and suggested potential collaborators and researchers who might be interested in attending a 2-day workshop at NC Central. Approximately a dozen schools attended the workshop, which NIAAA helped conduct. In California NIAAA held two workshops in the pre-award year at Drew and invited experienced investigators from the alcohol centers located at University of California—Berkeley and University of California—Los Angeles. The workshops were conducted to draw attention to the need for minority alcohol research in the state, and NIAAA encouraged both of the established programs to develop research collaborations with Drew.

All institutions competing for CMIARD cooperative agreement awards were expected to have documented collaborative agreements. NIAAA was active in identifying and encouraging specific collaborative relationships, giving consideration to the personalities that would be involved at the participating institutions. The administrative details of the collaborations were the responsibility of each institution and were dependent upon institutional policies; collaborative arrangements were established as either consultant agreements or subcontracts.

NIAAA also advised and assisted institutions with selecting a PD. NIAAA administrators considered bringing in PDs from outside the predominantly minority institutions, but ultimately decided that PDs chosen from within the institution would be more likely to have a vested interest in the program. Even if the PD did not remain in the CMIARD program, it was likely he or she would remain at the institution and want to see the program succeed. The final choice of the PD and research faculty was left up to the institution, and all 3 of the CMIARD programs initially chose a PD from within the institution.

Overall, the study team found that during the pre-award year, the institutions interested in participating in the SNRP and CMIARD programs were not familiar with cooperative agreements because they had only dealt with grants in prior years. Under the cooperative agreement mechanism, NINDS and NIAAA administrators provided substantial technical support to institutions via email and telephone conversations during the pre-award year. Although the programs were not familiar with cooperative agreements, one CMIARD program had several positive comments about the mechanism:

The cooperative agreement mechanism allowed NIH to intervene and help us build a stronger research group. Their attitude was, “Let’s sit down and see what we can do together.”

We’ve had a hard time breaking into the big league. The cooperative agreement has helped a lot.

At this stage in our development, a cooperative agreement is very good. NIH learns more about our institution and we learn more about building a research infrastructure.

The baseline summary scores for pre-award activities undertaken by NINDS and NIAAA administrators reflect the level of support activities provided to the potential awardees during the year prior to the cooperative agreement awards. Within the SNRP program, baseline summary scores ranged from B to A-, with an average score of B+. Within the CMIARD program, baseline summary scores ranged from B to B+, with an average score of B.

4.4.2 Providing Funding to the Awardee

It was expected that the amount of funding given to the cooperative agreement awardee by NINDS or NIAAA would be a predictor of SNRP and CMIARD program success. This variable was defined as follows:

The amount of SNRP or CMIARD funding the institution has received from NIH.

Potential data sources included NIH Year 1 financial data, on-site discussions at the institutions, and discussions with NIH administrators. From these sources the study team obtained data on the total amount each program was awarded for the first year and the amount transferred by the awardee institution to the collaborating institutions.

The amount of first-year funding by budget category is presented in **exhibit 6**, which illustrates the differences between the SNRP and CMIARD programs' total award amounts and differences among the programs in the amount of their first-year budget that was used for collaborator and consultant costs. The percentage of the total first-year funding allocated to each budget category is presented graphically for each program in **appendix G**.

The total budgeted direct cost of the average SNRP award was slightly more than three times the size of the average CMIARD direct cost award in the first year. The SNRP programs also used a higher percentage of their first-year direct costs for outside collaborator and consultant costs (26.1 percent versus 5.1 percent, respectively). As a result, CMIARD programs retained a larger percentage of their first-year direct costs at their institutions, although the amount of the direct costs remaining (after allocation to collaborators and consultants) was still only about 40 percent of that remaining at SNRP programs after SNRP programs allocated direct costs for outside collaborators and consultants.

Within the SNRP program 4 of the 5 institutions funded in FY 2000 received 3 months of funding, and the fifth institution received 4 months of funding in the first quarter of Year 1. Delays in transfer of funds to the SNRP awardees are discussed further in section 4.4.6.

After final budget negotiations with each CMIARD program, which in some cases involved a decision to drop inappropriate pilot projects and/or reduce the amount of funding allocated to collaborating institutions, NIAAA released all agreed-upon funds to the institutions during the first quarter of Year 1. NIAAA expected that a majority of the funds would be used by each CMIARD institution to set up the program and establish subcontracts or consulting agreements with the collaborating institutions.

4.4.3 Serving on Awardee External Advisory Committees

NIH administrators' involvement in each institution's external advisory committee (EAC or PAC) was expected to be another predictor of SNRP and CMIARD program success. This variable was defined as follows:

The extent to which NIH administrators have actively participated in meetings of the program's external advisory committee.

Potential data sources included on-site discussions at the institutions and discussions with NIH administrators and EAC/PAC members. From these data sources the study team obtained baseline counts of the meetings held in Year 1, the level of assistance and supportiveness provided by NIH administrators, and the number of NIH administrators attending the meetings. These component variables were scored by the study team to produce a baseline summary score for NINDS and NIAAA administrators' participation on each SNRP and CMIARD program's EAC/PAC.

The EAC/PAC meetings were an excellent opportunity for the pilot project leaders to present their research to a group of peers and NIH administrators in attendance at the meetings. For most of the institutions, NIH administrators actively participated in the first EAC/PAC meeting so that it would run smoothly. At several SNRP institutions, NINDS administrators had to orient the EAC members regarding their expected role. For example, many committee members did not realize that they were to serve as evaluators of the whole program. For the PACs the NIAAA representative served as an official voting member.

NINDS and NIAAA required the SNRP and CMIARD programs, respectively, to hold at least one EAC meeting and at least two PAC meetings each year. Because of delays in receiving

funding and implementing subcontracts with external advisers, many SNRP institutions did not hold their first EAC meeting until the third quarter of Year 1.

At each SNRP EAC meeting, the committee members and NINDS administrators worked together to make clear recommendations to the minority institution's administration. The recommendations required a response and signature by the institution's president so that NINDS could hold the institution accountable. At least one NINDS administrator was present at every EAC meeting, and at least one EAC meeting was held by each program during Year 1, with the exception of Morehouse, which did not hold its first meeting until the third year.

NIAAA did not expect members of the CMIARD PAC to collaborate on any of the projects in the program; the role of the PAC was to oversee the programs. NIAAA administrators offered some input on selection of the PAC committee members, but generally played a low-key role because they wanted the institutions to develop a sense of ownership of the CMIARD program. NIAAA administrators attended all of the PAC meetings for each of the 3 institutions during Year 1.

The summary scores for this variable reflect the extent to which NIH administrators actively participated in the SNRP and CMIARD programs' external advisory committees, including attendance at committee meetings. Within the SNRP program, baseline summary scores ranged from B to B+, with an average baseline summary score of B. Within the CMIARD program, the baseline summary scores also ranged from B to B+, with an average baseline summary score of B.

4.4.4 Sponsoring Training Workshops

It was expected that a predictor of SNRP and CMIARD success would be the conduct of NIH-sponsored training workshops. This variable was defined as follows:

The extent to which NIH administrators have conducted research-related workshops and other training activities at NIH and at the awardee institution to enhance the scientific and technical capabilities of program participants.

Potential data sources included on-site discussions at the institutions and discussions with NIH administrators. From these data sources the study team obtained baseline counts of workshops held at NIH or the minority institutions and the level of NIH assistance given to institutions at the workshops during the first year of the SNRP or CMIARD programs.

During the first year of SNRP funding, NINDS administrators held two workshops: a grants-writing workshop for the grants personnel at each institution, and a survival workshop in Colorado so the investigators could enhance their knowledge of responsible and ethical conduct of research in neuroscience. During the CMIARD baseline period no workshops were held by NIAAA, although NIAAA administrators were available to respond to specific questions. The institutions were encouraged to attend any workshops offered by the Research Society on Alcoholism.

The summary scores for NIH's sponsorship of training workshops during the first year of the SNRP and CMIARD programs were calculated by combining scores of the component variables listed on the Scoring Sheet, presented in **appendix C**. Within the SNRP program, the baseline summary scores ranged from C+ to A-, with an average baseline summary score of B+. Within the CMIARD program, each program was assigned a summary score of C.

4.4.5 Providing Scientific and Technical Assistance

Another predictor of SNRP and CMIARD program success was scientific and technical assistance received from NIH administrators. This variable was defined as follows:

The extent to which NIH administrators have provided individualized scientific and technical assistance to the awardee through on-site visits and telephone discussions.

Potential data sources included on-site discussions at the institutions and discussions with NIH administrators. From these data sources the study team obtained information on the extent to which NIH assisted the institutions with their pilot research projects and collaborative relationships. The study team also examined the level of support shown by NIH administrators and the number of administrators involved in the first year of each program. Each of these component variables (listed on the Scoring Sheet, presented in **appendix C**) was scored by the research team to calculate the summary score for this variable.

The study team found that both NINDS and NIAAA administrators provided scientific and technical advice and support when an institution requested their assistance. They provided names of researchers for the institutions to contact about their research projects and potential collaborations. NIAAA administrators reviewed CMIARD programs' research projects before they were formally submitted for approval. One CMIARD senior administrator said:

NIH has been very supportive. They went out of their way to make sure we knew we could call them at any time.

In a similar vein, the university president at a CMIARD institution said:

NIH nurtured us along, which was good, insisting that we do something to improve our leadership. If NIH had not been sympathetic and patient, it would have been very bad. Our NIH administrators were very helpful.

In Year 1 both NINDS and NIAAA had only one or two staff members supporting the SNRP and CMIARD programs on a part-time basis. Although the number of cooperative agreements for which the NIH program staff are responsible was relatively small compared with the usual portfolio of traditional grants, the time and effort required to support a single cooperative agreement award was substantially greater than what is required to support research (R) or program project (P) grants. Communication with cooperative agreement awardees was more frequent and more often initiated by NIH administrators. As one PL said:

Our experience with this cooperative agreement is certainly not like with grants, where we hear from NIH only once a year.

One NINDS program administrator estimated that with full-time attention to the cooperative agreement program, it would be possible for one staff member to adequately support 4 awardees—a workload that was exceeded during Year 1. Neither institute had staff dedicated solely to the SNRP or CMIARD program.

The summary scores for this variable reflect the extent to which NINDS and NIAAA administrators provided scientific and technical assistance during the first year of the SNRP and CMIARD programs. Within the SNRP program, the summary scores ranged from C to A, with an average baseline summary score of B. Within the CMIARD program, the summary scores ranged from B to A-, with an average baseline summary score of B+.

4.4.6 Assessing Progress and Taking Steps When Necessary to Facilitate Progress

The cooperative agreement mechanism requires close involvement by NIH staff. Frequent communication and active support help identify problems early and assist the programs in solving them before they become serious. It was expected, therefore, that a predictor of SNRP and CMIARD program success would be NIH's ongoing assessment of the awardees' progress and appropriate intervention where necessary to facilitate progress. This variable was defined as follows:

The extent to which NIH administrators have conducted one or more assessments of the program's progress (other than at EAC meetings) and taken steps when necessary to facilitate progress (e.g., revising awardee budget, recommending changes in key personnel).

Potential data sources included on-site discussions at the institutions and discussions with NIH administrators. From these data sources the study team obtained a baseline count of progress assessment meetings held in the first year. The team also determined whether NIH administrators recommended personnel changes in the first year of funding. The complete list of component variables that were defined and scored by the study team is shown on the Scoring Sheet, presented in **appendix C**.

During Year 1 NINDS and NIAAA administrators informally assessed the progress of each program by maintaining direct and frequent contact with the PDs and reviewing their progress reports and minutes of monthly meetings when available. If a program was not progressing as the NIH administrators thought it should be, PDs and/or senior administrators at the institution were personally contacted.

Within the SNRP program assessment of progress included monitoring the awardees' compliance with the terms and conditions that were negotiated prior to the cooperative agreement award. Terms and conditions included items such as the PD's level of effort during the first two years (as a percentage of full-time effort); attendance requirements for certain institutional representatives at EAC meetings; the number of trips PDs should make to collaborating institutions; and specific faculty development activities. As a result of NINDS

program administrators' monitoring of compliance with the negotiated terms and conditions, NINDS delayed transfer of a portion of the Year 1 award to the SNRP programs pending resolution of various issues. During discussions with the NINDS administrators and with SNRP program PDs and PLs during site visits, it became apparent to the study team that NINDS and SNRP administrators had different perceptions and opinions regarding the terms and conditions and their potential impact on the implementation of the cooperative agreement award. A summary of the two views is presented below.

The NINDS administrators reported that their negotiations with individual awardees and subsequent compliance monitoring represented a time-consuming effort during the pre-award and baseline periods. Although the formal terms and conditions document described mutually agreed-upon requirements for the programs, and NINDS administrators had emphasized its importance during the technical assistance workshop held prior to the submission of applications, the NINDS administrators reported that the awardees seemed to be "absolutely unprepared" for NINDS' enforcement of the terms and conditions. From the perspective of the NINDS administrators, the oversight features of the cooperative agreement mechanism are necessary to maximize the probability that NINDS will achieve its programmatic goals within the expected timeframe. NINDS administrators reported difficulties in communication between the SNRP awardee institutions and NIH, and suggested that the difficulties were primarily due to the awardees' inexperience with the cooperative agreement mechanism and the role of the terms and conditions in the administration and implementation of the SNRP award. The NINDS administrators also speculated that the SNRP PDs and administrators might not be stressing the importance of compliance with the terms and conditions to the PLs on the pilot projects.

Participants in many of the SNRP programs indicated they thought that the terms and conditions of the cooperative agreement were too strict, and that many were unachievable given institutional and personal realities. The terms and conditions were also described as mandated, rather than negotiated. They reported being unprepared for NINDS' enforcement of the terms and conditions and indicated that NINDS seemed to be administering the programs more like a contract than a grant. The program administrators expressed a desire for NINDS to be more flexible with these restrictions and work with them to attain SNRP goals in different ways, instead of standing firm on the terms and conditions.

With respect to the different perceptions of the terms and conditions, the concern most relevant to the feasibility study was the apparent lack of clarity regarding this issue. The study revealed that major problems can arise if there is not a common understanding with respect to this important element of the cooperative agreement mechanism.

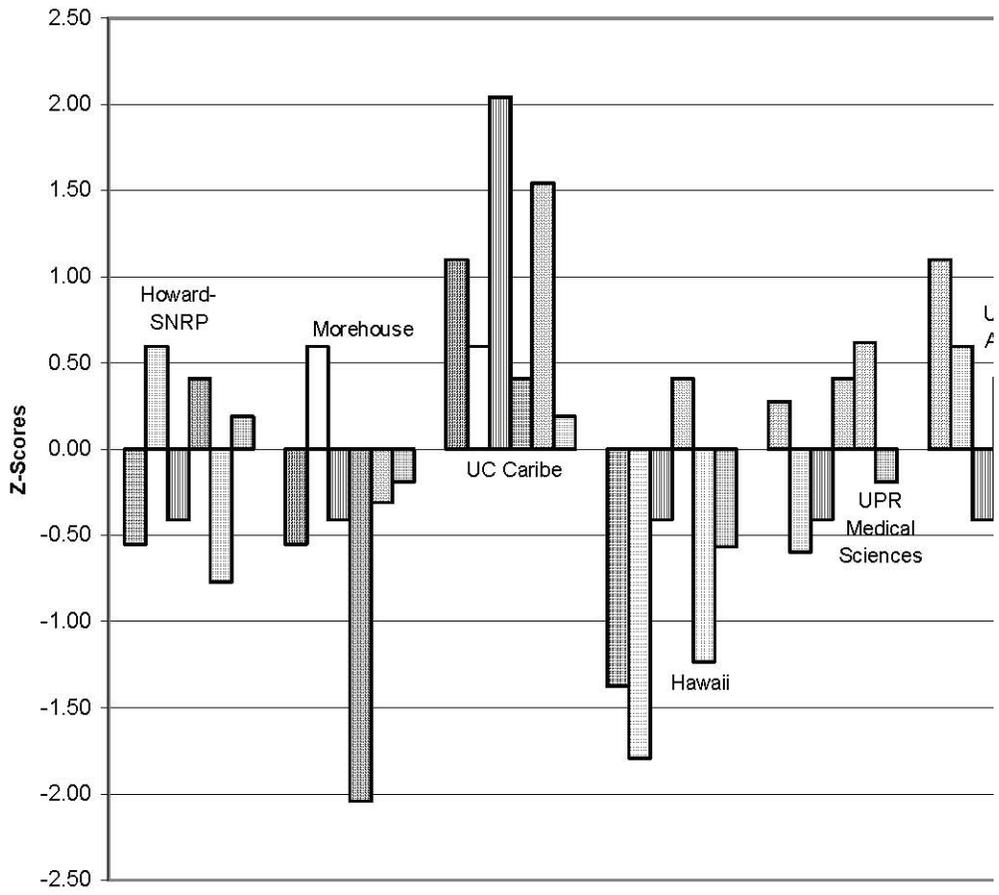
The CMIARD award terms and conditions were not as specific or binding as those of the SNRP program and, therefore, required less monitoring time on the part of NIAAA administrators. The CMIARD terms and conditions basically explained the roles of all the involved parties. One of the programs experienced a slower startup period than expected, and NIAAA hired a consultant to do an independent assessment of the program. This assessment included an evaluation of the current status and recommendations for advancing the program.

In Year 1 NIAAA administrators also held meetings with each of the CMIARD PDs to discuss the progress and expectations of each program. This meeting was in addition to the PAC meeting held at each CMIARD institution.

The summary scores for this variable reflect the extent to which NINDS and NIAAA administrators assessed the progress of the SNRP and CMIARD programs during the first year, and took steps when necessary to facilitate progress. Within the SNRP program the summary scores ranged from C+ to B+, with an average baseline summary score of B-. Within the CMIARD program average baseline summary scores ranged from C- to C+, with an average baseline summary score of C. The study's team's assessment of the baseline status of this variable revealed substantial differences between the SNRP and CMIARD programs regarding the amount and type of terms and conditions of the awards. Specifically, NINDS was very proactive in its approach to administering the SNRP program, and used the terms and conditions to monitor and assess program progress. The terms and conditions, which were negotiated individually with each awardee, were also the basis for many of the steps that were taken by NINDS administrators to facilitate the programs' progress. The SNRP program participants, who were more familiar with the administration of grants and contracts than cooperative agreements, were unprepared for NINDS' enforcement of the terms and conditions. (See the comparison of grants, contracts, and cooperative agreements in section 2.) The terms and conditions of the CMIARD awards were less detailed and were not the primary criteria used by NIAAA administrators to monitor and assess the progress of the CMIARD awardees.

Exhibit 7 graphically presents the differences in the baseline status of the individual SNRP and CMIARD programs with respect to NINDS/NIAAA support. Baseline data are presented as z-scores calculated separately for the 2 programs. A positive z-score indicates an above-average rating and a negative z-score indicates a below-average rating compared with other awardees in the SNRP or the CMIARD program. The data are presented numerically in **exhibit 5**.

Exhibit 7. — Baseline Status Z-Scores of SNRP and CMIARD Awardes' Support from NINDS/NIHAA



4.5 FUNCTIONAL CHARACTERISTICS

The study's conceptual framework identifies five areas that describe the ongoing operational functioning of the SNRP and CMIARD programs. For the baseline assessment, data for each of the following characteristics were collected and assessed:

- Scientific leadership
- Administrative leadership
- Strategic planning
- Management and communications systems
- Clarity of organizational structure

4.5.1 Scientific Leadership

It was expected that SNRP and CMIARD success would be positively related to scientific leadership, defined as follows:

The extent to which the program has had one or more leaders in high-level academic positions who have excellent scientific credentials and are experienced in obtaining competitive research grants. The amount of attention that has been given to developing a scientifically sound research agenda, employing strategies to improve the quality of investigator-initiated research, and providing new faculty with mentoring experiences to increase their research productivity.

Potential data sources for assessing scientific leadership included SNRP and CMIARD cooperative agreement applications, progress reports, summary statements, SNRP and CMIARD Web sites, and telephone and on-site discussions at institutions, as well as the organization charts, SNRP- and CMIARD-related publications, Research Personnel Forms/Research Faculty Forms, and CVs submitted by the 9 SNRP and CMIARD programs. In reviewing the data sources for this variable, the study team focused primarily on the scientific leadership demonstrated by the PDs and PLs at the individual SNRP and CMIARD programs. The baseline period used for assessing scientific leadership experience was defined as the 4-year period encompassing the first year of SNRP and CMIARD funding and the 3 prior years. In the case of the DNRP grant, the baseline period was defined as the 5-year period encompassing the first 2 years of funding and the 3 prior years. The baseline period for assessing scientific leadership activities was Year 1 of the SNRP/DNRP and CMIARD programs.

Eligibility criteria for SNRP PDs included that they be neuroscientists with an established history of prior success in obtaining NIH/NSF research funding, research training and mentoring experience, and a record of directing complex research programs. The CMIARD eligibility criteria stated that PDs should be senior experienced investigators with demonstrated ability to organize, administer, and direct research projects. They were also required to be from the predominantly minority institution submitting the cooperative agreement application.

Twelve component variables were selected to define scientific leadership (see the Scoring Sheet presented in appendix C). The component variables included, for example, academic

credentials, scientific publications, competitive grant success, emphasis on scientific excellence during Year 1, and the use of multiple strategies to improve research.

CVs were used as sources of data to assess several of the component variables that defined the scientific leadership of the SNRP and CMIARD PDs and PLs. CVs provided information on participation in various research-related activities, including participation in NIH and other peer review panels and attendance at national meetings. **Appendix F** provides a description of the instructions for coding CVs.

The SNRP and CMIARD programs did not submit CVs for all of their research faculty. Within the SNRP program Hawaii and UC Caribe provided CVs for one-third and one-half of their research faculty, respectively. The Howard CMIARD program provided CVs for 5 of 8 research faculty members. As a result, information on presentations and other research-related activities included on CVs may be understated for these institutions. The remaining SNRP and CMIARD programs provided CVs for all or nearly all of their research faculty.

Baseline data for the quantitative variables that were combined to determine the scientific leadership score for each SNRP and CMIARD program are presented in **exhibit 8**. The study team found that 8 of the 9 PDs had received at least 1 NIH grant award in addition to the SNRP or CMIARD award during the baseline period; only 2 PLs had received an NIH grant award during the same period. All of the SNRP programs' and 2 of the CMIARD programs' PDs and PLs had published at least 3 peer-reviewed papers during the baseline period. Four of the PDs, 2 each from SNRP programs (UC Caribe and Morehouse) and CMIARD programs (Howard and NC Central), had served on NIH peer review panels during the baseline period. As the SNRP and CMIARD programs grow, they should find more investigators gaining NIH service experience and other forms of professional recognition.

NC Central	2	4	Yes Yes	Yes	Yes	No
Average CMIARD	0.7	4.0				

Data sources: NIH Consolidated Grant Applicant File (CGAF), NIH PubMed database, CVs submitted by SNRP and CMIARD programs.

Exhibit 8, cont.	Project Leaders					
	Number of NIH grant awards ²	Number of peer-reviewed papers published	Scientific Mtg Presentation in Year ¹	NIH Service ³	Other Service ⁴	Other Formal Recognition ⁵
SNRP						
Howard-SNRP	0	6	No	No	No	No
1 Sci Ldrshp Admin Ldrshp Strategic Plning Mgmt/Com m Sys Org Struc Pilot Projs Enhanced ResCap Active Adv Cmte						
Morehouse-DNRP	New Res Incent	10	Yes	Yes	Yes	Yes
UC Caribe	0	10	No	Yes	Yes	Yes
Hawaii UPR	0	4	No	No	No	No
Medical Sciences	0	9	No	No	No	Yes
UT San Antonio	1	11	No	Yes	No	No
Average SNRP	0.3	8.3				
CMIARD						
Drew	0	13	Yes	Yes	Yes	Yes
Howard-CMIARD	0	11	Yes	No	Yes	Yes
NC Central	0	0	No	No	No	Yes
Average CMIARD	0.0	8.0				

¹ The baseline period for all SNRP programs except Morehouse was FY 1997–2000; for Morehouse the baseline period was FY 1992–1996. The baseline period for CMIARD programs was FY 1995–1998.

Another important aspect of scientific leadership is providing new faculty with mentoring to improve their grant-writing skills. The SNRP and CMIARD programs are designed to pair a less experienced investigator with an established investigator (i.e., the collaborator) to plan and conduct a pilot project. Within the SNRP program this relationship was used to provide individual training on how to identify potential research questions and conduct a scientifically sound study. As a way of improving the grant-writing capabilities of the PLs, several of the SNRP PDs distributed copies of their old NIH applications (both awarded and not awarded) for review.

One of the greatest challenges that SNRP and CMIARD scientific leaders faced was a resistance on the part of faculty to critique each other's research and receive criticism. One PD said:

Our investigators don't want to be accused of stopping their colleagues from submitting their grant proposals.

Another explained that that institution's long tradition of serving minority populations had made the investigators acutely aware of the need to support each other, which often resulted in a decision to distribute their resources in a strictly democratic way rather than on the basis of performance and scientific productivity.

The baseline summary scores for scientific leadership reflect the extent to which the different SNRP and CMIARD programs had one or more investigators (particularly those serving as PDs) who had excellent scientific credentials, experience obtaining competitive research grants, and who demonstrated the other aspects of scientific leadership outlined in the definition. Within the SNRP program, the scores ranged from D+ to A-, with an average score of B. Within the CMIARD program, the scores ranged from C to B, with an average score of B-.

4.5.2 Administrative Leadership

It was hypothesized that SNRP and CMIARD success would be positively related to administrative leadership, defined as follows:

The extent to which the program has had one or more leaders in high-level academic positions who are skilled at administering complex programs, motivating others, gaining the support of key people and organizations, and leveraging SNRP and CMIARD funds to obtain funding from other sources. The amount of attention that has been given to developing administrative policies and personnel that are responsive to the needs of SNRP and CMIARD investigators.

Potential data sources for assessing administrative leadership included SNRP and CMIARD cooperative agreement applications, progress reports, summary statements, SNRP and CMIARD Web sites, and telephone and on-site discussions at institutions, as well as organization charts, SNRP- and CMIARD-related publications, Research Personnel Forms/Research Faculty Forms, and Administrative Staff Forms submitted by the 9 SNRP and CMIARD programs. In reviewing the data sources for this variable, the study team focused primarily on the administrative capabilities and performance of the PDs, PLs, and administrative staff of the 9 SNRP and

CMIARD programs. The baseline period for assessing administrative leadership was the first year of the SNRP/DNRP or CMIARD program.

Eleven component variables were selected to define administrative leadership (see the Scoring Sheet presented in **appendix C**). The component variables included, for example, the effectiveness of the Office of Sponsored Programs (OSP) or equivalent, the PD's administrative experience, the PL's skill at motivating others, and establishment of a Deputy PL position.

As part of the baseline assessment, the study team examined the OSP or its equivalent at each of the institutions. Most of the schools had an OSP in the first year, but it was not always perceived by the SNRP and CMIARD programs to be effective. The main challenge cited at numerous SNRP and CMIARD institutions was the inability of the program to get the attention of upper administration. This was a frustration voiced by program administrators, PLs, and PDs. One PL said:

The institution's commitment to the SNRP program is in spirit. The institution puts no monetary effort into the program.

Within the SNRP programs representatives from either the president's office or the dean's office were required to attend the EAC annual meeting. This not only kept them informed of the program's progress, but was also designed to ensure that EAC recommendations were taken seriously. The CMIARD program advised each institution to implement this same attendance requirement, but did not require it as part of the cooperative agreement.

A number of the PDs expressed the view that the institutions did not understand what it takes to be a research-intensive university. Several of the SNRP PDs had transferred from research-intensive institutions where very little delay was experienced once requests were made for supplies, equipment, or services. They noted that for research efforts to be effective and productive, requests must be answered expeditiously. Although things are improving, it still takes weeks to get all of the signatures for the simplest purchasing requests in some programs.

It is expected that PDs in higher-level academic positions are likely to be more influential in implementing institutional change to improve the quality of investigator-initiated research. All of the SNRP PDs and 2 of the 3 CMIARD PDs were full professors; Drew was the exception. Although Drew's PD was not a full professor, he had strong experience managing multi-institutional programs. One PL stated:

Our program director has strong admin skills. He can be a boss and also a best friend. When he criticizes me, I know he's doing it because he's my mentor, so even though his expectations seem overwhelming to me, I follow his advice and do what he suggests because he cares and he knows what's best for me.

The study team reviewed information obtained during site visits and other data, and found several examples of outstanding administrative leadership. The summary statements and site visits were especially useful in identifying SNRP and CMIARD programs that had highly committed and experienced leaders. Based on remarks made during on-site discussions, a

number of the PDs exhibited an exceptional ability to motivate others, with leadership by example appearing to be the most effective method.

The summary scores for administrative leadership reflect the extent to which the different SNRP and CMIARD programs had one or more leaders in high-level academic positions (particularly those serving as PDs) who were skilled in the various aspects of administrative leadership. Within the SNRP program UT San Antonio was notable for its administrative leadership during the first year of the award. Summary scores for administrative leadership ranged from C- to A-, with an average score of C+ for the SNRP program. Within the CMIARD program both Drew and Howard demonstrated effective administrative leadership during the first year of the program. The average summary score for administrative leadership in the CMIARD program was a B.

4.5.3 Strategic Planning

It was hypothesized that SNRP and CMIARD success would be positively related to strategic planning, defined as follows:

The extent to which the program has employed comprehensive long-term planning, sought the advice of external consultants, conducted interim assessments of progress, and engaged in ongoing planning activities to ensure that resources and energy are focused on strategies designed to have a major impact in achieving SNRP and CMIARD goals and objectives. The amount of attention that has been given to developing a peer review system for assessing and improving the research proposals of SNRP and CMIARD investigators.

Potential data sources included SNRP and CMIARD cooperative agreement applications, progress reports, summary statements, and telephone and on-site discussions at institutions, as well as organization charts, SNRP and CMIARD-related publications, External Advisers Forms, and Shared Facilities and Resources Forms submitted by the 9 SNRP and CMIARD programs. The baseline assessment period for strategic planning was Year 1 of the program.

In assessing how well each SNRP and CMIARD program had employed strategic planning in the first year, the study team focused on the extent to which the SNRP and CMIARD leadership had identified specific long-term goals for its research program, conducted planning meetings/retreats, established a strategic plan, and formed EACs/PACs and IACs. The component variables scored by the study team for the functional characteristic strategic planning were listed on the Scoring Sheet, presented in **appendix C**.

Most of the PDs had a clear idea of long-term goals, but in the first year only a few had any type of formalized strategic plan. The effectiveness of any strategic plan is dependent upon the cooperation of all parties involved, and lack of a written plan can hinder a common understanding of goals. Nevertheless, planning activities, including goal-setting, did take place at a number of programs that did not mention strategic planning in their written documentation. As one investigator in Howard's CMIARD program said:

There is definitely a strategic plan, and you can see steps being accomplished.

One PD at a CMIARD program set two long-term goals regarding the percentage of PLs who would stay in alcohol research and the percentage who would succeed in getting NIH research R grants. Morehouse had a comprehensive institutional strategic plan in place in Year 1, which was subsequently shortened and operationalized by the new medical school dean. However, little formal strategic planning took place within the Morehouse SNRP program during Year 1. Drew and Howard (CMIARD) appeared to be the most effective in implementing strategic planning during the first year of the program.

Formation of an EAC/PAC was required, and all of the programs accomplished this in Year 1. The members of the committees were typically senior scientists with expertise in the research areas that formed the core of the SNRP or CMIARD program. Although an effective EAC/PAC can play a critical role in strategic planning, early meetings focused on administrative details and clarification of the roles of the EAC/PAC members.

Another indicator used to assess strategic planning in the SNRP program was success in forming an IAC. Even though the majority of the programs formed IACs, the IAC's primary function seemed to be providing support during the pre-award year. As an example, the IAC at UPR Medical Sciences held three meetings in the pre-award year and none in Year 1 of the program. This was typical of the other SNRP programs.

The summary scores for this variable reflect the extent to which the different SNRP and CMIARD programs employed strategic planning. Within the SNRP program the scores ranged from C+ to B, with an average summary score of C+. Within the CMIARD program scores varied more, ranging from D to A-; the average summary score for strategic planning was B-.

4.5.4 Management and Communication Systems

It was hypothesized that SNRP and CMIARD success would be positively related to having good management and communication systems, defined as follows:

The extent to which the program has developed effective systems for managing the logistics, communications, allocation of resources, and operational functioning of the program on a day-to-day basis.

Potential data sources included SNRP and CMIARD cooperative agreement applications, progress reports, summary statements, SNRP and CMIARD Web sites, and telephone and on-site discussions at institutions, as well as organization charts, SNRP- and CMIARD-related publications, Research Personnel Forms/Administrative Staff Forms, and Shared Facilities and Resources Forms submitted by the 9 SNRP and CMIARD programs. The baseline assessment period for management and communications systems was Year 1 of the program.

Eleven component variables were selected to define the effectiveness of the programs' management and communication systems (see the Scoring Sheet, presented in **appendix C**). Examples of component variables scored by the study team included use of email, effectiveness of grants management procedures, management of purchasing and hiring functions, and quality of written proposals and progress reports.

Smoothly functioning institutional and program management processes can facilitate budget management, purchasing, travel arrangements, and other activities that might otherwise occupy the time of the PD and PLs. To assess how well a particular SNRP or CMIARD program managed the day-to-day logistics of its research program, the team examined the availability and use of institutional systems and software packages.

During the baseline period, monitoring of SNRP and CMIARD budgets, including all purchases, travel arrangements, and overall status of the available funds, was generally a difficult undertaking. There was a wide range of available support for the use of software at the institutions, but in all cases someone within the SNRP or CMIARD program set up and maintained the software. Within the SNRP program UT San Antonio provided comprehensive software training to all staff. At another institution the software and support offered by the institution were insufficient for the needs of the investigators.

Grants management systems depend upon the capabilities of the institution and the program. At UT San Antonio and UPR Medical Sciences the PLs could check the status of their pilot project's budget from their own workstations. In most cases, however, the PLs were made aware of their budgets only if they requested the information. In one SNRP program the majority of the grants management, including the monitoring of purchases, was handled manually.

The study team gathered information from a variety of data sources to assess the effectiveness of the SNRP and CMIARD programs' written, electronic, and verbal communications, and their access to and use of the Internet. During the first year of the award, email was in use at all 9 programs, although some investigators reported long delays in having accounts set up. Even though email was available and being used, the preferred method of communication for the majority of the programs was face-to-face verbal communication, with the telephone the second most desired method. Within the Howard CMIARD program monthly seminars for all program participants facilitated good communication. Connectivity to the Internet was available at all of the programs, although investigators at Morehouse complained that access to the Internet was unreliable and overloaded at peak times.

The study team also searched for and assessed the quality of Web sites that were created for the programs during the baseline period. Only Hawaii had a Web site specifically referencing the SNRP program, listing participating personnel, project descriptions, and investigators' CVs, and linking to SNRP grant information on the NIH Web site. Within the SNRP program the UT San Antonio and UPR Medical Sciences programs referenced their neuroscience research (and some of the SNRP investigators) within the context of the institution's main site without any specific reference to the SNRP program, while UC Caribe had a link for a SNRP Web site that was still under construction. One CMIARD program had established a Web site separate from the institution's Web site. The remaining institutions' Web sites did not appear to mention the SNRP or CMIARD program.

Communication with the study team about the feasibility study also reflected the effectiveness of the SNRP and CMIARD programs' management and communication systems. The study team initiated contact with each PD, who then either appointed a site coordinator responsible for the

program's responses or personally assumed responsibility, as with Hawaii (SNRP) and Howard (CMIARD).

All sites were originally sent hard copies of all data collection forms and instructions, but they were also given the option of receiving an electronic version. Within the SNRP program Morehouse and UT San Antonio returned all of the materials in electronic format within about 2 weeks of receiving the data collection packet. UPR Medical Sciences, Hawaii, and UC Caribe returned most of the requested materials within 4 weeks in either electronic or hard copy format. The time difference between Hawaii and the East Coast is one reason for some of the communication delays observed by the study team. It was particularly challenging for UPR Medical Sciences to compile program information because the PLs were working at three different locations and the information was not centralized. Howard returned all materials in hard copy format after a period of about 5 weeks.

Within the CMIARD program NC Central and Drew returned the majority of the requested materials within 4 weeks, with some portions of the information in electronic format and some in hard copy. Howard returned all materials within approximately 6 weeks in hard copy format.

Prior to the study team's site visits, all the programs were provided with a complete copy of their data collection form submissions and asked to review, verify, and return them. All programs except Howard (SNRP) were able to verify details regarding the site and return the data electronically. Howard (SNRP) had not completed the hiring process to bring a PD from another institution.

The SNRP and CMIARD cooperative agreement applications, summary reports, and annual progress reports (noncompeting continuations) provided evidence of whether the program was able to produce a well-written proposal and report. Many of the SNRP and CMIARD proposals were very well written, including the sections on proposed pilot research projects. However, the study team found that several programs had a history of submitting proposals that were poorly written (including grammatical errors, typographical errors, and internal inconsistencies) and consistently criticized by the scientific review groups as being too general and lacking in detail. The study team also found in many programs that boilerplate language for grant proposals had not been systematized, indicating that many PDs were creating each proposal from scratch. This consumes time that could be better spent writing the proposals for the pilot projects.

The summary scores for this variable reflect the degree to which the SNRP and CMIARD programs had developed effective management and communications systems. Within the SNRP program the scores ranged widely from D+ to A, with an average score of C+. Within the CMIARD program the scores ranged from C- to A-, with an average score of B.

4.5.5 Clarity of Organizational Structure

It was hypothesized that the SNRP and CMIARD programs' success would be positively related to the clarity of a program's organizational structure, which was defined as follows:

The extent to which the institution's SNRP and CMIARD program and the roles of its participants have been clearly defined.

Potential data sources included SNRP and CMIARD cooperative agreement applications, progress reports, summary statements, SNRP and CMIARD Web sites, telephone and on-site discussions at institutions, organization charts, other SNRP- and CMIARD-related publications, and the Research Personnel Forms/Research Faculty Forms, Administrative Staff Forms, and Shared Facilities and Resources Forms submitted by the 9 SNRP and CMIARD programs. For the baseline assessment the study team focused on the organization charts for Year 1 and site visit discussions to assess clarity of organizational structure. The baseline assessment period for clarity of organizational structure was the first year of the SNRP/DNRP or CMIARD program.

Clarity of organizational structure was measured by scoring 7 component variables, including existence and quality of an organization chart, clarity of core research areas, and clarity of the various participants' roles (see the Scoring Sheet presented in **appendix C**).

4.5.5.1 Organization Charts

Using a sample organization chart provided in the data collection packet, each program submitted an organization chart that reflected the structure of the program during Year 1. In some cases the request for an organization chart stimulated the creation of the first organization chart for the program. Many programs had difficulty identifying specific research areas and other aspects of their organizational structure. Many of the SNRP programs were performing broad neuroscience research. To build a strong research center, the programs must hone these core research areas and develop a critical mass of investigators.

Within the CMIARD program some difficulties arose because none of the PDs had an alcohol research background (this was not an NIAAA program requirement). Participants at one CMIARD program noted that recruiting alcohol researchers can be difficult.

The final Year 1 organization charts for all programs were created by the study team using the initial charts submitted, additional information obtained in discussions with the sites, and a careful review of their grant applications, summary statements, and other program record documents. The organization charts for each program are presented in **appendix G**.

4.5.5.2 Clarity of Participants' Roles

During the pre-award period and in early post-award meetings, NINDS and NIAAA administrators met with the PDs to discuss what was expected of them and the other participants in the cooperative agreement. The PDs were further tasked with clarifying the roles of the remaining SNRP and CMIARD participants, including the PLs, EAC/PAC members, and the technical and administrative staff.

The level of understanding of the role of the PD varied greatly in both programs. There were PDs who fully understood what was expected of them and the program from the beginning, and there were also PDs who stated that their roles were not clearly defined. One SNRP PD stated that the level of effort for the PD was not clearly expressed at the onset, and one of the CMIARD PDs did not understand that the role of PD would entail so much attention to program administration.

The roles of the PLs were typically defined in both the SNRP and CMIARD programs without any major difficulty. There was a common feeling among the SNRP participants that the need to go through the PD for everything was unnecessary, but most understood that it was part of the overall NINDS design. Rebudgeting within the SNRP was not allowed without NINDS approval, and while many of the PLs understood the reasoning behind needing approval for any rebudgeting, they did not fully agree with it.

The external collaborators noted that it would have been helpful if they had a better understanding of the process and the roles of the EAC/PAC and IAC from the beginning. They suggested that it would have been helpful for the EAC to meet with the external collaborators early in the award period.

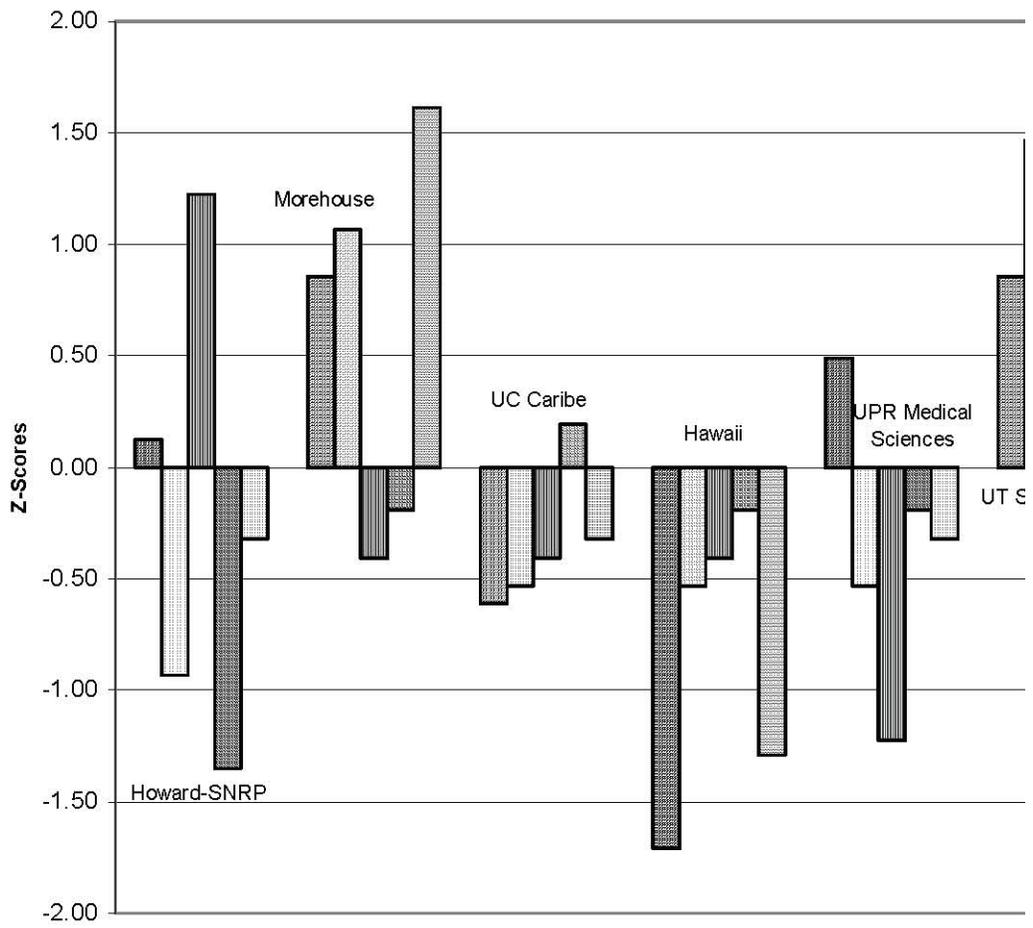
In scoring this variable the study team assessed how difficult it was for the individual SNRP and CMIARD programs to clarify their organizational structures. The team also looked for evidence of written operational procedures that would demonstrate that the program valued organizational planning.

The clarity of organizational structure in Year 1 varied among the programs. For different reasons PLs from 2 of the SNRPs agreed that it was next to impossible to feel like an organized unit or program in the first year because of the status of their PD. For the first SNRP, this was because the PD was not officially on the university staff until July. The second had a PD who resigned during the first year.

The summary scores for this variable reflect the degree to which the different SNRP and CMIARD programs created a well-organized and smoothly functioning organizational structure. Within the SNRP program scores for clarity of organizational structure ranged from C to B-, with an average score of C. Within the CMIARD program the scores ranged more widely from D to A-, with an average score of B.

Exhibit 9 graphically presents the differences in the baseline status of the individual SNRP and CMIARD programs with respect to the functional characteristics identified in the conceptual framework. Baseline data are presented as z-scores calculated separately for the 2 programs. A positive z-score indicates an above-average rating and a negative z-score indicates a below-average rating compared with other awardees in the SNRP or the CMIARD program. The data are presented numerically in **exhibit 5**.

Exhibit 9. — Baseline Status Z-Scores of SNRP and CMIARD Awards' Functional Characteristics



4.6 ACTIVITIES IMPLEMENTED

The study's conceptual framework identified four types of activities that were hypothesized to be predictors of SNRP and CMIARD program success. For the baseline assessment, data for each of the following activities were collected and assessed:

- Collaborative pilot projects with established investigators
- Enhancement of research-related capabilities
- Active IACs and EACs/PACs
- New incentives and support to pursue research

4.6.1 Collaborative Pilot Projects with Established Investigators

A strong collaborative relationship with one or more research-intensive institutions was expected to be a predictor of SNRP and CMIARD program success. This variable was defined as follows:

The amount of time that program investigators have spent together with established investigators from collaborating institutions conducting pilot projects involving neuroscience or alcohol research.

Potential data sources for this variable included the SNRP and CMIARD cooperative agreement applications, progress reports, summary statements, and telephone and on-site discussions at institutions, as well as Research Personnel Forms/Research Faculty Forms, External Adviser Forms, and CVs submitted by the 9 SNRP and CMIARD programs. The baseline period for assessing collaborative pilot projects was Year 1 of the SNRP/DNRP or CMIARD program.

From these data sources the study team obtained baseline counts of collaborators and identified collaborating institutions involved in the pilot projects. The study team assessed the attendance of collaborators at the EAC/PAC meetings, the responsiveness of the collaborators, and the quality of the relationships between the SNRP and CMIARD institutions and the research-intensive institutions. The study team also examined whether the SNRP and CMIARD researchers spent time at the collaborating institutions and whether the collaborators spent time at the SNRP and CMIARD institutions. The 11 component variables defined by the study team for scoring collaborative activities implemented by the SNRP and CMIARD programs are listed in the Scoring Sheet, presented in **appendix C**.

The number of collaborators and collaborating institutions participating in the SNRP and CMIARD programs during Year 1 is presented in **exhibit 10**. The SNRP programs had 1 more pilot project, on average, than the CMIARD programs, although on average they reported fewer collaborators and consultants (5.4 versus 7.3, respectively). Both programs established collaborative relationships with about 4 other institutions during the first year.

Exhibit 10.—Number of Collaborators and Collaborating Institutions Participating in the SNRP or CMIARD Program in Year 1¹

	Number of Collaborators	Number of Collaborating Institutions	Number of Pilot Projects
SNRP			
Howard	4	4	3
Morehouse	7	6	4
UC Caribe	4	4	3
Hawaii	9	4	2
UPR Medical Sciences	3	3 ²	3
UT San Antonio	3	2	3
Average SNRP	5.0	4.2	3.0
CMIARD			
Drew	11	4	5
Howard	9	6	5
NC Central	2	2	2
Average CMIARD	7.3	4.0	4.0

¹ Collaborators were defined as any collaborator or consultant listed on the External Advisers and Collaborating Investigators Forms and who participated in the SNRP or CMIARD program in Year 1. Year 1 was defined for Morehouse as FY 1995–1996, for the remaining SNRP awardees as FY 2000, and for the CMIARD awardees as FY 1998.

² UT San Antonio had 1 collaborator located at UT San Antonio. Overall, the SNRP and CMIARD programs formed collaborative relationships with established and highly qualified researchers from research-intensive institutions. Almost all of the initial collaborations in both programs worked very well; however, the relationships appeared to be stronger when the investigators were previously acquainted with their collaborators. One SNRP program noted that their initial collaborators were selected by NINDS, with advice from the EAC. When the investigators did not choose their collaborators, incompatibilities between the investigator and collaborator occasionally resulted. A CMIARD PL said:

Sometimes the collaborators that have been recommended to us aren't interested because they're too busy or our personalities don't match. There must be a good blend . . . Not all collaborations work out. A comfort zone is necessary.

The study team found that the SNRP and CMIARD programs both had very responsive collaborators. For the most part, both programs maintained close contact with their collaborators during Year 1 once the relationship was established. SNRP investigators said they felt the collaborators were experts in their fields, interested in the development of the minority institution, and willing to share their facilities. However, it was very difficult for PLs to spend a

The number of times that the principal investigator and research-related staff members were still setting up their research facilities during the first year program participants to enhance their scientific/technical capabilities. The extent to which scientists from other institutions having been invited to present seminars and assist the SNRP investigators with their collaborators regarding collaborations with research-intensive institutions:

My collaborator and I are so up-front with each other, even when I call him at home. I get very reliable feedback.

It is important when selecting collaborators to find the right individuals—people who are really interested in having the developing institution succeed. The collaborators also need to be from major research institutions and have the appropriate expertise and facilities.

CMIARD investigators said that collaborators were generous with their assistance and contributed to their research progress. Representative positive remarks from the CMIARD program participants about their collaborators include:

I don't know how I would have made this much progress this fast without help from my external collaborators. They really are active consultants.

My collaborators have been very helpful, as have the PAC members. I have been in touch with them regularly through email—nights and days as well as weekends. They have reviewed my research instruments and provided me with excellent references, such as articles addressing a particular scientific issue I have encountered. They always respond real fast and never complain. It's given me a lot of confidence.

Our collaborators' response is fantastic. I really mean it. They have been very interested and helpful.

The summary scores for this variable reflect the time program investigators spent with their external collaborators during Year 1 and the quality of the relationships between them. Within the SNRP program summary scores ranged from C+ to A-, with an average summary score of B. Within the CMIARD program summary scores ranged from C- to A, with an average summary score of B-.

4.6.2 Research-Related Training Activities

It was hypothesized that a predictor of SNRP and CMIARD success would be how well the programs enhanced their research-related capabilities through training and other learning opportunities. This variable was defined as follows:

Potential data sources included SNRP and CMIARD cooperative agreement applications, progress reports, summary statements, and telephone and on-site discussions at institutions. From these data sources, the study team identified whether the institutions held on- and off-campus workshops, symposia, seminars, or journal clubs in neuroscience or alcohol research. The team also determined whether the institutions invited scientists or consultants from other institutions to present seminars and whether investigators were pursuing off-campus training. The 7 component variables defined by the study team for scoring this variable are listed on the Scoring Sheet, presented in **appendix C**. The baseline assessment period was Year 1 of the SNRP or CMIARD program (Years 1 and 2 of the DNRP program).

Within the SNRP program most of the institutions held on-campus workshops, symposia, seminars, and journal clubs in neuroscience research during the first year; 1 SNRP program had visiting consultants during Year 1. The SNRP program invited a grant-writing consultant to train the SNRP administrative staff in preparing grant applications. The different SNRP programs varied substantially in their efforts to enhance the training and career development of the PLs. While most were proactive in searching for opportunities for professional networking and participating in activities at NIH and elsewhere, one program's investigators indicated they expected to be notified by NINDS administrators of available resources and opportunities.

Within the CMIARD program only 1 program had no type of seminar or journal club for alcohol research; however, an excellent statistical consultant was hired to discuss research design issues with this program's researchers during Year 1. The other 2 CMIARD programs held at least one on-campus workshop, symposium, or seminar in alcohol research. One CMIARD PD suggested that NIH-arranged training sessions on alcohol research during the first few months would have helped.

At 1 CMIARD program, implementation of monthly seminars was cited as key to keeping researchers together as a team, allowing them to meet new people and discuss each other's projects. The same program planned to have scheduled meetings (like journal clubs) where investigators and students could get together to discuss new issues more extensively.

The summary scores for research-related training activities reflect the extent to which activities that assisted program investigators were implemented. Within the SNRP program summary scores ranged from C to B+, with an average summary score of C+. Within the CMIARD program summary scores ranged from C- to A-, with an average score of B.

4.6.3 Active Internal and External Advisory Committees

An active IAC and EAC/PAC were expected to be predictors of SNRP and CMIARD program success. This variable was defined as follows:

The extent to which the program's external and internal advisory committees have actively supported the SNRP or CMIARD program.

Potential data sources for this variable included SNRP and CMIARD organizational charts and cooperative agreement applications, progress reports, minutes of the EAC/PAC meetings, and telephone and on-site discussions with NIH administrators, the institutions, and EAC/PAC members. From these data sources the study team obtained baseline counts of the meetings held in the first year of the award and assessed the scientific experience of the EAC/PAC members, the level of support provided by the members, and the level of assistance with science, collaborators, training needs, and research support needs. The study team also obtained baseline counts of the number of IAC meetings held in the first year of the award. The 9 component variables defined by the study team to assess the level of activity of the IACs and EACs/PACs are listed on the Scoring Sheet, presented in **appendix C**. The baseline period for assessing this variable was Year 1 of the SNRP/DNRP or CMIARD program.

The study team found that every SNRP and CMIARD program except 1 SNRP program held an EAC/PAC meeting during the first year of the award; no SNRP program held an IAC meeting during Year 1. Overall, the SNRP and CMIARD programs recruited established and highly qualified researchers from research-intensive institutions to serve on their advisory committees. However, in one SNRP program, the PLs expressed reservations about the presence of researchers on the EAC who adequately represented their scientific areas.

Within the SNRP program several EAC members stated that they were uncertain of their roles as committee members during the first year of the program. Many were not aware that they would have a dual role that included both consulting with NINDS administrators and advising the awardee institution. They thought they would only be consultants to the programs. NINDS administrators helped the Year 1 EAC meeting participants understand their roles on the committee, deal with administrative issues such as release time, laboratory space, tenure track positions, and other issues pertaining to training needs and research support needs, and updated the EAC members on agreements obtained during pre-award negotiations.

Within the CMIARD program there was also uncertainty about the committee members' roles on the PACs. This uncertainty hindered progress on members' assistance with the pilot projects, since the PAC had to spend time discussing administrative issues associated with the award. Compensation for PAC members also appeared to be an issue; one of the PAC members stated:

It's a worthwhile project and I enjoy helping young investigators. However, NIH is doing a disservice to not pay us more. The honorarium we receive for serving on the PAC is much lower than our standard rates. Although I am very interested in helping this program succeed, when I have several projects requiring my time, I feel an obligation to devote more time to the projects that are paying me more.

Several of the CMIARD PLs had positive comments regarding the support they received from NIAAA and PAC members:

Having the PAC meeting here every 6 months is helpful. It keeps us moving even though I think the PAC members' expectations are very high—greater than for any other research grant I've ever had. They feel we should function as

experienced researchers. As a result, when we go to national meetings, we feel confident that our research is scientifically sound.

The summary scores for this variable reflect the extent to which the programs' IACs and EACs/PACs actively supported the SNRP and CMIARD programs during Year 1. Within the SNRP program summary scores ranged from C to B+, with an average score of C+. Within the CMIARD program summary scores ranged from C+ to A, with an average summary score of B+.

4.6.4 New Incentives and Support to Pursue Research

An awardee institution's implementation of new incentives and support to pursue research was also expected to be a predictor of SNRP and CMIARD program success. This variable was defined as follows:

The extent to which program investigators have been given additional incentives and support to increase their research productivity.

Potential data sources included SNRP and CMIARD cooperative agreement applications, progress reports, minutes of the EAC/PAC meetings, telephone and on-site discussions with the NIH administrators, the institutions, and EAC members, and the Shared Facilities Form. From these data sources the study team determined whether the institution granted release time for research faculty or implemented tenured faculty positions during Year 1. The team also examined the availability of startup funding, facilities and equipment, and laboratory personnel. The 7 component variables that were defined by the study team to assess this variable are listed on the Scoring Sheet, presented in **appendix C**. The baseline period for assessing the extent of new incentives to support and pursue research was Year 1 of the SNRP/DNRP or CMIARD program.

Within the SNRP program NINDS administrators negotiated with all but 1 institution to give their researchers 100 percent release time to work in the SNRP program. NINDS administrators indicated to the study team that they had obtained assurances from the institutions' upper leadership that full-time effort in research would not jeopardize the PLs' chances for promotion or tenure. However, tenure-track faculty in 4 of the 6 programs reported to the study team that they feared a lack of teaching load would be detrimental to their academic career progress. The study team surmised that the assurances given NINDS administrators by institutional administrators were not adequately transmitted to the PLs.

Several SNRP investigators stated that startup funds were higher than they had been in the past. There had also been discussions about instituting tenure-track positions in those institutions that did not have them, partly in an effort to appeal to new recruits. One SNRP senior administrator noted:

The best incentives for attracting new faculty are a good startup package, including adequate release time, and the opportunity to affiliate with a program that's young and growing, with a lot of potential.

The study team found that many of the SNRP programs had sufficient facilities and equipment and adequate laboratory personnel available during Year 1. Some programs had inadequate laboratory space and equipment and needed to develop facilities during the first year of the award, delaying research progress. All SNRP institutions had received funding from the NCRR RCMI Program for varying lengths of time by the first year of SNRP funding. In all but one SNRP program, the RCMI grant had been used to support neuroscience research. At Howard, neuroscience was not an RCMI research focus area, so the research infrastructure supported by the RCMI program could not be leveraged to support the SNRP program. This resulted in delays as researchers waited for equipment orders and, in some cases, for a full research laboratory to be furnished.

Regarding scientific writing, editorial support, and grant development support, the study team found that many SNRP programs received little institutional support. Writing and editorial support is particularly important for researchers whose native language is not English. However, many institutions did not have funds for these activities.

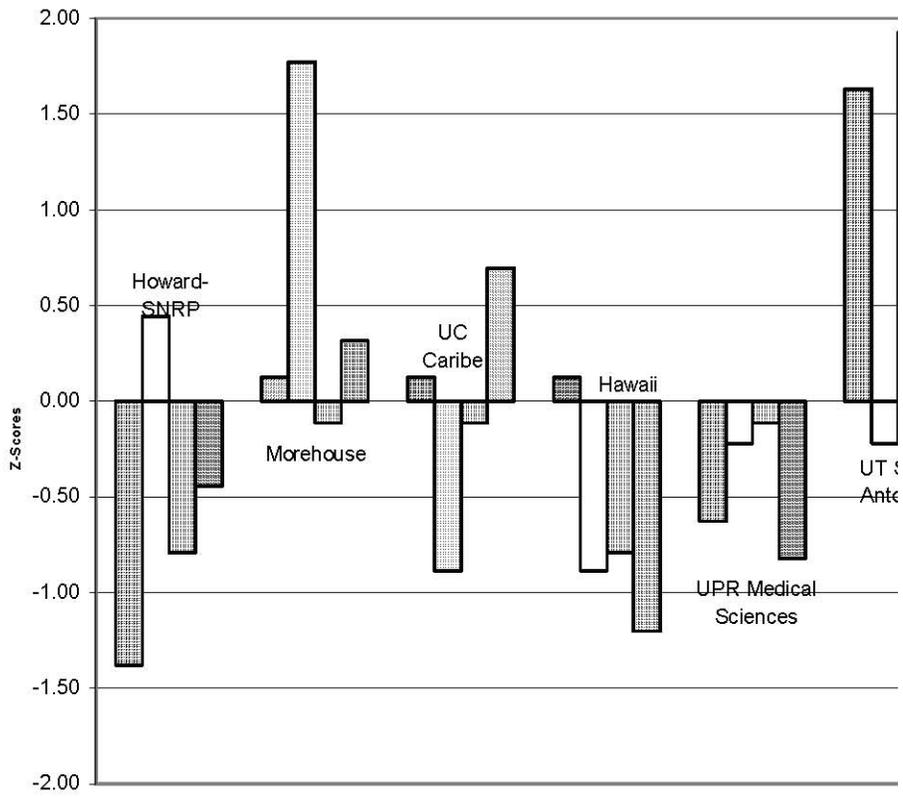
Within the CMIARD program NIAAA administrators did not mandate release time. Since many of the investigators were clinicians, they were working full time on clinical activities and often performed alcohol research on their own time.

All but 1 CMIARD program had tenure-track positions; however, those that had positions had been unable to hire new recruits due to institutional budgetary cutbacks. The study team found that the CMIARD institutions had good facilities and equipment and adequate laboratory personnel available for investigators. In all 3 CMIARD institutions, the study team found that some startup funds were available. However, obtaining institutional support for development of research capacity was challenging for some programs.

The summary scores for this variable reflect the extent to which awardee institutions had implemented new incentives and support to pursue research in Year 1 of the SNRP/DNRP or CMIARD program. Within the SNRP program the summary scores ranged from C- to A, with an average score of B-. Within the CMIARD program the summary scores ranged from D+ to C+, with an average score of C.

Exhibit 11 graphically presents the differences in the baseline status of the individual SNRP and CMIARD programs with respect to activities implemented. Baseline data are presented as z-scores calculated separately for the 2 programs. A positive z-score indicates an above-average rating and a negative z-score indicates a below-average rating compared with other awardees in the SNRP or the CMIARD program. The data are presented numerically in **exhibit 5**.

Exhibit 11. — Baseline Status Z-Scores of SNRP and CMIARD Awardees' Activities Implemented



4.7 INTERMEDIATE INDICATORS OF SUCCESS

The conceptual framework identified five areas that served as intermediate indicators that a SNRP or CMIARD program was on the right track toward achieving long-term success with respect to obtaining research grants and producing peer-reviewed scientific publications. For the baseline assessment, data for the following intermediate indicators were collected and assessed:

- Faculty, postdoctoral fellows, and students participating in research
- Presentations at scientific meetings
- Co-authorship with researchers at other institutions
- Competitive grant applications
- Institutional support for research and research training

4.7.1 Faculty, Postdoctoral Fellows, and Students Participating in Research

Given the research-capacity-building goal of the SNRP and CMIARD programs, it was expected that an important indicator of program success would be an increase in the number of individuals participating in research. This intermediate objective was defined as follows:

The extent to which the program has increased the number of faculty, postdoctoral fellows, and graduate students with good scientific credentials who are participating in neuroscience or alcohol research projects.

Potential data sources for this variable included Research Personnel Forms/Research Faculty and Student Researchers forms, CVs of research faculty, progress reports, on-site discussions, and discussions with NIH administrators. From these data sources the study team obtained baseline counts of research faculty, postdoctoral fellows, research associates, and graduate and undergraduate students working on SNRP or CMIARD projects. The baseline period for assessment of this intermediate indicator of success was Year 1 of the SNRP or CMIARD program for all awardees except Morehouse. The baseline period for Morehouse was the first 2 years of the DNRP award.

A summary of the SNRP and CMIARD research participants in Year 1 is presented in **exhibit 12**. The SNRP and CMIARD programs averaged nearly the same number of PDs, PLs, and other research faculty during Year 1 (5.3 and 5.7, respectively), while the SNRP programs had a larger average number of research associates, graduate students, and undergraduate students participating in research. As the SNRP and CMIARD programs become established, faculty retention will be an important factor in building research capability. During the first year Drew had 1 research faculty member leave the program. Morehouse, with a baseline period of 2 years, reported the loss of 4 research faculty members.

Exhibit 12.—Number of Research Faculty, Postdoctoral Fellows, and Students Participating in Research in Year 1

	Research Faculty¹	Postdoctoral Fellows	Research Associates	Graduate Students	Undergraduate Students
SNRP					
Howard	9	0	0	3	0
Morehouse	7	0	1	2	0
UC Caribe	5	0	5	1	0
Hawaii	3	0	0	1	1
UPR Medical Sciences	4	0	6	0	0
UT San Antonio	4	0	0	6	2
Average SNRP	5.3	0.0	2.0	2.2	0.5
CMIARD					
Drew	8	0	2	0	0
Howard	7	0	0	3	0
NC Central	2	0	0	0	0
Average CMIARD	5.7	0.0	0.7	1.0	0.0

¹

Includes Program Directors (PDs), Project Leaders (PLs), and other research faculty supported by the SNRP or CMIARD program during its first year (Year 1).

4.7.2 Presentations at Scientific Meetings

Data source: Research Personnel Forms or Research Faculty and Student Research Forms

Another intermediate indicator of success was the participation of neuroscience or alcohol researchers at the SNRP and CMIARD programs in major research conferences. This intermediate objective was defined as follows:

The degree to which program investigators have increased the number of presentations given at national and international research conferences (e.g., invited presentations, lead authors of abstracts, or poster presentations).

Potential data sources for this variable included Research Faculty Forms/Research Personnel Forms, CVs of research faculty, progress reports, and on-site discussions. From these data sources the study team obtained baseline counts of presentations during Year 1 of the SNRP or CMIARD program. It was difficult to determine in all cases whether a presentation was invited. The CVs were the primary source of information, and CVs were not submitted for all research faculty. Within the SNRP program Hawaii and UC Caribe provided CVs for one-third to one-half of their research faculty, respectively. Within the Howard CMIARD program CVs were provided for 5 of 8 research faculty members. As a result, information on presentations may be

understated for these institutions. The remaining SNRP and CMIARD programs provided CVs for all or nearly all of their research faculty.

A summary of the number of presentations given at national and international research conferences is presented in **exhibit 13**. The CMIARD PDs and PLs gave more than twice as many presentations at scientific conferences as the SNRP PDs and PLs did (4.3 versus 1.8, respectively).

Exhibit 13.—Number of Presentations at Scientific Meetings in Year 1¹

	Number of Presenters ²	Number of Presentations
SNRP		
Howard	0	0
Morehouse	1	9
UC Caribe	0	0
Hawaii	0	0
UPR Medical Sciences	0	0
UT San Antonio	1	2
Average SNRP	0.3	1.8
CMIARD		
Drew	2	6
Howard	2	4
NC Central	1	3
Average CMIARD	1.7	4.3

¹ Year 1 for all SNRP programs except Morehouse was FY 2000; for Morehouse Year 1 was FY 1994–1995. Year 1 for the CMIARD programs was FY 1998.

² Includes presentations at national and international research conferences by Program Directors (PDs) and Project Leaders (PLs) who participated in a SNRP or CMIARD program during its first year.

4.7.3 Co-Authorship with Researchers at Other Institutions

Data source: CVs submitted by the SNRP and CMIARD programs.

Because an increase in the number of peer-reviewed publications was defined as a long-term measure of success, an intermediate indicator of success was defined as an increase in the number of collaboratively written (i.e., co-authored) research papers. This intermediate objective was defined as follows:

The degree to which program investigators have increased the number of manuscripts submitted to peer-reviewed neuroscience and/or alcohol research journals that are co-authored with researchers at other institutions.

Potential data sources for this variable included the NIH publications database, PubMed, CVs of research faculty, progress reports, on-site discussions, and discussions with NIH administrators. Both the total number of publications and the number of research faculty publishing co-authored papers with researchers at other institutions were counted for the baseline period. The baseline period for the SNRP program was 1997–2000, except for Morehouse; the baseline period for Morehouse was 1992–1996. The baseline period for the CMIARD program was 1995–1998.

The number of co-authored papers during the baseline period was a measure of the initial scientific productivity and collaborative activity of the SNRP and CMIARD PDs and PLs. It should be noted that the baseline publication activity of PDs and PLs also contributed to an assessment of their scientific credentials.

The study team conducted two types of searches of the PubMed database: a search using PD and PL names and a search for specific research papers reported on CVs as published or in press. Books and publications not included in the Medline database were excluded from the analysis. Ninety percent of research papers reported on CVs submitted by SNRP programs and 73 percent of research papers listed on CVs of CMIARD research faculty were found in the PubMed database. The study team also found in the PubMed database a total of 20 research papers authored by SNRP research faculty and 3 research papers authored by CMIARD research faculty that were not listed on CVs. In one case, a PD's out-of-date CV failed to list 11 research papers that were found in the PubMed database. Research papers found in the PubMed database were considered to be verified and were included in the baseline counts regardless of whether they were listed on a CV.

A summary of co-authorship data for PDs and PLs is presented in **exhibit 14**. The baseline data indicate that researchers in the SNRP and CMIARD programs were co-authoring peer-reviewed papers at a fairly high rate. Nearly 90 percent of the peer-reviewed papers published by SNRP PDs and PLs in each of the baseline years were co-authored with researchers from other institutions. The study team noted that some PDs who were new to the SNRP or CMIARD program might have been publishing with colleagues at their former institution at a point in the baseline period when they were still at their former institution. Within the CMIARD program about two-thirds of the peer-reviewed papers published by PDs in each year of the baseline period were co-authored with outside investigators, and about 55 percent of papers published by CMIARD PLs were similarly co-authored.

Exhibit 14. — Co-Authorship of Peer-Reviewed Papers During the Baseline Period¹

Program Directors	Project Leaders	Percentage of Papers	Percentage of Papers
Av - Ah	Av - Ah	Av - Ah	Av - Ah
g - g	g - g	g - g	g - g
u - u	u - u	u - u	u - u
p - p	p - p	p - p	p - p
o - o	o - o	o - o	o - o
h - h	h - h	h - h	h - h
r - r	r - r	r - r	r - r
e - e	e - e	e - e	e - e
r - r	r - r	r - r	r - r
a - a	a - a	a - a	a - a
a - a	a - a	a - a	a - a
r - r	r - r	r - r	r - r

4.7.4 Competitive Grant Applications

Increased success in obtaining research grant funding and support for training and career development was another long-term measure of success. As an intermediate indicator of success in this area, SNRP and CMIARD programs would be expected to submit more competitive grant applications. This intermediate objective was defined as follows:

The degree to which program investigators have increased the number of applications submitted to NINDS, NIAAA, and other funding sources for competitive research grants, training grants, and career development grants involving neuroscience or alcohol research.

Potential data sources for this variable included the NIH CGAF, the NSF Master Database of Proposals and Awards, and on-site discussions. Database searches were performed using the names of PDs and PLs who participated in a SNRP or CMIARD program during its first year (Year 1). The baseline period for the SNRP programs was FY 1997–1999, except for Morehouse; the baseline period for Morehouse was FY 1992–1996. The baseline period for all CMIARD programs was FY 1995–1998.

A summary of new and competing continuation grant applications submitted by SNRP PDs and PLs during the baseline period is presented in **exhibit 15**. Although the NIH CGAF contains records of grant applications submitted to other PHS agencies, no records of applications submitted by SNRP and CMIARD PDs and PLs during the baseline period were found for agencies other than NIH. The data in exhibit 15 are presented separately for PDs and PLs. Although the number of grant applications was generally low, the data are presented as the average number of applications per year because the baseline period was not the same duration for all programs. Overall, the SNRP PDs and PLs submitted twice as many NIH grant applications per year as CMIARD PDs and PLs.

Exhibit 15. — Average Number of NIH Grant Applications per Year During the Baseline Period¹

Program Director's Lett ters	Total		Training		Other	
	R01	Other	R01	Other	R01	Other
SNRP	2	0	0	0	0	1
Howard	0	0	0	0	0	0
3rd	0	0	0	0	0	0
Morehouse	0	0	0	0	0	0
Steele	0	0	0	0	0	0
UC	0	0	0	0	0	0
Carrie	0	0	0	0	0	0
7	0	0	0	0	0	0

4.7.5 Institutional Support for Research and Research Training

The last indicator of intermediate success was in the area of institutional support for research, manifested in the provision of research infrastructure and assimilation of the program into the structure and functioning of the SNRP or CMIARD institution. This intermediate objective was defined as follows:

The extent to which the academic institution has improved the infrastructure for supporting neuroscience and/or alcohol research (e.g., expanded research space, improved research facilities and equipment, research support services, faculty appointment/promotion policies, and distribution of indirect costs). The degree to which the institution has assimilated program participants and resources into its basic budgetary structure and is no longer dependent on SNRP or CMIARD support to maintain its neuroscience or alcohol research program.

Potential data sources for this variable included the organization chart, the Shared Facilities and Resources, Research Personnel/Technical and Administrative Staff, and Student Researchers Forms, initial SNRP and CMIARD cooperative agreement applications, progress reports, initial summary statements, Year 1 financial information, on-site discussions, and discussions with NIH administrators. The baseline period of assessment of institutional support for research and research training was Year 1 of the SNRP or CMIARD program.

Within the SNRP programs the number of shared facilities varied from 1 to 7. In all but one SNRP program, RCMI facilities were available for the conduct of SNRP pilot projects with the same research focus as the RCMI program. Regarding research infrastructure, Morehouse built a new neuroscience building, and the other programs renovated or improved their existing infrastructure in Year 1. Several SNRP institutions planned to build new facilities for neuroscience research.

Two other important elements of a research-intensive institution are an endowed chair and an efficient purchasing system. None of the SNRP programs had either of these elements in Year 1. However, Morehouse was searching for an endowed chair and Howard was searching for a Director of Research. In addition, none of the SNRP programs had an efficient purchasing system during Year 1 of the award. For example, none of the programs had an online purchasing capability; instead, the programs used slow-moving bureaucratic processes to purchase research-related items, which hindered research progress. The hiring process was generally slow as well. Some programs were trying to improve these outdated processes. For example, Morehouse hired OSP grant administrators to assist SNRP research faculty, and UPR Medical Sciences adopted a similar process, having Office of Contracts, External Funds, and Financial Administration grant administrators assist their research faculty.

Few SNRP programs received state funding in Year 1; many SNRP institutions suffered budgetary cuts in state funding, which restricted the conduct of research. One exception to this is the SNRP program at UT San Antonio, which received state funding in the form of Permanent University Funds.

Within the SNRP programs the study team found that 3 out of 6 programs were able to discuss the amount of indirect costs being returned to the neuroscience faculty. However, of those 3 programs none could specifically state the amount or final destination of the indirect costs. Many programs reported that indirect costs were filtered through the department, the dean, and then the PD (if there were remaining funds).

Within the CMIARD program, one program reported 2 shared facilities during Year 1. Within the CMIARD programs 2 were recipients of either renovated labs (Howard) or office space in a newly renovated building (Drew) from their institutions. The third program did not make research space and infrastructure a high priority in Year 1.

The CMIARD programs were very similar to the SNRP programs with respect to the institution having an endowed chair or an efficient purchasing system. None of the 3 CMIARD programs had an endowed chair or an efficient purchasing system in Year 1. However, the programs were trying to improve their purchasing systems. At Drew an OSP grant development specialist has worked closely with the alcohol research center since Year 1, and Howard developed a credit card system and an online ordering system, which have helped expedite purchasing.

Few CMIARD programs received state funding in Year 1. Moreover, within the CMIARD programs, the study team found little information regarding institutional return of indirect costs to the CMIARD programs. In Year 1, there were not many indirect costs, if any, going to the PDs and PLs.

The summary scores for this variable reflect the extent of institutional support for research and research training during Year 1 of the SNRP or CMIARD program. Within the SNRP program summary scores ranged widely from D+ to A, with an average summary score of C+. UT San Antonio demonstrated substantial institutional support for research during Year 1 of the SNRP program. Within the CMIARD program summary scores ranged from C- to B-, with an average summary score of C+.

4.8 LONG-TERM MEASURES OF SUCCESS

The conceptual framework identified two areas that would serve as indicators that a SNRP or CMIARD program had achieved long-term success in obtaining research grants and producing peer-reviewed scientific publications. For the baseline assessment, data for each of the following indicators were collected and assessed:

- Success competing for research, training, and career development grants
- Publishing articles in peer-reviewed scientific publications

4.8.1 Success Competing for Research, Training, and Career Development Grants

One of the primary indicators that the SNRP and CMIARD programs have achieved long-term success in strengthening their neuroscience and alcohol research capacity was success in obtaining competitive research, training, and career development grants. This indicator of long-term success was defined as follows:

The degree to which program investigators have increased the number of competitive research grants, training grants, and career development grants awarded by NINDS, NIAAA, and other funding sources (e.g., mainstream grants not targeted for minorities involving neuroscience or alcohol research).

Potential data sources for this variable included the NIH CGAF, the NSF Master Database of Proposals and Awards, and on-site discussions. The baseline period for the SNRP programs was FY 1997–1999, except for Morehouse; the baseline period for Morehouse was FY 1992–1996. The baseline period for all CMIARD programs was FY 1995–1998.

This outcome variable was closely related to the intermediate indicator of success, increased number of competitive grant applications. That is, an increased number of applications was likely to result in an increased number of competitive grant awards. Some of the same data were therefore relevant to the baseline status of both the intermediate indicators and long-term measures of success with regard to competitive grant applications and awards.

A summary of new and competing continuation grant applications submitted by and awarded to SNRP PDs and PLs during the baseline period is presented in **exhibit 16**. Although the NIH CGAF contains records of grant applications submitted to other PHS agencies, no records of applications submitted by SNRP and CMIARD PDs and PLs during the baseline period were found for agencies other than NIH. Because the baseline period was not the same duration for all programs, the data in exhibit 16 are presented as the average number of applications per year. The data are presented separately for PDs and PLs. Overall, the SNRP PDs and PLs submitted twice as many NIH grant applications per year as CMIARD PDs and PLs, and received more awards per year. The number of grant applications submitted by the SNRP and CMIARD PDs and PLs was quite variable across programs. In addition, 2 SNRP PDs (Hawaii and UT San Antonio) had received NSF funding during the baseline period. Both the PD and a PL at 1 CMIARD program, Howard, received NSF funding during the baseline period.

4.8.2 Publishing Articles in Peer-Reviewed Scientific Publications

The second primary indicator that the SNRP and CMIARD programs achieved long-term success in strengthening their neuroscience and alcohol research capacity was success in publishing research articles in peer-reviewed journals. This indicator of long-term success was defined as follows:

The degree to which program investigators have increased the number of papers published in peer-reviewed neuroscience and/or alcohol research journals.

Potential data sources for this variable included the NIH publications database, PubMed, CVs of research faculty, progress reports, on-site discussions, and discussions with NIH administrators. The baseline period for the SNRP program was 1997–2000, except for Morehouse; the baseline period for Morehouse was 1992–1996. The baseline period for the CMIARD program was 1995–1998. The criteria and data sources used to obtain data on peer-reviewed publications are presented in section 4.7.3.

A summary of data on peer-reviewed papers published by PDs during the baseline period is presented in **exhibit 17**; data for PLs is presented in **exhibit 18**. Both exhibits show the average number of peer-reviewed papers published per year. The peer-reviewed papers that were included in the tabulations presented in **exhibits 17** and **18** were not restricted to neuroscience and/or alcohol research, partly due to the differing requirements of the SNRP and CMIARD programs regarding PDs. The SNRP program required that PDs have neuroscience research experience prior to the first year of funding, while the CMIARD program did not specifically require previously demonstrated alcohol-related research experience.

Exhibit
 8.—Sum
 mary of
 SNRP
 and
 CMIARD
 Baseline
 Scientific
 Leadershi
 p
 Activities

2.3	1				Program Directors 100.0%	UPR Medical Sciences	3	9	77.8%
	0.8	2.3	3.9						

Howard-SNRP

4

Yes

No

UT San Antonio

Drew

3

Yes

**Exhibit
18.—
SNRP
and
CMIA
RD
Project
Leaders’
Peer-
Reviewed
Papers
Published
During the
Baseline
Period**
¹
d

The SNRP PDs published on average nearly three times more papers per year during the baseline period than PDs in the CMIARD program. SNRP PDs also published more papers per year that were co-authored with investigators from other institutions and published a higher percentage of papers as first author. The data were difficult to interpret since it was possible that investigators in neuroscience research tended to publish more peer-reviewed papers (and have more journals in which to publish) than alcohol researchers. Interpretation of co-authorship data was also difficult, because some PDs who were new to the SNRP or CMIARD program might have been publishing with colleagues at their former institution at a point in the baseline period when they were still at their former institution. As publications data are collected annually from the SNRP and CMIARD programs, comparisons can be made with the baseline data for each program. The success (increase in the number of peer-reviewed publications) of each SNRP and CMIARD program can then be measured against its own baseline status.

The SNRP and CMIARD PLs published the same average number of peer-reviewed papers per year (2.0), and nearly the same percentage of papers were published in which the PL was first author (43.6 percent and 49.7 percent for SNRP and CMIARD PLs, respectively).

These baseline data included all peer-reviewed publications authored by the SNRP and CMIARD PDs and PLs and verified in the NIH PubMed database. Because the SNRP program required that PDs have neuroscience research experience prior to the first year of funding, it is likely that the baseline publications for SNRP researchers represent neuroscience research. However, because the CMIARD program did not specifically require previously demonstrated alcohol-related research experience, the papers identified in the baseline assessment of the CMIARD program may include other research topics. As a result the baseline publications data should also be interpreted as a general indicator of the propensity of SNRP and CMIARD PDs and PLs to publish peer-reviewed papers. Beyond the baseline period, more of the papers published may represent neuroscience- and/or alcohol-related research. The study team recommends that all peer-reviewed papers be included in the data used to track progress of the SNRP and CMIARD programs. At a later time NINDS and NIAAA would have the option of determining whether it would be beneficial to develop a journal list or devise other methods to identify articles that represent neuroscience- and/or alcohol-related research, or whether all papers should be included in future assessments.

4.9 SUMMARY OF BASELINE STATUS

Using the study design's analytic procedures, the study team scored each SNRP and CMIARD program on each qualitative predictor variable in the conceptual framework. Multiple component variables were considered in determining each variable's summary score for each program (see the Scoring Sheet, presented in **appendix C**). Combined summary scores for all SNRP and CMIARD programs are provided in **exhibit 5** (see section 4.3, p. 31). Data are expressed in standard z-score form, with a positive z-score indicating an above-average rating and a negative z-score indicating a below-average rating. Z-scores were calculated separately for the SNRP and the CMIARD programs.

The baseline assessment is summarized as follows:

- Regarding **long term focus** from NINDS and NIAA, SNRP programs averaged about twice the number of NIH research grant-in-training and other competitive awards as the CMIARD programs during the baseline period (NINDS and NIAA respectively). Notably, some CMIARD dedicated to active task NIH PDs and other research awards (see exhibit 16, p. 77). The SNRP PDs published about 2 times as many CMIARD program papers per year during the baseline period as the CMIARD PDs did (14.7 versus 4.0). The SNRP PDs also published a higher percentage of mentored papers per year (71.0 percent of authors from NIH institutions) (88.7 percent versus 66.7 percent, respectively), (see exhibit 5, list 1) as the first author on a higher percentage of papers than the CMIARD PDs were (9.9 percent versus 0 percent; see exhibit 17, p. 77). The SNRP and CMIARD programs each had nearly the same number of PLs during the first year of funding (3.2 versus 3.3, respectively), and they published the same number of papers per year, on average, during the baseline period (2.0). The SNRP PLs published a higher percentage of their peer-reviewed papers with outside investigators (87.0 percent versus 54.9 percent, respectively). The SNRP and CMIARD PLs were listed as the first author on about the same percentage of papers (43.6 percent versus 49.7 percent, respectively; see exhibit 18, p. 78). For research faculty who were new to the SNRP or CMIARD institution in Year 1, co-authorship data might include peer-reviewed papers co-authored with colleagues at other institutions, when the research faculty were still at their former institutions.
- Regarding the **activities implemented** by the SNRP and CMIARD programs during the baseline period, all of the programs actively pursued the implementation of collaborative pilot projects and research-related training activities, as required by their cooperative agreements. As a group, the SNRP programs demonstrated more new incentives and other institutional support to encourage faculty members to pursue research, and the CMIARD programs were judged to have more active and supportive external advisory committees.
- Regarding the **intermediate indicators of success**, the SNRP and CMIARD programs each averaged nearly the same number of research faculty during the first year of funding (5.3 versus 5.7, respectively). However, the SNRP programs had, on average, more postdoctoral, graduate, and undergraduate students participating in research than the CMIARD programs, possibly due to the higher level of funding provided by NINDS to the SNRP programs (see exhibit 12, p. 66). The CMIARD PDs and PLs gave more than twice the number of scientific presentations at national and international research conferences as SNRP PDs and PLs in Year 1 (4.3 versus 1.8; see exhibit 13, p. 67). SNRP PDs published more than 3 times as many co-authored, peer-reviewed papers per year as CMIARD PDs (2.7 versus 0.8, respectively). SNRP PLs also published more co-authored, peer-reviewed papers per year than CMIARD PLs (1.7 versus 1.1 respectively; see exhibit 14, p. 69). The average number of NIH grant applications submitted per year by SNRP PDs and PLs during the baseline period was twice the number submitted by the CMIARD PDs and PLs (2.0 versus 1.0, respectively; see exhibit 15, p. 71). The average level of institutional support for research and research training during Year 1 was similar for the two programs, although summary scores for this intermediate indicator of success varied widely among the SNRP programs.

- Regarding **environmental characteristics**, the history of other research and capacity-building funding received by the awardee institutions was examined for a period of 25 years prior to the first year of the SNRP and CMIARD awards. The SNRP institutions received, on average, nearly twice the amount of NIH research project grant funding per year that the CMIARD institutions did (\$2.0 million versus \$1.1 million, respectively; see **exhibit 3**, p. 26). The SNRP institutions also received, on average, nearly twice the amount of capacity-building funding per year from NIH that the CMIARD institutions did (\$4.3 million versus \$2.4 million, respectively; see **exhibit 4**, p. 27–28). Only one SNRP or CMIARD institution experienced a major unexpected event during the baseline period (Morehouse’s receipt of funding to build a drug testing and research facility that was used in the 1996 Olympic Games in Atlanta).

Differences in baseline status, in SNRP and CMIARD funding levels, and in the implementation and requirements of the 2 programs are all important considerations in tracking and eventually assessing the progress of each SNRP and CMIARD program. Although many of the baseline status results are presented in this section as comparisons between the SNRP and CMIARD programs, the study team recommends that the ultimate evaluation of progress be performed by comparing each program’s performance with its own baseline status.

4.10 RECOMMENDATIONS TO THE METHODOLOGY USED IN THIS STUDY

The data collection and analysis methodologies incorporated into the design of the feasibility study were based on the study’s conceptual framework (see **exhibit 2**, p. 16). The collection of data to establish the baseline status of the SNRP and CMIARD programs served as a pilot test of the data collection and analysis methodologies. Following completion of the baseline assessment, the study team reviewed the data collection forms, discussion guides, and methodologies used to analyze the data, and discussed any changes that would have improved the baseline assessment process. Recommended changes are summarized in the following sections.

4.10.1 Data Collection Instruments

The Scoring Sheet used to compile, summarize, and score data for the variables in the conceptual framework was the only data collection instrument that the study team revised. The team found that several baseline counts were difficult to obtain from SNRP and CMIARD programs and NIH administrators. Examples of specific changes include:

- Deletion of several scoring items under **Providing funding to awardee** that were related to transfer of funds in the first quarter and whether withholding of funds was due to the site's noncompliance with the award terms and conditions
- Deletion of several scoring items under **Providing scientific and technical assistance**, because the number of hours spent by NIH administrators providing various types of assistance could not be consistently and accurately collected
- Change in definition of scoring item under **Administrative Leadership** from "Size of Office of Sponsored Programs" to "Effectiveness of Office of Sponsored Programs"
- Deletion of scoring item "Quality of strategic plan" under **Strategic Planning**
- Addition of scoring items under **Research-related training activities**, including on- and off-campus workshops, symposia, and journal clubs, as Yes/No items rather than "counts of events" items
- Deletion of scoring item "Number of invited presentations" under **More presentations at scientific meetings**, because it could not be reliably determined whether a presenter had been invited to give the presentation
- Deletion of "Other" scoring categories under **Functional Characteristics, Activities Implemented, Intermediate Measure of Success, and Long-Term Measures of Success**, because each piece of information collected could be fit into one of the conceptual framework's variables

Changes to the Scoring Sheet are reflected in the version presented in **appendix C**.

Instructions were revised on the Research Personnel Form to clarify the intent of the form to collect data only on researchers and administrators involved with the SNRP or CMIARD program.

Regarding publications data, peer-reviewed papers published during the baseline period were not restricted to those appearing in neuroscience- or alcohol-related journals. Such a list of journals would have to be compiled with the assistance of NIH administrators, who should carefully consider the benefits and limitations of such a restriction.

Regarding budget data, the study team thought that detailed financial data corresponding to the categories used in the pie charts in **appendix G** were sufficient for analysis. Data regarding the date of release of funding to the SNRP and CMIARD programs should be collected from NIH administrators or program records.

Regarding meeting minutes, the study team concluded that EAC/PAC meeting minutes contained valuable information, and an effort should be made to collect this information from the SNRP and CMIARD programs or NIH administrators early in the course of any future study.

Regarding the data collection forms, the study team collected data for research faculty, technical/administrative staff, and student researchers on separate forms and using a combined Research Personnel Form. The type of form did not appear to affect materially the responsiveness of the programs or their ability to provide the requested information. Nevertheless, the study team recommends that the combined form be used in the future to collect

the SNRP and CMIARD programs, and clearly specify the measures to track the progress of the programs and evaluate their future success.

- The study team thought that they would have benefited from an in-person meeting with NIH administrators to discuss the programs before the site visits. The administrators have information regarding SNRP and CMIARD program history, staff, and current activities that was not documented in any of the written materials.
- The study team added discussions with EAC/PAC members to the data collection methodology. Most of the discussions were conducted by telephone after the site visits. In one instance, study team members met with an EAC member at the QRC offices just prior to the SNRP program site visit, and, in another instance, a conference call with all of the PAC members was set up during the site visit. The study team concluded that EAC/PAC discussions were a good idea and should be conducted after the site visits.
- The study team did not interview the collaborators; however, this might be very informative. It would be interesting to hear the collaborators' thoughts on the programs and the relationships that they have with the investigators.

4.10.3 Site Visits

- To determine the organizational structure of the program, the study team found it would have been beneficial to discuss the Organization Chart and Shared Facilities Form with each program before concluding the site visit. Discussion of these items should be added to the site visit agenda.
- The study team determined that the elapsed time between one site visit and the next was not sufficient. The amount of information the study team collected during each site visit was substantial, and it would have been helpful to have a week to summarize the findings and code them on the scoring sheet.
- The study team also determined that additional time between interviews during the site visit would assist them in making notes and assimilating information from the previous discussions before beginning the next set of discussions.

Overall the conceptual framework, data collection instruments, discussion guides, and analytic approaches described in the preliminary study design and pilot tested during the baseline assessment were found to be robust and to provide the information required for the feasibility study.

4.11 PROGRAM CONSIDERATIONS FOR NIH ADMINISTRATORS

During the course of the baseline assessment, the study team gathered information that is potentially useful for NIH administrators' current management of the SNRP and CMIARD cooperative agreement awards. Specifically, the study team recommends that NINDS and NIAAA program administrators take under advisement the following:

- Each SNRP and CMIARD PD should be encouraged to identify an individual other than the PD to serve as program coordinator. This individual would assist with day-to-day administrative issues and provide information to NINDS and NIAAA administrators who are tracking the program's progress.
- NIAAA should establish interim checkpoints for monitoring delivery of reports and other scheduled activities for which the CMIARD programs are responsible. NINDS found this to be a useful strategy in anticipating and resolving problems.
- The study team suggests that an enforced deadline for providing EAC/PAC draft meeting minutes (or meeting summaries) to NIH administrators would help focus SNRP and CMIARD programs on the content and usefulness of the meetings and provide NINDS and NIAAA staff with timely information for their records. It would also be the first step in ensuring that programs follow up on meeting recommendations.
- SNRP and CMIARD programs should also consider planning an external advisers meeting to coincide with submission of their progress reports to NIH. While this would concentrate their report and meeting preparation efforts into a shorter time frame, it would alleviate the problem of updating the pilot project progress report presented at the meeting.
- NIH administrators should ask each CMIARD institution to identify a senior administrator at the institution who is responsible for working closely with the PAC. This would establish a formal line of communication between the PAC and the institution's senior administration. The SNRP program presently has this requirement, but both programs should take steps to ensure that the senior administrator is an active, accountable participant.
- NINDS and NIAAA should host annual program directors' meetings to encourage information sharing among the PDs. Portions of the meetings should include participation by NIH administrators, and some time should be set aside for PDs to meet by themselves.
- Given the critical role EAC/PAC members play, NINDS and NIAAA should consider providing additional funding for external advisers. One PAC member noted that the CMIARD honorarium was much lower than standard rates and he felt obligated to devote more time to projects that were paying him more.
- NINDS and NIAAA should encourage (and fund if possible) a computer technician at the SNRP and CMIARD institutions to assist with software support and use of the Internet for research, information dissemination (e.g., creation or enhancement of a program Web site), and distance collaboration. NIH administrators should also create SNRP and CMIARD program home pages on the NINDS and NIAAA Web sites to serve as an electronic meeting ground for NIH administrators and program participants.
- NINDS and NIAAA should be aware of the existence and capacities of the OSP (or equivalent) at SNRP and CMIARD institutions and encourage and assist senior administrators at each institution to develop a plan for creating or enhancing such an office.
- NINDS and NIAAA should assess critically the level of resources they are providing for monitoring, managing, and scientifically supporting the SNRP and CMIARD programs. Cooperative agreements, unlike research and program project grants, require substantial involvement by NIH administrators. The study team concluded that if an NIH administrator had no other substantial responsibilities, supporting 3–4 cooperative agreement awards would be a full-time workload.

If NINDS or NIAAA awards new cooperative agreements in the SNRP or CMIARD programs, the study team recommends that the following actions be taken in the first year:

New PDs should attend the annual PD meeting recommended by the study team.

Two EAC/PAC meetings should be held during the first year, since the first meeting is likely to consist largely of discussion of administrative matters. Applicant institutions should identify potential EAC members during the pre-award period.

NIH administrators should develop additional methods to clearly inform SNRP and CMIARD applicant institutions of the level of accountability that will be expected with regard to the terms and conditions of the award and the consequences of noncompliance.

NINDS and NIAAA should be more effective in conveying information at the onset of the award regarding:

The nature of the cooperative agreement

NIH mechanisms and administrators' expectations regarding the level and type of their own effort and that of the SNRP and CMIARD PDs

The level and type of support that is expected from the SNRP and CMIARD institutions

The level and type of assistance that is expected from the EAC/PAC members

The SNRP and CMIARD program participants voiced several concerns during the site visits. The following topics of discussion are illustrative of issues raised by the program participants and are transmitted by the study team without endorsement:

Funding level of pilot projects.—Additional funds to support CMIARD pilot projects at a higher level would provide more release time for research faculty.

Effects of SNRP and CMIARD program participation on tenure.—Research faculty expressed concern that participation in the SNRP or CMIARD program might delay award of tenure due to reduced teaching load.

Timing and level of expectations for independent research grant funding.—There was lively discussion during the site visits regarding NIH administrators' expectations for PDs and PLs to obtain R21 or R01 funding after a specified period. While a 2-year cut-off (in the case of CMIARD) is useful for pilot projects that are unlikely to succeed, PLs of some projects have requested and received extensions of up to 1 year.

Visibility within the NIH scientific community.—NIH administrators should facilitate opportunities for SNRP and CMIARD research faculty to participate as speakers and in other key roles in meetings and seminars sponsored by NIH.

Service on NIH review committees.—One program participant noted that when a grant is received from NSF, the principal investigator is automatically eligible to be a reviewer for other grant proposals. Such experience is considered very valuable.

5. RECOMMENDATIONS AND CONCLUSIONS

The feasibility study to evaluate minority institution research development programs awarded as cooperative agreements addressed the following three study questions:

1. What was the baseline status of the 9 currently funded SNRP and CMIARD programs?
2. What is the best design for NINDS and NIAAA administrators to use in tracking the progress of the SNRP and CMIARD cooperative agreement programs?
3. What is the most feasible way to collect the data needed without imposing an excessive burden on program staff or NIH administrators?

Research Question 1 was addressed by conducting a baseline assessment of the 9 currently funded SNRP and CMIARD programs. The baseline findings are described in section 4 of this report. Section 5 describes the study team's recommended design for tracking the progress of the SNRP and CMIARD programs (Research Question 2), and the recommended methods for collecting data that would support an assessment of their progress (Research Question 3). Included are additional data collection strategies for conducting a comprehensive outcome evaluation of one or both programs at a future time if NIH administrators want to do so. The overall conclusions of the study team are also summarized.

5.1 RESEARCH QUESTION 2—RECOMMENDED DESIGN FOR TRACKING PROGRESS

The design developed by the study team for tracking the progress of the SNRP and CMIARD cooperative agreement programs closely followed the design that guided the baseline assessment. (It is applicable to other NIH cooperative agreement programs designed to enhance research capacity.) The design was based on a conceptual framework of specific types of NIH support, program characteristics, and program activities hypothesized to influence program effectiveness (see **exhibit 2**, p. 16). Each of the 24 variables identified in the conceptual framework was classified either as a predictor variable or an outcome variable. The 15 variables that were assumed to be related to program success were regarded as predictor variables. These variables included 6 types of pre- and post-award support provided by NIH administrators, 5 functional characteristics of each program, and 4 types of program activities. The framework also included 2 environmental variables outside the control of a SNRP or CMIARD program that could potentially influence its success. The 5 measures of intermediate success and 2 measures of long-term success were regarded as outcome variables. This conceptual framework was used to assess the baseline status of the SNRP and CMIARD programs and proved to be very helpful. The study team recommends that the same conceptual framework be used in tracking the progress of the programs, with one exception: It would not be necessary to collect any additional information on the pre-award support provided by NINDS and NIAAA administrators to the programs.

The recommended unit of analysis for tracking the progress of the SNRP and CMIARD programs is the individual program—specifically, the group of investigators, student researchers, and administrative staff at each academic institution who are involved in neuroscience or alcohol research funded by NINDS and NIAAA through a U54 or U24 cooperative agreement award. The feasibility study revealed that focusing on a larger institutional unit (such as a medical school component, academic department, or group of departments) would not provide adequate

measurement precision. As a result, the recommended design includes identifying and collecting information about the individual participants in each SNRP and CMIARD program.

To track the progress of the SNRP and CMIARD programs, data relevant to the different variables in the conceptual framework should be collected annually for each of the programs. The following data sources, which are among those used in the baseline assessment, are recommended for tracking progress:

- Program record documents available from NINDS and NIAAA, including noncompeting renewal applications (progress reports), summaries of the meetings of the EACs, program responses to EAC recommendations, financial information for each program, and written correspondence between NIH and SNRP or CMIARD administrators. If new awards are made, the initial SNRP and CMIARD applications and summary statements also would be important data sources.

- Web sites of the SNRP and CMIARD programs
- Data submitted by the programs reflecting their current status, including CVs for their SNRP and CMIARD investigators and a set of four data collection forms designed to obtain key information:
 - Organization
 - External Advisers and Collaborating Investigators Form
 - Research Personnel Form
 - Shared Facilities and Resources Form

The recommended data collection methods for tracking progress of the SNRP and CMIARD cooperative agreement programs are described in the response to Research Question 3. Whenever possible, quantitative data should be collected and used to score the variables. Qualitative data, however, should also be collected and used to assess specific variables that include the human dimension, such as leadership variables. In each case, it is advised that the methodology developed and tested during the baseline assessment be used, incorporating the recommended changes described in section 4.10. This approach would allow NIH administrators to collect and assess consistently each site's data and produce reliable scores for each variable in the conceptual framework. The analytic methodologies described in the following section include algorithms for calculating an annual summary score for each variable in the conceptual framework and an overall measure of performance based on the 5 intermediate indicators and 2 long-term measures of success (the outcome variables). A discussion of the recommended analytic approach to assess the progress of the SNRP and CMIARD programs follows the description of the data collection methods.

5.2 RESEARCH QUESTION 3—RECOMMENDED DATA COLLECTION METHODS

The methodologies recommended by the study team for obtaining information from the data sources (described in the previous section) were based on the study's conceptual framework. ~~When~~ ~~new~~ ~~data~~ ~~had~~ ~~been~~ ~~collected~~ ~~for~~ ~~the~~ ~~baseline~~ ~~assessment~~, the study team reviewed the procedures used, including the data collection forms and discussion guides, to determine whether any changes were warranted. The study team also considered the feasibility of alternative data collection strategies for NIH administrators to use in tracking future progress. Priority was given

to procedures that minimize the burden placed on program staff and with administrators. The results of the feasibility study indicated that minor revisions should be made to the detailed data items that all contributed to the scoring of the different variables. No changes were made to the operational definitions of the SNRP or CMIARD work variables.

Investigators in neuroscience or alcohol research during the past year (or previous years) should be listed, with new hires or new program participants noted. Current information should be provided about their scientific publications (a component of the Form 2590 Progress Report Summary) and grant awards presentations at national and international conferences, service on NIH panels, research awards, and any other scientific achievements. The study team recommends that standardized supplements to progress reports would ensure that NIH administrators have timely access to this information. Information should be provided in two-page biographical sketches (using the PHS Form 398/2590 format) and/or separate tables. All staff members who provided a substantial amount of technical and/or administrative support to SNRP or CMIARD investigators during the past year should be listed, identifying the type of research support provided. Student researchers, postdoctoral fellows, research associates, research assistants, or other student researchers who were active participants in neuroscience or alcohol research during the past year should be listed, identifying the type of research participation or support they provided to the SNRP or CMIARD program. Information on key personnel is requested on Form 2590, page 7, Personnel Report. Key personnel are defined in the Form 2590 instructions as individuals who contribute in a substantive way to the scientific development or execution of the project, whether or not salaries are requested. The supplementary information described here refers to staff members and others who would not be considered key personnel, and requests additional items of information about each individual.

1. Include an organization chart showing the current organization of the SNRP or CMIARD program. The organization chart should be presented in a standard format, similar to that used in the present feasibility study, showing the areas of research focus, the shared facilities/resources used by investigators conducting neuroscience or alcohol research, and the relationship among the institution's senior administrators, research faculty, administrative staff, grants administration office, and EAC/PAC (see **appendix E**). To minimize the data collection burden on program staff, the previous year's organization chart could be updated and submitted electronically to NIH. The progress report should also include a written description of how the program's organization chart has changed during the past year.
2. Identify the current members of the SNRP or CMIARD program's external and internal advisory committees and indicate how often they met during the preceding year. Information on external advisers should be provided on a form similar to the one used in the present study, showing each adviser's organization, area of expertise, and any special roles that the person played (see **appendix E**). To minimize the data collection burden on program staff, the previous year's form could be updated and submitted electronically to NIH. For each EAC/PAC and IAC meeting held during the past year, there should be a written summary of the meeting date and location, attendees, discussion topics, followup actions to be taken by specific individuals, committee recommendations to the institution's senior administrators, and institutional response. The study team believes that this type of summary would be more useful for an assessment than detailed minutes. In addition to this information, evidence should be provided showing that the EAC/PAC reviewed the program's annual progress report prior to its submission to NIH. Note: Information on external advisers for the prospective budget period is provided by the SNRP and CMIARD programs on Form 2590, page 2, Detailed Budget for Next Budget Period. The supplementary information described here refers to external adviser activity in the preceding budget period.

4. List key information for each of the program's shared facilities and resources that were available to SNRP or CMIARD research faculty on one or more forms similar to the one used in the present study (see **appendix E**). To minimize the data collection burden on program staff, the previous year's forms could be updated and submitted electronically to NIH. Include all major facilities and equipment valued at more than \$20,000 that were purchased with SNRP or CMIARD funding during the past year, and neuroscience/alcohol research facilities and equipment provided by the institution and other funding sources. Renovations undertaken using SNRP or CMIARD funds also should be noted. Prospective information on renovations and alterations planned for the next budget period is contained in Form 2590, page 2. The information described here refers to activities in the prior budget period.

5. Describe the extent to which the SNRP or CMIARD program currently has one or more leaders in high-level academic positions with excellent scientific credentials in neuroscience or alcohol research based on their scientific publications, success in obtaining competitive research grants, and experience employing strategies to improve the quality of investigator-initiated research. Describe what has been done in the past year and what is planned for the next year to enhance the program's scientific leadership, including any plans to recruit established investigators.

6. Describe the extent to which the SNRP or CMIARD program currently has one or more leaders in high-level academic positions who are skilled at administering complex programs, motivating others, and gaining the support of key people and organizations. Describe what was done in the past year and what is planned for the next year to enhance the program's

administrative leadership, including any new initiatives involving the grants administrative office, the EAC/PAC, and/or collaborating institutions.

7. Describe the SNRP or CMIARD program's strategic plan for enhancing its research capacity, explaining how it is consistent with the documented research and/or strategic plan of the institution and the two long-term goals of the SNRP and CMIARD programs (i.e., increased success competing for grants and more peer-reviewed scientific publications). The strategic plan should also include the individual program's intermediate and long-term goals, specific strategies it plans to use to achieve these goals, and measurable benchmarks for tracking success. Progress reports should also describe the program's experience in implementing the previous year's strategic plan as well as any changes that were made to the plan. Any unforeseen events that have had a negative or positive impact on the program's success in achieving its goals should also be described.
8. Describe the current system for managing the logistics, communications, and operational functioning of the program on a day-to-day basis, including the institution's computer and electronic communication capabilities. Describe what was done in the past year and what is planned for the next year to enhance the program's management and communication systems, including progress made with respect to Internet connectivity and Web site improvement, the use of email by program participants (including collaborators), and the use of computer software to enhance productivity.
9. Describe progress on the pilot research projects that were conducted during the past year, explain how each project is consistent with the SNRP or CMIARD program's areas of research focus and strategic plan, and describe any shared facilities and resources that were used to conduct the pilot project. The dates and total number of days the external collaborators spent at the SNRP or CMIARD institution and the SNRP and CMIARD investigators spent at collaborators' institutions should be reported, as well as the primary purpose of each visit. Institutional support for the pilot projects should also be noted. The supplementary information described here could be incorporated into the Form 2590 Progress Report Summary.
10. Describe all training activities that were undertaken during the past year to enhance the research-related capabilities of SNRP or CMIARD program personnel. These activities may include on- and off-campus workshops, symposia, seminars, journal clubs, and other training in research issues and techniques conducted to improve the program participants' scientific or technical capabilities. The participation of scientists from other institutions in presenting seminars or assisting program investigators with research problems should be specifically noted. Consultants (other than those individuals identified as external advisers) and their activities should also be identified and described.
11. Describe any institutional support or incentives provided during the past year that assisted SNRP or CMIARD program staff in conducting their neuroscience or alcohol research. Include institutional policy and organizational changes that were made during the past year in the following areas to encourage research productivity:

- Faculty appointment and promotion
- Faculty release time
- Grant-writing assistance, editorial support, and review of grant applications prior to submission to an external agency
- Patents and licenses
- Expediting the purchase of research supplies and equipment
- Maintenance and repair of research equipment
- Incentives for recruiting new research faculty
- Role and staffing of the grants administration office
- Distribution of indirect costs
- Other types of institutional support

12. Summarize the SNRP or CMIARD program's success in applying for and obtaining competitive research grant awards in neuroscience or alcohol research (e.g., NIH research project grants (RPGs)).⁵ The Form 2590 Progress Report requests information on other (active) support for key personnel during the prior budget period. Other support is defined as all financial resources, whether Federal, non-Federal, commercial or institutional, available in direct support of an individual's research endeavors, including but not limited to research grants, cooperative agreements, contracts, and/or institutional awards. Not included are training awards, prizes, or gifts. NIH administrators should take steps to ensure that information on other support is included with every progress report.

To measure the support provided each year by NINDS and NIAAA administrators to SNRP and CMIARD awardees, the study team recommends that NIH program staff create and maintain records of relevant meetings and workshops held or attended by NIH staff; days of assistance provided on-site at the SNRP and CMIARD programs; number of days SNRP or CMIARD program participants visited the NIH campus to discuss their research or receive training; and major communications between NIH staff and SNRP and CMIARD awardees. In addition, standard NIH procedures for monitoring funding to the SNRP and CMIARD awardees should be used to track the amount and percentage of funds allocated each year for personnel, collaborating institutions and consultants, equipment, supplies, travel, other direct costs, and indirect costs. Any delays in funding due to problems in an awardee's performance should also be noted. If new SNRP and CMIARD awards are made in the future, similar information should be collected to summarize the support provided by NINDS and NIAAA administrators during the pre-award period.

To minimize the burden on NIH administrators, the study team does not recommend that independent confirmation and/or supplementary information on grant awards and scientific publications be included in annually tracking the progress of SNRP and CMIARD programs.

However, if NINDS and/or NIAAA decide at a future time to conduct a formal outcome evaluation of the SNRP and/or CMIARD program, secondary data should be obtained from existing databases, as was done for the baseline assessment. The most useful data sources for the baseline assessment were the NIH CGAF and PubMed files. In future outcome studies, the Science Citation Index Expanded (SCI) Web of Science database licensed by NIH from the Institute for Scientific Information (ISI) should also be used to obtain citations data. The names of the SNRP and CMIARD investigators identified in the Research Personnel Forms should be used in searching these databases.

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Research project grants are awards to eligible institutions to support a principal investigator working on a specific research project or a group of investigators working on research projects that contribute to a broadly based multidisciplinary research program. RPGs include R01, R03, R15, R21, R22, R23, R29, R35, R37, R41, R42, R43, R44, R55, P01, P42, U01, U19, U43, U44, and P41 (for NIGMS, FY 1980–present) grant activity codes. National Library of Medicine grants are excluded for all years, as are grants awarded by the National Center for Nursing Research for FY 1986, NCRN for FY 1967–1989, FIC for FYs 1993 and earlier, and U01 grants for FYs 1980–1981.

One additional group of participants could also be tracked using existing databases and discussions with SNRP and CMIARD PDs—the postdoctoral, graduate, and undergraduate students participating in neuroscience and/or alcohol research. Using students' names provided on the Research Personnel Form, databases such as the NIH CGAF, TFF, and the medical school Faculty Roster System (FRS) could be queried to obtain information regarding additional training and research activities of the students. NINDS and NIAAA could determine whether the students who had participated in the SNRP and CMIARD programs continued in neuroscience and/or alcohol-related research careers.

Another important data source in a comprehensive outcome evaluation would be site visits to each SNRP and CMIARD institution, which should include observation of EAC/PAC meetings if possible. It is recommended that 2-day site visits be conducted, using the discussion guides and other procedures developed for the feasibility study to obtain important qualitative information from program participants and senior administrators, including an overview of the SNRP and CMIARD facilities. In addition, telephone discussions with collaborators, EAC/PAC members, and IAC members could be used to augment the other information collected for an outcome evaluation.

Several additional findings emerged from the feasibility study that should be helpful to NIH administrators in tracking the annual progress of the SNRP and CMIARD programs. Given the importance of peer-reviewed scientific publications, the study team recommends that NIH administrators pay close attention to the number and type of research faculty publications listed in the CVs submitted by the SNRP and CMIARD programs and in the programs' progress reports, including the quality of the journals referenced. It is recommended that a strong emphasis be placed on journals listed in the SCI.

The study team also recommends that NIH administrators emphasize the use of Internet and electronic communication by SNRP and CMIARD program participants. In the short term, their ability to submit data collection forms and progress reports to NINDS and NIAAA in electronic format would greatly facilitate tracking the programs' progress. Moreover, maintaining the annual tracking information in electronic format rather than hard copy format is preferable for many reasons—reduced storage space, ready access to information, and organized data for use in a future formal program evaluation.

In the longer term, the study team believes the strategic development of information technology expertise and capacity would substantially contribute to the research capabilities of the SNRP and CMIARD programs. The increasing use of Internet-based information technology in

conducting biomedical research presents an additional challenge to institutions that are trying to enhance their research capacity. Failure to acknowledge the emergence of the Internet as a research-facilitating tool is likely to broaden the gap between predominantly minority institutions seeking to become recognized research institutions and existing research-intensive institutions. A recent report by the National Research Council's Committee on Enhancing the Internet for Health Applications noted, "The Internet has been widely accepted within the biomedical community and greatly facilitates the research enterprise by helping integrate disparate databases for improved analysis, allowing linked simulations, and enabling remote control of biomedical research apparatus."

Fast and reliable connectivity to the Internet can provide access to remote databases and professional literature, and assist research faculty in locating sources of funding, which will help level the playing field for institutions seeking to become recognized research institutions. As bandwidth increases, real-time video transmission will allow online conferences and collaboration among distant researchers to become commonplace. While not a substitute for on-site visits, such real-time collaboration could supplement and enhance SNRP and CMIARD collaborations with investigators in research-intensive institutions, particularly those that are not in close proximity to the SNRP or CMIARD institution. The study team recommends that NINDS and NIAAA emphasize the value of Internet-based information technology and encourage the SNRP and CMIARD programs and their institutions to incorporate a similar emphasis in their strategic plans, with a goal of positioning themselves to make the best use of emerging technologies.

5.3 RECOMMENDED ANALYSES

The analysis of baseline data served as a test of the analytic methods that the study team recommends for tracking the progress of the SNRP and CMIARD programs. For the baseline assessment, several different procedures were developed to summarize the quantitative and qualitative data collected for each variable in the conceptual framework. Whenever possible, quantitative data were used to create a score for particular variables; however, when analysis of qualitative data was required, other techniques were developed and tested to ensure that qualitative information was collected and coded in a consistent manner. Systems were developed to code the qualitative information collected from CVs, program record documents, site visits, and discussions with program participants, using special scoring sheets developed for the study. These scores also contributed to the summary score assigned in the baseline assessment to each of the predictor variables in the conceptual framework. The scoring process used in the baseline assessment is described in section 3.3 of this report.

As tracking data are accumulated for the SNRP and CMIARD programs, annual summary scores could be assigned to the outcome variables as well as the predictor variables. The outcome variables should be scored for each SNRP and CMIARD program, with summary scores for long-term measures representing improved success competing for research, training, and career development grants and more peer-reviewed scientific publications, compared with each program's baseline status. Summary scores would be determined in a similar manner for the five

intermediate indicators of success. The study team recommends that an a priori determination be made regarding the weighting of the component variables that are used to determine the grants summary score and the publications summary score. When the grants summary score and the publications summary score were determined, however, they should be combined with equal weighting to create a long-term success summary score. Likewise, the summary scores for each of the five intermediate measures of success should be combined with equal weighting to create an intermediate success summary score. An overall success score would then be generated for each program, using the summary scores for the intermediate and long-term measures of success. The study team recommends that the intermediate success summary score be assigned a weight of 33.3 percent and the long-term success summary score be assigned a weight of 66.7 percent when the overall success score is determined.

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Networking Health: Prescriptions for the Internet. (2000) (p. 108). Committee on Enhancing the Internet for Health Applications: Technical Requirements and Implementation Strategies. Computer Science and Telecommunications Board, National Research Council. Washington, D.C.: National Academy Press.

The study team considered both the reliability and the validity of the recommended data analysis methods for tracking progress of the SNRP and CMIARD cooperative agreement programs.

Reliability.—In addition to using multiple sources of information, independent assessments of the same phenomena made by the coders increased the reliability of the baseline assessment. For example, two members of the study team conducting a particular site visit held joint discussions with one or more respondents. They also jointly toured the SNRP and CMIARD facilities and independently reviewed many of the same documents. Their coding and conclusions were later compared to improve inter-rater reliability. Each analyst also re-coded some of his or her field notes several days after the original coding to assess intra-rater reliability and improve the internal consistency of the ratings. The primary goal of these check-coding procedures was to identify factors that proved to be more difficult to code, enhance definitional clarity, and determine if additional training was needed to improve the overall reliability of the study.

Other techniques were used to improve internal consistency and replicability, therefore improving the reliability of the baseline assessment. These techniques included: following a detailed implementation plan, training the research analysts thoroughly, using a common set of data collection instruments and methodologies, developing standardized codes, and using triangulation (combining different methodologies to examine the same phenomenon). Specifically, four types of triangulation were employed to verify the accuracy of the information obtained:

- Methods triangulation
- Source triangulation
- Analyst triangulation
- Theory/perspective triangulation

Methods triangulation used different strategies to gather information: data collection forms submitted by SNRP and CMIARD programs, NINDS and NIAAA program record documents, database searches, and site visits. Source triangulation used several information sources for each method (e.g., holding discussions with a variety of individuals who had different perspectives, reviewing different types of documents). Analyst triangulation used a study team composed of several individuals with different areas of expertise. Theory/perspective triangulation compared the findings against the conceptual framework that had been developed for the feasibility study.

Validity.—The study’s internal validity (the credibility and authenticity of the baseline assessment findings) was increased by basing the assessment on a well-developed conceptual framework and underlying hypotheses, and employing pattern coding in the analysis. The study’s external validity (the generalizability of the findings) was enhanced by including all of the SNRP and CMIARD programs in the evaluation and using cross-site analysis, and presenting “rich descriptions” of the types of settings and information sources examined, the procedures used, and the findings that emerged, including areas of uncertainty.

Although considerable attention was given to increasing the internal and external validity of the study design, the ultimate test of the credibility of this type of project is the implementation of the study design and the response of decision-makers and information-users to the findings. The feasibility study of the SNRP and CMIARD programs was specifically designed to produce results that would be useful to NINDS and NIAAA administrators and other NIH administrators interested in using cooperative agreements to enhance the research capabilities of academic institutions.

5.4 CONCLUSION

The feasibility study to evaluate minority institution research development programs awarded as cooperative agreements was designed to provide a study design that will prove useful in tracking program progress and in future evaluations of cooperative agreement programs that have a goal of building research capacity. Specifically, the feasibility study had the following goals:

- Develop a scientifically sound design and conceptual framework for tracking the progress of the SNRP and CMIARD cooperative agreement programs
- Develop a methodology to collect data for tracking the progress of the SNRP and CMIARD programs that is feasible and not excessively burdensome on either SNRP and CMIARD program staff or NINDS and NIAAA staff
- Provide a descriptive baseline status of the 9 currently funded SNRP and CMIARD programs, using the design, conceptual framework, and data collection methodologies developed for the feasibility study

The feasibility study was based on a conceptual framework of program activities and characteristics that were hypothesized to influence program outcomes. The framework was designed to serve as a guide for collecting and analyzing quantitative and qualitative data from a variety of sources to assess the baseline status of the SNRP and CMIARD programs and to track the progress of the programs. The baseline assessment tested the design and conceptual framework developed by the study team. The baseline assessment also provided a rich description of the unique characteristics, challenges, and differences in initial capacities of the 9 currently funded SNRP and CMIARD programs.

The study also highlighted similarities and differences between the two programs. While both institutes chose the cooperative agreement mechanism, the two research areas funded (neuroscience and alcohol research) differed in the type of research conducted, the facilities and equipment needed to conduct research, and the skills required. Moreover, there were substantial differences in the amount and type of terms and conditions of the awards, particularly with

respect to release time for faculty, and in the amount of funding that was provided to the awardees. Specifically, NINDS was very proactive in its approach to administering the SNRP program. NINDS administrators negotiated detailed and specific terms and conditions with each awardee, closely monitored compliance, and enforced the terms and conditions. Different perceptions of the nature of the cooperative agreement mechanism and the significance of the terms and conditions that were held by the NINDS administrators and the SNRP program participants became evident during their discussions with the study team. This finding emphasized the importance of the awardees' understanding the characteristics of a cooperative agreement (e.g., the partnership role of the NIH administrators and the accountability implied by the terms and conditions), including how a cooperative agreement differs from a grant or a contract. The feasibility study also offered NIH administrators insight into possible improvements in program administration and implementation.

In summary, the results of this feasibility study should help NINDS and NIAAA administrators and decision-makers systematically track the progress of the SNRP and CMIARD programs. The results should also be useful to other NIH administrators considering the use of cooperative agreements as a mechanism for strengthening biomedical research capacity.