Report of the
Extramural Associates Research Development Award
Program Evaluation

January 13, 2006

National Institute of Child Health & Human Development (NICHD)
of National Institutes of Health (NIH)
Rockville, MD

Prepared by:
ORC Macro
11785 Beltsville Drive
Calverton, MD 20705

TABLE OF CONTENTS

LIST OF EXHIBITS

LIST OF APPENDICES

LIST OF ACRONYMS

Acronym	Description
EA	Extramural Associate
EARDA	Extramural Associates Research Development Award
FRESP	Faculty Research Enhancement Support Program
HBCU	Historically Black Colleges and University
HHS	U.S. Department of Health and Human Services
HSI	Hispanic-serving institution
IPA	Intergovernmental Personnel Act
N	Total Number Surveyed or Eligible to Respond
n	Total Number in Sample who Responded
NA	Not Applicable or Not Applied or Not Asked
NICHD	The National Institute of Child Health and Human Development
NIH	The National Institutes of Health
NSF	National Science Foundation
OER	Office of Extramural Research
OMB	Office of Management and Budget
ORD	Office of Research and Development
ORSP	Office of Research and Sponsored Programs
PBCU	Predominately Black Colleges and Universities
PHS	Public Health Service
RFA	Request for Application
SRIP	Sponsored Research Infrastructure Program

EXECUTIVE SUMMARY

The Extramural Associates (EAs) Program was established in 1978 by the National Institutes of Health (NIH) to increase the involvement of women and minority institutions in biomedical and behavioral research and research training. To participate in this program, eligible institutions submit applications in response to a request for application (RFA). Meritorious applications are peer-reviewed and successful applicants are invited to participate in an NIH residency training program. The training curriculum consists of both hands-on experience and didactic lectures on policies and practices of NIH extramural activities, including proposal development and grants management. The training is designed to enhance the research infrastructure of the EAs respective campuses upon their return. After completion of the residency training, the EAs are awarded the Extramural Associates Research Development Award (EARDA), initially for five years. The purpose of the grant is to allow the EA to implement its institution's plan submitted as part of its application. The enhanced research infrastructure will ultimately result in increased participation by faculty at the recipient institution in biomedical and behavioral research and research training.

Evaluation Purpose

To improve the current EA Program, the National Institute of Child Health and Human Development (NICHD) sponsored a comprehensive program evaluation to assess the implementation and outcomes of the program. The following five evaluation questions framed the study:

- Is the program being implemented as planned?
- Have the EAs and participating institutions achieved their short-term, intermediate, and long-term goals?
- To what extent is success related to institutional, individual, or program-related factors?
- How can the performance of the EA Program, EAs, and participating institutions be improved?
- What information is needed to monitor the EA Program in the future?

The evaluation of the EA Program has two components: a process evaluation and an outcome evaluation. The process evaluation examines issues related to program implementation, including information supplied by the EA Program Office, the application process, the residency, and grantee reporting. The outcome evaluation focuses on how the funds were being used and the short- and long-term outcomes of the EA Program on the EAs and their institutions.

Evaluation Methods

Data collection for this evaluation relied on both qualitative and quantitative methods. This mixed-method approach included four main data collection strategies:

- **Interviewing key NIH stakeholders.** These confidential personal interviews were conducted using semistructured protocols designed to explore the EA Program.

- **Reviewing EARDA grantee files.** The contents of a set of official grant files were reviewed between March and August 2004 using a data abstraction and coding form designed specifically for this evaluation.
- **Visiting eight of the institutions awarded EARDA grants.** Site visits to eight EARDA award recipients were conducted using semistructured interviews with EAs, administrators, faculty, and students at the participating institution; observations; secondary data collection; and review of EARDA Program records.
- **Surveys.** Four Web-based survey instruments were developed to obtain information from the EAs, administrators, faculty, and students. A structured telephone interview was developed to obtain information from institutions that applied for EARDA support but were not funded. Another Web-based survey was developed to gather information from eligible institutions that have never applied for the EA Program support.

Key Findings

Evaluation Question 1—Is the Program Being Implemented as Planned?

On the basis of the findings from the Web-based survey, interviews with EAs, and the grantee file review, the EA Program is being implemented as planned. EAs report that, before the EARDA award, the RFA and EA Program brochure were useful in both explaining the goals and objectives of the EA Program as well as guiding the development of successful grant proposals. Further, EAs reported high satisfaction with the grant application process, including many reporting having had helpful technical discussions with EA Program staff. However, less than one-third of all EAs reported learning about the EA Program from EA workshops or communication with the EA Program Office and EA Program mailings. However, 46 percent of EAs at women's institutions, tribal colleges, and institutions serving primarily Pacific Islanders learned about the EA Program from a mailing or workshop. Nearly two-thirds of the EAs report learning about the EA Program from discussions with current or former EAs or faculty and administrators at their academic institutions.

EAs report, once the EARDA grant was awarded, positive experiences and success with implementing activities that addressed many of the goals and objectives presented in the RFA, and in some cases, implemented activities that addressed goals broader than the scope of the EA Program. This finding is corroborated by activities reported in the grantee file review. The EAs were also asked about their use of EARDA grant funds to support specific grant-related activities. EAs report supporting pilot research projects (93 percent), supporting grant writing at their institution (82 percent), supporting attendance at outside workshops (79 percent), and supporting administrative assistants in completing a grant application (63 percent). Less than half of the EAs report using EARDA-grant funds to support the hiring of a consultant to write grants and the development of an EARDA advisory committee. Interviews with EAs and administrators reveal that one possible reason that grant funds are not often dedicated to support the development of an EARDA advisory committee is that other university committees were charged with this activity or responsibility, eliminating the need for a "duplicate" committee. One area EAs experience difficulty is the Intergovernmental Personnel Act (IPA) requirements.

EAs are dissatisfied with the clarity of instructions for submitting IPA invoices, knowing whom to contact regarding problems with the invoices, and timeliness of reimbursements.

Evaluation Question 2—Have the EAs and Participating Institutions Achieved Short-term, Intermediate, and Long-term Goals?

EAs report establishing and achieving goals resulting in a positive impact at their institution. The EAs and administrators reported being quicker to embrace the goals of EARDA than other faculty at their institution. Faculty at a number of institutions report that preparing for, applying for, monitoring, and reporting on a grant is a great deal of added work that has little benefit, and in some cases is discouraged by the institution because it was outside the mission of the institution. EAs also report that their institutions, on average, achieve 13 of 18 common EA Program goals, many of which could be viewed as intermediate or long-term goals. Qualitative data from site visits and interviews suggests that the barriers to achieving these goals are related to administrative turnover, heavy teaching workloads, and the institution's primary mission, which focuses more on teaching.

Evaluation Question 3—To What Extent Is Success Related to Institutional, Individual, or Program-Related Factors?

Because there was no official EA Program definition of what constitutes EA grantee success or what factors are associated with success, the evaluation defined five measures of success: 1) increased EARDA grant infrastructure and support; 2) subsequent grant funding; 3) achieving outcomes; 4) increased number of faculty grant applications; and 5) increased priority given to biomedical and behavioral research. Between 46 and 63 percent of EAs report success for each of the five success factors. The analysis also shows that there are certain institutional and individual factors that are related to success. For the first success measure, individual factors of tenure and age are positively related to success. For the second success measure, type of institution is a factor related to success. For success measures three, four, and five, type of institution, gender of the EA, and age of the EA each related to success. None of the analyses of these success measures yield information on program-related factors. However, comments from the surveys and qualitative data suggest that communication with other EAs and the EA Program Office is also extremely helpful to EAs in successfully achieving their goals.

Evaluation Question 4—How Can the Performance of the EA Program, EAs, and Institutions Be Improved?

Data gathered from EAs and the faculty, administrators, and students at the target institutions show that the EA Program, EAs, and recipient institutions perform well but that their performance could be enhanced. The overriding aspects in need of improvement are funding and time. Greater financial support is seen as a means to reducing the EA's teaching load, obtaining needed clerical support (professional or student), renting dedicated space, and supporting students for summer internships, all of which are thought to improve the performance of the EAs, institutions, and the EA Program. For example, at many academic institutions, grant support can in effect "buyout" required faculty teaching time, thereby allowing the institution to

hire an adjunct faculty member or in the case of adequate support, a new faculty slot, EAs and administrators also believe that providing faculty and students with more time to write grants and conduct research could enhance EA and institution performance.

Evaluation Question 5—What Information Is Needed to Monitor the EA Program in the Future?

On the basis of findings from the review of the EA Program RFA, review of the grantee files, and interviews with EA Program staff, the following topics emerged as necessary for monitoring the EA Program in the future:

- Clear guidance from the EA Program Office regarding the types of information grantees are required to provide to the NICHD (e.g., short-term, intermediate, and long-term goals; measurable program outputs and outcomes)
- A clear timeframe for grantees to submit required information
- An information system at the NICHD that would gather and maintain the required grant information for the EA Program; permit periodic analysis of grantee data to identify information gaps, inconsistencies, or irregularities; and permit summary analysis of grantee data for internal program management purposes as well as for responses to congressional and/or U.S. Department of Health and Human Services (HHS), NIH, and NICHD inquiries regarding program performance.

Recommendations

EA Program Development

Recommendation 1: Provide Better Guidance and Oversight to EA Institutions.

In response to evaluation question #1, based on review of the EA Program RFA and interviews with EAs, faculty, administrators, and students, the evaluation reveals that EAs and faculty and administrators at the recipient institutions report wanting greater contact with the EA Program staff, including providing guidance and technical assistance with the development of their grant and training for NIH mentors. To address this, the NICHD should institutionalize regular site visits to EA institutions by EA Program staff. Further, the interviews reveal that the NICHD should provide clearer guidelines for the mentor assignment during the EA residency.

Recommendation 2: Recruit New EAs Using Existing EAs, Administrators, and Faculty.

In response to evaluation question #1, EAs are found to learn about and frequently be recruited for the EA Program by other EAs, administrators, or faculty already involved in the EA Program. It may be cost effective to offer incentives (e.g., a small monetary reward or covering the cost of attending a professional meeting) to existing EAs, faculty, or administrators involved in the EA Program to recruit new EAs or to bring potential EAs to workshops or other meetings.

EA Program Communication

Recommendation 3: Increase the Visibility of the EA Program.

Study findings underscore the need for the program to be more visible both at EARDA-recipient institutions and at eligible institutions that have never applied for the award. The site visits provide evidence that many key administrators and faculty are not familiar with the EA Program, even if they work directly with an EA and are actively contributing to the biomedical or behavioral research infrastructure at their institutions. The NICHD should identify opportunities for staff to make presentations at national and regional conferences and other public appearances to increase the visibility of the EA Program.

Recommendation 4: Disseminate Guidance and Tools for Success.

Findings from the site visits and surveys indicate that the EA Program has resulted in a growing network of EAs who exchange findings and resources related to biomedical and behavioral research. Examples of tools that EAs believe would improve program communications include models of successful applications; articles featuring successful EA initiatives; fact sheets about the EA Program that EAs can use to inform administrators or other audiences about the program; and a discussion thread or electronic learning community where EAs and others can share information and build their network.

Recommendation 5: Improve Reporting Practices.

An important component of EA Program communication is monitoring individual grantee progress and reporting to ensure that grant objectives and activities are aligned with grant and program goals, that operations and outcome data are collected and reported, and that annual progress reports are filed. It is recommended that the NICHD develop standard reporting formats and a system for monitoring report submissions to ensure that grant files include all required documents, including annual progress reports.

Recommendation 6: Enhance EA Program Information Dissemination Strategy.
Less than one-third of the EAs first heard about the program from activities conducted by the EA Program Office. The usual source of information is other EAs, faculty, or administrators. All program and promotional materials should be easily accessible via the Web, or the user should have the ability to order the material online.

EA Program Operations

Recommendation 7: Refine Information Management Practices.

The EA Program should develop explicit strategies for collecting and using program-related information. Managing data effectively will inform ongoing plans for program improvements, help gauge progress toward program objectives, and support strategies for increasing program visibility.

Recommendation 8: Develop an Effective Administrative Information and Data System.

In response to evaluation question #4, the EA Program has an inadequate administrative database to manage grantee contact information, award status, and other characteristics. It is recommended that the NICHD establish a database to record grantee contact information and track indicators of progress. The NICHD should also establish an electronic system for managing participant contact information in technical assistance workshops, tracking requests for applications or other program materials, and maintaining records of other communications with eligible institutions.

Recommendation 9: Integrate Evaluation into Administration.

In response to evaluation question #4, EA Program participants are found to inconsistently gather and utilize grant progress and accomplishment data for continuous program improvement. The NICHD should develop guidance for EA Program participants regarding the collection, management, analysis, and use of grantee data that can be integrated into program administration to support a cycle of continuous improvement for both the grantees and the national programs operations.

Recommendation 10: Change the Way IPA Invoicing and Reimbursement Is Handled.

In response to evaluation question #1, EAs state that improvements regarding the clarity of IPA invoicing forms, whom to contact with invoicing problems, and promptness of reimbursements are needed. While outside the direct control of the NICHD, EA Program staff members should inform the appropriate parties of their grantees' dissatisfaction and seek improvements to these troubling areas.

Recommendation 11: Review and Modify the EA Program Anticipated Activities, Uses of EARDA Funds, and Roles Played by the Offices of Research and Development.

In response to evaluation questions #1 and #4, the evaluation study team, in collaboration with staff from the NICHD, developed lists of anticipated activities, uses of EARDA grant funds, and roles played by the Office of Research and Development (ORD). EAs, faculty, and administrators report needing greater guidance regarding implementing EA Program activities, use of EARDA funds, and the role of the ORD. The NICHD should either change their expectations regarding EA grantee activities and outcomes (e.g., not expecting too much regarding grantee activities and outcomes) or more effort needs to be expended showing recipient institutions how to accomplish these activities, how to use EARDA funds for a variety of activities, and the alternative roles of ORD.

I. INTRODUCTION

The National Institutes of Health (NIH) established the Extramural Associates (EAs) Program to promote participation of underrepresented minority and women's institutions in biomedical and behavioral research and research training (an underrepresented minority institution is one whose percentage of representation in the behavioral or biomedical research community is less than its percentage of representation in the general population). The program initially consisted of a 6-month residency at the NIH. Eligible schools submitted the names and curricula vitae of nominees, along with a commitment that the institutions would support the nominees when they returned from residency training. Until 1994, the program made no distinction among eligible schools on the basis of their size or level of involvement in externally funded research. Nor did the EA Program provide any fiscal resources upon the EAs completion of the training.

The first Request for Applications (RFA) for the Extramural Associates Research and Development Award (EARDA) grant—awarded to the EA upon completion of their NIH residency and subsequent return to their institution to develop the research infrastructure—was issued in 1994 and supported two models. The first, the Faculty Research Enhancement Support Program (FRESP), is intended for institutions that have few or no research activities and award no science degrees higher than the baccalaureate. The FRESP requires a 10-week residency at the NIH. The second model, Sponsored Research Infrastructure Program (SRIP), is intended for masters, doctoral, and professional degree-granting institutions. The SRIP requires a 5-month residency at the NIH.

Many changes have occurred in this trans-NIH program since the EARDA grant was added. Initially, EARDA was awarded for only 3 years, but the NIH Office of Extramural Research (OER), upon recommendation of the EA Program Advisory Board, determined that this timeframe was insufficient for achieving EA Program goals. Subsequently, the grant period included a 3-year Phase I award followed by a 3-year Phase II award, for a total of 6 years of support.

When the National Institute of Child Health and Human Development (NICHD) began administering the EA Program in 2000, a 5-year grant period was established and an EARDA transition award was implemented. Those awardees that received 6 years of EARDA grant support under the old Phase I and II system were eligible for 2 years of transitional EARDA support, and those receiving a grant under the newer 5-year initial grant period could receive 3 years of cost-sharing transitional support. This arrangement allows all EARDA recipient institutions to receive up to 8 years of support to develop their research infrastructure.

The changes from a 3-year to a 5-year award and the addition of a transition award have been accompanied by other significant program changes. These include expanding the list of EA-eligible institutions to include community colleges and adding a new EARDA component that provides an additional $20,000 per year to FRESP participants to support faculty pilot research projects.

Purpose of the Evaluation

The purpose of the NICHD-sponsored evaluation of the EA Program is to gather and analyze information regarding EA Program processes and outcomes. The evaluation is designed to achieve the following three major objectives—

- Develop a better understanding of how EARDA assists minority and women's academic institutions in building their research capacities
- Document the successes of EARDA-grantee institutions in encouraging administrators, faculty, and students to become involved in biomedical and behavioral research
- Provide information that will enhance EA Program operations and grants administration at both EARDA institutions and the NIH.

To achieve the study objectives, five evaluation questions were developed—

- Is the program being implemented as planned?
- Have the EAs and participating institutions achieved their short-term, intermediate, and long-term goals?
- To what extent is success related to institutional, individual, or program-related factors?
- How can the performance of the EA Program, EAs, and participating institutions be improved?
- What information is needed to monitor the EA Program in the future?

This study also examined factors that contribute to the program's success in building biomedical and behavioral research capacity at minority and women's institutions. The evaluation also examined connections between processes and outcomes at various stages of EA Program development to determine how the EARDA institutions and the NICHD program staff progressed toward achieving the program goal and objectives. Finally, the study focused on how to improve the EA Program by seeking feedback from stakeholders on how the program's structure and operations could more effectively accomplish its objectives.

Organization of Report

The following chapters present the study methodology, results of the evaluation, and conclusions and recommendations. Chapter II presents a detailed description of the evaluation approach used by the study team and also describes the individual data sources and data collection processes. Chapter III presents findings from the analysis of all the data sources in response to each of the five evaluation questions. A summary and conclusion is presented at the beginning of the findings section for each of the five evaluation questions. Chapter IV presents the recommendations that follow from the study findings organized into three major areas of EA Program improvement—program development, program communication, and program operations.

II. EVALUATION METHODS

To answer the five evaluation questions that framed this study, the evaluation approach was designed to collect program implementation as well as program outcome information, and fully utilize testimonial as well as documentary information. To meet all of these requirements, the evaluation study team developed a mixed-method evaluation approach (using quantitative and qualitative data) that had two components: a process evaluation and an outcome evaluation.

The process evaluation component focuses on how the EA Program has been implemented since the addition of the EARDA component in 1994. The processes under review include those that occur before the EARDA is awarded (marketing- and application-related activities), those that occur directly after the award is granted (notification process and NIH residency experience), and those that occur after the EAs return to their institutions and work to initiate change in the research infrastructure and participation of the institution in biomedical and behavioral research and research training. The outcome evaluation component focuses on the short-term and intermediate outcomes of the EA Program and its longer-term effects on the EAs and their institutions.

The quantitative and qualitative mixed-method approach included four main data collection strategies:

- Interviews with key stakeholders at the NIH
- Review of EARDA grantee files at the NICHD
- Site visits to eight institutions currently receiving the EARDA grant
- Surveys of EAs, administrators, faculty, and students at EARDA-recipient institutions; surveys of administrators at eligible institutions that have never applied; and interviews with EAs at institutions that applied and did not receive funding.

To guide the evaluation study, a program logic model was developed collaboratively with the NICHD staff and the EARDA Evaluation Technical Workgroup to identify the connections between program inputs; activities and processes; outputs, immediate outcomes; and long-term impacts. The program logic model also served to inform the development of data collection instruments and data collection processes. The EA Program logic model is included in Appendix A.

The descriptive detail gathered through the personal interviews and site visits (qualitative data) augment the data gathered through the surveys and grant file review (quantitative data), and often supports the findings from the EA, faculty, student, and administrator surveys. The site visits and file review provides a valuable contextual understanding of the EA Program. At the same time, the quantitative data provide guidance on which qualitative findings from the site visits could be generalized to the broader population of EARDA grantees.

Interview NIH Stakeholders

Six individuals (key informants) who have significant experience with NIH in general and the EA Program in particular were interviewed. The purpose of these key informant interviews was to provide a more comprehensive understanding of the EA Program's history and context, which was used in formulating the other data collection strategies. The key informant interviews were conducted using semi-structured personal interview protocols designed to explore the EA Program history, the general perception of the EA Program as a trans-NIH initiative, the functions of the EA Advisory Board, the perceived success of the program in achieving its goals, and the challenges facing the program, both at NIH and EARDA-recipient institutions. The six key informants also provided the evaluation study team with guidance regarding how to select and approach site-visit institutions and the content and tone of site-visit interview protocols and survey questionnaires. Key informant interview participants were assured confidentiality of their responses.

Grant File Review

The official NIH files for the EA Program contain EARDA-grantee records, including annual progress reports, initial and continuing applications, and other critical program correspondence. In some cases, the EA Program Office had provided additional supplemental materials and correspondence from grantees. To begin the process, the evaluation study team analyzed the contents of a set of ten sample files from grantees and designed a data abstraction and coding form. This form was constructed as part of a Microsoft Access database, so that team members could review the official NIH EA Program files onsite at the NICHD and enter the appropriate data directly. Members of the file review team were trained using the sample files and the established database to ensure consistency in the data collection process.

The coding process for the file review included cataloguing documents that were present in the file, recording basic descriptive information about the EA and grant expenditures, and noting goals and planned activities. When the progress reports contained sufficient information, the coding process also recorded the goals and activities that had been implemented.

The grant file review process was implemented between March and August 2004. In total, 60 grant files were reviewed and coded. In many cases, required documents were missing from the files. The evaluation study team worked with the EA Program staff throughout the grant file review period to locate as many of the missing documents as possible. The grant file review process was initially designed to establish a baseline and identify subsequent annual indicators of institutional changes related to program goals. However, inconsistencies in file contents and format, as well as missing documentation precluded conducting this analysis.

Site Visits of Participating Institutions

The evaluation study team conducted site visits to eight EARDA-recipient institutions to conduct in-depth, qualitative interviews and observations regarding program processes, outcomes, and contributing factors for success. These site visits were designed to provide a breadth of understanding regarding the program's operations and accomplishments and enhance the evaluation study team's ability to interpret data from the EA and administrator surveys.

To select the sites, the evaluation study team first consulted the EARDA Evaluation Technical Workgroup and then worked collaboratively with the EA Program Director to establish a list of sites on the basis of the following criteria—

- Equal numbers of FRESP and SRIP institutions.
- Various levels of success in performing pre- and post-EARDA award activities.
- Representation by type of institution—to include historically Black colleges and universities (HBCUs), Hispanic-serving institutions (HSIs), and women's institutions. (No tribal colleges were selected for a site visit because none had received an EARDA grant three or more years ago, an appropriate timeframe for program outcomes to occur.)
- Institutional characteristics, such as the highest degree awarded, geographic location, and cooperation with or proximity to other academic institutions.
- Sufficient time elapsed since the grant was awarded to allow outcomes to occur.
- Continued presence of key informants, such as an active EA and an administrator who was knowledgeable about the program.

To honor our commitment to these institutions regarding confidentiality, they are not identified in this report.

The site visits included semi-structured interviews with EAs, administrators, faculty, and students at each of the participating institutions. Individuals at the institutions were assured confidentiality of their responses. The two-person site visit team also interviewed a business official from the institution and a member of the institution's EA Advisory Board, when possible. Site visit data includes interview and observation notes as well as secondary data collected during the visit, such as annual reports, descriptions of pilot projects, research presentations or publications by the EA, and EARDA program records. These data were catalogued, and prevalent themes were coded to both inform and supplement the interpretation of survey data. The interview protocols were developed in collaboration with the NICHD and EA Program staff. The interview protocols are included in Appendix B.

Surveys

The evaluation study team designed and administered surveys to targeted respondents at the following types of institutions:

- **EARDA-recipient institutions:** Targeted respondents included the EA(s), one administrator, one faculty member, and one student. Data collection occurred via Web-based surveys.
- **Institutions that applied for EARDA support but were not funded:** The targeted respondent was the applicant. Data collection occurred via structured telephone interviews because this population was difficult to reach and had limited incentive to respond.
- **Eligible institutions that have never applied for EARDA support:** The targeted respondent was an administrator. Data collection occurred via Web-based surveys.

Survey instruments were developed collaboratively with the NICHD and the EA Program Office. The evaluation study team first drafted content outlines for each questionnaire and incorporated input from the NICHD. These outlines then were used to draft survey instruments that were pilot tested internally (using ORC Macro staff not involved in this project and staff from the NICHD) and externally (using faculty at various institutions) for question placement, sequencing, clarity, and length. After the NICHD approved the Web-based survey instrument, it was programmed for Section 508 compliance. The surveys relied heavily on close-ended questions to allow for quantifiable results, but some open-ended items were included to collect qualitative data.
Part of the process for any Federal survey of more than nine individuals is obtaining approval from the Office of Management and Budget (OMB). To expedite the process, evaluation study staff members worked with staff from the NICHD to develop, submit, and obtain approval for a generic request to OMB for surveys on customer satisfaction. The goal was to have the surveys for this evaluation reviewed by OMB under the generic request, and thus reduce the time required to obtain OMB approval. The survey instruments are included in Appendix C. A detailed description of the survey procedures and response rates is provided below.

EARDA-Recipient Institutions

The EAs were identified using information provided by the EA Program Office.

EAs

The NICHD provided a list of 74 institutions that represent the universe of EARDA-funded institutions from 1995 to 2004. After reviewing the list, the NICHD asked that three institutions be removed (two were the same institution, and the third was an institution where the EA died and a replacement was never named). With the elimination of these institutions, 71 were deemed to be within the scope of this study. The EA at each institution was identified, and contact information was obtained from the NICHD or the institution. In some instances, the EA was no longer at the institution, and efforts were made to obtain current contact information for these individuals. Fifty-seven EAs responded to the survey, for a response rate of 80 percent. This high response rate is the result of a labor-intensive effort that involved multiple notifications to the EA by e-mail and phone calls over a period of 6 weeks. Reminder telephone calls from the NICHD Program Office staff were also made to encourage responses.

Exhibit 1 presents data on three key factors (type of institution, type of grant, and year of funding) for the population of EAs (N=71) and the EAs that responded (n=57). These data indicate that there is no response bias by any of these factors.

Administrators

The respondent EAs (n=57) were asked to supply contact information for an administrator, a faculty member, and a student at their institutions. This information was used to invite these individuals to respond to a Web-based survey. Contact information was collected from 54 of the 57 respondent EAs. Some of the information was incomplete or not accurate, and some of the EAs responded after the deadline. In the end, a list of 40 administrators was derived.

A personalized e-mail invitation was sent to each of the 40 identified administrators asking them to respond to the survey and providing a direct link to the Web-based survey instrument. Exhibit 2 displays data on the response rate and the number of administrators who responded. Fifteen of the 40 administrators responded (38 percent). Eight of the respondents were from HBCUs/

Exhibit 1. Comparison of the EAs in the Population and Those That Responded to the Web-based Survey on Three Institutional Factors (Source: EA Program data and Web-based survey of EAs)

Factor	Levels	Population (N=71)	Respondents (n=57)
Type of Institution	HBCU/PBCU	59%	60%
	Hispanic Serving	20%	21%
	Women's	17%	14%
	Other*	4%	5%
Type of Award	FRESP	49%	51%
	SRIP	51%	49%
Year of Award	1995–1999	49%	49%
	2000–2004	51%	51%

predominantly Black colleges and universities (PBCUs) (53 percent), nearly the same percentage of funded institutions that HBCUs/PBCUs represent in the population (59 percent). Four of the administrators were from HSIs (27 percent), and three were from women's institutions (20 percent). A greater number of the administrators who responded to the survey were from institutions that received FRESP funding (n=9 or 60 percent), compared with those that received SRIP funding (n=6 or 40 percent). Because the number of administrators who responded is small, the survey data are not tabulated separately by type of institution, type of award, year of award, or other institutional or award characteristics.

* Tribal colleges and institutions serving primarily Pacific Islanders

Exhibit 2. Response Rates and Number of Respondents for the Various Target Groups other than EAs. (Source: Survey data)

Target Groups	Population	Response Rate and # of Respondents
Administrators	N=40	38% (n=15)
Faculty members	N=40	53% (n=21)
Students	N=22	77% (n=17)
Institutions that applied and were never funded	N=13	85% (n=11)
Eligible institutions that never applied	N=213	23% (n=49)

Faculty Members

The same process used to select administrators was employed for faculty. E-mail requests were sent to 40 faculty members (at the same institutions as the 40 administrators), of whom 21 responded (53 percent). Eleven respondents were from HBCUs/PBCUs (52 percent) with the remaining respondents evenly divided between faculty at HSIs (n=5 or 24 percent) and women's institutions (n=5 or 24 percent). The responding faculty was nearly evenly divided between institutions that had FRESP funding (n=11 or 52 percent) and SRIP funding (n=10 or 48 percent). Because the number of faculty who responded is small, the survey data are not tabulated separately by type of institution, type of award, year of award, or other institutional or award characteristics.

Students

Students were recruited in the same manner as the administrators and faculty. E-mail requests were sent to 22 students, of whom 17 responded (77 percent). Some of the EAs may not have supplied information on students because prior to 2003, FRESP grantees may not have involved students at institutions that no longer had an EARDA grant in place, and/or students were no longer at the institution, and contact information was not available. The majority of respondents were from HBCUs/PBCUs (n=11, 65 percent), with the remaining respondents evenly divided between HSIs and women's institutions. The percentage of respondents from HBCUs/PBCUs is slightly greater than that of HBCUs/PBCUs in the universe of funded institutions (59 percent). Among the respondents, there was an even split as to the type of funding their institutions received (SRIP, n=9, compared with FRESP, n=8) and year of funding (1995–1999, n=8, compared with 2000–2004, n=9). Because the number of students who responded is small, the survey data are not tabulated separately by type of institution, type of award, year of award, or other institutional or award characteristics.

Institutions That Applied and Were Never Funded

There were 14 applications from 13 institutions during the study period that were not funded (one institution applied twice). Of these applications, 13 were from HBCUs/PBCUs and the other application was from an HSI. A structured telephone interview was used to obtain

information from the EAs who submitted these applications. Eleven of these individuals were interviewed, representing a response rate of 85 percent. All the respondents were from HBCUs/PBCUs.

Eligible Institutions That Never Applied

The list of institutions that were eligible for the program but that have not applied was derived from material provided to the evaluation study team by the NICHD and it represented institutions that inquired about the EA Program but never applied for funding. That list contained 226 institutions. However, e-mail addresses could not be obtained for 13 institution administrators. Thus, e-mail requests were sent to 213 administrators, of whom 49 completed the survey (23 percent). A few of the nonresponding administrators e-mailed the evaluation study team project director to indicate that their institution no longer qualified for the program (e.g., a women's college that is now coeducational). The evaluation study team project director responded to each e-mail and requested them to answer the survey questions as of the time they were eligible.

Tests of Significance

A census was conducted for both the survey of EAs and the survey of institutions that applied and were not funded. Because the entire population of these groups was included, it is not appropriate to use statistical tests, which indicate the probability that a sample statistic matches a population parameter. As a rule, absolute differences found in these survey data that are greater than or equal to 10 percentage points are noteworthy and have been identified in the text (e.g., 55 percent versus 45 percent).

III. FINDINGS FROM THE EARDA STUDY

Comprehensive program evaluations often examine how a program is implemented, including what outputs or outcomes the program produces. This examination is often guided by a map or model that specifies each of the relevant and important program inputs, processes, outputs, outcomes, impacts, and environmental contexts (including program assumptions). This model, known as a logic model, also shows how the various program resources are used to operate the program (process) which in turn produce outputs and outcomes (all of which occur in various environmental contexts such as a college or university setting). As the program operates and matures, program impacts can be observed and measured.

A general logic model for the EA Program is presented in Appendix A. This model shows EA Program assumptions, resources, activities, outputs, and short-term, intermediate, and long-term outcomes associated with the EA Program. This model also shows how the resources, activities, outputs, and outcomes are related to one another, and how assumptions and other environmental contexts may influence program inputs, activities, outputs, and outcomes.

As shown in Chapter II, the EA Program evaluation study was designed to address five evaluation questions—

- Is the program being implemented as planned?
- Have the EAs and participating institutions achieved their short-term, intermediate, and long-term goals?
- To what extent is success related to institutional, individual, or program-related factors?
- How can the performance of the EA Program, EAs, and participating institutions be improved?
- What information is needed to monitor the EA Program in the future?

Information (derived from the various sources and methods described in Chapter II) related to each evaluation question is presented in the sections below. Each section begins with a brief summary of the answer to the evaluation question followed by a presentation of the information and findings supporting that answer. Chapter IV provides recommendations made on the basis of findings.

Evaluation Question 1—Is the EA Program Being Implemented as Planned?

On the basis of the findings from the Web-based survey, interviews with EAs, and the grantee file review, the EA Program is being implemented as planned. This summary finding is made on the basis of a normative comparison of what the NIH planned for the EA Program and what the evaluation study team found through the Web-based surveys and interviews with EAs as well as a review of a sample of grantee files. The evaluation study examined two specific periods in the EA grantee's experience: pre-EARDA grant award and post-EARDA grant award. The normative standards for this comparison was derived from the stated goals and objectives of the EA Program, guidance provided to grantees in the RFA for the EARDA grant, technical

assistance provided by EA Program staff, EA-reported experience with the residency requirement, and the goals and activities EAs were expected to address and achieve.

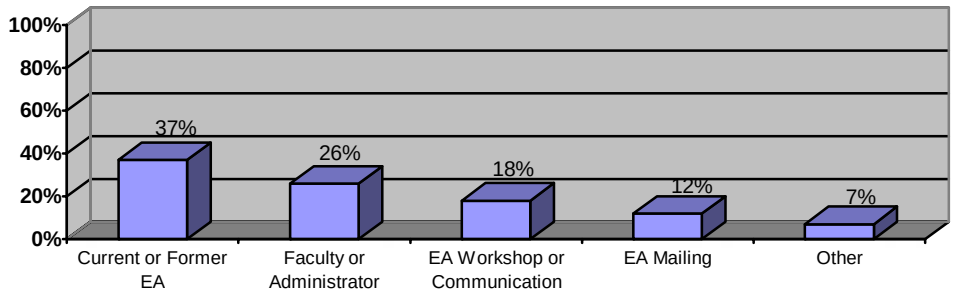
EAs report that before the EARDA grant was awarded, the RFA and EA Program brochure were useful in both explaining the goals and objectives of the EA Program as well as guiding the development of successful grant proposals. They also report high satisfaction with the grant application process, including many reporting having had helpful technical discussions with EA Program staff. However, less than one-third of all EAs reported learning about the EA Program from EA workshops or communication with the EA Program Office and EA Program mailings. Nearly two-thirds of the EAs report learning about the EA Program from discussions with current or former EAs or faculty and administrators at their academic institution.

EAs report, once the EARDA grant was awarded, positive residency experiences and success implementing activities that address many of the goals and objectives presented in the RFA, and in some cases, implementing activities that addressed goals broader than the scope of the EA Program. This finding is corroborated by activities reported in the grantee file review. One area EAs report dissastisfaction is with the Intergovernmental Personnel Act (IPA) requirements. They were dissatisfied with the clarity of instructions for submitting IPA invoices, knowing whom to contact regarding problems with the invoices, and timeliness of reimbursements.

Evaluation Question 1—Detailed Analysis of How Faculty Learned about the EA Program and the Usefulness of the EA Program Information and Resources

As previously noted, nearly two-thirds of the EAs surveyed first learned of the program from current or former EAs, administrators at their institutions, or other faculty members. Data from the administrators and faculty indicate that these individuals learned of the program from other faculty or from current or former EAs. Most EAs learned about the program from sources other than the EA Program Office. This was noted in both of the surveys and the site visit interviews (see Exhibit 3). The surveys indicate that less than one-third of the EAs learned of the program from activities of the EA Program Office (e.g., EA workshops, communications, and mailings). During the site visits, a few EAs noted that they were asked to become EAs by a dean or president of the institution. Others reported learning about the program from colleagues who were current or former EAs.

Exhibit 3. Percentage Distribution for How the EA First Learned of the Program (Source: EA survey, n=57)



This finding varies by type of institution. Half of the EAs at HBCUs/PBCUs learned of the program from a current or former EA. Fifty-eight percent of the EAs at HSIs learned of the program from an administrator at their institution. Forty-six percent of EAs at women's institutions, tribal colleges, and institutions serving primarily Pacific Islanders learned about the EA Program from a mailing or workshop.

Throughout the remainder of the analyses presented for this evaluation question, the focus is on the satisfaction reported by the EAs with regard to the delivery of the program or program resources and the corroboration provided by grantee files and interviews with EAs.

EA Program Information and Resources

After faculty learned of the EA Program, applying for the EARDA grant was the next step. EA Program information and resources (e.g., RFA, brochure, technical assistance by EA Program staff) is reported as useful (i.e., very useful, useful, or somewhat useful) by a majority of EAs (see Exhibit 4). Nearly all EAs report the RFA as useful (96 percent), whereas 67 percent of the EAs report that information from other EAs was useful. The resource that has the highest percentage indicating "very useful" (75 percent) is discussions with EA Program staff. Twenty-five percent of respondents indicate that the EA Program brochure was unavailable or that they were unaware of it. Because the brochure was not available until 2002, this response is not unexpected. About the same percentage of respondents was unaware that information might be obtained from other EAs, and another 7 percent did not find information from other EAs useful.

Exhibit 4. Percentage Distribution for Rating of Usefulness of EA Program Information (Source: EA survey, n=57)

Usefulness	Very Useful	Useful or Somewhat Useful*	Not Useful	Not Aware or Not Available*
RFA	63%	33%	0%	4%
EA Program brochure (First available in 2002)**	37%	39%	0%	25%
Discussions with EA Program staff	75%	10%	4%	11%
Information from other EAs	35%	32%	7%	26%

*This combines two categories.
**Percentages do not add to 100% because of rounding.

EA Grant Application Process

EAs are satisfied (i.e., somewhat satisfied or very satisfied) with the written instructions provided with the RFA, the review criteria outlined in the RFA, the overall duration (i.e., length of time) of the application process, and the technical assistance provided by EA Program staff. Satisfaction levels for each component are 95 percent or more (see Exhibit 5). Furthermore, no respondents express dissatisfaction with the written instructions provided in the RFA. EAs are,

however, less satisfied with the period of time allotted between the RFA release date and the date applications were due. Three EAs stated during interviews that having a little more time to develop a high-quality proposal was in the best interest of both the institution and the EA Program.

Exhibit 5. Percentage Distribution of EAs by Satisfaction with Selected Components of the EA Grant Application Process (Source: EA survey, n=57)

EA Grant Application Process	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
Written instructions provided in the RFA	70%	30%	0%	0%
Review criteria outlined in the RFA	64%	34%	2%	0%
Time allotted between RFA publication and application receipt deadline	36%	59%	5%	0%
Overall length of the application process (from the time of submission to final notification of award)*	59%	38%	2%	2%
Technical assistance provided by EA Program staff	86%	12%	2%	0%

*Percentages do not add to 100% because of rounding.

Residency Experience

All the EAs (100 percent) report being satisfied (i.e., very satisfied or somewhat satisfied) with three of the seven components of the EA residency program: the length of the residency program, breadth of exposure to the NIH, and opportunities to discuss research infrastructure issues with experts on the NIH campus (see Exhibit 6). Some dissatisfaction is expressed with regard to institutional capability assessment (13 percent) and the NIH mentors (14 percent). Two EAs state that their institutions could have done a better job assessing their biomedical and behavioral health research capability and that their NIH mentor was either difficult to communicate with or disinterested.

Exhibit 6. Percentage Distribution of EAs by Satisfaction with Selected Components of the EA Residency Experience (Source: EA survey, n=57)

EA Residency Experiences	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
Length of residency	79%	21%	0%	0%
Breadth of exposure to the NIH	86%	14%	0%	0%
Opportunities to discuss research infrastructure issues with experts on the NIH campus	68%	32%	0%	0%
Experience developing an implementation plan*	63%	34%	4%	0%
Grant-writing module	64%	29%	5%	2%
Institutional capability assessment module	55%	32%	13%	0%
Mentor at the NIH	59%	27%	12%	2%

*Percentages do not add to 100% because of rounding.

Intergovernmental Personnel Act Requirement

Less than 10 percent of the respondents disagreed with the statement that there was adequate time to complete the IPA forms, a clear distinction between IPA funds and EARDA funds, or that the housing information was helpful. Twenty to 30 percent disagreed with statements that the instructions for submitting the IPA invoices were clear, that they knew whom to contact regarding problems with the invoices, and that reimbursements were prompt (see Exhibit 7). When experience with the IPA requirements is examined by year of funding, the evaluation study team found that the level of disagreement with four of the seven statements increases over time.

For example, whereas 4 percent of the late 90s cohort of grantees (1995–1999) disagree or strongly disagree that "Instructions for completing the IPA forms were clear," 24 percent of the early 2000 cohort of grantees (2000–2004) strongly disagree or disagree. The examination also reveals the following—

- Instructions for submitting IPA invoices were clear (7 percent of the 1995–1999 cohort disagree or strongly disagree, compared with 31 percent of the 2000–2004 cohort).
- Reimbursements were prompt (11 percent of the 1995–1999 cohort disagree or strongly disagree, compared with 48 percent of the 2000–2004 cohort).
- It was clear whom to contact regarding problems with invoices (11 percent of the 1995–1999 cohort disagree or strongly disagree, compared with 41 percent of the 2000–2004 cohort).

Though the NICHD is not responsible for the IPA program, EAs have made it clear that the clarity of instructions for completing and submitting forms and invoices, whom to contact for assistance, and promptness of reimbursements are issues that need to be addressed.

Exhibit 7. Percentage Distribution of EAs by Level of Agreement with Selected Statements About Their Experiences with the IPA (Source: EA survey, n=57)

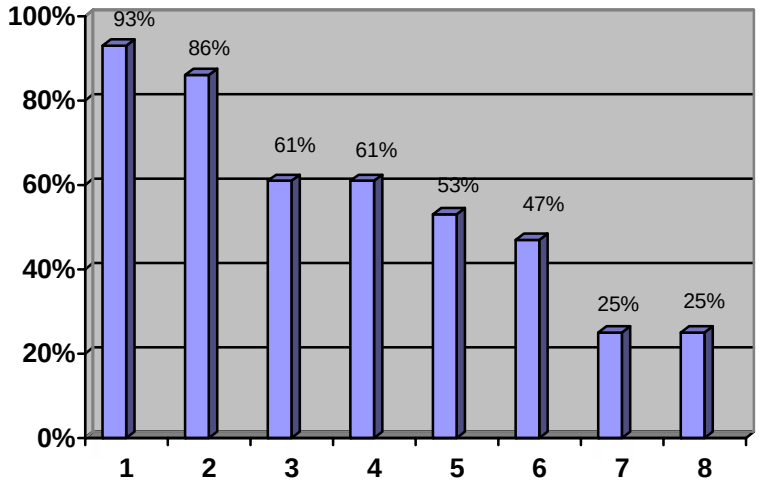
Experiences with the IPA	Strongly Agree	Agree	Disagree	Strongly Disagree
Adequate time was provided to complete the IPA forms	45%	50%	5%	0%
During my EA residency there was a clear distinction between IPA funds and EARDA funds	55%	38%	7%	0%
Housing information was helpful	48%	43%	7%	2%
Instructions for completing the IPA forms were clear	34%	52%	14%	0%
Instructions for submitting the IPA invoices were clear*	29%	52%	16%	4%
It was clear whom to contact regarding problems with invoices*	29%	45%	18%	9%
Reimbursements were prompt	29%	41%	21%	9%

*Percentages do not add to 100% because of rounding.

Use of EARDA Funds

The EAs were asked a series of questions on how they used the EARDA grant funds. The uses of the funding were derived from EA Program documents, including expected program goals, objectives, and activities. The first question addresses eight activities from the RFA that the EA may have supported (see Exhibit 8). EAs reported using their EARDA grant funding to support 4.3 of these activities. The most commonly cited activities are supporting a pilot research project (93 percent), supporting faculty development projects (86 percent), collaborative project(s) between your institution and another academic institution (61 percent), and collaborative project(s) between two or more departments at your institution (61 percent). The least frequently cited activities are supporting a collaborative project between the EA's institution and a Federal facility (25 percent) and conducting an outreach effort to local high schools (25 percent).

Exhibit 8. Percentage of EAs Supporting Activities Listed in the EA Program RFA (Source: EA survey, n=57)



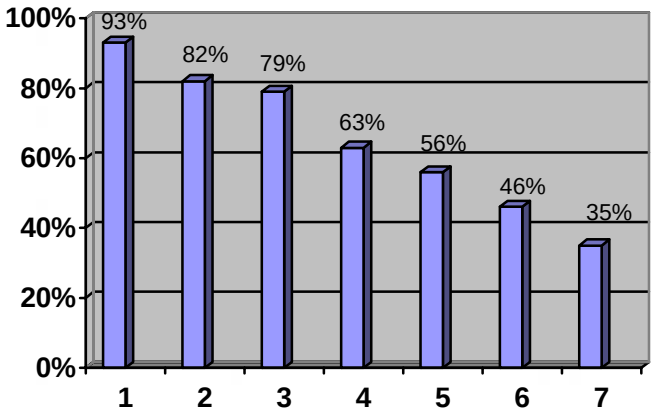
1. Pilot research project
2. Faculty development projects
3. Collaborative project(s) between your institution and another academic institution
4. Collaborative project(s) between two or more departments at your institution
5. Public health initiative
6. Student participation in science fairs
7. Collaborative project(s) between your institution and a Federal facility
8. Conducting an outreach effort to local high schools in your community

The EAs were also asked about their use of EARDA grant funds to support specific grant-related activities (see Exhibit 9). EAs report funding 4.4 of the 7 activities. The most frequently cited activities are supporting pilot research projects (93 percent), supporting grant writing at their institution (82 percent), supporting attendance at outside workshops (79 percent), and supporting administrative assistants in completing a grant application (63 percent). Less than half of the EAs report using EARDA-grant funds to support the hiring of a consultant to write grants and the development of an EARDA advisory committee. Interviews with EAs and administrators reveal that one possible reason that grant funds are not often going to support the development of an EARDA advisory committee is that other university committees were charged with this activity or responsibility, eliminating the need for a "duplicate" committee.

The evaluation study team also collected information from administrators and faculty at the EAs institution regarding their involvement in EARDA grant-related activities. Out of seven grant-related activities listed, on average, administrators report participating in an average of four activities, and faculty in only two. Fifty percent or more of the administrators report attending workshops related to grant writing (50 percent), consulting the EA about external funding opportunities (50 percent), working with the EA to align the activities with the institution's strategic plan (64 percent), and providing informal guidance or assistance to the EA (86 percent). In contrast, there is no activity in which 50 percent or more of the faculty report having participated. This is consistent with what was learned from the site visits, specifically that some

faculty are often reluctant to embrace the goals of the EARDA grant because they view them as additional work and not directly related to their mission at the institution (i.e., teaching).

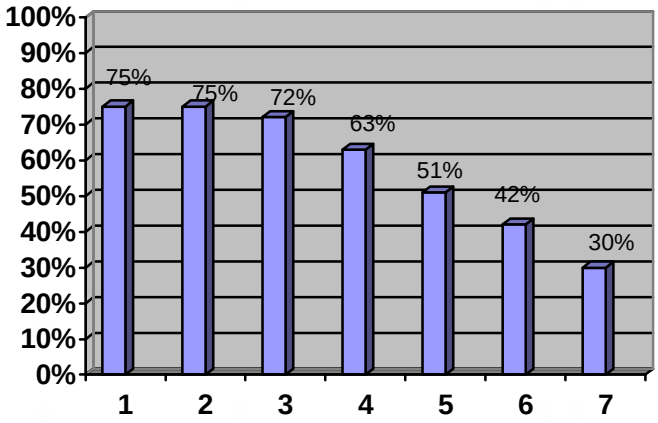
Exhibit 9. Percentage of EAs Reporting that They Used the EARDA Grant for Specific Grant-related Activities (Source: EA survey, n=57)



1. Support for pilot research projects
2. Support for grant writing at your institution
3. Support to attend outside workshops on grant writing
4. Support of administrative assistants in completing a grant application
5. Purchased online or hardcopy grant-writing material
6. Procurement of a successful grant writer as a consultant
7. Support for EARDA advisory committee

Two-thirds of the EAs report that they established an Office of Research and Development as a result of receiving an EARDA grant, and about one-quarter of the EAs worked at an institution that already had this office. Exhibit 10 shows that in two of the seven ORD functions, less than half of the EAs report being engaged: disbursing research funds to principal investigators (42 percent) and bringing in Federal representatives to speak about funding opportunities (31 percent). Most of the institutions visited during the site visits had already established an Offices of Research and Sponsored Programs or expanded an existing program. The interviews also reveal that more than one of the recipient institutions reported working to improve the infrastructure for seeking external funding.

Exhibit 10. Percentage of EAs Reporting How They Characterize the Current Functions of the Office of Research and Development (Source: EA survey, n=57)

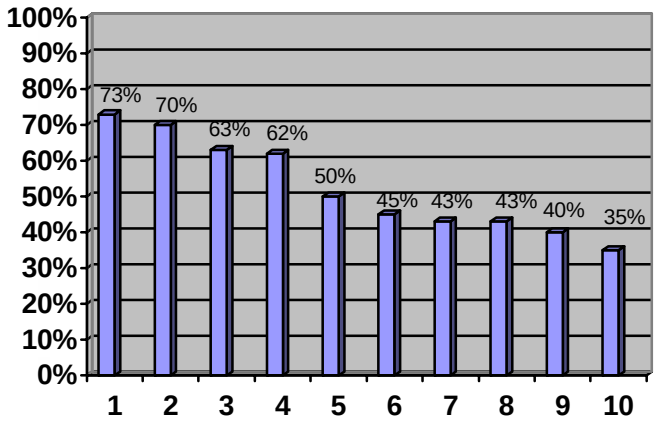


1. Assists in preparing grant applications
2. Provides grant-writing workshops to faculty
3. Provides resource staff to help locate external funding
4. Reviews grant budgets
5. Coordinates the various research activities of this institution
6. Disburses research funds to principal investigators
7. Brings in Federal representatives to speak about funding opportunities

Goals and Activities Found in Grantee Files

Another source of information for the evaluation study is the grantee files. The grantee file review process reveals that some grantees are very specific about their goals and implementation plans, while others provide less-specific information. The evaluation study team developed a list of likely project goals by examining sample grant files and consulting with EA Program staff. Grantee file reviewers counted the number of goals, objectives, and activities found in project documents and created an "Other" category to record less common goals, objectives, and activities. The 10 goals reported most frequently in the grantee files are presented in Exhibit 11.

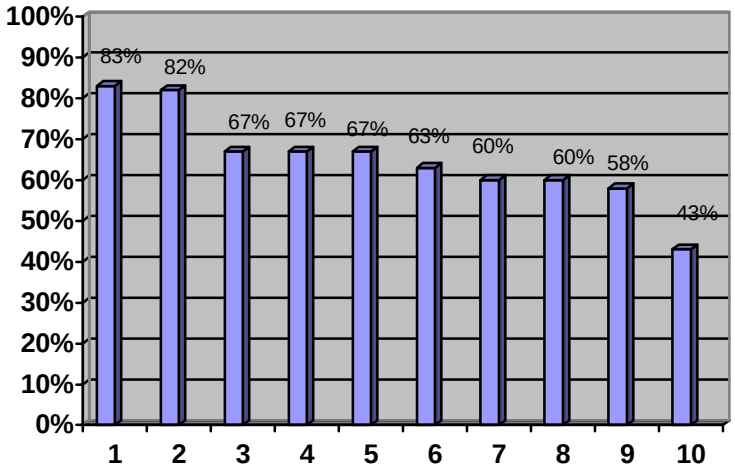
Exhibit 11. Top Ten Goals Set by Grantees as Noted in Grant Files (Source: Grant file review, n=60)



1. Develop collaborative relationship with other institutions
2. Enhance research skills of faculty and students
3. Increase number and quality of research grant applications
4. Disseminate information regarding funding sources
5. Develop research infrastructure of institution
6. Set up Office of Science Research or similar office
7. Increase knowledge of NIH research and grant opportunities
8. Increase number of students enrolled in biomedical and behavioral science courses
9. Increase student academic achievement in biomedical and behavioral science research programs
10. Increase number of faculty presentations and publications

Grantee files also contain information about the activities planned to achieve grant goals. Again, when this information is present, it provides valuable evidence regarding whether grantees are pursuing the types of activities envisioned by the EA Program. Using a process similar to that used for project goals, the evaluation study team notes which activities are planned by grantees. The ten most frequently reported activities are presented in Exhibit 12.

Exhibit 12. Top Ten Planned Activities by Grantees as Noted in Grant Files (Source: Grant file review, n=60)



1. Hold grantsmanship workshops
2. Convene meetings or make contacts with other schools and research institutions
3. Provide financial support for travel to meetings, workshops, and conferences
4. Provide financial support for pilot projects or mini-grants
5. Conduct assessments of faculty and student research needs and interests
6. Establish research advisory committee, faculty research committee, or similar body
7. Hire support staff
8. Purchase office equipment
9. Attend national professional conferences
10. Distribute fliers, e-mail messages, letters, or brochures about research, funding, and training opportunities

Comparing EA Survey and Grantee File Goals and Activities

The lists of goals and activities derived from grantee file review (see Exhibits 11 and 12) are more extensive than the lists that were used in the EA survey. There is some overlap that allows for comparisons between the findings of the grantee file review and EA survey (see Exhibit 13). The reported goals and activities are similar, with two notable exceptions. First, a larger percentage of EAs report support for pilot projects than what is reported in the grantee files. The second difference is related to support for committees. The EAs were asked only about the EARDA advisory committee during the site visits. More information was gathered through review of the grant files. Specifically, the site visits and interviews with EAs, administrators, and faculty reveal that often a committee that already existed at the institution had its mission broadened to encompass the EARDA grant.

Exhibit 13. Comparison of Reported Goals and Activities (Source: Grant file review, n=60 and EA survey, n=57)

Goal/Activity	Grant File Review	EA Survey
Develop collaborative relationship with other institutions	73%	61%
Enhance research skills of faculty and students	70%	86%
Hold grantsmanship workshops	83%	75%
Provide financial support for pilot projects or mini-grants	67%	93%
Establish research advisory committee, faculty research committee, or similar body (including EARDA advisory committee)	63%	35%
Hire support staff	60%	63%

Evaluation Question 2—Have the EAs and Participating Institutions Achieved Their Short-Term, Intermediate, and Long-Term Goals?

EAs report establishing and achieving goals resulting in a positive impact at their institution. Administrators and EAs report greater importance associated with the goals compared with faculty at the institution. EAs also report that their institutions, on average, achieved 13 of 18 common EA Program goals, many of which could be viewed as intermediate or long-term goals. Qualitative data from site visits and interviews suggests that the barriers to achieving these goals are related to administrative turnover, heavy workloads of the faculty, and the institution's mission focusing on teaching rather than research.

Evaluation Question 2—Detailed Analysis of EA and Participating Institution's Established and Achieved Goals

During their residency, EAs work with their mentors to create an implementation plan. Part of that plan is to develop short-term, intermediate, and long-term goals. Common short-term goals identified by EAs or found in the grantee files include gaining the support of the president of the institution for EARDA activities, securing a dedicated space for the EA and staff, increasing the institutional infrastructure for developing and managing grants, and conducting grant-writing workshops. Examples of intermediate goals include increasing the number of faculty applying for and being awarded grants, and development of faculty and students who are interested in grant opportunities. Long-term goals include generating specific dollar amounts in grant-related activities and establishing ORSPs to assist faculty in the development of grants proposals and applications.

Because the implementation plans of EAs are found to be individualized and are often not documented in the grant reports, the evaluation study team addressed this evaluation question by first identifying the perceived importance of select goals. This was followed by identifying the perceived effect of the grant on the institution, and finally the occurrence of select outcomes associated with the grant goals. The lists of select outcomes and goals were compiled from information obtained from EA Program Offices regarding what they hoped to achieve. Information regarding the importance and occurrence of these goals and outcomes from surveys with EAs, administrators, and faculty was complemented by information obtained from EAs

during site visits and lists of accomplishments developed on the basis of a review of the grantee files.

Importance of Grant Goals and Perceived Impact of the EARDA Grant at the Institution

EAs, administrators, and faculty were asked about the importance of eight goals at their institutions (see Exhibit 14). More administrators view these goals to be important compared with EAs and faculty. The response rate from administrators (38 percent) and faculty (53 percent) is lower than that of EAs (80 percent). Therefore, their responses must be viewed cautiously. However, for the purposes of this descriptive analysis, the pattern of the responses will be of greater interest than the absolute magnitude of any one response or comparison of response magnitudes.

Exhibit 14. Comparison of Responses by EAs, Administrators, and Faculty on the Importance* of Selected Goals
(Source: Web-based survey)

Goals	EAs (n=57)	Administrators (n=15)	Faculty (n=21)
Increase student participation in biomedical research	91%	100%	77%
Increase student participation in behavioral research	88%	100%	62%
Increase student enrollment in advanced degree programs	87%	93%	77%
Foster collaborations with institutions	85%	93%	48%
Support professional development for faculty in science/research	96%	100%	71%
Attract/hire faculty in science/research	80%	100%	62%
Improve/add facilities for science/research	85%	100%	58%
Support interdepartmental collaborations	76%	100%	43%

*Rated as very important or important.

The largest discrepancies in importance assigned to the goals by administrators, EAs, and faculty occur for supporting interdepartmental collaborations (57 percentage points from highest to lowest), followed by fostering collaboration with institutions (45 percentage points), improve/add facilties for science research (42 percentage points), and attracting/hiring faculty in science/research (38 percentage points). This is not unexpected, given what was learned during the site visits. The EAs and administrators reported being quicker to embrace the goals of EARDA than faculty. Faculty at a number of institutions report that preparing for, applying for, monitoring, and reporting on a grant is a great deal of added work that has little benefit, and in some cases is discouraged by the institution because it was outside the mission of the institution.

The same group of respondents was asked about the perceived impact of the EA Program at their institution. They were presented with a list of six statements and asked to indicate their level of agreement with each (see Exhibit 15). A larger percentage of administrators tended to strongly

agree or agree with these statements than either the EAs or faculty. The one exception is the statement that the EA Program helps the EA to develop as a leader in biomedical research.

Exhibit 15. Comparison of Responses* by EAs, Administrators, and Faculty on the Impact of the EA Program (Source: Web-based surveys)

Impact Statement	EAs (n=57)	Administrators (n=15)	Faculty (n=21)
EARDA grant-supported activities have generally increased the quality of internal communications regarding research opportunities	95%	100%	83%
The EA Program provides an effective mechanism for a university to develop its research infrastructure	96%	100%	95%
EARDA grant funds provide effective seed money to enhance our research capacity	93%	100%	83%
The EA Program has increased the priority given to biomedical/behavioral research at this institution	**	93%	89%
The EA Program has increased the number of faculty grant applications	96%	93%	83%
The EA Program helps the EA develop as a leader in biomedical research	89%	78%	78%

*Respondents strongly agreeing or agreeing

**EAs were asked separately about biomedical and behavioral research. Eighty-four percent strongly agreed or agreed with respect to biomedical research, and 79 percent strongly agreed or agreed with respect to behavioral research.

For both the goals and impact statements, differences with respect to the type of institution and year of funding are observed (see Exhibits 16 and 17). The pattern across the different types of institutions is similar, with the notable exception of the importance assigned to attracting and/or hiring faculty in research/science. For this particular goal statement, EAs at women's institutions, tribal colleges, and Pacific Islander institutions attached much less importance than EAs from HSIs and HBCUs/PBCUs. For the different cohorts of EA grantees, the earlier cohort of grantees (1995–1999) attaches greater importance to "Fostering collaborative arrangements with other institutions" and "Supporting interdepartmental projects" as compared with the later cohort (2000–2004).

Exhibit 16. Summary of Meaningful Differences by Type of Institution for Goals and Impact Statements* (Source: EA survey, n=57)

Goals/Impact Statement	HBCU/PBCU	HSI	Other
Increasing student participation in behavioral research	91%	75%	91%
Attracting/hiring faculty in science/research	91%	91%	36%
Improving/adding facilities for science/research	94%	75%	73%
The EA program helps the EA to develop as a leader in biomedical research	94%	92%	73%
The EA Program has increased priority given to biomedical research at this institution	85%	83%	73%

*The first three entries in the exhibit are goals, and the last two are impact statements.

Exhibit 17. Summary of Meaningful Differences by Year of Funding for Goals and Impact Statements* (Source: EA survey, n=57)

Goals/Impact Statement	1995-1999	2000-2004
Fostering collaborative arrangements with other institutions	92%	79%
Supporting interdepartmental projects	83%	70%

*These entries are goals.

Importance and Occurrence of Outcomes

The EAs were given a list of 18 outcomes, asked whether they had occurred, and asked to select the three most important outcomes on the list. EAs report that they increased their skills and knowledge by learning about the NIH peer-review process (100 percent), gained and understanding of grant opportunities (98 percent), and improved grant-writing skills (98 percent). EAs improved their networking activities by making contact with Federal agencies (100 percent) and made contacts with other EAs (95 percent). The EAs report that they conducted workshops and seminars related to funding (98 percent), convened meetings with faculty (95 percent), established a system for circulating funding opportunities (81 percent), and created and new EARDA advisory board (79 percent) (see Exhibit 18). For the seven highlighted outcomes, 90 percent or more of EAs report that the outcome occurred.

On average, EAs report that 13 of the outcomes occurred at their institution. EAs at HBCUs/PBCUs reported achieving 14 outcomes, EAs at HSIs reported achieving 13 outcomes, and EAs at women's institutions, tribal colleges, and Pacific Islander institutions reported achieving 12 outcomes. A difference was observed for EAs by year of funding. Institutions funded earlier (1995–1999) reported, on average, that 14 outcomes had occurred compared with 12 outcomes for those funded later (2000–2004). This result might be explained by the fact that the institutions funded earlier had more time for outcomes to occur.

Exhibit 18. Percentage of EAs Reporting that Each Outcome Occurred (Source: EA survey, n=57)

Outcome	Percentage of EAs (n=57)
EA Skills and Knowledge	
Gained an understanding of grant opportunities	**98%**
Improved grant-writing skills	**98%**
Learned about the NIH peer-review process	**100%**
Dissemination Activities	
Conducted workshops/seminars related to funding	**98%**
Presented research findings at a conference	76%
Published research findings in a journal	53%
Networking Activities	
Made contacts at Federal agencies	**100%**
Made contacts with other EAs	**95%**
Participated in external peer-review activities	63%
Communication Systems To Circulate Information on Research Opportunities	
Convened meetings with faculty	**95%**
Created a newsletter for biomedical/behavioral research	42%
Established a system for circulating funding opportunities	81%
Used campus-wide or special convocations	54%
Research Infrastructure	
Created a new EARDA advisory board	79%
Established system/progress reports	68%
Changed the strategic plan	37%
Added/upgraded laboratory equipment	68%
Added office space for science faculty	32%

The site visits and grant file review are not limited to these outcomes, and data obtained from those sources provide more information regarding EARDA grant outcomes. A review of information obtained from these sources reveals the following—

- EAs, faculty, and administrators at seven of the eight institutions visited report a better understanding of grant writing and an improved success rate.
- Individuals gained an increased awareness of funding opportunities through the NIH, other Federal agencies, State agencies, and corporate/foundation sources. This outcome would be expected if the EAs established or enhanced the Office of Sponsored Research.
- Six of the eight institutions visited gave evidence of an increase in the number of grant applications, an increase in the number of successful applications, and substantial increases in funds received for biomedical and behavioral research.
- Five of the eight institutions visited improved their infrastructure for seeking external funding by developing policy and procedure manuals.
- One institution reported increasing its grant funds from $14 million to $42 million.
- The current EAs express a lack of clarity about the peer-review process and state that they did not feel that the peer-review process is fair or accurate. This was also mentioned by unsuccessful applicants during the telephone interviews.

Feedback about the peer-review process is particularly important. A number of EAs report that their institution was trying to "get their foot in the door" and it seemed to them that the peer-review process was an obstacle. The potential impact of this is that the EA institutions could become frustrated and not apply for grants. For example, though a larger number of grants have been submitted to the NIH than the National Science Foundation (NSF), about the same number of EAs report receiving grants from the NSF (n=31) as from the NIH (n=30).

Information on the barriers to institutions accomplishing their goals was obtained primarily during the site visits. The barriers cited most often are frequent changes in the administrators (presidents and/or deans), resistance from faculty to writing grants or becoming involved in research beyond their teaching responsibilities, and strong feelings that the emphasis on biomedical or behavioral research does not fit the institution's mission.

Evaluation Question 3—To What Extent Is Success Related to Institutional, Individual, or Program-Related Factors?

Because there was no official EA Program definition of what constitutes EA grantee success or what factors are associated with success, the evaluation study team first defined five measures of success: 1) increased EARDA grant infrastructure and support; 2) subsequent grant funding; 3) achieving outcomes; 4) increased number of faculty grant applications; and 5) increased priority given to biomedical and behavioral research.

Success on these five measures ranged from 46 percent (increased EARDA grant infrastructure and support) to 63 percent (EA obtained subsequent EARDA funding and EA equaled or exceeded the mean number of outcomes achieved by all EAs). Thus, about half the EAs can be viewed as successful. The analysis also shows that there are certain institutional and individual factors that are related to success. For the first success measure, individual factors of tenure and age are positively related to success. For the second measure of success, EAs at HSIs or HBCUs/PBCUs are more successful than EAs at "Other" institutions, and EAs funded in the earlier cohort (1995–1999) were more successful than EAs funded later.

A detailed analysis was also conducted for success measures 3–5. The program components that consistently relate to these measures of success are the type of institution, gender of the EA, and age of the EA. Of these three factors, the type of institution deserves special mention. Other than for the number of outcomes achieved, a larger percentage of HBCUs/PBCUs and HSIs achieve success compared with women's institutions, tribal colleges, and Pacific Islander institutions. Female EAs and those who are older than 55 consistently achieved successful outcomes across these success measures. The age of the EA is most likely a function of older individuals having more experience. However, reasons for the gender difference are unclear. A review of the data indicates that the proportion of female EAs age 55 or younger is greater than that of males (66 and 54 percent respectively). Likewise, the percentage of female EAs holding tenure is lower than for males (55 and 64 percent respectively). Thus, the explanation for female EAs being successful is not necessarily a factor of age or academic rank. As noted previously, the female EAs who were interviewed during the site visits appeared highly motivated and had the support of the administration (reported consistently by administrators, faculty, and EAs). These characteristics may be the only reasons for the observed differences by gender.

None of the analyses yielded information on program-related factors associated with the measure of success. However, comments from the surveys and qualitative data suggest that communication with other EAs and the EA Program Office was also extremely helpful to EAs in successfully achieving their goals. For example, when asked about the EA Program information, one EA said, "It is crucial to talk to an EA before applying to the program for tips on how to ensure proper support from the institution and take maximum advantage of the program. Talking to [EA Program staff] while the application was being prepared was priceless."

The EA residency program at the NIH campus in Bethesda, Maryland, is hailed by the EAs and administrators as a major success factor for enhancing skill sets in the areas of grant writing and institutional capacity building for biomedical and/or behavioral research. Upon returning to the campus for updates, some of the EAs report taking students, faculty, and/or an administrator to the NIH for the experience. An EA said that he or she "not only learned about NIH, but about other agencies/organizations such as the Department of Education and National Science Foundation." One EA reported driving almost 2,000 miles from her institution to the NIH Bethesda campus "to take advantage of the NIH donation program and to take students and faculty to the NIH summer program."

Maintaining a relationship with NIH mentors and EAs at other institutions is also identified as a key success factor for implementing the EARDA program. The EAs report that the relationship maintained with the NIH mentor was very helpful. Some of the EAs had invited their mentors to visit their institution and conduct workshops that enabled other faculty and students to participate. Those EAs who were not able to maintain a relationship with their NIH mentor after the residency program expressed disappointment.

Administrators, faculty, and students said that the EA serves as a mentor to them, creates "team spirit" among the various departments involved in research, is respected as a valuable resource for grant writing, and is a leader for keeping research in the forefront of their institution.

Evaluation Question 3—Detailed Analysis of Success Related to Institutional, Individual, and Program-related Factors

The following sections present details of the analysis of success related to each of the success measures.

Success Measure #1: Increased EARDA Grant Infrastructure and Support

The definition of the increased EARDA grant infrastructure and support success criterion results from discussions with the Director of the EA Program Office. The Director noted that there were nine general criteria for success used by his office. These are 1) establishing an ORD, 2) forming a local advisory committee, 3) enhancing equipment and supplies as needed, 4) conducting grantsmanship workshops, 5) awarding pilot research funds to faculty, 6) having faculty apply for independent research support, 7) attending relevant meetings off campus, 8) including students on pilot projects, and 9) establishing collaborations with research-intensive universities. To measure this multidimensional criterion, the following assumptions are made:

- Establishing an ORD is measured as an institution either setting up a new office or having one that was established prior to the award.
- Forming a local advisory committee is measured as establishing an EARDA advisory committee at the institution.
- Enhancing equipment and supplies as needed is measured as laboratory equipment that was added or upgraded.
- Conducting grantsmanship workshops is measured as any support for grant-writing training at the institution, support to attend outside workshops on grant writing, procurement of a successful grant writer as a consultant, or purchase online or hardcopy grant-writing material.
- Awarding pilot research funds to faculty is measured as any support for pilot research projects.
- Having faculty apply for independent research support is measured as increased number of faculty grant applications.
- Attending relevant meetings off campus is measured as presenting research findings at scientific conferences.
- Including students on pilot projects is measured as increased student participation in biomedical and/or behavioral research activities.
- Establishing collaborations with research-intensive universities is measured as supporting a collaborative project between the EA's institution and another academic institution.

Exhibit 19 shows that no single dimension of the success criterion is reported by all the EAs, yet all but one dimension (forming a local advisory committee) are reported by a majority of all EAs. Interviews with EAs reveal that conducting grantsmanship workshops, being awarded pilot research funds, and having more faculty apply for independent research support all contributed to the perception that the institution is successful. Five of the 57 EAs (9 percent) report achieving all nine of the success dimensions. The fewest number of criteria achieved is three by two EAs (4 percent). On average, the EAs achieve nearly seven of the criteria.

Exhibit 19: Nine Dimensions of Increased EARDA Grant Infrastructure and Support (Source: EA survey, n=57)

Dimensions	Percentage of EAs (n=57)
Establish an Office of Research Development	93%
Form a local advisory committee	35%
Enhance equipment and supplies, as needed	68%
Conduct grantsmanship workshops	95%
Award pilot research funds to faculty	95%
Have faculty apply for independent research support	97%
Attend relevant meetings off campus	75%
Include students on pilot projects	91%
Establish collaborations with research-intensive universities	61%

Success on these nine dimensions is examined by a selection of related factors, including FRESP versus SRIP, year of funding, gender of the EA, age of the EA (55 years and older versus younger than 55), and tenure status. This analysis reveals that the only notable relationships exist for tenure status and age. A larger percentage of the EAs who report more successes on the nine dimensions were tenured (81 percent) compared with non-tenured EAs (4 percent), and faculty older than 55 years reported more successes (42 percent) than faculty younger than 46 years (19 percent). In both cases, years of experience and service likely explain the higher levels of success.

Success Measure #2: The EA Obtained Subsequent EARDA Funding

The second measure of success was whether the institution was able to obtain Phase II funding. For this measure, only data from institutions eligible to apply for Phase II funding could be examined (n=51).[‡] The EA Program Office supplied a list of institutions that applied for and obtained Phase II funding (n=32), leaving 19 institutions that were eligible to apply but were not successful. Thus, 32 of the 51 eligible institutions were successful, a success rate of 63 percent.

The two institutional factors positively associated with success of receiving Phase II funding are the type of institution and the year during which the initial funding was received. With regard to the type of institution, 77 percent of HSIs, 71 percent of HBCUs, and only 45 percent of women's institutions, tribal colleges, and Pacific Islander institutions demonstrate success on this measure. Seventy percent of the institutions originally funded in 1995–1999 are successful, compared with 57 percent of the institutions funded in the 2000–2004 cohort. The small number of EAs who responded to the survey and are not funded prevents an analysis by individual characteristics of the EA.

[‡] Twenty-three institutions were not yet eligible because of where they were in the funding cycle.

Success Measure #3: The EA Equaled or Exceeded the Mean Number of Outcomes Achieved by All EAs

The third measure of EA Program success addresses the number of outcomes achieved as a result of the EA residency and EARDA grant. The EA survey asked about 18 potential outcomes relating to their skills and knowledge, dissemination activities, networking activities, communication systems, and research infrastructure (see Exhibit 18 on page III-23). These data are self-reported by EAs responding to the survey, and as such, are EA perceptions of outcomes achieved at their institutions, not outcomes observed to have been achieved or validated by outside sources.

As noted previously, on average, the EAs report achieving 13 of these 18 outcomes. Our measure of success is defined as any EA who reports that his or her institution achieved 13 or more outcomes. Thirty-six of the 57 responding EAs (63 percent) met this criterion.

The factors related to success on this measure are the type of EA Program, type of institution, year during which the initial funding was received, current academic rank of the EA, mean number of years the EA had been in that academic rank, EA's tenure status, mean number of years the EA had been at the institution, mean number of years the EA had been in academia, gender of the EA, and age of the EA. The analysis shows the following—

- A higher percentage of SRIP institutions demonstrate success than FRESP (71 and 55 percent, respectively).
- A higher percentage of HBCUs demonstrate success compared with "Other" and HSIs (71, 55, and 50 percent, respectively).
- A higher percentage of EAs funded in 1995–1999 demonstrate success than those funded in 2000–2004 (71 and 55 percent, respectively).
- A greater percentage of EAs who are full professors or professors emeritus demonstrate success than those who were not (79 and 43 percent, respectively).
- EAs who demonstrate success had been in their academic rank for an average of 20 years compared with an average of 15 years for those who are unsuccessful.
- A greater percentage of EAs who were tenured demonstrate success compared with those who are not (69 and 50 percent, respectively).
- EAs who demonstrate success have been at their institution longer than those who have not (an average of 18 years compared with 15 years).
- EAs who demonstrate success have been in academia longer than those who have not (23 years compared with 19 years).
- A greater percentage of female EAs demonstrate success compared with male EAs (71 and 57 percent, respectively).
- A greater percentage of older EAs (age 56 or older) demonstrate success than younger EAs (age 55 or younger) (78 and 54 percent, respectively).

Success Measure #4: There Was a Perceived Increase in the Number of Faculty Grant Applications

Using a four-point Likert scale, the EAs were asked how strongly they agreed or disagreed with the statement that the number of faculty grant applications increased as a result of the EA Program. Thirty-five respondents (61 percent) strongly agree that the number of faculty grant applications increased as a result of the EA Program.

The factors related to success on this measure are the type of institution, highest degree earned by the EA, EA's tenure status, mean number of years the EA has been in academia, gender of the EA, and age of the EA. The data related to this are the following—

- A higher percentage of HBCUs demonstrate success compared with HSIs and "Other" institutions (68, 64, and 45 percent, respectively).
- A greater percentage of EAs who earned doctoral or terminal degrees demonstrate success than those who did not (66 and 44 percent, respectively).
- A greater percentage of EAs who are not tenured (71 percent) demonstrated success compared with those who were tenured (60 percent).
- EAs who demonstrated success have also been in academia an average of 3 years longer than those who do not (23 years compared with 20 years).
- A greater percentage of female EAs demonstrate success compared with male EAs (68 and 57 percent, respectively).
- A greater percentage of older EAs (age 56 or older) demonstrate success than younger EAs (age 55 or younger) (70 and 58 percent, respectively).

Success Measure #5: There Was a Perceived Increase in the Priority Given to Biomedical and/or Behavioral Research

Using a four-point Likert scale, the EAs were asked how strongly they agreed or disagreed with the statement "the priority given to biomedical and/or behavioral research increased." Thirty-one respondents (54 percent) strongly agree that the priority given to either biomedical or behavioral research had increased at their institution as a result of the EA Program. The factors related to this definition of success are the type of EA Program, type of institution, highest degree earned by the EA, current academic rank of the EA, mean number of years the EA had been in their current academic rank, gender of the EA, and age of the EA. The analysis shows the following—

- A higher percentage of SRIP institutions demonstrate success than FRESP institutions (64 and 45 percent, respectively).
- A higher percentage of HSIs demonstrate success compared with HBCUs and "Other" institutions (75, 56, and 27 percent, respectively).
- A greater percentage of EAs who earned doctoral or terminal degrees demonstrate success than those who did not (64 and 11 percent, respectively).
- A greater percentage of EAs who are full professors or professors emeritus demonstrate success than those who are not (64 and 43 percent, respectively).

- EAs who demonstrated success have also been in their academic rank for an average of six years longer than those who have not (21 years compared with 15 years).
- A greater percentage of female EAs demonstrate success than male EAs (61 and 50 percent, respectively).
- A greater percentage of older EAs (age 56 or older) demonstrate success than younger EAs (age 55 or younger) (65 and 48 percent, respectively).

From the eight site visits, a composite picture of the attributes of a successful EA can be drawn. The successful EA comes back from the residency very enthusiastic and can share this enthusiasm with his or her colleagues and engage others to work on implementing his or her plan. The institution may already have research facilities, in which case they are expanded. If these facilities do not exist, the EA helps them to come into being. The EA develops a program that leads to increased collaboration with universities, government agencies, and private business. At six of the eight schools visited, the EA was an African American woman. She was often highly motivated and willing to take on extra responsibilities. She was sometimes asked to serve in that capacity by the president of the institution, and thus had the backing of the administration. She was also nurturing and thus encouraged faculty to come to her with questions and concerns. This also allowed her to be perceived as a respected member of the faculty. The EA at all of the visited institutions is credited as being the "driving force" for increasing the capacity for faculty and students to engage in biomedical and/or behavioral research. Evidence of this includes the following:

- Establishing a culture of research at the institution, while maintaining its historical mission of being a teaching institution (only one of the schools visited expanded its mission to embrace research)
- Expanding and improving laboratory facilities
- Expanding research course offerings to include instructors and laboratory opportunities in areas such as cell and molecular biology
- Coordinating cross-institutional research projects with a nearby university with a well-established successful record in biomedical and/or behavioral research
- Improving success rates for grants from multiple funding streams (e.g., RIMI, MBRS, NSF) that enabled the institution to increase its capability to engage students and faculty in biomedical and/or behavioral research
- Including a category in the institution's budget for faculty and students to be involved in biomedical and/or behavioral research.

Several levels of administrators were interviewed at the institutions visited—president, provost, dean, and department chair. The level of awareness of EARDA and support for the EA varies. Though all of the administrators are very aware of the EA's role in building the institution's capacity in biomedical and/or behavioral research, half of the administrators interviewed have little to no knowledge of EARDA. However, with the exception of one administrator, there are glowing accolades about the role that the EA plays in strengthening the institution's research programs. Administrators contribute to the success (and support) of the EA and EARDA by—

- Encouraging a faculty member to apply for EARDA funds
- Granting leave for a faculty member to participate in the residency program

- Supporting the EA's implementation plan
- Recognizing and supporting staff to apply for biomedical and/or behavioral research grants.

Evaluation Question 4—How Can the Performance of the EA Program, EAs, and Participating Institutions Be Improved?

EAs and the faculty, administrators, and students at the target institutions believe that the EA Program, EAs, and institutions are performing well but that their performance could be enhanced, resulting in the expectation that they will be able to achieve better results. The overriding themes are funding and time. Greater financial support is seen as a means to reducing the EA's teaching load (e.g., at many academic institutions, grant support can in effect "buyout" required faculty teaching time, thereby allowing the institution to hire an adjunct faculty member or in the case of adequate support, a new faculty slot), obtaining clerical support (professional or student), renting dedicated space, and supporting students for summer internships, all of which are thought to improve the performance of the EAs, institutions, and the EA Program. According to EAs and administrators, faculty and students having more time to dedicate to writing grants and conducting research enhances EA performance.

Improving Performance

A number of EA Program, institutional, and individual EA performance issues have been identified in response to Evaluation Questions 1–3, including EA Program communication, EA Program operations, and institutional administrative support. These and other performance issues were identified using the various data sources that are presented below, grouped by EA Program, EAs, and institutions. One factor deserves special mention because it crosscuts all performance issues—financial support or funding.

Comprehensive evaluations of program performance usually include an assessment of the role played by financial support or funding. In this instance, the EAs and administrators note very specific needs related to financial support. They most often want additional financial support to come from the EA Program, which would require that the program receive additional funding to accommodate that need. Another important factor is faculty release time for the EAs. During the site visits, EAs reported being overburdened with activities that include full teaching loads, academic administration, conducting their own research, reading other grant applications, running grant-writing workshops, and conducting other research-awareness activities. A release from even one class assignment is reported as being helpful. Release time is a difficult issue for administrators because of limited funding and limited availability of adjunct faculty. This issue is exacerbated for some schools located in rural or economically disadvantaged areas, where adjunct science faculty are less readily available.

Improving Performance of the EA Program

The answer to evaluation question 1 identifies the following three areas for improvement at the EA Program level—

- Improving promotion or awareness of the EA Program
- Making program resources and promotional materials more available or targeting their distribution to qualified institutions
- Improving instructions for completing and submitting IPA forms and invoices, improving the efficiency of the IPA reimbursement system, and clarifying whom to contact about IPA invoices.

Another source of information for improving the performance of the EA Program is the telephone interviews with 11 unsuccessful applicants. These interviews produce specific suggestions for how the EA Program Office can better assist institutions, such as the following—

- Providing examples of grant proposals to individuals who have never written one
- Providing more specific guidelines for responding to the RFA and being more readily available to respond to questions from applicants
- Increasing publicity from the EA Program Office about the program and encouraging more institutional faculty to apply
- Making the EA Web site easier to find and easier to navigate.

When unsuccessful applicants were asked why they did not reapply to the EA Program, they responded as follows—

- Their institution could not afford to release faculty for the time period to be spent at the NIH (n=4)
- There was the perception that the NIH only wanted Ph.D. researchers, and their institution did not have any Ph.D.s applying at that time (n=2)
- The NIH has not publicized the program to faculty, administrators, or their institution's ORD (n=5).

The unsuccessful applicants were also asked about the major reason that their institution's application was unsuccessful. The respondents stated the following—

- Their application was not reviewed properly (n=2). Specifically, comments from the reviewers did not address what was in the application.
- They did not receive comments or feedback from the NIH as to why their application was not accepted (n=3). Feedback may have been sent to an administrator at the institution, but it was not provided to the individual who wrote the application.
- There was a discrepancy between what the NIH said it wanted (RFA) and what it actually wanted (n=2). These unsuccessful applicants feel that the NIH wanted established Ph.D. researchers and not non-Ph.D. faculty with the potential to become researchers.

Addressing the issues raised by these unsuccessful applicants may increase the success rate for submissions, and thereby increase the effectiveness of the EA Program.

Improving Performance of the EAs

If the EAs could more easily recruit faculty and students into research, they would be more successful. The faculty and student surveys asked about factors that may discourage research at the institution. For faculty members, the two most frequently cited factors that discourage them from conducting research are the size of their teaching load (81 percent) and the lack of equipment or materials available (67 percent). During the site visits, some faculty also noted that it was not part of the mission of the institution to conduct research. Faculty think that institutions need to find a way to reward faculty when they receive grants.

When asked about factors that discourage them from pursuing research opportunities, students also cite the availability of facilities or equipment (47 percent) as well as the limited opportunities available in their field of interest (47 percent). When presented with a series of statements about the availability of research opportunities at their institution, students indicated that there were insufficient research opportunities available. Many students indicate that there were rarely or never enough research opportunities for all interested students (42 percent) and that opportunities for students interested in conducting biomedical or behavioral research rarely or never exist at their institution (35 percent). The findings from the surveys of EAs, faculty, and administrators do not support these statements, so it is possible that these are student perceptions, rather than actual research program limitations. Nevertheless, these perceived factors could discourage students from exploring research opportunities. During the site visits, students noted that there are an insufficient number of paid summer opportunities. Without a paid summer position, many of these students would not have the means to support themselves or to attend school the following year. This is also the case for positions held during the school year.

All respondents were asked about their satisfaction with various components of the program, and the EA survey asked several questions related to possible improvements of the program. Regarding the grant application process, suggestions include providing clearer application instructions and definitions (n=4) and more time before deadlines and the grant award (n=5).

Similarly, eligible non-applicants were asked for specific suggestions for providing assistance during the application process. Two eligible non-applicants suggest providing early alerts of upcoming funding opportunities. Providing additional time is another suggestion for improving the application process.

In response to an open-ended question on the Web-based survey regarding improving institutions' research capacity, the EAs noted that greater capacity-building and enhanced training for EAs are needed (n=9).

The EAs at the eight institutions visited were asked to suggest changes or improvements to the EA Program that would help it better fulfill its mission. Six of the eight EAs have no suggestions for improvements; two suggested that the ORD be staffed full time.

Improving Performance of the Institutions

When asked about satisfaction with preparing and submitting annual progress reports, 23 percent of EAs are somewhat or very dissatisfied with the internal system at their institution for processing the reports.

Additional suggestions from the Web-based survey for improving the performance of the institution follow:

- Administrators suggest providing additional capacity-building, technical assistance, and training opportunities for faculty (n=4).
- Faculty members suggest more guidance, infrastructure development, and interactive workshops (n=6) and making successful applications available for review (n=4).
- After the award, an NIH representative should visit the institution and meet with key administrative officials to ensure that they understand the responsibilities of the award. More frequent visits from NIH officials should be made during the award period to ensure that progress is being made by the institution in the area of supporting biomedical and behavioral research.
- More technical expertise opportunities are needed for administrators and faculty to learn what similar institutions are doing (e.g., administrators could attend conferences with their colleagues).
- More faculty and students should be involved in the biomedical and behavioral research pipeline so that institutions do not have to be so dependent on the EA for a relationship with the NIH.
- Undergraduate students should be invited to participate in research workshops convened at the NIH.

It is also important to examine the performance of the institutions of potential applicants. This can provide a framework to indicate whether the institution is prepared to participate and is likely to be successful. Survey responses from eligible non-applicants were also examined relative to changes that would need to occur for their institution to apply to the EA Program. Non-applicants mention infrastructure and capacity-building at their institution (n=3), better promotion of the EA Program (n=3), a shortened residency training program (n=3), and making the program more research-oriented with less NIH administrative requirements (n=3).

Evaluation Question 5—What Information Is Needed to Monitor the EA Program in the Future?

On the basis of the findings from the review of the EA Program RFA, review of the grantee files, and interviews with EA Program staff, the following topics emerge as necessary for monitoring the EA Program in the future:

- Clear guidance from the EA Program Office regarding the types of information grantees are required to provide to the NICHD (e.g., short-term, intermediate, and long-term goals; measurable program outputs and outcomes)
- A clear timeframe for grantees to submit required information

- An information system at the NICHD that will gather and maintain the required grant information for the EA Program; permit periodic analysis of grantee data to identify information gaps, inconsistencies, or irregularities; and permit summary analysis of grantee data for internal program management purposes as well as for responses to congressional and/or HHS, NIH, and NICHD inquiries regarding program performance.

Monitoring EA Program Performance

An important component of EA Program administration is monitoring individual grantees to ensure that project objectives and activities are aligned with program goals. EA Program staff members also need to track whether projects are implementing activities as planned and what factors are facilitating or inhibiting grant progress. This information can be used both to assist individual grantees, if needed, and to plan changes that will improve the EA Program over time.

In conducting the review of grantee files, the evaluation study team identified inconsistencies in the quality of information contained in the grantee files. To a large degree, this problem stems from the inconsistency found when one uses the standard Public Health Service (PHS)-approved application form and the reporting forms issued by HHS. As with other NIH grantees, EA Program applicants and awardees are required to use these forms and do not receive program-specific guidance except as specified in the original RFA. The result is that individual grantees must interpret generic guidelines, and the level of detail in grantee project documents is subject to wide variation.

An example is found in the grant applications where applicants must first propose project objectives. Project goals or objectives are generally listed in the application under the heading "Specific Aims," where the guidance is to "state the application's broad, long-term objectives and specific aims, making reference to the health relatedness of the project" (PHS Form 398). As shown in Exhibit 20, the specific aims or objectives proposed by applicants vary widely, making it difficult to use this information systematically for project monitoring.

Some of these objectives state a general philosophy and others list more specific goals. Other grantee applications do not include a "Specific Aims" heading but instead include objectives in a broader narrative.

Despite issues with incomplete files and inconsistent documents, the available grant files provided clear evidence of how grantee reporting could provide valuable information for program monitoring. Exhibits 11 and 12, presented earlier on pages III-17 and III-18, show the ten most frequently planned project goals and activities listed by grantees in their initial and continuing applications. Nearly three-quarters (73 percent) of the 60 grantees planned to "develop collaborative relationships with other institutions," and 70 percent planned to "enhance the research skills of their faculty and students." Tracking this type of information over time would inform the EA Program on how grantees use the award and pursue program goals at their institutions. The descriptions of planned and implemented activities in some files could also provide the program with effective examples of best practices or vignettes to share with other grantees and to use in marketing materials to increase the program's visibility. Interesting sample activities from grantee files include the following—

Exhibit 20. Sample Goals or Objectives from Grantee Applications (with all identifiers removed)

- "Institute strategic planning workshops to develop a department research focus and to stimulate research forums related to biomedical and behavioral science issues."
- "[Institution] will establish an office of sponsored programs. The primary responsibilities of this office are to increase awareness of available grant opportunities for the faculty and to offer training in grantsmanship and the management of grants and contracts."
- "The EARDA Program will train and support the director … through 10 weeks at NIH … upon return to campus, [EA] will be granted responsibility and authority to shape [institution's] competitiveness in procuring research grants and recruiting and retaining [population] within the sciences."
- "To establish an office of research at [institution], which will be responsible for (a) promoting biomedical, clinical, and behavioral research activities among [institution] faculty and students; (b) disseminating information on biomedical, clinical, and behavioral research; and (c) disseminating information on programs and grant applications for research funding."

- Setting up a radio program called "The Research Hour," which airs weekly and features faculty and student researchers discussing their research interests and current projects
- Setting up teleconferences for students to ask questions and discuss issues with researchers
- Beginning plans to coordinate a biomedical and behavioral science colloquium series
- Designing a research camp for high school students.

Grant records also have the potential to inform the NIH about how different types of grantees might use the award. A crosstabular analysis of grant file data for this review reveals a few important differences in the goals and activities grantees chose to pursue[§]—

- SRIP institutions are more likely to include "Attend national professional conferences" as a planned activity
- SRIP institutions are more likely to include "Increase number of faculty presentations and publications" as a planned goal
- Institutions flagged as HSIs are more likely to include "Hire support staff" as a planned activity
- HSIs are also more likely to include "Increase number of students enrolled in biomedical and behavioral science courses" as a goal

[§] Grant file data were merged with records from the Integrated Postsecondary Education Data System (IPEDS) to identify institutional characteristics.

- HBCUs are less likely to include "Increase number of students enrolled in biomedical and behavioral science courses" as a goal.

These findings underscore the potential for grant files to provide valuable information for program monitoring and management.

IV. RECOMMENDATIONS

The findings from the EA Program evaluation reveal many successes of the EA Program as well as a number of areas for improvement. Of particular note are the various positive outcomes reported by EAs, as well as by administrators and faculty, from participating institutions that reflect increasing research-related activities and growing infrastructures. The results of this evaluation also highlight areas for improvement for the EA Program (e.g., EA Program communication) that hold promise for increasing EA Program success.

The evaluation recommendations are organized into three major categories: EA Program Development, EA Program Communications, and EA Program Operations. After a brief introduction and definition of the recommendation category, specific recommendations are presented. Illustrations are provided, where available, and included to clarify the nature and direction of the recommendation.

EA Program Development

Program development refers to administrative actions and strategies (e.g., changes to the RFA announcing the program requirements, reporting requirements, and strategies to build relationships with institutions to improve applications) that can improve how the EA Program operates.

Recommendation 1: Provide Better Guidance and Oversight to EA Institutions

In response to research question #1, based on review of the EA Program RFA and interviews with EAs, faculty, administrators, and students, the evaluation revealed that EAs and faculty and administrators at the recipient institutions reported wanting greater contact with the EA Program staff, including providing guidance and technical assistance with the development of their grant. The NICHD should institutionalize regular site visits to EA institutions by EA Program staff. They also feel that site visits by program staff would serve a key role in increasing the visibility of the EA Program on campuses, with EA staff traveling from the NICHD to meet with EAs, administrators, and relevant faculty.

Among the EAs interviewed during site visits, some talked about having a positive connection with the NIH that involved ongoing contact with their mentors, and others talked about not having shared interests in common with their mentor and no longer having that connection to the NIH. It is recommended that the NICHD provide clearer guidelines for the mentor assignment during the EA residency. The findings associated with research question #1 suggest that clarifying the role of current mentors and increasing the guidance provided to future mentors is likely to influence program outcomes.

Recommendation 2: Recruit New EAs Using Existing EAs, Administrators, and Faculty

In response to research question #1, EAs are found to learn about and be recruited for the EA Program frequently by other EAs, administrators, or faculty already involved in the EA Program.

It may be cost effective to offer incentives to existing EAs, faculty, or administrators involved in the EA Program to recruit new EAs or to bring potential EAs to workshops or other meetings.

EA Program Communications

Program communications addresses how the NICHD and the EA Program communicate with prospective EA Program participants (as well as existing EAs and institutions) and what kinds of information and resources the EA Program provides for gathering, managing, and reporting program operations information (including grantee reporting).

Recommendation 3: Increase the Visibility of the EA Program

Study findings underscore the need for the program to be more visible both at EARDA-recipient institutions and at eligible institutions that have never applied for the award. The site visits provided evidence that many key administrators and faculty are not familiar with the EA Program, even if they work directly with an EA and are actively contributing to the biomedical or behavioral research infrastructure at their institutions. According to survey responses, two-thirds (67 percent) of the respondents at eligible institutions that had never applied were not familiar with the program at all. The need to increase visibility for the EA Program is a top priority for EA-recipient institutions and is directly linked to most suggestions for program improvements.

Recommendation 4: Disseminate Guidance and Tools for Success

Findings from the site visits and surveys indicate that the EA Program has resulted in a growing network of EAs. For some, this has become a community of practice, with EAs and others exchanging findings and resources related to biomedical and behavioral research. Suggestions from individual interviewees and survey respondents provide a range of ideas about tools or methods to support positive program outcomes. In many cases, these methods or tools could be made available through the EA Program Web site and would likely be instrumental in increasing program visibility. Examples of tools that EAs believed would improve program communications include—

- Models of successful applications
- Articles featuring successful EA initiatives
- Fact sheets about the EA Program that EAs can use to inform administrators or other audiences about the program
- A discussion thread or electronic learning community where EAs and others can share information and build their network.

Development of these and other tools to improve program communication will likely require additions to EA Program staff and upgrades in technology. Given the positive momentum that the EA Program has developed, these investments are likely to yield large dividends in enhancing program outcomes and impact.

Recommendation 5: Improve Reporting Practices

An important component of EA Program administration is monitoring individual grantees to ensure that grant objectives and activities are aligned with grant and program goals, that operations and outcome data are collected and reported, and that annual progress reports are filed. The file review process reveals missing documents, and in some cases, missing files. EA Program staff members were often able to locate and provide missing documents on request. A simple system such as a receipt control database should be established to track whether grantees have submitted their reports, and a clear policy should be established for how these documents are filed. It is recommended that the NICHD develop a system for monitoring report submissions to ensure that grant files include all required documents, including an implementation plan and annual progress reports.

The NICHD should refine the reporting guidelines to increase consistency across grantee progress reports. As required for NIH awards, grantees currently report on progress using the generic NIH report form approved by OMB. This form is not customized for the EA Program and presents vague guidance such as "provide project summary." In some cases, grantees list specific goals and activities and provide measurable indicators of progress. In other cases, these summaries are nonspecific narratives related to "increasing activity" in biomedical or behavioral sciences. The EA Program could improve data integrity by developing a list of guidelines for reporting and providing examples of effective reports. Though following such guidelines would necessarily remain optional for grantees, clear information on what and how to report is likely to yield improved data for program management.

Recommendation 6: Enhance EA Program Information Dissemination Strategy

Less than one-third of the EAs first heard about the program from activities conducted by the EA Program Office. The usual source is other EAs, faculty, or administrators. The NICHD may want to build upon this and only use its resources after these initial contacts have been established. All program and promotional materials should be easily accessible via the Web, or the user should have the ability to order the material online.

EA Program Operations

Program operations refers to the way in which the EA Program is implemented. This commonly involves activities such as program management, operations, evaluation, data analysis, and reporting.

Recommendation 7: Refine Information Management Practices

The EA Program should develop explicit strategies for collecting and using program-related information. Managing data effectively will inform ongoing plans for program improvements, help gauge progress toward program objectives, and support strategies for increasing program visibility.

Recommendation 8: Develop an Effective Administrative Information and Data System

Qualitative data from the site visits indicate the existence of an EA community, a mature and growing research network. To harness the momentum of this community and track program successes and challenges, the EA Program must establish effective systems for managing program data. The EA Program does not currently have an up-to-date administrative database through which to report grantee contact information, award status, and other characteristics. It is recommended that the NICHD establish a database to record grantee contact information and track indicators of progress. Having an administrative database complete with indicators of progress will allow the program to analyze trends and plan improvements.

The NICHD should develop a system for tracking communication with prospective applicants. One key factor in whether the program is being implemented as planned is whether targeted institutions are participating. Program staff should therefore establish an electronic system for recording contact information for participants in technical assistance workshops, tracking requests for applications or other program materials, and maintaining records of other communications with eligible institutions. The initial effort to establish basic administrative data systems is relatively small and is likely to yield valuable data over time to inform program management and document successes. Once the initial systems are in place, incremental changes can be pursued to embed evaluation practices and support continuous program improvement.

Recommendation 9: Integrate Evaluation into Administration

Grantees currently submit generic NIH progress reports to report on project accomplishments. While the EA Program should not (and may not, according to OMB guidelines) impose additional reporting burdens on grantees, simple guidelines with supplemental instructions would likely increase the value of the reporting process. Some grantees currently provide vague summaries of progress; others list specific objectives and the associated indicators for progress. Clarifying the importance and purpose of reporting for grantees would likely improve the consistency of data across projects and allow for evaluation practices to be integrated into program administration to support a cycle of continual improvement.

Recommendation 10: Change the Way IPA Invoicing and Reimbursement Is Handled

In response to research question #1, EAs stated that improvements regarding the clarity of IPA invoicing forms, whom to contact with invoicing problems, and promptness of reimbursements were needed. Between 20 and 30 percent of EAs report that IPA invoicing forms are not clear, that they experience trouble identifying someone to contact regarding invoice problems, and that IPA reimbursements are not prompt. While outside the direct control of the NICHD, EA Program staff members should inform the appropriate parties of their grantees' dissatisfaction and seek improvements to these troubling areas.

Recommendation 11: Review and Modify the EA Program Anticipated Activities, Uses of EARDA Funds, and Roles Played by the Office of Research and Development

In response to research question #1, the evaluation study team, in collaboration with staff from the NICHD, developed lists of anticipated activities, uses of EARDA grant funds, and roles played by the ORD. Many of the activities, uses, and roles presented to EAs were recognized and implemented by more than half of the EAs, but within each list there were some items that very few respondents recognized or implemented. For example, whereas 93 percent of EAs use EARDA grant funding for pilot research projects, only 25 percent of EAs use the EARDA grant funds for conducting an outreach effort to local high schools or for a collaborative project between the EA's institution and a Federal facility (see Exhibit 8). Either the EA Program office needs to change its expectations, or more effort needs to be expended on showing recipient institutions how to accomplish these activities, use EARDA funds for a variety of activities, and the alternative roles of the ORD.