Evaluation of the Global Research Initiative Program (GRIP) for New Foreign Investigators

ESA Reference Number: 09-5205 FIC

October 2009

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Executive Summary

The Global Research Initiative Program for New Investigators (GRIP) was established by the John E. Fogarty International Center (FIC) in 2002 to promote productive re-entry of NIH-trained foreign investigators into their home countries. The specific goal of the initiative was to provide funding opportunities upon return home for the increasing pool of foreign investigators and health professionals with state-of-the-art knowledge of research methods to advance critical issues in global health. Eligibility for GRIP awards was initially limited to investigators who had recently received training through a D43 International Research and Training Award or the Intramural Visiting Fellows Program and had returned or anticipated returning to a low or middle income country; eligibility was later extended to include investigators who had been trained through other initiatives.

GRIP uses the R01 funding mechanism. Awards are limited to a maximum of $50k per year in direct costs for a maximum of five years, or a total of $250k, which is relatively small for an NIH R01 award (the average NIH R01 award was $342k over five years in 2002 and $395k in 2008). Since 2002, GRIP awards have been made to 77 investigators at 60 institutions in 22 countries. Total funding for the GRIP program through FY08 has been approximately $14M, of which FIC has contributed approximately 70%.

The purpose of this evaluation was to assess GRIP program implementation and preliminary outcomes, with particular focus on the careers of the first cohorts of awardees as they complete their GRIP awards. An additional goal was to lay a solid foundation for an outcome evaluation which FIC intends to conduct when the program is sufficiently mature, likely in 2012. Data collection methods included a pair of online surveys, one intended for GRIP awardees and one for unsuccessful applicants with scored applications. Response rates for the surveys were 73% and 51% of invited participants, respectively. Supplementary data were also compiled from administrative sources and databases, MEDLINE, and from interviews with US-based mentors, FIC staff members, and IC program partners.

Evaluation findings fell into two broad categories: program implementation and preliminary outcomes. Preliminary outcomes were further subdivided into career development outcomes, research outcomes, and institutional capacity-building outcomes.

Key findings related to *program implementation* include the following:

- GRIP application numbers appear to have peaked in FY2006 and have been declining in recent years, with a particularly steep drop-off in FY2008. Some evidence suggests that the decline in applications is attributable to difficulty experienced by foreign institutions in submitting applications electronically, which became mandatory in FY08. The Program Officer has attempted to address this problem in a variety of ways, including developing a guide for foreign institutions and giving applicants an extra year of eligibility in which to complete the application process**.**

- Eleven partner ICs plus the NIH Office of the Director have contributed funds to GRIP awards, with the Office of the Director, NCI and NHLBI each contributing more than $500k since 2002. However, in the most recent round of awards, only NHLBI contributed. Given the funding situation for NIH as a whole, co-funding will likely continue to decline over the next few years. The Program Officer's approach of "shopping" individual applications to the most logical ICs appears to be sound, but assistance from the FIC Office of the Director might be helpful where appropriate.
- In the years since 2002, eligibility has been gradually been expanded to include international trainees of programs run by various partner ICs in addition to D43 programs and Visiting Fellows. This expansion appears to have been both practical and appropriate to meet the needs of the partners.
- Starting in 2005, FIC began issuing two GRIP Funding Opportunity Announcements (FOAs), soliciting applications for basic/biomedical research and behavioral/social science research separately. The purpose of the split was to facilitate review by narrowing the range of topics that any one panel would have to evaluate. The decision regarding which FOA is most appropriate for a given proposal is made by the applicants themselves, although several applications that were obviously miscategorized have been re-assigned at the discretion of the Program Officer and the review staff. Nevertheless, it appears to be the case that certain applications reviewed under the behavioral/social science FOA may not have had a significant behavioral/social science component. While the review found no evidence that questionable self-identification has negatively impacted the review processes, it seems unlikely that the benefits of splitting the program will be fully realized unless applications are categorized appropriately.
- In 2004, FIC held a meeting for GRIP investigators in Bethesda that was intended to supplement their career development opportunities. A GRIP website is also under development. While it is unlikely that funds will be available to repeat the meeting held in 2004, the website can and should be developed more fully to better facilitate networking and career development of GRIP current and past awardees.
- Eleven of 41 respondents to the awardee survey (27%) reported that they had experienced difficulties with transfer of funds, and seven reported that those difficulties led to delays in start-up of the GRIP project lasting between several months and one year. Difficulties described by survey respondents included loss of paper checks, incompatibility of banking systems for electronic transfer of funds, and processing and/or other administrative issues at the foreign institution.
- Analysis of the publication records of certain awardees prior to GRIP funding suggests that several awardees had considerable research experience prior to receiving a GRIP award. Under current requirements, mid-career or senior investigators are eligible for GRIP as long as they have recently received NIH training. However, it is likely that these groups have very different career development needs from the early career-stage investigators for whom the program was primarily intended. The program might be better able to meet the needs of the early career-stage scientists or more experienced scientists by focusing exclusively on either one group or another.

Key findings related to *career development outcomes* include the following:

- All respondents to the awardee survey reported either that their GRIP award was still ongoing (27 of 43 or 63%) or that they had continued their research careers in their home countries after GRIP (16 of 43 or 37%). Similarly, 21 of 23 respondents to the applicant survey (91%) reported that they were continuing research careers in their home country. Of the two who reported they were not, one is continuing with research in another LMIC while the other is no longer directly involved in research.
- When asked about their plans to continue LMIC research in the future, awardees and applicants gave similar responses. Forty-one of 42 awardees (97%) and 21 of 23 applicants (91%) said they could see themselves conducting research in their home countries over the next five to ten years. Over the next ten to twenty years, these percentages dropped to 90% of awardees and 87% of applicants.
- When asked about the importance of GRIP in their decision to stay in a particular line of research, 81% of awardees described it as "very important". An even higher 93% described GRIP as "very important" in encouraging them to lead further research related to the GRIP project topic. Sixty-three percent described GRIP as "very important" in deciding to continue research in their home countries.
- A similar percentage of awardees and applicants reported spending at least half of their time on research rather than other activities (e.g. teaching, clinical work, administrative responsibilities): 27 of 43 awardee respondents (63%) and 12 of 22 applicants (55%).
- When asked about the impact of GRIP on enhancing their standing in the relevant field of research, the majority (86%) of awardee survey respondents described the program as "very important." Similarly, 76% described GRIP as "very important" in enhancing their ability to publish.
- Of the 77 GRIP PIs, 17 had submitted a total of 29 applications for additional funding from DHHS agencies (including NIH) by May 2009. Three of these applications (10%) have succeeded so far, and eight (28%) are still pending. Of the three successful applications, two are cooperative agreements with the Centers for Disease Control and Prevention (CDC) and the third is an R01 award made by NICHD. Both GRIP PIs who have competed successfully for DHHS funding are from Kenya, and both were trained by the University of Washington.
- Thirty-one of 43 awardee survey respondents (72%) said they had non-NIH funds to support their current research, as did a similar percentage of applicants (18 of 23 or 78%). Only three of 37 awardee survey respondents (8%) reported that they had experienced a gap in funding after participation in GRIP. Most awardee survey respondents perceived GRIP as important in enhancing their ability to secure funds to support their research; 55% described it as "very important" and 29% described it as "somewhat important."

Key findings related to *research outcomes* include the following:

- Using sources that included the NIH SPIRES database, investigator progress reports, and a list maintained by the program officer, a total of 145 GRIP-

associated, MEDLINE-indexed publications were identified through May 2009. There were 100 publications associated with the 35 GRIP awards that are now complete (those made between 2002 and 2004) for an average of 2.86 publications per award. The average cost per publication for the same group of awards was $81,673.

- GRIP publications appeared in 105 different journals in a wide variety of fields. For the 136 GRIP publications in journals for which a 2006 Impact Factor was available from Thomson-Reuters, the average impact factor was 4.41.
- Only about 25% of all papers known to have been published by GRIP PIs on or after the GRIP start year were linked to GRIP through SPIRES or other sources. Although it is likely that the list of publications identified as GRIP-associated by this evaluation is incomplete, the percentage is much lower than expected given the requirement that GRIP PIs spend at least half of their time on GRIP research. Available data were not sufficient to determine whether this surprising result is best explained by time lags associated with the publishing process, inaccurate attribution, active collaboration by the GRIP PIs, or some other factor.

Key findings related to *institutional capacity-building outcomes* include the following:

- Almost all respondents to the awardee survey (41 of 43 or 95%) reported that they supervised or mentored junior investigators during their GRIP projects, as did 22 of 23 unsuccessful applicants (96%). When asked about the role of GRIP in facilitating mentoring, 23 of 42 awardee survey respondents (55%) described it as "very important," 12 (29%) described it as "somewhat important," and seven (17%) described it as "somewhat unimportant."
- Twenty of 43 awardee survey respondents (47%) reported that they used their GRIP awards to help establish a new lab group at their home institution, and 19 (44%) said the new lab was made possible by GRIP. Respondents who established a new lab reported that GRIP facilitated the process by enabling the purchase of supplies and equipment, contributing to salaries for support staff, and by boosting the credibility and prestige of the awardee.
- Interviews with mentors and comments from survey respondents suggested that participation in the GRIP program may have helped to familiarize the home institutions of GRIP awardees with NIH application and administrative procedures. The Program Officer observed that, based on feedback he has received about new eRA registrations, many of the GRIP awardees are the first investigators from their home institutions ever to apply for an NIH grant. Since the arduous registration process only has to be completed once, investigators from these institutions will likely have a much easier time submitting future applications.

In conclusion, the evidence collected by this evaluation suggested that GRIP awardees have returned to low and middle income countries and are conducting research projects in those countries as intended. Evidence also suggests that awardees are engaging in activities that are consistent with establishing themselves as independent researchers, although sufficient time has not yet elapsed to determine whether or not they will be successful over the long-term. The most mature group of awards, made in 2002, have

only been complete for two or three years at this point. It is also important to note that applicants who applied for but did not receive GRIP awards gave similar answers to many survey questions. Longer-term follow-up and rigorous evaluation design will be needed to assess the outcomes and impacts of GRIP.

1. Introduction

A. GRIP Overview

The Global Research Initiative Program for New Investigators (GRIP) was established by the John E. Fogarty International Center (FIC) in 2002 to promote productive re-entry of NIH-trained foreign investigators into their home countries. According to the original solicitation, the specific goal was to provide funding opportunities for the increasing pool of foreign biomedical and behavioral scientists, clinical investigators, nurses, and other health professionals with state-of-the-art knowledge of research methods to advance critical issues in global health when they return home. Upon completion of the GRIP research experience, it was expected that awardees would be prepared to pursue independent research careers that would benefit the awardees themselves, their home institutions, the global research community, and specifically address the health priorities of their home countries.

The original intent of GRIP was to facilitate return home for foreign investigators who were trained via FIC D43 International Research and Training Awards or the Intramural Visiting Fellows Program; the program later evolved to include applicants from low and middle income countries who had been trained through other mechanisms. Since 2002, GRIP R01 awards have been made to 77 investigators in 22 countries. Total funding for the GRIP program has been approximately $14M, of which FIC has contributed approximately 70%. Eleven other Institutes and Centers plus the Office of the Director (OD) have been listed as partners on GRIP solicitations, and 12 plus OD have co-funded GRIP awards.

B. Purpose of the Evaluation

FIC routinely conducts evaluative reviews of its extramural programs using the FIC Framework for Program Assessment.[1] A review assessing process and preliminary outcomes is typically conducted after a program's first five years, and a more extensive outcome evaluation is typically initiated at the ten-year mark. Depending on the characteristics and specific needs of the program in question, these reviews are conducted either by a panel of extramural experts or an independent contractor with experience in research program evaluation.

The purpose of this evaluation was to assess GRIP program implementation and preliminary outcomes, with particular focus on the careers of the first cohorts of awardees as they complete their GRIP awards. An additional goal was to lay a solid foundation for an outcome evaluation which FIC intends to conduct when the program is sufficiently mature. For this reason, to the extent that it was feasible to do so, the review included activities designed to identify outcome variables likely to be of interest, assess potential comparison groups, and generate hypotheses to be explored in more detail in an outcome evaluation.

[1] See http://www.fic.nih.gov/about/plan/eval_framework.htm; accessed May 2009.

C. Organization of this Report

This report begins with a description of the methods used to collect and analyze data on GRIP processes and outcomes (Section 2). The next two sections describe program history, context and implementation (Sections 3 and 4). The following three sections describe evidence for GRIP outputs, outcomes, and impacts in three categories: research outputs/outcomes (Section 5), career outcomes/impacts (Section 6), and capacity-building impacts (Section 7). The final section (Section 8) describes evaluation conclusions and recommendations.

2. Evaluation Methods

A. Approach and Study Questions

A preliminary program logic model was developed for GRIP and refined throughout the evaluation process; the final version is included as Appendix A. The logic model and the FIC Framework for Program Assessment[2] were used to develop the following evaluation study questions:

Table 1: GRIP Evaluation Study Questions

A. Program Planning
1) What needs does the GRIP program address? 2) How is the program structured to meet its goals, and how has it evolved over time? 3) How does GRIP fit with FIC and NIH strategic priorities?
B. Program Management
4) Is GRIP attracting an appropriate pool of applicants, and are potential applicants well-informed about GRIP? 5) Is the review process adequate and appropriate? 6) How are GRIP funds used by awardees? Have any difficulties arisen around transfer or use of funds? 7) Have there been other administrative or management challenges, and, if so, how were they addressed?
C. Partnerships and Communication
8) What are the expectations of the program partners, and are their needs being met? 9) What strategies are used to encourage communication among GRIP awardees? 10) What role has been played by the optional GRIP mentors?
D. Results
11) Which types of investigators have been successful in competing for GRIP awards? Has this changed over time? 12) What have been the primary research outputs and outcomes of GRIP? 13) How and to what extent has GRIP impacted the careers of awardees? 14) Has GRIP had additional impacts on research capacity at the institutional, local, national, or regional level?

In order to address the study questions, evidence was collected from administrative sources, interviews, and via a web-based survey of awardees and applicants. These methods are described in more detail below.

Although similar programs were identified that might have served as reasonable comparison groups (see Section 3B), a comparative evaluation design was not considered feasible given resource limitations. For contextual purposes, however, it was necessary to collect some information on unsuccessful GRIP applicants; where it was deemed meaningful and useful to do so, this group was compared informally with GRIP awardees.

B. Data Collection from Administrative Sources and Databases

Descriptive information on GRIP applications and awards, including review and funding, was obtained from the central NIH awards management database (IMPAC II) via the Query/View/Response (QVR) tool. GRIP applications and investigator progress reports

[2] See http://www.fic.nih.gov/about/plan/eval_framework.htm; accessed May 2009.

were also reviewed to extract information about individual projects. NIH databases (PubMed and IMPAC II, respectively) and a partial list of GRIP publications maintained by the Program Officer were used to assemble information on the publication history and NIH funding history for each awarded GRIP Principal Investigator (PI).

The seven GRIP Funding Opportunity Announcements (FOAs) (RFA TW02-002, RFA TW03-006, PAR03-118, PAR05-082, PAR06-394, PAR07-239, PAR07-328) were analyzed for information about program structure, requirements, and evolution over time.

C. Applicant and Awardee Surveys

OMB clearance was obtained for a web-based census survey of GRIP applicants and awardees under control number 0925-0591. Separate versions of the survey were prepared for unsuccessful applicants vs. awardees; the version for unsuccessful applicants focused on characteristics of the applicant and his or her research activities, while awardees were also asked about the respondent's experiences with the program and perceptions about its outcomes and impacts. Survey questions were primarily close-ended with a few open response questions. Many questions also included a section for optional comment. Where possible, data on particular awards and applicants were pre-loaded in order to reduce response time. The text of the surveys is attached as Appendix B.

Via email, an attempt was made to contact all 59 GRIP PIs awarded between FY2002 and FY2006 as well as 44 investigators who submitted a GRIP application in the same time period that was scored but not funded. However, three individuals who received awards in FY2003 were mistakenly classified as unsuccessful applicants during the survey period, bringing the survey populations to 56 and 47 investigators, respectively (Table 2). Invitations to participate in the survey were sent successfully (without bouncing back) to 56 PIs (100%) and 45 scored applicants (96%, Table 2). Contacted awardees and applicants were provided with a personalized link to a secure survey website hosted by a third party (Inquisite, http://www.inquisite.com). Invited participants who were uncomfortable with or unable to access the online survey were also offered the option of completing the survey on paper and returning it via mail, but none of them expressed interest in this alternative.

Table 2: GRIP survey response rates

	GRIP awardees, FY2002-2006	**Scored applicants who did not receive an award, FY2002-2006**
Actual number	59	44
Number included in survey population*	56	47
Number contacted via email	56 (100%)	45 (96%)
Survey responses received	43 (73%)	23 (51%)

*Discrepancy is due to a mistake that was corrected after the survey was complete.

The survey website accepted responses for approximately one month, between 7/21/2008 and 8/18/2008. Due to an error in communication with the survey contractor, the survey was administered anonymously, so individual non-respondents could not be targeted with

personalized reminders in order to maximize response rates. However, periodic reminders were sent via email to all invited participants.

Of the 59 GRIP awardees invited to participate, 43 (73%) responded (Table 2). Male awardees appeared to be slightly more likely to respond to the survey; 67% of respondents reported being male compared with 60% of awardees overall. Response rates also appeared to be low from the earliest cohort of awardees, with only seven respondents reporting that their awards started in 2002 out of a total of 16 invited participants with awards starting that year (44%). Survey results are therefore likely to under-represent the perspective of female awardees and the earliest cohort of awardees.

Table 3: Awardee survey response rates by award start year

Year	New Awards	Survey Respondents Reporting Start Year	Percentage
2002	16	7	44%
2003	7	6	86%
2004	7	7	100%
2005	13	11	85%
2006	11	10	91%

Of the 45 scored but unsuccessful applicants invited to participate, 23 (51%) responded (Table 2). Of respondents who reported their gender (N=23), 48% were male compared with 40% of all unsuccessful applicants invited to participate.

It should be noted that response bias may have been an issue for both surveys--particularly the applicant survey because of the low response rate. It is possible and perhaps even likely that awardees and applicants who chose to respond to the surveys were different from those who did not, but it is difficult to know in what ways the groups might have differed. For example, it seems reasonable to speculate that invited applicants who were particularly dissatisfied with their application experience may have been more motivated to respond to the survey than those who were not, but the reverse might also be true. It also seems reasonable to speculate that applicants who have achieved greater success would have been more eager to provide information than those who have not; on the other hand, the least successful applicants might be more desperate and therefore more willing to cooperate. Unfortunately, no relevant information was available to help characterize possible differences between the two groups.

It should also be noted that not all survey respondents answered every question, so response rates for some questions were higher than for others. Throughout the body of this report, survey results will be reported relative to the number of respondents to an individual question rather than to the survey overall.

Interviews

In order to represent the experience and perspective of additional stakeholders, expert informant interviews were conducted with the following groups:

- FIC program staff members with knowledge of GRIP (two interviews)
- Representative from program partner NIGMS (one interview)
- Mentors to GRIP PIs (five interviews)

All interviews were conducted via telephone using interview discussion guides developed specifically for each group. Interview discussion guides for each group are included as Appendix C.

D. Analysis of Similar Programs

In order to identify other programs with similar missions and provide context for research needs being met by GRIP, focused internet searches were conducted using suggestions from interviewees as a starting point. As the searches were not systematic, the set of similar programs assembled as a result is not necessarily complete. Furthermore, with the exception of partner Institutes and Centers, the organizations offering similar programs were not contacted directly, so the analysis was limited to the information available online.

3. Program Implementation and Management

A. Origin and Purpose

According to the Program Officer, the GRIP concept emerged in response to two needs that were recognized at around the same time. First, former NIH Director Dr. Elias Zerhouni and former FIC Director Dr. Jerry Kirsch shared a concern about "brain flight," or the phenomenon of investigators leaving low and middle income countries for the US and other high income countries—often against their own preferences-- because the resources they needed to conduct research were not available in their home countries. At the same time, foreign investigators were becoming increasingly numerous and conspicuous on the NIH campus as well as in the extramural community. The original goal of GRIP, therefore, was simply to facilitate return to the country of origin for researchers from low and middle income countries.

The second need had to do with protecting NIH's investment in training for foreign investigators through programs such as the NIH Visiting Fellows and the D43 International Research Training Grants. It had been noticed that, upon return home, many foreign trainees from low and middle income countries had difficulty establishing research careers. In addition to simply providing an incentive for trainees to return home, therefore, an additional goal of GRIP was to help them to set aside protected time for research when they returned home in order to establish a track record as independent investigators.

Once the need had been recognized, the task of implementing the GRIP program fell to Dr. Aron Primack, who eventually became the GRIP Program Officer. As is common practice at FIC when developing a new initiative, a "consultation" or meeting of potential partner Institutes and Centers (ICs) was convened in order to solicit input on program implementation.

B. Program Implementation

The first GRIP Funding Opportunity Announcement (FOA) was issued in January 2002 as RFA-TW-02-002. Applications were solicited for R01 awards with a maximum of $50,000 per year in direct costs for between three and five years. Indirect costs were limited to eight percent. Eligibility requirements for applicants in the initial RFA included the following:

- From an eligible "developing" country (the FIC definition at that time included most regions of the world with specific high-income countries excepted)
- Recently completed (within three years or within five years with extenuating circumstances) or in the process of completing:
    - An NIH D43 international training program, OR
    - Another international training and capacity-building grant mechanism (with pre-approval from FIC staff) OR
    - At least a 2-year appointment in the NIH intramural research program as a Visiting Fellow with a partner IC.
- Returned (or planning to return) to an institution in the applicant's home country

or other eligible country with the capacity to support the research proposed.
- Willing and able to devote at least 50% effort on the GRIP project.

Research topics were to focus on high-priority health and healthcare problems in the investigator's home country that also carry global importance; for practical reasons, applicants were also encouraged to propose projects of interest to the partner ICs. Partner NIH Institutes and Centers (ICs) on the original announcement included NEI, NIA, NIEHS, NIMH, NINDS, OBSSR, ODS, and ORWH. Applicants were encouraged to identify a mentor, although this was not required.

Six GRIP FOAs were released in subsequent years: 2003 (RFA-TW-03-006, PAR-03-118), 2005 (PAR-05-082), 2006 (PAR-06-394), and 2007 (PAR-07-328, PAR-07-239). For the most part, the structure of the program remained the same, although there were several noteworthy changes. One set of changes involved the list of program partners, which evolved over time (Table 4). At the peak, a total of eleven ICs plus three offices in the Office of the Director were listed as GRIP partners in 2003. All but NICHD and NIMH have been listed as partners on at least one subsequent solicitation.

Table 4. Participation by GRIP partners.

FOA	**RFA-TW-02-002**	**RFA-TW-03-006**	**PAR-03-118**	**PAR-05-082**	**PAR-06-394**	**PAR-07-328**	**PAR-07-239**
FY	2002	2003	2003	2005	2006	2007	2007
NCI		yes	yes		yes		yes
NEI	yes	yes	yes	yes		yes	yes
NHLBI		yes	yes	yes			
NIA	yes	yes	yes		yes		yes
NIBIB		yes	yes				yes
NICHD			yes				
NIDA		yes	yes	yes		yes	
NIEHS	yes	yes	yes	yes		yes	yes
NIGMS		yes	yes	yes		yes	
NIMH	yes	yes	yes				
NINDS	yes	yes	yes		yes		yes
OD/OBSSR	yes	yes	yes	yes		yes	
OD/ODS	yes	yes	yes	yes	yes	yes	yes
OD/ORWH	yes	yes	yes	yes		yes	

A second set of changes involved a gradual expansion of eligibility to investigators with various other combinations of training experience (summarized in Table 5). The Program Officer explained that the first set of changes was made in recognition of the fact that some D43 programs were shifting away from more expensive, US-based training and towards in-country training and mentored research. The next set of changes expanded eligibility to trainees who had participated in specific NIDA and NINDS international training programs, as well as the non-NIH Human Frontiers Science Program, which was of interest to the Acting FIC Director at the time. FIC also indicated willingness to consider candidates who had completed training more than three years ago with justification due to illness or family issues. Eligibility was eventually expanded to

include almost all FIC trainees as well as NIEHS international trainees. The most recent solicitations also expanded the window of eligibility after training from three to four years. According to the Program Officer, this change was made in order to give foreign institutions additional time to complete the registrations necessary to submit an electronic application.

Table 5. Evolution of qualifying training experiences

FOA	Qualifying Experiences	Eligibility After Training
RFA-TW-003	• Two years of D43 training; OR • One year of D43 training plus one additional year of mentored research; OR • Two years as a Visiting Fellow; OR • Other international training and capacity-building grant (with approval from FIC).	Three years
PAR-03-118	• Any of above; OR • One year of the NIDA INVEST Fellowship plus at least one additional year of mentored research; OR • One year of training through an F05, international fellowship program and one subsequent year of mentored research; OR • Receipt of a Long Term Fellowship awards through the Human Frontier Science Program (HFSP) and at least two years of research training.	Three years (five with extenuating circumstances)
PAR-05-082 and PAR-06-394	• Any of above; OR • At least one year of training in the U.S. and one additional year of significantly mentored research, in the U.S. or abroad, leading to a completed master's degree or doctoral degree, at least partially funded through a Fogarty International Center research training program, with pre-approval by the program director.	Same as previous
PAR-07-328, PAR-07-239	• Any of above; OR • Foreign trainee researchers from low- or middle-income countries trained under NIEHS R01, R37, and P01 programs.	Four years (five with extenuating circumstances)

Other significant changes to the program over time included the following:

- Beginning with RFA-TW-003, clinical trials were excluded because FIC did not believe the award amount was sufficient to support them. The same RFA also clarified that the GRIP award could be used to support up to one-half of the investigator's salary.
- In 2003, the FOA type switched from an RFA to a Program Announcement. The Program Officer explained that the program had always been intended to continue accepting applications indefinitely, so the change was to correct an administrative error and did not represent a shift in policy or philosophy.
- In 2005, the GRIP split into two components: 1) behavioral and social sciences, and 2) basic and biomedical research. The Program Officer explained that the split was in response to complaints from reviewers who were having a difficult time evaluating proposals on such a wide range of topics.
- Beginning with PAR-06-394, the list of eligible countries was aligned with World Bank criteria for low and middle income countries (LMICs). This definition is widely used at FIC.

C. Supplementary Efforts to Enhance Career Development

In addition to providing funds for research, the GRIP program has included two complementary activities designed to further enhance career development: a meeting and a website. In 2004, a meeting for GRIP awardees was convened on the NIH campus in Bethesda. Travel expenses for awardees were paid by FIC separately from the grant. The primary purpose of the meeting was to provide additional assistance to awardees in achieving independence as researchers. Accordingly, representatives from funders at NIH and beyond were invited to meet with the awardees. Awardees also presented their work and had opportunities to network with each other, but the Program Officer described these activities as less central to the purpose of the meeting. In more recent years, sufficient funds have not been available to hold additional meetings. Several awardee survey respondents expressed enthusiasm about the 2004 meeting in their comments, suggesting that meetings should be held more frequently. However, the Program Officer appeared less convinced about the value of additional meetings relative to their substantial cost.

GRIP Awardee: Dr Kawango Agot, Kenya

Dr. Kawengo Agot received her Bachelor of Education from the University of Nairobi, Kenya in 1984 and a MPhil in Medical Geography from Moi University, Kenya in 1991. In 1996, she began pursuing a PhD in Medical Geography and a concurrent MPH in Epidemiology (International Health Program) at the University of Washington, Seattle, completing both programs in 2001. This training was supported by the Fogarty AIDS International Training and Research Program (AITRP) as well as a Fulbright Junior Staff Development Fellowship and the International Peace Scholarship of the Philanthropic and Educational Organization. Dr. Agot's GRIP project, which began in 2002, is a prospective cohort study of the association between HIV infection and the cultural practice of widow inheritance among the Luo ethnic community in Kenya. Since receiving GRIP funding, Dr. Agot became the PI on an $11 million cooperative agreement with the National Center for HIV, Viral Hepatitis, STDs and Tuberculosis Prevention (NCHHSTP) at the Centers for Disease Control and Prevention (CDC) entitled "HIV Prevention and Care Services for Young People in Kenya." She is also a Principal Investigator on the promotion of Voluntary HIV Counseling and Testing among the youth in Nyanza Province, Kenya, funded by the Social Science Research Council.

An interactive GRIP website (URL: http://griponline.org) has been under development for the past few years. Originally implemented using GRIP funds provided as a supplement to a D43 award at the University of Pennsylvania, the site was transferred to the Vanderbilt Institute of Global Health when the Pennsylvania D43 award ended. As the Program Officer explained, it was desirable to find a third party host for the website because it is difficult for government websites to publish user-generated content. The current version of the website includes profiles of past and current GRIP recipients that can be edited directly by the awardees. Future additions to the website may include a shared calendar, discussion boards, dissemination of research results, and information about funding opportunities.

D. Scientific Review

GRIP applications have been reviewed by at least 14 different panels coordinated by five different Scientific Review Administrators at the Center for Scientific Review (CSR). Since the program split into behavioral/social science and basic biomedical components

in FY2005-06, review meetings for GRIP have been combined with reviews for the Fogarty International Research Collaboration Award (FIRCA). The two programs are similar in their focus on international research and broad range of eligible topics, so interviewees reported that it has been efficient to combine the reviews.

Evidence from the surveys suggests that the review process itself was valuable to a substantial portion of applicants. Eighteen out of 43 (42%) respondents to the awardee survey and 15 of 23 (65%) respondents to the applicant survey reported that they were prompted by comments from peer reviewers to alter some aspect of their proposed research project. One awardee noted that "most comments were not culturally appropriate," but there is no evidence that this opinion was widespread. Comments from unsuccessful applicants in particular indicated that several had made specific improvements to their projects. For example, one respondent indicated that NIH peer review prompted him to address an important ethical concern that might otherwise have been overlooked:

> I have addressed the ethical issue of having the male sexual partners visiting the same clinic that the female sex workers visit because this would be intrusive on their confidentiality. I have mapped 84 bars using my own resources in Korogocho area and will use this as my sampling frame to do a bar patron sexual network survey parallel to the female sexual network survey and compare finding.

Another indicated that feedback from the GRIP review allowed him to revise his project and obtain funding from another source.

E. Process and Management Issues Identified by Stakeholders

Program Management

Respondents to the awardee survey were generally very appreciative of the FIC staff involved in program management. For example, one commented: "I also would like to thank all the Fogarty people involved in the administration of the GRIP award. They are extremely professional, always trying to help us in all demands."

Application Process

As might be expected, several unsuccessful applicants expressed frustration with the application process. One described it as "very complicated because of the paperwork," and two others expressed dismay at having received contradictory feedback from subsequent review panels. Still others were frustrated at not receiving any feedback at all because their applications were administratively withdrawn. One commented:

> The crucial and extremely frustrating point is that I could not have my proposal peer-reviewed the last two times due to some bureaucratic step. Last time, for instance, it was said that I used the same eRA Commons identification of my institution because I haven´t requested one as PI. It is important to state that these issues are not always clear for us, as much as we believe we are following each step carefully.

The Program Officer confirmed that navigating the electronic application process can be extremely difficult and time-consuming, especially for institutions that have not previously submitted an NIH application. The eRA Commons requires a total of six separate registrations, none of which provide immediate error-checking and feedback. Institutions are also required to designate a single individual to submit applications, so

planning is required to ensure that the designated individual will be available when the application is due. The Program Officer described having followed up with investigators who submitted letters of intent but did not submit an application, and many cited difficulties with the electronic application process as the reason they did not apply.

When asked how FIC might improve the program, at least one survey respondent requested additional training in how to submit applications for GRIP and other NIH grant programs. The Program Officer described having worked with the staff at eRA to develop training materials specifically tailored to foreign institutions. The amount of time an investigator is eligible to apply for a GRIP award after completing training has also been expanded in order to give institutions more time to complete the registration process. The Program Officer also encourages trainees who attend grant writing workshops to contact their home institutions before they return in order to set the electronic registration process in motion as early as possible.

Transfer of Funds

The most commonly identified management problem identified by GRIP awardees was related to transfer of funds. Eleven of 41 respondents to the awardee survey (27%) reported that they had experienced difficulties, and seven reported that those difficulties led to delays in start-up of the GRIP project (two said the delay lasted fewer than six months, three said it lasted three to six months, and two said six months to one year).

Survey respondents described several types of difficulty encountered in transfer of funds. One group of difficulties encountered by awardees with transfer of funds had to do with paper checks; at least four awardees described having checks get lost in the mail or taking excessive amounts of time to process. Many of these awardees suggested that electronic transfer of funds would be a better option. However, at least one awardee whose funds were transferred electronically also described experiencing difficulties because the funds first had to be transferred to a US branch of a Chinese bank and because the length of a typical Chinese bank account number was not compatible with NIH systems.

A second group of awardees attributed difficulties with transfer of funds to the home institution. For example, one respondent commented that "Getting the money from NIH to Kenya was very efficient. However, it takes too long to get the money from my home institute." Another stated simply that: "Local administrators were inexperienced in handling foreign funds and administering science." A third requested that FIC provide international institutions with more training on how to administer NIH grants.

Award Size

In addition to difficulties with transfer of funds, several awardees expressed concern that the award size is too small. The average total direct cost of all NIH R01 awards was $342k in 2002 and $395k in 2008; at $250k, the GRIP maximum was 27% smaller than the average when the program originated and is 37% smaller now (no adjustments made for inflation or exchange rates). While this is a common complaint among PIs everywhere, regardless of the actual size of an award, one survey respondent made the point that $50k per year is not sufficient as the sole source of support for lab-based

research. The PI in question reported that she relied on her mentors' grants to support part of the work. Another commented that the GRIP award, while helpful, was not sufficient to establish a research career in her country. Yet another observed that the depreciating value of the dollar relative to many foreign currencies (the awardee in question was from China) had substantially decreased its value.

4. Similar Programs

In preparation for an eventual GRIP outcome evaluation, an effort was made to identify other programs at NIH and beyond with similar focus on providing research support to LMIC researchers attempting to establish careers in their home countries. Programs of interest were identified based on suggestions from interviewees, directed internet searches, and prior knowledge of the contractor. Please note that the search was not systematic and the resulting list of similar programs is not necessarily comprehensive.

Fogarty International Research Collaboration Award (FIRCA). The FIRCA program makes R03 awards to support collaborative research between a US investigator and a partner in a low or middle income country (LMIC). The feature of the program that makes it relevant to GRIP is that former LMIC collaborators are eligible to apply to the program as PIs for seven years after collaborating on an award with a US-based PI.[3] Unlike GRIP, however, FIRCA does not target recent NIH trainees and focuses more on collaboration than on establishing independence for foreign investigators.

NIH International Research Career Transition Programs. NIH has established partnerships with institutions in several countries (India and Chile are the only LMICs) that provide opportunities for postdoctoral training at the NIH during Phase I and return to a funded research position in the home country during Phase II. Mentorship is required during Phase I.[4]

EU Marie Curie Incoming International Fellowships (IIF). The Marie Curie Incoming International Fellowships (IIF) program facilitates training at European research organizations for fellows from outside the EU. The program is somewhat comparable to GRIP but, for fellows from developing or transitioning countries, IIF supports fellows for only one year following transition back to their home countries.[5]

Human Frontier Science Program Career Development Award. The HFSP Career Development Award (CDA) is intended to encourage former HFSP fellows "to return to their home country to initiate an original research program in their own laboratories as independent researchers." CDA recipients must have been former HFSP Long-Term/Cross-disciplinary fellows for at least two years. The award funds up to three years of postdoctoral research training in an outstanding laboratory in another country. The third year of the Long-Term Fellowship can be used either for repatriation to the Fellow's country or in the host laboratory of a member country. Applicants must be from member countries, which are mainly high income countries but include India and several LMICs in Central and Eastern Europe.[6] These HFSP fellows are eligible for the GRIP if they have their one research year with HSFP and then one subsequent mentored research year.

[3] For more information, see http://www.fic.nih.gov/programs/research_grants/firca/index.htm.
[4] For more information, see http://www.training.nih.gov/postdoctoral/international.asp
[5] For more information, see http://ec.europa.eu/research/fp6/mariecurie-actions/action/fellow_en.html.
[6] For more information, see http://www.hfsp.org/about/AboutProg.php.

Howard Hughes Medical Institute (HHMI) International Research Scholars Program. This program provides funding for five years for basic biomedical research to researchers from a variety of countries, including LMICs in Latin America and Central and Eastern Europe.[7]

Table 6 summarizes relevant aspects of these programs in comparison with GRIP. The evidence gathered by this evaluation did not indicate that GRIP is unique in providing support for new investigators attempting to establish research careers in their home countries. However, importantly, of the similar programs identified, only GRIP focuses exclusively on LMIC investigators. GRIP is also unique in providing new investigators with an NIH R01 award, which may give them an advantage with peer review panels in the future and also carries prestige in the US and abroad.

Table 6: Characteristics of Similar Programs compared with GRIP

	Restricted to LMICS	**Mentor or collaborator required**	**Restricted to early career stages?**	**Explicitly targets facilitating return to home country?**	**Supports research in home country?**	**Eligible research topics**
FIC-GRIP	Yes	No (optional)	No	Yes	Yes	Broad range
FIC-FIRCA	Yes	Yes	No	No	Yes	Broad range
NIH-RCT	No	Yes	Yes	Yes	Yes	Broad range
EU-Marie Curie/IIF	No	No	Yes	Yes	Yes	Broad range
HFSP-Career Development	No	No	Yes	Yes	Yes	Broad range
HHMI-IRSP	No	No	No	No	Not required	Basic research only

Furthermore, although it was beyond the scope of this evaluation to gather comparable information on program size and resource allocation, it is unlikely that all of these programs combined are adequate to meet the vast need for support of new investigators in low and middle income countries worldwide.

[7] For more information, see http://www.hhmi.org/grants/individuals.

5. GRIP Applications and Awards

A. Applications and Success Rates

Through FY2008, a total of 273 GRIP applications had been submitted by 198 applicants. Seventy-seven awards were made during the same time period, so 28% of applications were successful and 39% of applicants eventually received an award. Of the 77 awardees, 55 (71%) were awarded on their first try while 20 (26%) submitted a second application or amendment before being funded and two (3%) submitted two applications or amendments before receiving funding. Of the 121 applicants who never received an award, 29 (24%) submitted two applications and eight (7%) submitted three applications.

Annual success rates fluctuated between 17% and 84% in the early years of the program, but stabilized close to the average of 28% in FY2007 and FY2008 (Table 7). The first year of GRIP (FY2002) saw the highest number of awards made (16), and the number of awards in subsequent years fluctuated between six and 13 (Table 7). Application numbers appear to have peaked in FY2006 and have been declining in recent years, with a particularly steep dropoff in FY2008. The Program Officer attributed the drop in applications almost entirely to the new requirement that applications be submitted electronically. As described in the previous section, many foreign institutions have experienced problems with the new system.

Table 7. Number of GRIP applications received and success rates by FY.

FY	Not funded	Funded	Total	Success Rate
2002	28	16	44	36%
2003	2	11	13	84%
2004	39	8	47	17%
2005	36	13	49	27%
2006	47	12	59	20%
2007	29	11	40	28%
2008	15	6	21	29%
All years	196	77	273	28%

Table 8. GRIP applications and success rates by FOA.

RFA/PA	Type	Not funded	Funded	Total	Success Rate
TW02-002	Combined	30	19	49	39%
TW03-006	Combined	28	11	39	28%
PAR03-118	Combined	48	18	66	27%
PAR05-082	Behav/SS	57	16	73	22%
PAR07-328	Behav/SS	4	3	7	43%
PAR06-394	Basic/Biomed	18	7	25	28%
PAR07-239	Basic/Biomed	11	3	14	21%
Total		196	77	273	28%

For the most part, success rates by FOA have been more consistent and closer to the average of 28%. Interestingly, however, after the program split in FY2005-06, far more applications were submitted for the behavioral/social science GRIP than for the

basic/biomedical GRIP (Table 8). In response to the most recent round of solicitations, the opposite seems to have been true.

Finally, an attempt was made to match applicant names against the roster of participants in FIC training programs maintained by the Center. A total of 104 applicants (53%) were identified as former FIC trainees. Number of applications submitted varied widely by training program, with more than half of applicants trained by ICOHRTA, Maternal and Child Health, Population and Health, and ITREID programs competing successfully for GRIP awards while applicants from some other programs appeared less likely to succeed (Table 9). The overall application success rate was 39%, and success rates did not vary significantly by training program (chi square=0.29, df=9, p=0.99).

Table 9. GRIP applicants and success rates by applicant training program.

Training Program	Number of Applications	Number of Funded GRIPs	Success Rate
ABC	7	1	14%
AITRP	49	15	31%
Genetics	5	1	20%
GID	1	0	0%
ICOHRTA	4	3	75%
Informatics	8	1	13%
ITREID	10	6	60%
Malaria	3	1	33%
MCH	7	5	71%
Population and Health	10	7	70%
Not matched	94	37	39%
Total	198	77	39%

B. GRIP Funding and Co-funding

The total value of GRIP awards made between FY2002 and FY2008 was $13,795,789, of which $12,854,778 (93%) were direct costs. These figures include four Supplements totaling $63,590 (Figure 1). Annual total cost for GRIP has averaged around $2 million, but this has varied with the number of active awards (Table 10).

Table 10. GRIP total cost and average annual cost per award by FY.

	2002	2003	2004	2005	2006	2007	2008	Total
Total cost	$843,988	$1,473,582	$1,859,670	$2,387,376	$2,711,394	$2,387,195	$2,132,584	$13,795,789
Active awards	16	27	36	45	54	48	43	269
Average annual cost per award	$52,749	$54,577	$51,658	$53,053	$50,211	$49,733	$49,595	$51,285

FIC has contributed a total of $9,013,809 to GRIP, or about 65% of the program's total cost; however, the FIC contribution as a percentage of total cost has been increasing steadily since FY2004 (Table 11, Figure 1).

Table 11. GRIP total cost by contributing partner IC and FY.

	2002	2003	2004	2005	2006	2007	2008	Total
FIC	$388,788	$572,468	$714,450	$1,605,076	$2,037,515	$1,898,043	$1,797,469	$9,013,809
OD	$177,500	$269,000	$359,438	$194,500	$157,704	$113,285	$24,412	$1,295,839
NCI	$35,000	$84,000	$132,600	$117,600	$101,189	$125,385	$125,385	$721,159
NHLBI	$118,500	$118,500	$118,500	$119,500	$116,691	$37,927	$64,927	$694,545
NIAID		$128,194	$144,282	$48,600	$47,458	$46,082		$414,616
NIGMS	$27,000	$73,620	$75,600	$75,600	$73,823	$46,082		$371,725
NIEHS		$82,000	$82,000	$82,000	$58,589			$304,589
NINDS	$48,600	$48,600	$48,600		$44,600	$43,307	$43,307	$277,014
NIDCR			$50,000	$50,000	$48,825	$47,409	$47,409	$243,643
NIDCD		$48,600	$48,600	$48,600		$5,400	$5,400	$156,600
NEI	$48,600	$48,600	$48,600					$145,800
NIDA					$25,000	$24,275	$24,275	$73,550
NIA				$45,900				$45,900
Gift Fund			$37,000					$37,000
Total	$843,988	$1,473,582	$1,859,670	$2,387,376	$2,711,394	$2,387,195	$2,132,584	$13,795,789

Eleven partner ICs plus the NIH Office of the Director have also made contributions, with the Office of the Director, NCI and NHLBI each contributing more than $500,000 (Table 11). Interestingly, NIAID, NIDCD, and NIDCR contributed to GRIP awards even though they were never listed as partners on any GRIP FOA. The Program Officer explained that he generally attempts to interest the IC who trained applicants with high-scoring proposals first, regardless of the IC's status as a program partner. Conversely, NIBIB, NICHD, and NIMH were listed as partners on various solicitations but never contributed to a GRIP award. According to the Program Officer, this is because no applications judged to be meritorious fell into their areas of interest.

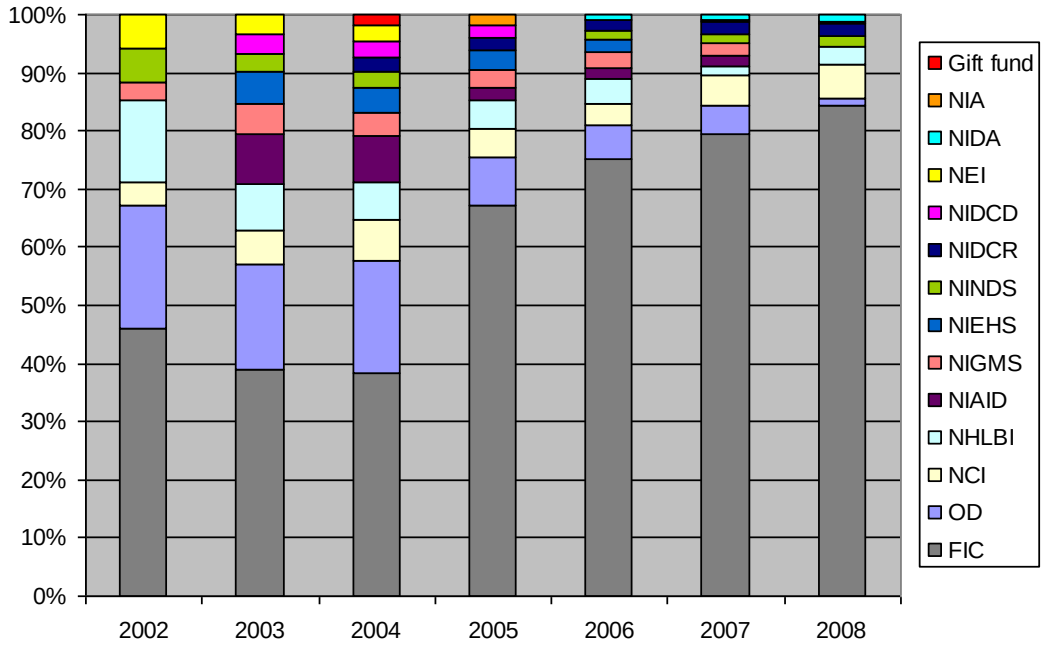

Figure 1. Percent of annual total cost contributed by GRIP program partners.

Looking at contributions from partners by FOA reveals that only NHLBI has contributed to awards made in the most recent rounds of competition (Table 12); this suggests that co-funding may continue to decline sharply over the next few years.

Table 12. GRIP total cost by contributing partner IC and FOA.

	TW02-002	**TW03-006**	**PAR03-118**	**PAR05-082**	**PAR06-394**	**PAR07-239**	**PAR07-328**	**Total**
Type	Combined	Combined	Combined	Behav/SS	Basic	Basic	Behav/SS	
FIC	$2,318,097	$1,179,800	$2,853,385	$1,837,597	$549,126	$124,174	$151,630	$9,013,809
OD	$382,612	$711,053	$202,174					$1,295,839
NCI	$105,000	$147,000	$256,819	$105,906	$106,434			$721,159
NHLBI	$512,631		$154,914			$27,000		$694,545
NIAID	$414,616							$414,616
NIGMS	$134,365	$237,360						$371,725
NIEHS	$238,589	$66,000						$304,589
NINDS	$145,800			$131,214				$277,014
NIDCR		$243,643						$243,643
NIDCD	$145,800				$10,800			$156,600
NEI	$145,800							$145,800
NIDA				$73,550				$73,550
NIAID			$45,900					$45,900
Gift fund		$37,000						$37,000
Total	$4,543,310	$2,621,856	$3,513,192	$2,148,267	$666,360	$151,174	$151,630	$13,795,789

C. Awards and Awardees

The 77 GRIP awardees came from 60 different institutions in 22 countries (Table 13).

By region, 39% of GRIP awards went to PIs in Latin America and the Caribbean with the balance fairly evenly distributed among four other world regions (Figure 2).

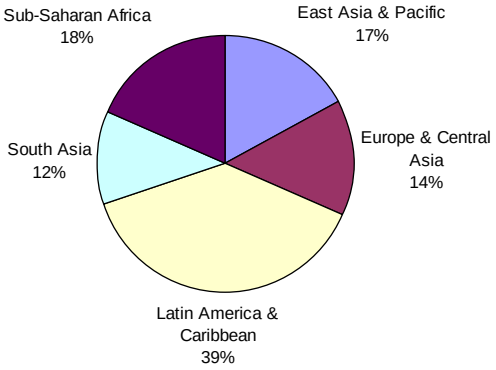

Figure 2. Distribution of GRIP awards by region (N=77)

Table 13. Number of GRIP Awards by Institution and Country.

Country	Number of Awards	Institutions
Argentina	6	Fundacion Hospital de Pediatria; Institute of Neurological Research; Instituto Invest Medi Mercedes/Ferreyra; National Academy of Medicine; National Research Council of Argentina; National University of Cuyo; National University of San Luis
Brazil	7	Federal University of Bahia; Fundacao Faculdade de Medicina; Federal University of Minas Gerais; University of Sao Paulo
Bulgaria	1	Bulgaria National Center for Public Health Protection
Chile	3	Catholic University of Chile; University of Chile
China	10	Chinese Center for Disease Control and Prevention; Chinese University of Hong Kong; Fudan University; Nankai University; Peking University; Peking University Health Science Center; Shanghai Mental Health Center; University of Hong Kong
Colombia	1	Foundation Santa Fe de Bogota
Czech Republic	2	Institute of Microbiology; Nusle Clinic
Estonia	1	University of Tartu
Hungary	3	Eotvos Lorand University; Institute of Enzymology, Biological Research Center
India	7	Christian Medical College; Center for DNA Fingerprinting/Diagnostics; Hyderabad Eye Research Foundation; Indian Statistical Institute; National Institute of Immunology; YRG Center for AIDS Research and Education
Kenya	5	Kenya Medical Research Institute; University of Nairobi
Malawi	4	Kamuzu College of Nursing; University of Malawi
Mexico	7	CINVESTAV-IPN; Coordinacion de Investigacion en Salud; Fundacion Mexicana para la Salud, A.C.; University of Mexico, Unam; University of Veracruz
Pakistan	2	Aga Khan University; School of Biological Sciences
Peru	2	Universidad Peruana Cayetano Heredia
Poland	3	Institute of Psychiatry and Neurology; National Institute of Hygiene; Polish Academy of Sciences
South Africa	2	Nelson R Mandela School of Medicine; Cape Town University
Tanzania	1	Muhimbili University
Thailand	3	Chiang Mai University; Phramongkutklao College of Medicine; Silpakorn University
Turkey	1	Sabanci University
Uganda	2	Makarere University; New Mulago Hospital
Uruguay	3	University of the Republic

Slightly more than half (55%) of GRIP awardees were identified as male while 42% were identified as female; sex was not known for the remaining 3%. Of the 77 awardees, 40 were matched to nine different FIC training programs using the roster of long-term trainees maintained by FIC (Table 8). At 37%, AITRP accounts for the largest share of these awardees, while Population and Health, ITREID, and Maternal and Child Health each account for between 10 and 20% (Figure 3).

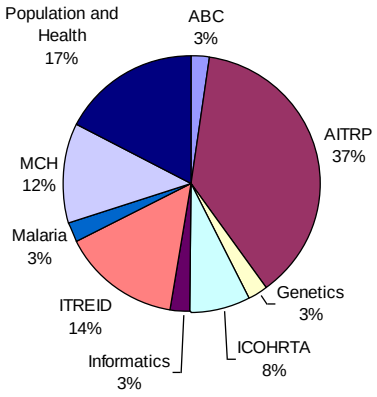

Figure 3. GRIP awardees matched to an FIC training program (N=40).

Finally, because of the dual GRIP solicitations beginning in FY2005 and the advent of self-classification by the awardees, an attempt was made to classify funded awards into the following groups based on content: behavioral and social science research, basic research, and other biomedical research. The definitions for 'behavioral,'[8] 'social,'[9] and 'basic'[10] included in GRIP Program Announcements were used as a guide, and awards were categorized based on an examination of their titles, associated CRISP terms, and abstracts. A total of 19 GRIP awards (25%) were identified as having a behavioral or social science component. The remaining 58 awards were equally split between basic research and other biomedical research (29 awards or 38% each). The majority of awards classified as other biomedical were either clinical or epidemiologic studies, and about half of them focused on HIV/AIDS and/or other infectious diseases. All but four of the awards classified as behavioral/social science focused on infectious diseases, and the majority of those focused on HIV/AIDS. This is unsurprising given the pool of eligible applicants; most of the mature D43 programs focus on infectious disease, and Visiting Fellows from low and middle income countries have also been interested in infectious disease.

As would be expected, the proportion of new awards classified as behavioral/social science was highest FY2006, which immediately followed the release of the first Behavioral/Social Science GRIP Program Announcement (Figure 4).

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[8] From PAR-05-082 and PAR-07-328: "For the purposes of this initiative, the term "behavioral" refers to overt actions; to underlying psychological processes such as cognitions, emotion, temperament, and motivation; and to biobehavioral interactions."

[9] From PAR-05-082 and PAR-07-328: "The term "social" encompasses sociocultural, socioeconomic, and sociodemographic status; to biosocial interactions; and to the various levels of social context from small groups to complex cultural systems and societal influences."

[10] From PAR-06-394 and PAR-07-239: "Basic science" refers to laboratory studies that are not aimed at specific problems, but that provide the necessary knowledge and background for later applied research or the fundamental approach to understanding how systems work. Basic research takes place in the laboratory and often involves studies at genetic, molecular, cellular, systems and behavioral levels."

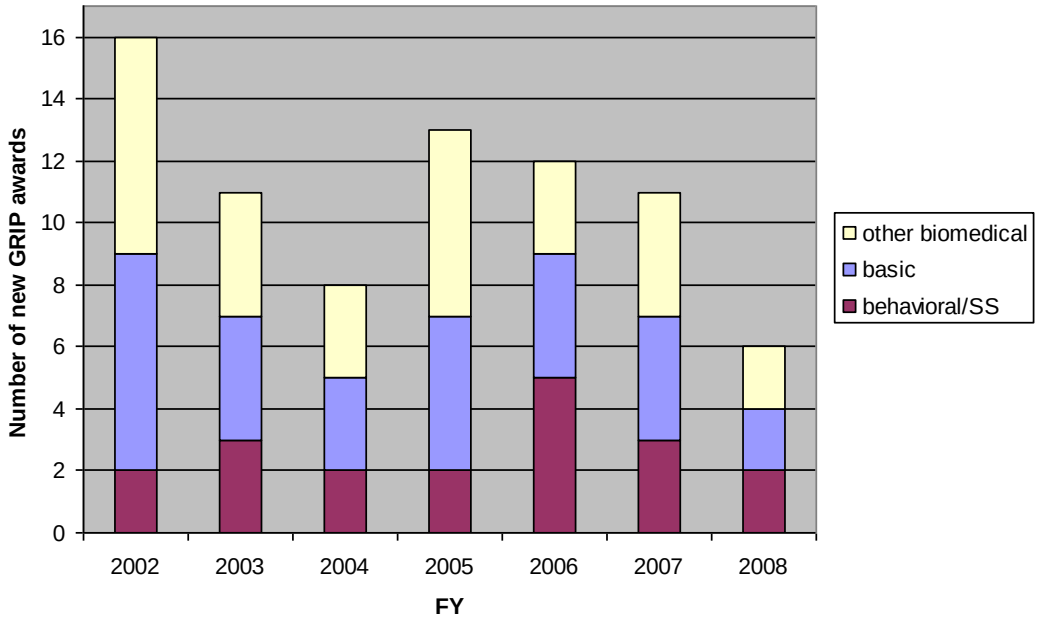


Figure 4. New GRIP awards by FY and type of research.

Surprisingly, however, a behavioral/social science component could be identified from abstracts for only slightly more than half (10 of 19) of successful applications submitted in response to the two behavioral/social science GRIP FOAs (Figure 5). The Program Officer explained that applicants choose for themselves which solicitation to respond to, although applications that are obviously misclassified have occasionally been re-assigned by the Scientific Review Officer. Since the split was primarily intended to facilitate review and the review panels have not complained, the Program Officer does not consider this apparent irregularity to be problematic.

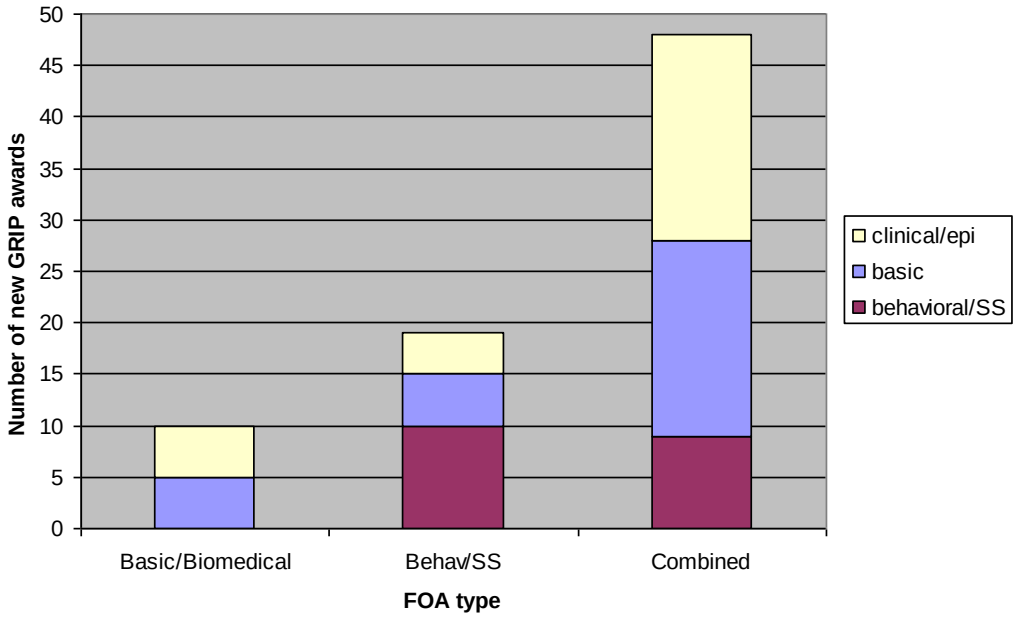


Figure 5. New GRIP awards by FOA and type of research. 'Combined' includes RFA-TW02-002, RFA-TW03-006, and PAR03-118; 'Behavioral/SS' includes PAR-05-082 and PAR-07-328; 'Basic/Biomed' includes PAR-06-394 and PAR-07-239.

6. Research Outputs and Outcomes

Because GRIP is a research program, the primary research output of interest is publications. A list of peer-reviewed, MEDLINE-indexed publications believed to be attributable to GRIP was compiled using the following sources:

- The NIH SPIRES database, which matches whole or partial NIH grant numbers against the MEDLINE acknowledgements field;
- A partial list of GRIP publications maintained by the GRIP Program Officer based on feedback from awardees;
- Investigator progress reports (consulted for 2002-04 cohorts only).

In total, 145 GRIP publications were identified through May 2009 using these methods. Considering only the 35 awards made prior to 2005 that are now complete, there have been 100 publications for an average of 2.86 publications per award and an average cost per publication for the same group of awards was $81,673 (Table 14, rows E and G).

Publications have been identified so far for 43 of the 77 GRIP PIs (56%, Table 14, row C). PIs with GRIP publications so far came from 16 different home countries, with four countries (China, Mexico, Argentina, Brazil) accounting for more than 50% of publications (Figure 7).

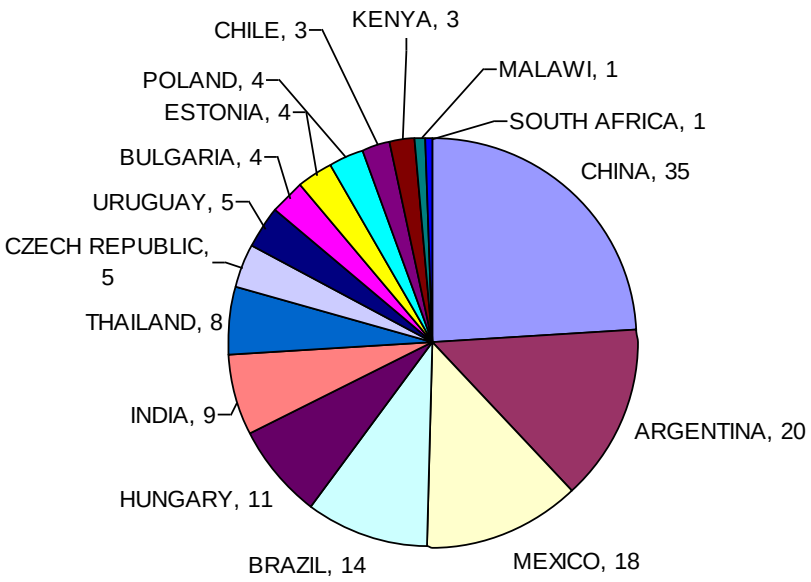


Figure 7. GRIP publications by PI country of origin (N=145).

Table 14. Average publications per GRIP award and percent of GRIP PIs with at least one GRIP publication, by award start year.

	Completed Awards			Awards In Progress				Subtotal, completed awards	Total
	2002	2003	2004	2005	2006	2007	2008		
A. Number of new GRIP awards made	16	11	8	13	12	11	6	35	77
B. Number of PIs with at least one GRIP publication	13	6	7	8	7	1	1	26	43
C. Percentage of PIs with GRIP publications (B/A)	81%	55%	88%	62%	58%	9%	17%	74%	56%
D. Number of publications attributed to GRIP awards in cohort	51	23	26	29	13	1	2	100	145
E. Average number of publications per GRIP award (D/A)	3.19	2.09	3.25	2.23	1.08	0.09	0.33	2.86	1.88
F. Total funding through FY2008	$3,929,301	$2,485,444	$1,752,606	$2,561,165	$1,590,157	$1,072,440	$404,676	$8,167,351	$13,795,789
G. Average cost per publication (F/D)	$77,045	$108,063	$67,408	$88,316	$122,320	$1,072,440	$202,338	$81,674	$95,143

A GRIP awardee was listed as the first or only author on 54 GRIP publications (37%), last author on 45 GRIP publications (31%), and in another position on 42 publications (29%). Of the remaining four publications, two are still embargoed so that the author list is not available and the remaining two do not list a GRIP PI as an author.[11]

GRIP publications appeared in 105 different journals in a wide variety of fields. For the 136 GRIP publications in journals for which a 2006 Impact Factor was available from Thompson-Reuters, the average impact factor was 4.41.[12] Examples of journals that were closest to the mean in terms of impact factor include *Molecular Cancer Research* (IF 4.317), *Journal of AIDS* (IF 4.41), *Drugs* (IF 4.472), and *Journal of Molecular Biology* (IF 4.472). The highest impact journals in which GRIP publications appeared included: *Nature Cell Biology* (IF 17.623), *The Journal of Experimental Medicine* (IF 15.612), *Genes and Development* (IF 15.05), *PLoS Biology* (IF 14.101), and *Blood* (IF 10.37). Importance of publications (as determined by impact factor) did not appear to vary substantially by award cohort (Figure 8). Please see Appendix D for a complete list of journals in which GRIP manuscripts were published listed by 2006 Impact Factor.

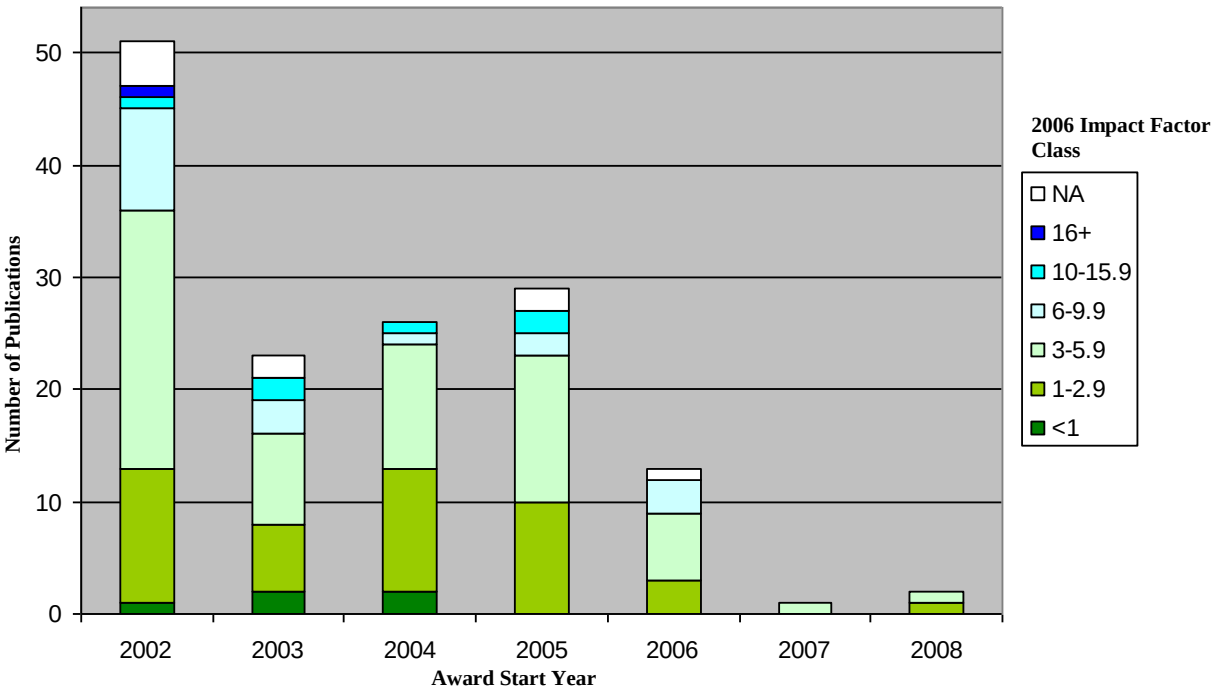


Figure 8: Number of GRIP Publications by Year and 2006 Journal Impact Factor Class. Note: awards made after 2004 are still in progress.

[11] Although the GRIP PI is not listed as an author, these two publications do appear to be related to the GRIP award because the award number is cited and the topics and research locations are similar to the corresponding GRIP.

[12] Impact factors are calculated as the number of citations to a particular journal in the year of interest divided by the number of 'citable' items (generally individual papers) published in that journal in the two previous years. Impact factors range from 0 to more than 50. A publication with an impact factor of 1 receives approximately one citation for each item published in the previous two years.

In addition, for the 38 GRIP PIs whose awards were complete as of May 2009, STPI attempted to assemble a complete list of all publications to compare against the GRIP publications list. The primary source for publications data was the GRIPOnline website, which includes profiles and publications lists for most of the GRIP PIs.[13] For PIs with names unique enough to make their publications easily distinguishable, MEDLINE searches were also conducted. A total of 652 publications were identified using these methods, and at least two MEDLINE-indexed publications were identified for 35 of the 38 GRIP PIs from the earliest cohorts.[14] It is interesting to note that a large number of publications have already been generated by the cohorts of awards that began in 2005 and 2006; presumably these numbers will continue to grow as the awards near completion.

Because the publications lists used in this analysis were not verified by the awardees themselves, results should be treated as suggestive rather than definitive. However, two interesting insights emerged that might be explored further during an outcome evaluation. The first is that, although the majority of publications (64%) for this group of investigators occurred after the GRIP award, there was considerable variation among awardees in number of peer-reviewed publications prior to the GRIP start year (Table 15). In fact, two PIs (J Terron and D-Y Jin) had more than 20 publications prior to their GRIP awards, and six other PIs had ten or more publications prior to the GRIP award (Table 15). As a possible explanation, the Program Officer suggested that this may be due to the fact that the eligibility requirements do not exclude foreign investigators who have sought NIH training when changing careers or switching fields.

The second is that only 25% of papers published by these PIs on or after the GRIP start year were linked to GRIP through SPIRES or other sources (Table 15). Although it is likely that the list of publications identified as GRIP-associated by this evaluation is incomplete, the percentage is much lower than expected. Existing data were not sufficient to determine whether this result is due to time lags associated with either the GRIP or previous research, inaccurate attribution, active collaboration by the GRIP PIs, or some other reason. Anecdotally, however, it appears to be the case that some of the PIs are actively engaged in research projects that are unrelated to the GRIP award, and it is possible that having a GRIP award helps these investigators to obtain additional funding simultaneously.

[13] http://griponline.org/grip-investigators/all-awardees; accessed June 2009.

[14] Two of the remaining PIs (E. Nakku-Joloba and G. Rutaremwa) did not list publications on the Vanderbilt website, and MEDLINE searches were possible but did not identify any publications, so it is reasonable to assume that neither has published in a MEDLINE-indexed journal. The third PI (Sui Guoping) also did not have a website entry, but a MEDLINE search could not be conducted with confidence.

Table 15. Publications by GRIP PIs whose funding period is complete.

	All Publications	Number during or after GRIP	Percent during or after GRIP	Number linked to GRIP	Percent linked to GRIP
Agot K	17	17	100%		0%
Aleman A	3	3	100%	1	33%
Andrade MV	9	7	78%	4	57%
Anzulovich A	10	6	60%	1	17%
Araujo MI	34	22	65%	4	18%
Bebenek A	12	6	50%	2	33%
Burbano X	15	6	40%		0%
Caba N	21	7	33%	7	100%
Chan S	28	17	61%		0%
Diaz-Cueto L	15	6	40%		0%
Dmitrov P	12	11	92%	4	36%
Du S	22	14	64%	4	29%
Fataki M	13	7	54%		0%
Ferrand P	5	5	100%	1	20%
Fridman EA	11	9	82%		0%
Ghosh S	35	27	77%	3	11%
He N	16	13	81%	2	15%
Jin D-Y	68	46	68%	15	33%
Kannabiran C	26	20	77%	1	5%
Kiarie J	25	20	80%		0%
Kordon E	27	9	33%	5	56%
Krekulova L	7	4	57%	2	50%
Marteleto L	2	2	100%		0%
Puthanakit T	30	29	97%	7	24%
Ramakrishna G	26	10	38%	1	10%
Ran M	13	5	38%	5	100%
Ribeiro-Filho LA	19	10	53%	3	30%
Rosenzweig SD	29	22	76%	13	59%
Sapiro R	6	5	83%	3	60%
Sen R	23	13	57%	2	15%
Terron J	28	5	18%	2	40%
Thienprasert A	5	2	40%	1	50%
Uuskula A	25	19	76%	4	21%
Vazquez-Prado J	12	9	75%	7	78%
Wong-Chew R	3	3	100%	1	33%
Total	652	416	64%	105	25%

7. Career-Building Outcomes and Impacts

A. Retention in LMIC Research Careers

All respondents to the awardee survey reported either that their GRIP award was still ongoing (27 of 43 or 63%) or that they had continued their research careers in their home countries after GRIP (16 of 43 or 37%). All 42 awardee respondents who answered the question also reported that they still conduct research in either their home country or another LMIC. Similarly, 21 of 23 respondents to the applicant survey (91%) reported that they were continuing research careers in their home country. Of the two who reported they were not, one is continuing with research in another LMIC while the other is no longer directly involved in research.

> "Without the GRIP program I may not have my current successful status of my academic career. It is not only the financial issue, but importantly, it is the whole process of the GRIP program starting from application processes. All of my experiences for being a GRIP grantee have been supported me to maintain the research career in our resource limited setting." --GRIP PI

When asked about their plans to continue LMIC research in the future, awardees and applicants also gave similar responses. Forty-one of 42 awardees (97%) and 21 of 23 applicants (91%) said they could see themselves conducting research in their home countries over the next five to ten years. Over the next ten to twenty years, these percentages dropped to 90% of awardees and 87% of applicants.

The awardee survey included several questions intended to gage the importance of GRIP in helping awardees to remain in LMIC research careers. When asked about the importance of GRIP in their decision to stay in a particular line of research, 81% described it as "very important" (Figure 9). An even higher 93% described GRIP as "very important" in encouraging them to lead further research related to the GRIP project topic (Figure 9). Sixty-three percent described GRIP as "very important" in deciding to continue research in their home countries (Figure 9).

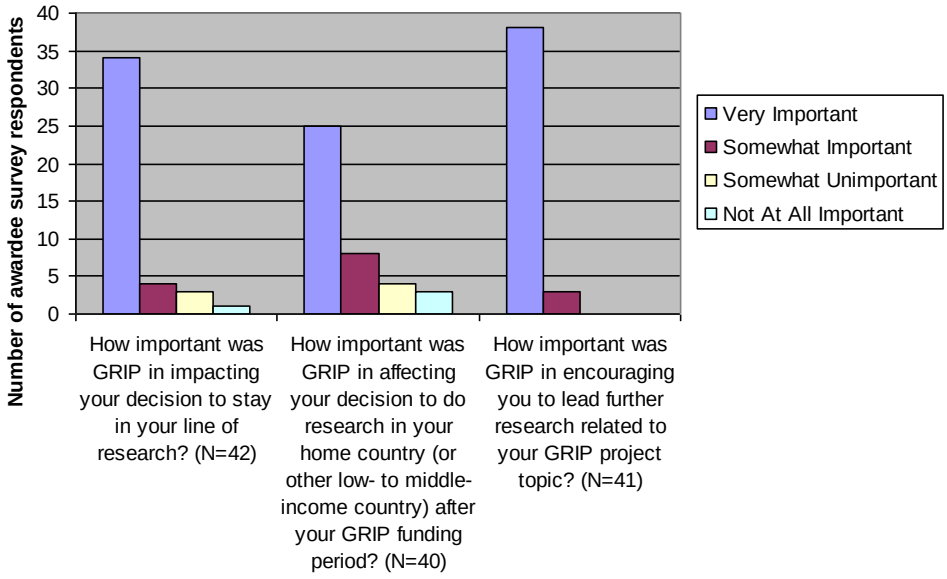


Figure 9. Awardee survey responses to questions about GRIP role in awardees' decision to remain in LMIC research careers.

Interviews with mentors suggested that one aspect of GRIP funding that helps awardees to establish research careers is that it helps them to protect time for research that would otherwise be dedicated to teaching, clinical work, or administrative responsibilities. One mentor expressed dismay at the fact that it is sometimes an economic necessity for trainees who are also clinicians to go into private practice, leaving little time for research; this had apparently happened to one of the GRIP PIs he mentored after the GRIP funding period. A similar percentage of awardees and applicants reported spending 50% or more of their time on research: 27 of 43 awardee respondents (63%) and 12 of 22 applicants (55%).

B. Prestige and Respect

GRIP survey respondents were asked to self-report on career stage prior to the GRIP award or application, after the GRIP award (if relevant), and at the time of the survey. About 28% of awardees reported being mid-career prior to the GRIP award, and 66% reported being mid-career afterwards (Figure 11).

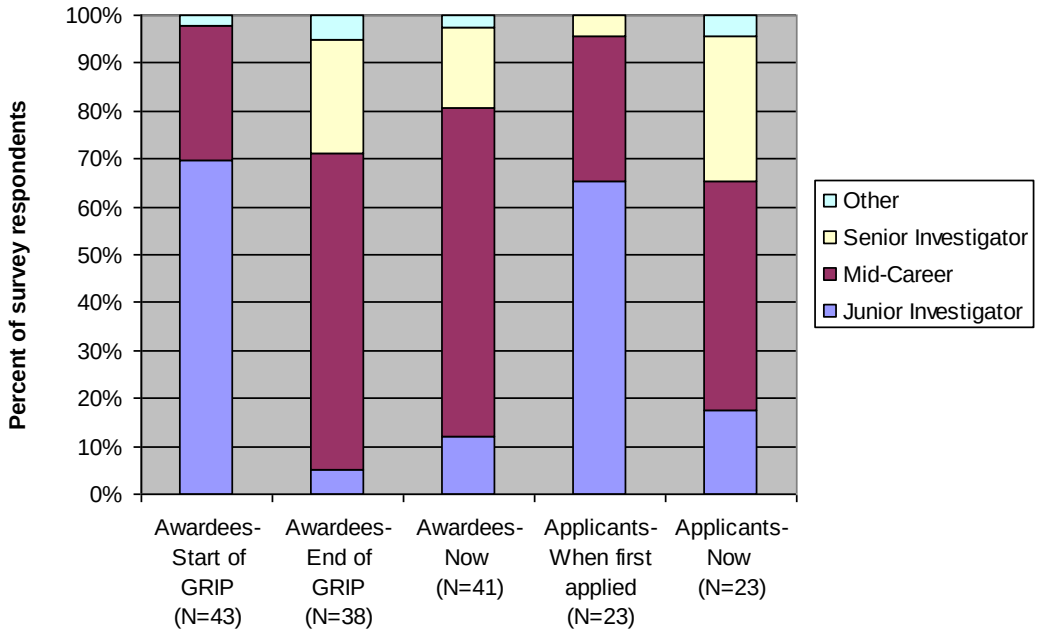


Figure 10. Self-reporting of career-stage by survey respondents.

Similarly, 0% of awardees described themselves as senior investigators prior to GRIP, and 24% did afterwards. Large increases at each level were also observed in applicant survey responses to the same question (Figure 10).

"The GRIP was very important in helping [GRIP PI] to earn the "scientist" label at her institution, a government lab. Prestige came with external funding—now she commands respect. It made a big difference." -- GRIP mentor

The awardee survey asked about awardees' perceptions of the influence of GRIP on a variety of outcomes related to prestige. When asked about the impact of GRIP on enhancing their standing in the relevant field of research, the majority (86%) of awardee survey respondents described the program as "very important," and all of the rest described it as "somewhat important" (Figure 11). Responses to a question about impact on awardees' ability to publish suggested a similarly strong influence of GRIP (76% "very important," 17% "somewhat important," Figure 11). Respondents were a little less likely to describe GRIP as "very important" in influencing invitations to speak and job offers, although in both cases more than 75% of respondents described GRIP as either "very important" or "somewhat important" (Figure 11).

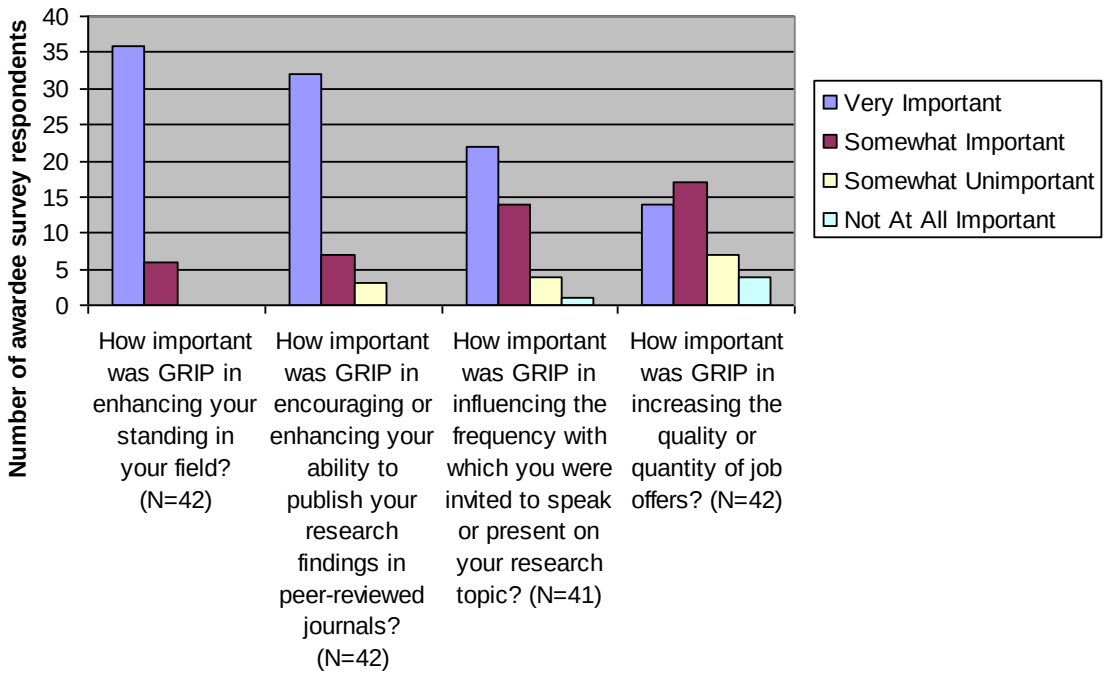


Figure 11. Awardee survey responses to questions about GRIP impact on quantity and quality of job offers.

"After the NIH grant I became the vice director of our lab. I am sure mentioning the NIH grant on my CV helped me getting other grants from Brazilian funding agencies." -GRIP PI

C. Obtaining Additional Funding

Of the 77 GRIP PIs, 17 had submitted a total of 29 applications for additional funding from DHHS agencies (including NIH) by May 2009. Three of these applications (10%) have succeeded so far, and eight (28%) are still pending. Of the three successful applications, two are cooperative agreements with the National Center for HIV, Viral Hepatitis, STDs and Tuberculosis Prevention (NCHHSTP) at the Centers for Disease Control and Prevention (CDC) (Table 16) and the third is an R01 award made by NICHD (Table 16). Both GRIP PIs who have competed successfully are from Kenya.

Table 16. Additional DHHS awards made to GRIP PIs.

PI Name	Year of GRIP Award	Title	YR 1 FY	Total dollars awarded to date
Agot, Kawango	2002	HIV Prevention and Care Services for Young People in Kenya	2004	$11,560,969
Kiarie, James Njogu	2003	Training HIV Program Managers for Kenya	2008	$2,200,000
Kiarie, James Njogu	2003	Reproductive health decisions and HIV infection risk	2008	$806,615

It was not possible to obtain comparable information for non-DHHS sources of funding obtained by GRIP PIs. However, 31 of 43 awardee survey respondents (72%) said they had non-NIH funds to support their current research, as did a similar percentage of applicants (18 of 23 or 78%). Sources for these funds reported by awardees include:

- US Government sources: CDC, PEPFAR
- International and NGOs: TWAS, the academy of sciences for the developing world; Miguel Aleman Foundation; American Foundation for Suicide Prevention (AFSP); Bill and Melinda Gates Foundation
- LMIC sources:
  - Uruguay: School of Medicine-Uruguay
  - Brazil: CNPq; FAPESB, FAPESP
  - Mexico: Mexican Council for Science and Technology; CONACyT; UC-Mexus
  - China: Nankai University; Chinese National Natural Science Foundation; Chinese Department of Education; Chinese Department of Science and Technology; Hong Kong Research Grants Council; Research Fund for the Control of Infectious Diseases, Hong Kong local government
  - Argentina: CONICET, Agencia Nacional de Promoción Científica y Tecnológica;
  - India: Department of Biotechnology, Department of Science and Technology, India
  - Chile: CONICYT

"This award helped me to come back to Malawi and launch a career. I have seen many PhDs who after training have no where no funds to start a career. That can be so demoralizing." -GRIP PI

Only three of 37 awardee survey respondents (8%) reported that they had experienced a gap in funding after GRIP, while 18 (49%) reported that they had not and 16 (34%) reported that their awards were still in progress and they didn't know yet whether they would experience a gap. Just over half (53%) of awardee survey respondents described it as "somewhat difficult" to obtain funding after GRIP, with most of the rest (35%) describing it as "somewhat easy" (Figure 12a). Awardee survey respondents also appeared to perceive their experience in obtaining additional funds as dissimilar to that of their peers; 35% described their experience as "somewhat dissimilar" to their peers while 39% described it as "not at all similar" (Figure 12b).

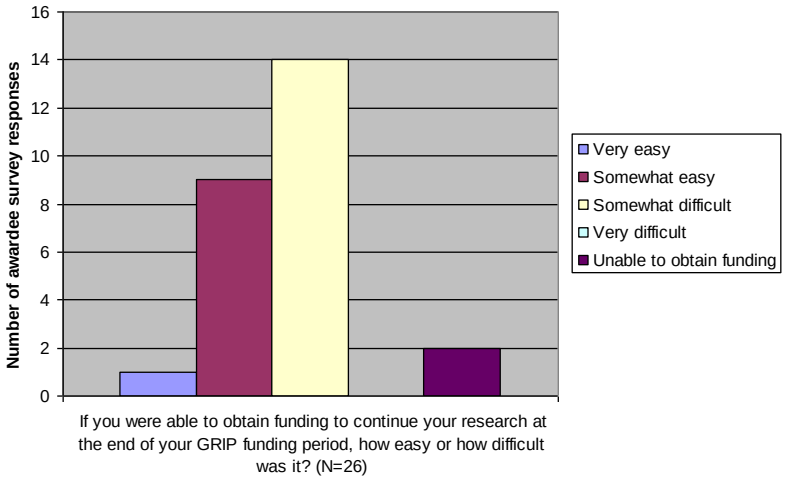


Figure 12a. Awardee survey responses regarding ease of obtaining additional funding after GRIP.

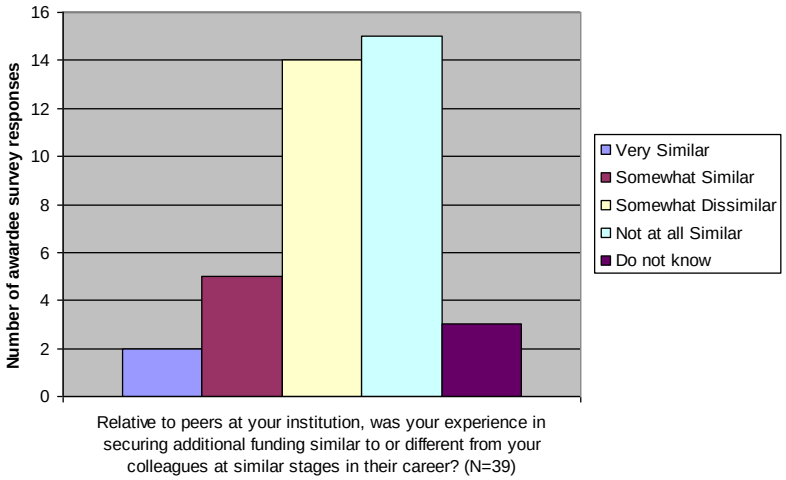


Figure 12b. Awardee survey responses regarding whether experience obtaining funding was similar to peers.

Finally, most awardee survey respondents perceived GRIP as important in enhancing their ability to secure funds to support their research; 55% described it as "very important," 29% described it as "somewhat important," and 16% described it as "somewhat unimportant" (Figure 13).

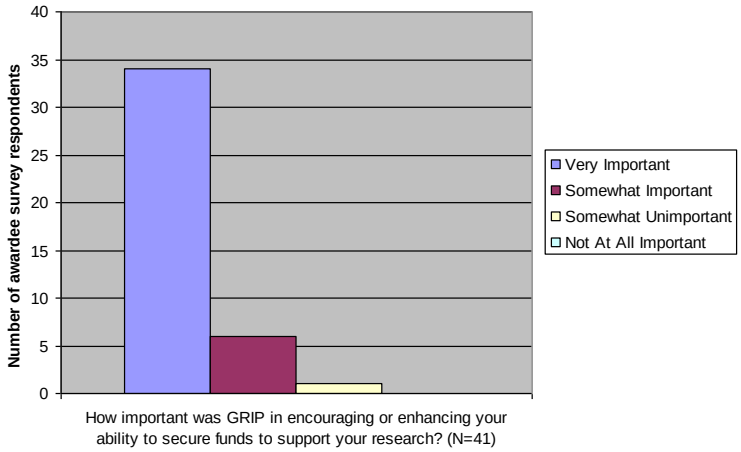


Figure 13: Awardee survey responses regarding importance of GRIP in enhancing ability to secure research funds.

D. Relationship with Mentors

"[GRIP PI] has been promoted and has written papers… she is pursuing independent research now. She sends me manuscripts, for which I mostly serve as an English editor – but I also comment on the science. She has evolved into a colleague from a student." –GRIP mentor

According to the Program Officer, applicants were encouraged to identify a mentor primarily to shed light on the character of the applicant's training experience. Forty-one of 43 awardee survey respondents (95%) reported that they had a mentor. The mentor was not expected to have any particular responsibility on the GRIP project, nor was the applicant required to continue working with the mentor. As might be expected, therefore, survey results indicated that mentors played a wide variety of roles for both awardees and applicants, with no obviously meaningful differences between awardees and applicants (Table 17). Given this variability, outcomes related to mentoring should probably be considered low priority for an outcome evaluation.

Table 17. Awardee and applicant survey responses regarding role of mentor.

	Percent of awardee survey respondents	**Percent of applicant survey respondents**
Co-authored a peer-reviewed paper	76%	86%
Provided feedback on peer-reviewed papers other than those co-authored	63%	68%
Provided feedback on GRIP proposal	64%	82%
Provided instrumentation, reagents, or other materials	65%	55%
Helped to collect or interpret data	63%	64%
Co-authored a non-GRIP grant application	37%	55%
Gave feedback on a grant application other than those co-authored	42%	35%
Acted as co-PI on a project	36%	32%
Helped with administration of the GRIP award	44%	NA

E. Networking

Finally, for most awardees, GRIP was also an opportunity for networking. Twenty-seven of 43 awardee survey respondents (63%) reported that they keep in contact with other GRIP awardees. When asked about the importance of GRIP in enhancing interactions with other researchers in their fields, 76% of awardee survey respondents described it as "very important" and an additional 19% described it as "somewhat important" (Figure 15). At least two awardees mentioned that they had given or sought advice on grant administration, including financial status reports and annual progress reporting.

> "In 2005 there was a meeting, where all the GRIP grantees presented their works. I found that very interesting and I met other young people working in things that could promote collaboration."
> – GRIP PI

Awardee survey respondents were enthusiastic about the 2004 GRIP meeting as a means for facilitating interaction and collaboration, and many suggested that such meetings should be held more frequently. Several awardees commented that it would make more sense to hold regional meetings so that awardees from the same country or region could get to know each other. Others commented that future meetings would be more productive if awardees were grouped by field of research.

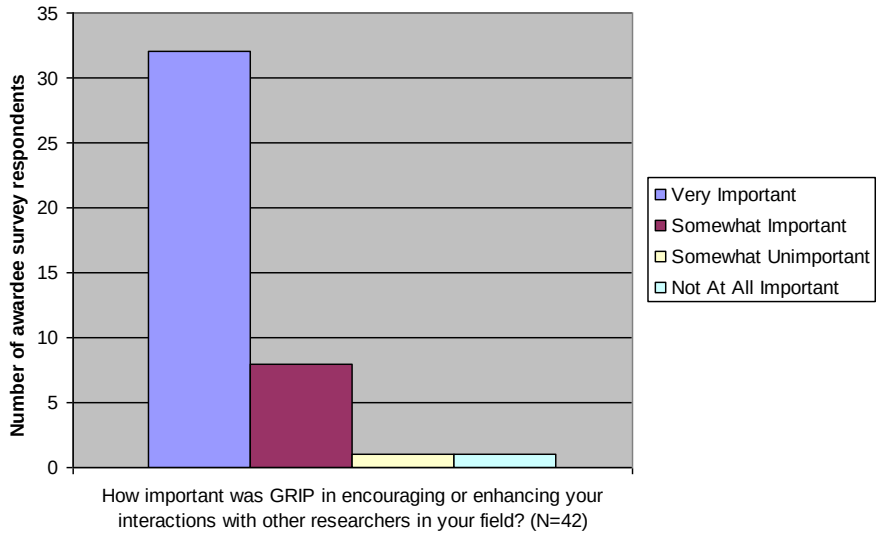


Figure 15. Awardee survey responses regarding importance of GRIP in facilitating interactions with other researchers.

Apart from additional meetings, other suggestions from awardees regarding how to facilitate networking included development of an email-based GRIP newsletter and web-based networking and discussion fora. One awardee survey respondent also suggested creating a program through which GRIP alumni could apply for funds to collaborate with each other.

8. Institutional Capacity-Building Outcomes and Impacts

A. Training and Mentoring of Others by GRIP Awardees

Almost all respondents to the awardee survey (41 of 43 or 95%) reported that they supervised or mentored junior investigators during their GRIP projects. Similarly, 22 of 23 applicants (96%) reported supervising or mentoring students or junior researchers. Table 12 summarizes information gathered from the surveys regarding number of students and postdoctoral fellows mentored by GRIP awardees and applicants. Since only a subset of GRIP PIs responded to survey questions about the number of students and postdocs mentored and the applicant survey pool was small to start out with, it is difficult to draw conclusions. In general, however, it appears to be the case that it was common for both awardees and applicants to mentor students and postdocs but that there was considerable individual variation in the number and type of junior researchers mentored (Table 18).

"Although I am just getting started, getting the grant was a big motivation on my career. It also 'opened' opportunities for other trainees in our program." -GRIP PI

Table 18. Reported number of students and postdoctoral fellows mentored by survey respondents.

	PhD Candidates		Fellows/postdocs		Masters	
	Awardees	**Applicants**	**Awardees**	**Applicants**	**Awardees**	**Applicants**
Zero	9	4	5	4	6	3
1 to 2	11	10	14	4	11	2
3 to 4	8	2	7	1	8	3
5 to 10	5	4	3	4	11	4
11+	2	0	1	2	0	2
Total Responses	35	20	30	15	36	14

When asked about the role of GRIP in facilitating mentoring, 23 of 42 awardee survey respondents (55%) described it as "very important," 12 (29%) described it as "somewhat important," and seven (17%) described it as "somewhat unimportant" (Figure 16).

"Thanks to this program I established productively in my country and could mentor a high number of graduate students. Without the GRIP, I think I would have obtained the position but I couldn't have accepted the number of students that I already mentored, and considering that most of the research is done by grad students, obviously I couldn't have done what I actually did." -GRIP PI

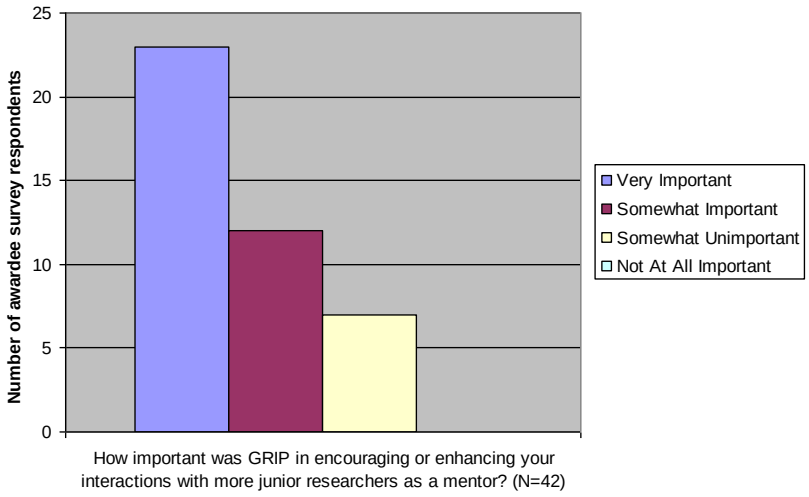


Figure 16. Awardee survey responses regarding GRIP role in encouraging awardees to mentor junior researchers.

B. Establishing New Labs

Twenty of 43 awardee survey respondents (47%) reported that they used their GRIP awards to help establish a new lab group at their home institution, and 19 said the new lab was made possible by GRIP. Of those who established a new lab, five reported that it took 3-4 years, six said 1-2 years, and four said less than one year. Comparable information was not available for applicants.

"My NIH award was the most important thing that happened to my investigator career. I was the first researcher at my University (and in Sao Paulo State) to become a R01 PI. In fact, I got my position at the University of Sao Paulo because of the NIH grant. My chairman at the time said that I would be hired if I was awarded. Soon, I became known as 'the NIH guy'. A lot of people came to me looking for info and ideas. Some of these investigators got NIH funds for themselves. The NIH grant sky-rocketed my career."
--GRIP PI

Awardee survey respondents who established a new lab reported that GRIP facilitated the process by enabling the purchase of supplies and equipment (mentioned by 10 awardees), contributing to salaries for support staff (mentioned by six awardees), and simply by boosting the credibility and prestige of the awardee (mentioned by two awardees).

C. Other Institutional Impacts

Although the surveys did not address this issue directly, interviews with mentors and comments from survey respondents suggested that there may have been an institutional impact in terms of familiarizing the home institutions of GRIP awardees with NIH application and administrative procedures. One mentor described the learning curve as steep but important if the institution is to obtain international funding in the future. The GRIP Program Officer observed that, based on feedback he has received about new eRA registrations, many of the GRIP awardees are the first people from their institutions ever to apply for an NIH grant. Since the arduous registration process only has to be completed once, investigators from these institutions would likely

have a much easier time submitting future applications. Although the surveys did not address this point directly, it is also likely that the presence of GRIP awardees at these institutions could both help and inspire other investigators to apply for NIH awards. For this reason, it might be useful to look at the application history and success rates for GRIP institutions as part of an Outcome Evaluation.

GRIP Awardee: Dr. James Njogu Kiarie

Dr. James Njogu Kiarie graduated with a Bachelor of Medicine, Bachelor of Surgery (MBChB) from the University of Nairobi in 1989. He completed specialty training in obstetrics and gynecology in 1996 at the University of Washington. With support from AITRP, he returned to the University of Washington to complete a Master of Public Health degree in 2001.

Dr. Kiarie's GRIP project, begun in 2003, is entitled "Interventions to reduce HIV-1 incidence after delivery."

Since receiving GRIP funding, Dr. Kiarie has received two new awards from DHHS: a cooperative agreement with the National Center for HIV, Viral Hepatitis, STDs and Tuberculosis Prevention (NCHHSTP) at the Centers for Disease Control and Prevention (CDC) entitled "Training HIV Program Managers for Kenya" and an R01 award from the Eunice Kennedy Shriver National Institute of Child Health and Human Development entitled "Reproductive health decisions and HIV infection risk."

9. Findings and Recommendations

A. Findings: Process and Implementation

The following observations can be made at this point about aspects of program implementation:

- Funding for GRIP awards from ICs other than FIC has been declining for several years. The number of new awards dropped to eight in FY2008, and, if the current trends continue, the program is likely to contract in future years. However, given the funding situation across NIH, it's not clear there's anything that can be done to reverse this trend. The Program Officer's approach of actively shopping individual applications to ICs most likely to be interested is probably the most logical way to move forward. Where appropriate, assistance from the FIC Office of the Director might be helpful.
- The fact that application rates have been falling since electronic applications became mandatory is also troubling. The Program Officer's strategy of encouraging current trainees to contact any and all potential employers and encourage them to begin the registration process early is a good first step, but it may not be possible for the trainees who have not yet accepted an offer to make demands on the institution's administrative resources. Extension of eligibility by one year will likely help to ensure that the most determined GRIP applicants are able to apply eventually, but the danger is that less determined but equally qualified applicants may become discouraged. Since the requirement for electronic applications is NIH-wide, the problem is a difficult one. FIC might consider attempting to identify specific hurdles encountered most often by foreign institutions attempting to register with eRA. A web-based forum for administrators to share information with each other might also be useful.
- The gradual expansion of eligibility to trainees of various partner programs appears to have been practical and appropriate. The one anomaly is the inclusion of HSFP trainees who have never been funded by NIH; this would seem to run counter to the goal of protecting the NIH investment. Since no HSFP trainee has ever competed successfully for a GRIP award, however, it may not be worth addressing—particularly if to do so would potentially strain FIC's relationship with HSFP.
- FIC might consider restricting GRIP to early career-stage researchers only rather than allowing more mature applicants who have recently received training at NIH to participate. The two groups are likely to have different needs with respect to career development, and the program might be better able to meet those needs by focusing exclusively on one group.
- The fact that certain applications reviewed under the behavioral/social science FOA do not appear to have a significant behavioral/social science component is anomalous. The program appears to have been split into two components primarily to facilitate review. While there is no evidence that questionable self-identification has negatively impacted review processes, it seems unlikely that the benefits of splitting the program will be fully realized unless applications are categorized appropriately.

- Eleven of 41 respondents to the awardee survey (27%) reported that they had experienced difficulties with transfer of funds, and seven reported that those difficulties led to delays in start-up of the GRIP project (two said the delay lasted fewer than six months, three said it lasted three to six months, and two said six months to one year). Types of difficulties described by survey respondents included loss of paper checks, incompatibility of banking systems for electronic transfer of funds, and processing or administrative issues at the foreign institution. The Program Officer reported that these problems are well-understood but that they are mostly beyond FIC's control.
- More could likely be done to help GRIP awardees and alumni with networking and career development. While it is unlikely that sufficient funds will be available to support additional in-person meetings such as the one held in 2004, the website can and should be developed more fully to better facilitate networking and career development.

B. Findings: Outcomes and Impacts

The evidence collected by this evaluation suggested that awardees have returned to low and middle income countries and are conducting research projects in those countries as intended. Evidence also suggests that awardees are engaging in certain activities that are consistent with establishing themselves as independent researchers. For example, awardees have published GRIP-related findings and other work in MEDLINE-indexed journals, established new lab groups, and served as mentors for others. Many also reported that they have succeeded in obtaining additional research funding from various sources. Awardees commonly described GRIP as important in helping them to achieve these successes.

It is still much too early, however, to determine whether the GRIP awardees will achieve independence as researchers. The most mature group of awards, made in 2002, have only been complete for two or three years at this point. It is also important to note that many applicants who did not receive GRIP awardees gave similar responses to survey questions about their current activities and employment status. Given the low response rate to the applicant survey, this finding should be taken with a grain of salt; it's possible and even likely that the applicants who have achieved the most success would also have been the most likely to respond to the survey. Longer-term follow-up and more rigorous evaluation design would be needed to assess the outcomes and impacts of GRIP.

C. Recommendations for Future Evaluation Efforts

There are a variety of lessons to be drawn from the current evaluation effort that may be useful if FIC decides to conduct a full Outcome Evaluation in a few years. First, this evaluation helped to identify a list of outcomes and impacts likely to be important for a GRIP outcome evaluation. Major categories and associated indicators are summarized in Table 19.

Table 19. Outcomes of interest for future GRIP evaluations.

Outcome/Impact Category	Suggested Indicators
Generation of new knowledge	• Quantity and quality of GRIP publications • Other research outputs (e.g. protocols, inventions, etc.) • Key findings • Dissemination of findings
Career trajectory of awardees	• Retention of awardees in research careers • Retention of awardees in LMICs • Career stage, seniority, and progression of titles/responsibilities • Time required for career advancement • Job satisfaction • Personal publication record • Possibility of alternate positive outcomes? (e.g. policy careers)
"Independence" of awardees as researchers	• New funding obtained from NIH/DHHS/other US gov't sources and other international sources • New funding obtained from local sources • Duration and sustainability of funding • Restrictions/gaps/adequacy of funding to meet research needs
Individual-level capacity-building	• Invitations to speak or present at local/regional/international meetings • Honors, awards, and leadership positions offered to awardees • Perceptions of awardees by peers in the research community • Expansion of social networks
Institutional capacity-building	• Training and mentoring of junior investigators by GRIP awardees • New labs and lab groups established by awardees • Advice, confidence-building and inspirational effects on peers • Enhancements to grant administration capacity • Additional NIH grant applications submitted by awarded institutions
Regional capacity-building	• Contributions by GRIP awardees to other NIH-supported activities (e.g. D43 programs, clinical trials) • Participation by GRIP awardees in regional collaborations and networks • Leadership positions assumed by GRIP awardees

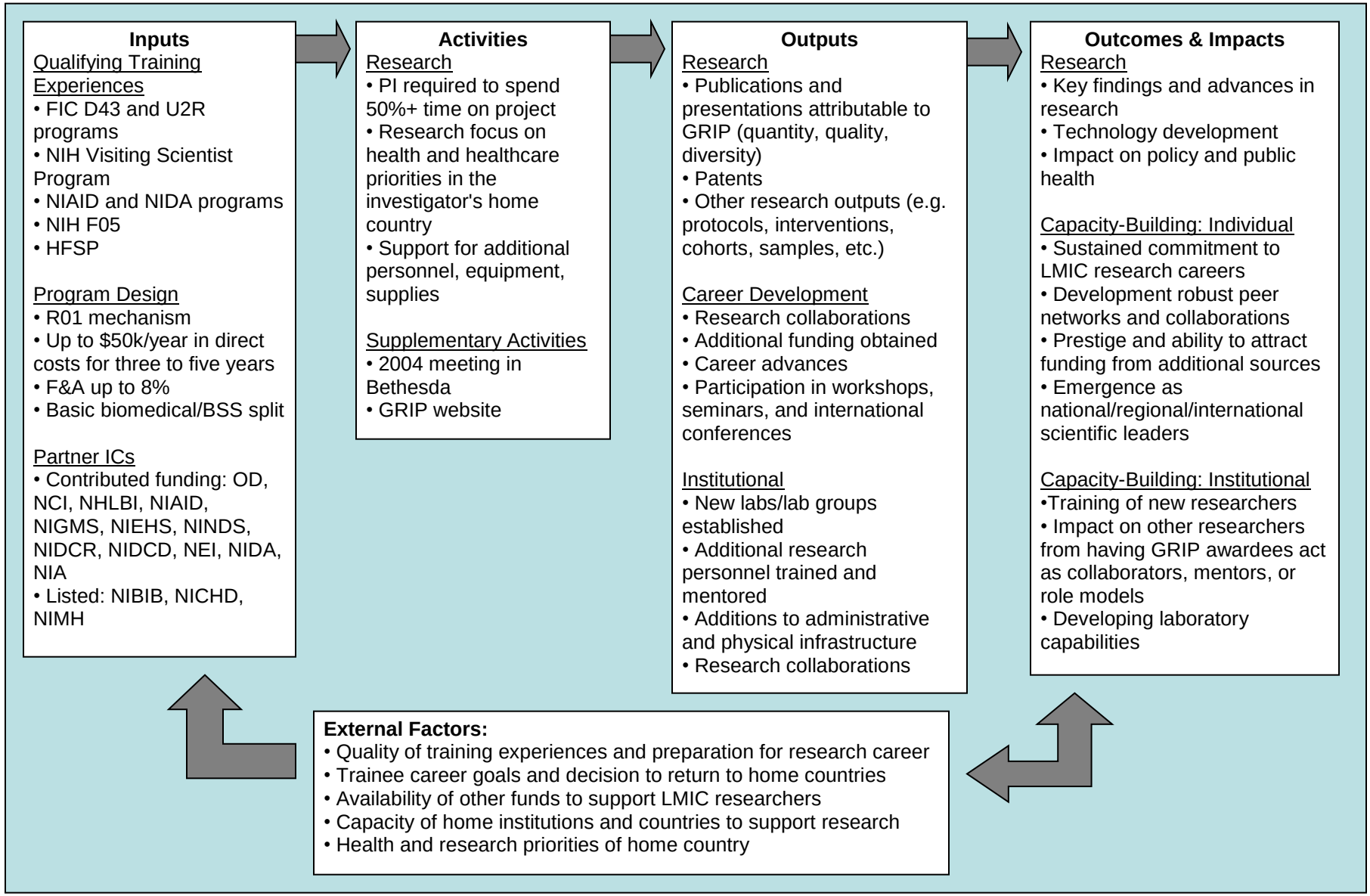
Second, although the current evaluation effort was not explicitly designed as a feasibility study, the similarity of awardee and applicant survey responses on many questions pertaining to career development suggest that a comparative approach should be given serious consideration. When feasible, a quasi-experimental evaluation outcome evaluation design is generally preferable to other types of designs because it provides stronger evidence regarding program outcomes and impacts.

In terms of choosing an appropriate comparison group, a variety of options are available. All five external programs described in Section 4 share some common traits with GRIP, and it seems likely that comparison groups could be constructed from any or all of them if it is decided that external comparators would be useful. It might also be possible to identify a comparison group of long-term NIH trainees who are similarly qualified but who have not applied for GRIP awards. However, the unsuccessful but scored applicants surveyed as part of this evaluation would still seem to be the most obvious choice for a comparison group, as they share with awardees the important traits of having received

recent training from NIH as well as having sought GRIP funding. In fact, the apparent similarity of this group to the awardees suggested by the current survey results is intriguing and should also be explored in more detail. However, given the poor response rate to the current survey, it is recommended that this group approached carefully and thoughtfully during an outcome evaluation. Techniques such as personalized correspondence, invitations issued directly from NIH rather than the contractor, and incentives (monetary or otherwise) might be considered to boost participation.

Finally, due in part to resource limitations, this evaluation effort relied heavily on census survey data collection. The survey instrument was lengthy, including a broad range of questions on a wide variety of topics designed to be exploratory in nature. If census surveys are incorporated into an Outcome Evaluation design, it is recommended that the instrument include fewer questions. Findings from this evaluation should be used to sharpen the focus of the questions on specific outcomes of interest, and survey questions should be worded carefully to ensure that the results are meaningful and can easily be analyzed. It is also recommended that a survey be followed up with interviews to clarify meaning and provide additional insight into the experience and reasoning of the respondents.

Appendix A: Logic Model



Appendix B: GRIP Survey Text

Supporting Statement for the
Paperwork Reduction Act Submission

Survey Instruments (Attachment 1)

National Institutes of Health
A Process Evaluation of the Global Health Research Initiative Program for New Foreign Investigators (GRIP)

Survey Questionnaires

I. Survey Instrument—General Survey for Applicants (not Awardees)

Welcome to the GRIP Candidate Survey. Please provide responses to the following questions to the best of your ability. You may choose not to answer specific questions and it will not affect your ability to submit the survey. After choosing a response, please click "next" to view the next set of questions. If you would like to go back and change a response, you can use the "back" button on the survey or the pull down menu at the bottom of the page. Please do not use your browser's navigation buttons. If you would like to save and come back to the survey, click the "save" button at the bottom of any page. The survey should take 20-30 minutes to complete.

Please consult the GRIP website to review the Request for Applications (RFA), criteria, or processes:

<GRIP Website>

Public reporting burden for this collection of information is estimated to average 30 minutes per response (.50 hours), including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: NIH, Project Clearance Branch, 6705 Rockledge Drive, MSC 7974, Bethesda, MD 20892-7974, ATTN: PRA (0925-0534). Do not return the completed form to this address.

Please note that participation in this survey is entirely voluntary. Your decision to participate will have no effect on your current or future NIH funding status, and other risks for participation or non-participation are minimal.

Additionally, you may click on underlined words in the survey, which are hyperlinked to the appropriate document.

To begin the survey, scroll down and click "next."

A. Participant's Background

1. Please identify:

a. Your gender

[Choose one]
( ) Male
( ) Female

b. Your field of study

[Choose from drop-down list of fields.]
( ) Other. Please specify: *[Enter answer in paragraph form.]*

c. Your highest degree

[Choose all that apply]
( ) MD
( ) PhD
( ) MS
( ) MPH
( ) Other [Please specify]_____

d. What was the year you received your highest degree?

[Enter year]

e. What institution or university did you receive your highest degree from?

[Enter answer in paragraph form.]

2. a. How would you classify yourself in your field when you first applied for GRIP funding?

[Choose one]
( ) Junior Investigator
( ) Mid-Career
( ) Senior Investigator
( ) Other. If Other, please specify:_____

b. What was your job title at your institution when you applied for GRIP funding?

[Enter answer in paragraph form.]

3. a. How would you classify yourself in your field <u>at this time</u>?

( ) Junior Investigator
( ) Mid-Career
( ) Senior Investigator
( ) Other. If Other, please specify:_____

b. What is your current job title?

[Enter answer in paragraph form.]

B. Mentor

4. Did you have a mentor?

[Choose one.]

( ) Y *[If yes, answer 6 & 7.]*

( ) N *[If NO, skip to 11.]*

If YES:

5. Is your mentors based in the US, or in your home country?

[Enter answer in paragraph form.]

6. Do you interact with or receive any of the following from your mentor in any of the following ways:

a. Have you co-authored any peer-reviewed journal articles with your mentor?

[Choose one.]

( ) Y

( ) N

If yes, how important a role did your mentor play in the writing of your co-authored publications?

	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

b. Did your GRIP mentor provide feedback on research papers or presentations BESIDES those that you co-authored with your mentor?

[Choose one.]

( ) Y

( ) N

If yes, how important a role did your mentor play in the writing of your publications?

	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

c. Did you co-author any grant applications with your GRIP mentor?

[Choose one.]

( ) Y

( ) N

If yes, how important a role did your mentor play in the writing of your grant applications?

	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

d. Did your GRIP mentor provide feedback on grant applications **BESIDES those that you may have written together**?

[Choose one.]

( ) Y
( ) N

If yes, how important a role did your mentor play in the writing of your grant applications?

	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

e. Did your mentor serve as Co-Primary Investigator on any of your research projects?

[Choose one.]

( ) Y
( ) N

If yes, how important a role did your mentor play as Co-Primary Investigator on any of your research projects?

	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

f. Did your mentor provide input or feedback in the design of your GRIP research proposal?

[Choose one.]

( ) Y
( ) N

If yes, how important a role did your mentor play in the writing of your GRIP research proposal?

	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

g. Did your mentor provide you instrumentation, reagents, or other materials?

[Choose one.]

( ) Y
( ) N

If yes, how important a role did these instruments or materials play in your research?

	Very important		Somewhat important		Somewhat unimportant		Not at all important

	( )	( )	( )	( )	( )	( )	( )
h. Did your mentor provide analysis or consultation on your data? *[Choose one.]* ( ) Y ( ) N							
	If yes, how important a role did these analyses or consultations play in your research?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

C. Research

7. a. Do you conduct research in your home country or other middle- to low-income country?
[Choose one.]
( ) Y
( ) N

Please explain:
[Enter answer in paragraph form.]

b. Do you see yourself conducting research in your country over the next 5-10 years?
[Choose one.]
( ) Y
( ) N

Please explain:
[Enter answer in paragraph form.]

c. Do you see yourself conducting research in your country over the next 10-20 years?
[Choose one.]
( ) Y
( ) N

Please explain:
[Enter answer in paragraph form.]

8. In a typical work week or month, what percent of your time do you currently spend in the following activities:

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
a. Doing research	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
b. Mentoring students, trainees or more junior researchers	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
c. Consulting or participating in policymaking activities	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
d. Teaching	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
e. Setting up new lab	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
f. Science administration	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
g. Other *[please explain]*	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )

10. Do you directly supervise or direct any students, junior researchers, or trainees?

[Choose one.]

( ) Y

( ) N

If YES:		
a. How many were PhD candidates? How many have earned their PhD?	*[Insert number of students.]*	( ) Don't know
b. How many were Fellows or Trainees? How many have completed their fellowship or training experience?	*[Insert number of students.]*	( ) Don't know
c. How many were MA candidates? How many have earned their MA degree	*[Insert number of students.]*	( ) Don't know

D. Funding

11. Do you **CURRENTLY** have any non-NIH funds to support your research?

[Choose one.]

( ) Y
( ) N

If YES:

Please list the type(s) of funding and funding organization.		
1. *[Enter answer in paragraph form.]*		
	a. Year(s) of funding: *[Date]* to *[Date]*	
	b. Was the funding a result of a peer-review process evaluating the technical merits of the research?	( ) Y ( ) N
	c. Was the funding specifically for young or early-career investigators?	( ) Y ( ) N
2. *[Enter answer in paragraph form.]*		
	a. Year(s) of funding: *[Date]* to *[Date]*	
	b. Was the funding a result of a peer-review process evaluating the technical merits of the research?	( ) Y ( ) N
	c. Was the funding specifically for young or early-career investigators?	( ) Y ( ) N
3. *[Enter answer in paragraph form.]*		
	a. Year(s) of funding: *[Date]* to *[Date]*	
	b. Was the funding a result of a peer-review process evaluating the technical merits of the research?	( ) Y ( ) N
	c. Was the funding specifically for young or early-career investigators?	( ) Y ( ) N

14. Was the feedback you received on you GRIP application helpful or not helpful?
[Choose one.]

Very helpful		Somewhat helpful		Somewhat unhelpful		Not at all helpful
( )	( )	( )	( )	( )	( )	( )

Please explain:
[Enter answer in paragraph form.]

Do you plan to re-apply for GRIP funding in the future?
[Choose one.]
( ) Y
( ) N

If NO, why not?
[Enter answer in paragraph form.]

15. What types of resources or programmatic changes to the GRIP program would help you as you sought to continue your research, launch your career, or transition back to your home country?
[Enter answer in paragraph form.]

F. Conclusion

16. This is the conclusion of the survey. Is there anything else that you would like us to know about your experience as a GRIP applicant?
[Enter answer in paragraph form.]

I. Survey Instrument—Survey for GRIP Awardees

Welcome to the GRIP Survey. Please provide responses to the following questions to the best of your ability. You may choose not to answer specific questions and it will not affect your ability to submit the survey. After choosing a response, please click "next" to view the next set of questions. If you would like to go back and change a response, you can use the "back" button on the survey or the pulldown menu at the bottom of the page. Please do not use your browser's navigation buttons. If you would like to save and come back to the survey, click the "save" button at the bottom of any page. The survey should take 20-30 minutes to complete.

Please consult the GRIP website to review the Request for Applications (RFA), criteria, or processes:

Public reporting burden for this collection of information is estimated to average 15 minutes per response (.50 hours), including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. **An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.** Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing

this burden, to: NIH, Project Clearance Branch, 6705 Rockledge Drive, MSC 7974, Bethesda, MD 20892-7974, ATTN: PRA (0925-0534). Do not return the completed form to this address.

Please note that participation in this survey is entirely voluntary. Your decision to participate will have no effect on your current or future NIH funding status, and other risks for participation or non-participation are minimal.

Additionally, you may click on underlined words in the survey, which are hyperlinked to the appropriate document.

A. Participant's Background

1. Please identify:

a. Your gender

[Choose one]
( ) Male
( ) Female

b. Your field of study

[Choose from drop-down list of fields.]
( ) Other. Please specify: *[Enter answer in paragraph form.]*

c. Your highest degree

[Choose all that apply]
( ) MD
( ) PhD
( ) MS
( ) MPH
( ) Other [Please specify]_____

d. What was the year you received your highest degree?

[Enter year]

e. What institution or university did you receive your highest degree from?

[Enter answer in paragraph form.]

2. a. What month and year did your GRIP support begin?

[month], [year]

b. What month and year did your GRIP support end (including no-cost extensions)?

[month], [year]

3. a. How would you classify yourself in your field at the beginning of your GRIP funding period?

[Choose one]
( ) Junior Investigator

( ) Mid-Career
( ) Senior Investigator
( ) Other. If Other, please specify:_____

b. What was your job title at your institution at the beginning of your GRIP funding period?

[Enter answer in paragraph form.]

4. a. How would you classify yourself in your field at the end of your GRIP funding period?

[Choose one]
( ) Junior Investigator
( ) Mid-Career
( ) Senior Investigator
( ) Other. If Other, please specify:_____

b. What was your job title at your institution at the end of your GRIP funding period?

[Enter answer in paragraph form.]

4. a. How would you classify yourself in your field at this time?

[Choose one]
( ) Junior Investigator
( ) Mid-Career
( ) Senior Investigator
( ) Other. If Other, please specify:_____

b. What is your current job title?

[Enter answer in paragraph form.]

5. a. Where did you undertake your GRIP-supported research?

[Choose one]
( ) In an existing lab group in my institution.
( ) In a brand-new lab group that I established at my institution
( ) Other. If Other, please specify:_____

6. a. If you started a brand-new lab at your institution at the beginning of your GRIP award period, was this lab made possible by your GRIP funding?

[Choose one]
( ) Yes
( ) No

b. If yes, how so?

[Enter answer in paragraph form.]

B. Mentor

7. Do you or did you have a US-based GRIP mentor?

[Choose one.]
( ) Y

( ) N

If YES:
8. Is your mentors based in the US, or in your home country?
[Enter answer in paragraph form.]

9. Did your GRIP mentor provide or did you receive any of the following DURING your period of GRIP support Do you interact with or receive any of the following from your GRIP mentor....
[Choose one.]

i. Have you co-authored any peer-reviewed journal articles with your mentor?
[Choose one.]
( ) Y
( ) N

	If yes, how important a role did your mentor play in the writing of your co-authored publications?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

j. Did your GRIP mentor provide feedback on research papers or presentations BESIDES those that you co-authored with your GRIP mentor?
[Choose one.]
( ) Y
( ) N

	If yes, how important a role did your mentor play in the writing of your publications?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

k. Did you co-author any grant applications with your GRIP mentor?
[Choose one.]
( ) Y
( ) N

	If yes, how important a role did your mentor play in the writing of your grant applications?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

l. Did your GRIP mentor provide feedback on grant applications **BESIDES those that you may have written together**?

[Choose one.]

( ) Y
( ) N

If yes, how important a role did your mentor play in the writing of your grant applications?

Very important		Somewhat important		Somewhat unimportant		Not at all important
( )	( )	( )	( )	( )	( )	( )

Did your GRIP mentor serve as Co-Primary Investigator on any of your research projects?

[Choose one.]

( ) Y
( ) N

If yes, how important a role did your mentor play as Co-Primary Investigator on any of your research projects?

Very important		Somewhat important		Somewhat unimportant		Not at all important
( )	( )	( )	( )	( )	( )	( )

Did your mentor provide input or feedback in the design of your GRIP research study?

[Choose one.]

( ) Y
( ) N

If yes, how important a role did your mentor play in the writing of your GRIP research proposal?

Very important		Somewhat important		Somewhat unimportant		Not at all important
( )	( )	( )	( )	( )	( )	( )

Did your mentor provide you instrumentation, reagents, or other materials?

[Choose one.]

( ) Y
( ) N

If yes, how important a role did these instruments or materials play in your research?

	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
m. Did your mentor provide analysis or consultation on your data? *[Choose one.]* ( ) Y ( ) N							
	If yes, how important a role did these analyses or consultations play in your research?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )

C. Research

10. a. Upon completion of your GRIP award, did you continue to conduct research in the country in which you undertook your research?

[Choose one.]
( ) Y
( ) N

Please explain:
[Enter answer in paragraph form.]

b. Do you still conduct research in your home country or other middle- to low-income country?

[Choose one.]
( ) Y
( ) N

Please explain:
[Enter answer in paragraph form.]

c. Do you see yourself conducting research in your country over the next 5-10 years?

[Choose one.]
( ) Y
( ) N

Please explain:
[Enter answer in paragraph form.]

d. Do you see yourself conducting research in your country over the next 10-20 years?

[Choose one.]

( ) Y

( ) N

Please explain:

[Enter answer in paragraph form.]

11. Are you continuing to conduct the same line research that you conducted or started under GRIP?

[Choose one.]

( ) Y

( ) N

12. In a typical work week or month, what percent of your time do you currently spend in the following activities:

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
a. Doing research	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
b. Mentoring students, trainees or more junior researchers	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
c. Consulting or participating in policymaking activities	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
d. Teaching	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
e. Setting up new lab	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
f. Science administration	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
g. Other *[please explain]*	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )

13. During your GRIP award period, did you directly supervise or direct any students, junior researchers, or trainees?

[Choose one.]

( ) Y

( ) N

If YES:		
a. How many were PhD candidates? How many have earned their PhD?	*[Insert number of students.]*	( ) Don't know

b. How many were Fellows or Trainees? How many have completed their fellowship or training experience?	*[Insert number of students.]*	( ) Don't know
c. How many were MA candidates? How many have earned their MA degree	*[Insert number of students.]*	( ) Don't know

14. Overall, what was the impact of the GRIP R01 on your research career? Did it:

Encourage you to lead further research related to your GRIP project topic?							
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
Encourage or enhance your interactions with other researchers in your field?							
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
Encourage or enhance your interactions with more junior researchers as a mentor?							
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
Encourage or enhance your ability to secure funds to support your research?							
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
Did it enhance your standing in your field?							
	Very important		Somewhat important		Somewhat unimportant		Not at all important

	( )	( )	( )	( )	( )	( )	( )
	Affect your decision to do research in your home country (or other low- to middle-income country) after your GRIP funding period?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
	Encourage or enhance your ability to publish your research findings in peer-reviewed journals?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
	Encourage or affect your being invited to speak or present on your research topic?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
	Encourage or enhance your serving as a consultant on projects related to your field of research?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
	Affect the quality or quantity of job offers?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important
	( )	( )	( )	( )	( )	( )	( )
	Encourge or enhance your decision to stay in your line of research? Lead further research related to your GRIP?						
	Very important		Somewhat important		Somewhat unimportant		Not at all important

	( )	( )	( )	( )	( )	( )	( )

D. Funding

15. Did you personally have non-NIH funds to support your research?
[Choose one.]
( ) Y
( ) N

If YES, ...

Please list the type(s) of funding and funding organization.		
1. *[Enter answer in paragraph form.]*		
	a. Year(s) of funding: *[Date]* to *[Date]*	
	b. Was the funding a result of a peer-review process evaluating the technical merits of the research?	( ) Y ( ) N
	c. Was the funding specifically for young or early-career investigators?	( ) Y ( ) N
2. *[Enter answer in paragraph form.]*		
	a. Year(s) of funding: *[Date]* to *[Date]*	
	b. Was the funding a result of a peer-review process evaluating the technical merits of the research?	( ) Y ( ) N
	c. Was the funding specifically for young or early-career investigators?	( ) Y ( ) N
3. *[Enter answer in paragraph form.]*		
	a. Year(s) of funding: *[Date]* to *[Date]*	
	b. Was the funding a result of a peer-review process evaluating the technical merits of the research?	( ) Y ( ) N
	c. Was the funding specifically for young or early-career investigators?	( ) Y ( ) N

17. Did you experienced a gap in funding at the end of you GRIP award period?, how many months did it last?

[Choose one.]

( ) Yes , [#]months

( ) No

( ) Don't know

18. If you were able to obtain funding to continue your research at the end of your GRIP funding period, how easy or how difficult was it ?

Very easy		Somewhat easy		Somewhat difficult		Very difficult
( )	( )	( )	( )	( )	( )	( )

19. Was your experience in securing additional funding similar to or different from your peers or colleagues at similar stages in their career?

Very similar		Somewhat similar		Somewhat dissimilar		Not at all similar
( )	( )	( )	( )	( )	( )	( )

Please explain: *[Enter answer in paragraph form.]*

20. Since the conclusion of your GRIP support, have you submitted applications to non-NIH funding sources for support?

[Choose one.]

( ) Y

( ) N

If yes...

a. ...Which funding organizations or institutions did you apply to?
[Enter answer in paragraph form.]

b. ...How many for research support?
[#]

c. ...How many for equipment and facilities?
[#]

d. ...How many for other types of support?
[#].

Please explain: *[Enter answer in paragraph form.]*

21. a. Have you experienced any problems with the transfer of GRIP research funds to you or to your collaborators?

[Choose one.]

( ) Y

( ) N

If yes...
a. In what way?
[Enter answer in paragraph form.]

b. Did this result in delays in project startup?
[Choose one.]
( ) Y
( ) N

c. How many days?
[#]

22. What types of resources or programmatic changes to the GRIP program would help you as you sought to continue your research, launch your career, or transition back to your home country?
[Enter answer in paragraph form.]

E. Grantee networking

23. a. Do you keep in contact with other GRIP or FIC grantees?
[Choose one.]
( ) Yes
( ) No
( ) I don't know other GRIP grantees
( ) Other. Please explain: *[Enter answer in paragraph form.]*

b. If you've maintained professional contacts with other GRIP grant recipients since the end of your award period, how important have these contacts been for your career?

Very important		Somewhat important		Somewhat unimportant		Not at all important
( )	( )	( )	( )	( )	( )	( )

24. Do you have any suggestions for ways to enhance interaction, networking, or collaboration between GRIP grantees?
[Enter answer in paragraph form.]

F. Conclusion
27 This is the conclusion of the survey. Is there anything else that you would like us to know about your experience as a GRIP award recipient?
[Enter answer in paragraph form.]

Thank you for completing the GRIP Survey. Please click "finish" below to submit your responses.

Appendix C: Interview Discussion Guides

Discussion Guide for FIC interviewees

1. How involved were you in the shaping of the program? Who else was involved? Please describe.

2. Are you aware of the planning process for the GRIP, from the initial conception to the most recent PA? If so, please describe.

3. Are you aware of the GRIP program goals? [If no, paraphrase them.] What were/are the goals of the program in your own words?
   - How did they evolve?
   - Did you have a role in shaping them?
   - Who else had input?

4. What do you think it contributes to FIC/NIH/other ICs?
   - How has this changed over time? (if known.)
   - How/why did other ICs sign on to fund GRIP?

5. Have the individual funded projects "fit" with the programs goals as laid out in the RFA?
   - Has this changed over time?

6. What role, if any, did partner ICs play in establishing the GRIP program goals over time? Please explain.

7. Have foreign country stakeholders had any input into the shaping of the GRIP program? Please explain.

8. What measures have been taken to avoid any conflicts of interest in the grant selection process? Please describe.

9. What role, if any, have you played in establishing the GRIP review criteria over time? Please explain.
   - What is your perception of the quality of the criteria?
   - What are their strengths and weaknesses?

10. Have the review criteria changed over time? How effective do you think they are in helping to identify the best GRIP candidates? Suggestions?

11. How would you describe the quality of the feedback from the review panel to the GRIP applicants? Please explain.

12. Is the GRIP award mechanism (non-renewable R01) appropriately aligned with the program goals? Why or why not?

13. Do you know of any delays in GRIP projects due to funds transfers, etc?
    - Have they impeded research? How have these barriers been dealt with?

14. How would you describe your current level of involvement in GRIP as the program officer or planning officer or supervisor of the program officer…?
    - How has this changed over time?

15. How would you describe the level of involvement of program partners?
    - Is it adequate? Please explain.

16. Are there any potentially productive partnerships that you feel are lacking or that should be explored? Please explain.

17. For IC s or partners that chose to discontinue co-funding, what was the reason behind that decision? How has that affected the program?

18. Have you received any requests for information about the results of GRIP-funded projects or the GRIP program as a whole? Please give examples.

19. Have presentations of (aggregate) GRIP program or individual GRIP project results been communicated to stakeholders? Please explain.

20. Do you believe that there are adequate research opportunities and funds available to biomedical and health-related behavioral scientist seeking to establish research careers in their home country?

21. What kinds of challenges, if any, face a US-trained scientist who is returning to a less-developed country (either their home country or another less-developed economy)?

22. Besides GRIP, how are people addressing these types of challenges?

23. What funding sources, apart from FIC and the GRIP program, exist for early-career biomedical and behavioral health scientists in low and middle income countries? (Probe for government support, other international support)

24. In what ways do we facilitate interaction between GRIP PIs? Should we do more/other…

25. Have you identified any "best practices" in funding and supporting the re-entry of researchers to their home country? If so, have these been communicated either formally or informally?

26. Is there anything else you'd like to discuss regarding the GRIP program, its award process, or results?

27. Do you have any questions?

Discussion Guide for Mentors/Collaborators

1. How did you first hear of the GRIP?

2. Compared to other young researchers whom you have mentored or collaborated with, how would you describe those who have participated in GRIP?

3. Do you know how the GRIP PIs you've mentored first heard of the program?
   - Did they hear about it from you?
   - Did they hear about it from and RFA/PA/other notice?

4. FOR MENTORS: How did you become a GRIP PI mentor? Did you hear of the GRIP and approach a former trainee? (if so, do you decide which of your trainees to recommend for a GRIP?) Or did the trainee approach you?
   - What are the characteristics of trainees that would or do make a good GRIP PI?

5. FOR COLLABORATORS: Did the GRIP applicant come to you, or did you know about the GRIP and select a trainee to approach?

6. How would you describe your collaboration or working relationship with your GRIP awardee? [Review previously collected information with mentor.]
   - Do you and your former GRIP recipient continue to work together? How so?
     - How as this changed over time?
   - How often do you communicate? How as this changed over time?
   - [For those with GRIPS that have ended:] What is your relationship with researchers whose GRIPS have ended? How as this changed over time?

7. If you mentor multiple GRIP-grantees, do they collaborate with each other? Do your GRIP grantees collaborate with any other GRIP grantees?

8. How would you describe the quality of the feedback from the review panel to the GRIP applicants? Please explain.

9. For a foreign researcher who has just finished their training in the US and is continuing their research in a less-developed country, what is the period of time need to....
   - ...become and independent researcher?
   - ...garner sufficient funding and support?
   - ...establish a sustainable funding level?

- ...etc.

10. Do you know of any delays in GRIP projects due to funds transfers, etc?
    - Have they impeded research? How have these barriers been dealt with?

11. Are there any potentially productive partnerships that you feel are lacking or that should be explored? Please explain.

12. Have you received any requests for information about the results of a GRIP-funded project? Please explain.

13. Have presentations of (aggregate) GRIP program or individual GRIP project results been communicated to stakeholders? Please explain.

14. To your knowledge, have foreign country stakeholders had any input into the shaping of GRIP-funded project or of the GRIP program more generally? Please explain.

15. What kinds of challenges, if any, face a US-trained scientist who is returning to a less-developed country (either their home country or another less-developed economy)?

16. Besides GRIP, how are people addressing these types of challenges?

17. Do you believe that there are adequate research opportunities and funds available to biomedical and health-related behavioral scientist seeking to establish research careers in their home country?

18. What funding sources, apart from FIC and the GRIP program, exist for early-career biomedical and behavioral health scientists in low and middle income countries? (Probe for government support, other international support)

19. Have you identified any "best practices" in funding and supporting the re-entry of researchers to their home country? If so, have these been communicated either formally or informally?

20. Is there anything else you'd like to talk about regarding the GRIP program?

21. Do you have any questions?

Discussion Guide for Partner ICs

1. When did you first learn of the GRIP program?
    - Were you involved with the shaping of the program? Please describe.

2. Were you involved in the planning process for the GRIP, from the initial conception to the most recent PA? If so, please describe.

3. What do you understand the goals of the program to be?
   - How did they evolve?
   - Did you have a role in shaping them?
   - Who else had input?

4. Are you in contact with the GRIP program officer?
   - If yes, how would you describe the current level of involvement of the GRIP program officer?
   - Has this changed over time?

5. How would you describe your current level of involvement with GRIP as a program partners?
   - Has it change over time?
   - Are you satisfied? Please explain.

6. To your knowledge, how does the GRIP fit within the programs and strategic plans of your IC?
   - How has this changed over time? (if known.)
   - What role, if any, did partner ICs play in establishing the GRIP program goals over time? Please explain.

7. Have you participated in a GRIP proposal review? If so, what role (if any) have you played in establishing the GRIP review criteria over time? Please explain. If knowledgeable:
   - What is your perception of the quality of the criteria?
   - What are their strengths and weaknesses?
   - What measures have been taken to avoid any conflicts of interest in the selection process, if any?

8. Is the GRIP award mechanism (non-renewable R01) appropriately aligned with the program goals? Why or why not?

9. Do you know of any delays in GRIP projects due to funds transfers, etc?
   - Have they impeded research? How have these barriers been dealt with?

10. Are there any potentially productive partnerships that you feel are lacking or that should be explored? Please explain.

11. For IC s that chose to discontinue co-funding: What was the reason for your IC's decision to cease co-funding?

12. Have you received any requests for information about the results of GRIP-funded projects or the GRIP program as a whole? Please explain.

13. Have presentations of (aggregate) GRIP program or individual GRIP project results been communicated to stakeholders? Please explain.

14. What kinds of challenges, if any, face a US-trained scientist who is returning to a less-developed country (either their home country or another less-developed economy)?

15. Besides GRIP, how are people addressing these types of challenges?

16. What funding sources, apart from FIC and the GRIP program, exist for early-career biomedical and behavioral health scientists in low and middle income countries? (Probe for government support, other international support)

17. Do you believe that there are adequate research opportunities and funds available to biomedical and health-related behavioral scientist seeking to establish research careers in their home country?

18. [If applicable] Have you identified any "best practices" in funding and supporting the re-entry of researchers to their home country? If so, have these been communicated either formally or informally?

19. Is there anything else you'd like to discuss regarding the GRIP program, its award process, or results?

20. Do you have any questions?

Appendix D: 2006 Impact Factors of Journals with GRIP Publications

Pub Journal	2006 IF
Nature cell biology	17.623
The Journal of experimental medicine	15.612
Genes & development	15.05
PLoS biology	14.101
Immunological reviews	10.758
Blood	10.37
Proceedings of the National Academy of Sciences of the United States of America	9.64
The Journal of cell biology	9.598
The Journal of allergy and clinical immunology	8.829
Advanced drug delivery reviews	8.224
Human molecular genetics	8.099
Cancer research.	7.656
Drug discovery today	7.152
The FASEB journal : official publication of the Federation of American Societies for Experimental Biology	6.721
Oncogene.	6.44
Clinical cancer research : an official journal of the American Association for Cancer Research.	6.177
Journal of immunology (Baltimore, Md. : 1950)	6.068
Molecular biology of the cell	6.028
The Journal of biological chemistry	5.808
Current cancer drug targets	5.677
Clinical infectious diseases : an official publication of the Infectious Diseases Society of America	5.59
The Journal of biological chemistry	5.581
Free radical biology & medicine	5.44
The British journal of psychiatry : the journal of mental science	5.436
Carcinogenesis	5.366
The Journal of infectious diseases	5.36
Journal of virology	5.341
Molecular endocrinology (Baltimore, Md.)	5.337
Structure (London, England : 1993)	5.231
Kidney international.	4.922
Current Molecular Medicine	4.85
Gene therapy	4.782
Biophysical journal	4.757
Antiviral therapy	4.547
Drugs	4.472
Journal of molecular biology	4.472
Journal of acquired immune deficiency syndromes (1999)	4.412
Molecular cancer research : MCR	4.317
Hippocampus	4.232
American journal of medical genetics. Part B, Neuropsychiatric genetics : the official publication of the International Society of Psychiatric Genetics	4.224
Breast cancer research : BCR	4.157
The Biochemical journal.	4.1
International Journal of Obesity (Lond)	4.055
Learning & memory (Cold Spring Harbor, N.Y.)	4.037
The Journal of pediatrics	3.991
Acta Psychiatrica Scandinavica	3.857
Journal of mammary gland biology and neoplasia	3.765
The European journal of neuroscience	3.709
Journal of psychiatric research	3.7
American journal of physiology. Regulatory, integrative and comparative physiology	3.661

Biochemistry.	3.633
Clinical immunology (Orlando, Fla.)	3.606
Biology of reproduction	3.498
Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology.	3.468
FEBS letters	3.372
The Pediatric infectious disease journal.	3.215
Molecular carcinogenesis.	3.194
Vaccine	3.16
The FEBS journal	3.033
Sexually transmitted diseases.	2.928
Journal of clinical immunology	2.886
Molecular human reproduction	2.871
Biochemical and biophysical research communications	2.855
The Journal of infection	2.844
Journal of neuroendocrinology	2.774
Frontiers in bioscience : a journal and virtual library	2.771
Social science & medicine (1982)	2.749
American journal of ophthalmology.	2.628
Sexually transmitted infections	2.616
European journal of pharmacology	2.522
Brain research	2.341
Parasite immunology.	2.231
Public health nutrition	2.123
Methods in enzymology	2.122
Neuroscience letters	2.085
Human heredity	2.051
Transactions of the Royal Society of Tropical Medicine and Hygiene	2.03
Current opinion in pediatrics	1.994
Pediatric pulmonology	1.965
Archives of Virology	1.85
Brain research bulletin	1.684
Acta pharmacologica Sinica	1.677
Medical mycology : official publication of the International Society for Human and Animal Mycology	1.67
Suicide & life-threatening behavior	1.624
Brain Res Dev Brain Res	1.598
Comparative biochemistry and physiology. Part A, Molecular & integrative|physiology	1.553
American journal of community psychology	1.525
International journal of STD & AIDS	1.3
Journal of public health (Oxford, England)	1.238
Memorias do Instituto Oswaldo Cruz	1.225
International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics	1.223
Applied Biochemistry and Biotechnology	1.102
Brazilian journal of medical and biological research = Revista brasileira de|pesquisas medicas e biologicas / Sociedade Brasileira de Biofisica ... [et al.]	1.075
Folia microbiologica	0.963
Journal of Paediatrics and Child Health	0.931
Culture, health & sexuality	0.889
The Journal of the Association of Nurses in AIDS Care : JANAC	0.672
Journal of genetics	0.567