Demographic and Behavioral Sciences Branch
Center for Population Research
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A Review of the Population Research Infrastructure Program (PRIP)

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This report summarizes the results of an initial evaluation of the Population Research Infrastructure Program (PRIP) of the Demographic and Behavioral Sciences Branch (DBSB), NICHD. We gratefully acknowledge the expert consultation provided by Myron Gutmann, Linda Martin, Amy Tsui, and Doug Wolf, who helped review background materials and assisted with the assessment of the PRIP's accomplishments and challenges, as well as comments provided by four concerned parties who responded to DBSB's solicitation for input. We also are grateful to Chris Bachrach, who provided critical oversight for this project; to Mona Rowe, Paul Johnson, and Deborah R. Maiese, from the Office of Science Policy, Analysis and Communication (OSPAC), who each played a part in shepherding this activity through to completion; and to the NIH Office of Science Policy's Division of Evaluations, which provided partial support for this activity from the NIH 1% Evaluation Funds.

TABLE OF CONTENTS

LIST OF APPENDICES

I. INTRODUCTION

The Population Research Infrastructure Program (PRIP) is an extramural funding program managed by the Demographic and Behavioral Sciences Branch (DBSB), NICHD. "Population research" refers to research on the determinants, consequences, and patterns of population size, growth, and change, including such topics as fertility, mortality, migration, family patterns, and population health. The PRIP was initiated in 2001, replacing a prior program of centers support through the P30 and P50 mechanisms. At the time, the prior program had been in place for 30 years, supporting population research directly (in the case of P50 centers) and providing support for shared research services, such as computing, administrative, and statistical support. DBSB developed the new program of infrastructure support after conducting a comprehensive review in 1999 of the existing centers program.[1] The goals of developing a new program were (1) to increase flexibility in the creation of a research infrastructure, and (2) to encourage innovative approaches to stimulating interdisciplinary collaboration and new research. A new mechanism, the R24 Population Research Infrastructure Grant, was developed to meet these objectives. The PRIP seeks to support infrastructure and development activities that advance population research at centers of excellence throughout the country, in order to: (1) enhance the quality and quantity of population research conducted at an institution, and (2) develop new research capabilities to advance population research through innovative approaches. A central objective is to facilitate interdisciplinary collaboration and innovation in population research, while providing essential and cost-effective core services in support of the development, conduct, and translation of population research based in centers or comparable administrative units.

Competitions for the program are held annually. The first RFA featuring the PRIP R24 mechanism was issued in 2000. The following year, an additional mechanism, the R21 Developmental Infrastructure Grant, was added to enhance opportunities for a broader range of institutions and departments, in order to develop centers of excellence and to enable them to subsequently apply for the R24 mechanism. In these competitions, existing P30 and P50 centers whose awards are ending have the opportunity to transition to the R24 mechanism. This process of transition will be complete by the end of 2005. Applications received in response to the PRIP RFAs are reviewed by a Special Emphasis Panel, which is convened by the NICHD Division of Scientific Review. Funding for the overall program is kept at the level provided to P30/P50 centers in FY2000, with annual, incremental increases in total dollars to offset inflation. As of FY2003, 12 grants had been made under PRIP, and four existing P30 centers had yet to transition to the new mechanism. The funded grants are drawn from diverse areas of the country and support research reflecting the broad mission of the DBSB and the disciplines that contribute to it.

TABLE 1. Review and Funding of PRIP Applications, FY2001-FY2003

Funding Cycle	FY2001	FY2002	FY2003
RFA Number	HD-00-011	HD-01-010	HD-02-021
R21 or R24 applications received	12 R24	4 R21 & 9 R24	4 R21 & 4 R24
Number not responsive	0	0	0
Noncompetitive applications	3	2	0
Competitive applications	9	11	8
Number funded	5 R24	1 R21 & 4 R24	2 R24
Funds advertised as available in RFA	$1,870,000	$1,600,000	$907,000
Success rate	41.7 %	38.5 %	25.0 %
Total funding for R21, R24, P30, P50	$8,553,392	$8,809,994	$9,061,044

[1] A report summarizing the results of the review is available at www.nichd.nih.gov/about/cpr/dbs/pubs/report.pdf

Over time, the success rate for PRIP has been declining. It is expected that the success rate would have been even lower, had program staff not discouraged applications from clearly non-competitive institutions. Of course, there are usually some applicants who persist in submitting an application despite the best advice of program staff. It should be noted, as well, that the success rates for the PRIP are much lower than they were under the old P30 mechanism, when there rarely was more than one challenger to the incumbent(s). The PRIP clearly has succeeded in stimulating competition in a very positive way.

As part of its efforts to maximize the utility of information in evaluating the success of the program on an ongoing basis, DBSB provided PRIP grantees with specific guidance on annual progress-reporting (Appendix 1). This guidance requests grantees to briefly summarize their program status (including completion of a Summary Table of Research Support), report accomplishments, and illustrate the effective use of infrastructure components.

The PRIP is currently in its first 5-year cycle, but an evaluation of the PRIP must be completed by July 2004 as part of the request for NICHD program renewal by DBSB. Because the PRIP was established only in 2000, a full evaluation of its impact would be premature. However, it is never too early to evaluate the PRIP award and monitoring process, including the extent to which supported programs have implemented activities that are likely to lead to the fulfillment of program goals. This evaluation also can provide early indicators of program productivity, which can be used as a benchmark in later evaluations; it also can highlight deficiencies in progress-reporting that might benefit from a mid-course adjustment.

The key questions addressed in this evaluation of the PRIP include the following:

- Is there initial evidence that:
    - The PRIP is succeeding in supporting activities that advance (or are likely to advance) the quality and quantity of population research, its accessibility, and its application?
    - The PRIP is succeeding in stimulating the development of effective mechanisms (e.g., seed grant programs) for advancing high-quality, innovative research.
- Are there any problems of program design, process, or management (e.g., RFA guidelines, review, etc.) that are affecting the success of the program?
- Can steps be taken to address these problems or to enhance program performance?

To answer these questions, DBSB/NICHD undertook an evaluation plan involving three primary activities:

1) Reviewing extant materials, such as progress reports and summary statements, for each of the 33 R24 and R21 applications submitted in FY2001, FY2002, and FY2003;
2) Convening a small group of experts to assist in evaluating the PRIP; and
3) Soliciting additional input from the population research community.

The remainder of this report will summarize findings from each of these three activities.

II. REVIEW OF PROGRESS REPORTS AND SUMMARY STATEMENTS

In FY2003, DBSB/NICHD funded four P30 population centers, eleven (11) R24 population research infrastructure grants, and one R21 developmental infrastructure grant. Hereafter, this constellation of funded population research infrastructure awards collectively will be termed Population Research Centers (PRCs), whereas PRIP will refer to only the R21 and R24 awards. Table 2 lists these 16 PRCs by funding cycle, funding mechanism, Principal Investigator, institution, and grant title.

TABLE 2. DBSB/NICHD-Funded Population Research Centers, FY2003

Funding Cycle	Funding Mechanism	Current (former) PI	Institution	Grant Title
2001	R24	Pitt, Mark	Brown University	R24 Population Center Grant
2001	R24	Jensen, Leif (Hayward, Mark)	Pennsylvania State University	Population Research Institute
2001	R24	Thomas, Duncan (Mare, Robert)	UCLA	California Center for Population Research
2001	R24	Lam, David	University of Michigan	Population Studies Center Infrastructure Grant
2001	R24	Ruggles, Steven	University of Minnesota	Minnesota Population Center
2002	R21	Manning, Wendy	Bowling Green University	NICHD Population Research Center
2002	R24	Haaga, John	Population Reference Bureau	Center for Public Information on Population Research
2002	R24	Bianchi, Suzanne	University of Maryland	Center on Population, Gender, and Social Inequality
2002	R24	Hummer, Robert	University of Texas, Austin	Population Research Center
2002	R24	Morris, Martina	University of Washington	Center for Studies in Demography and Ecology
2003	R24	Hill, Kenneth	Johns Hopkins University	Hopkins Population Center
2003	R24	Behrman, Jere	University of Pennsylvania	Population Research Center
2004	P30	Trussell, James	Princeton University	Population Research Center
2004	P30	Michael, Robert	University of Chicago	Population Research Center
2004	P30	Thomson, Elizabeth	University of Wisconsin	Center for Demography and Ecology
2005	P30	Entwisle, Barbara	UNC-Chapel Hill	Carolina Population Center

Table 3 includes a list of the background materials reviewed as part of the evaluation of extant materials. Where possible, the evaluation was based primarily upon progress reports submitted for competing or non-competing P30, R24, and R21 applications in FY2003. In cases where a FY2003 R24 or R21 progress report was not available, data from a FY2004 R24 progress report or from a progress report contained in an R24 application were examined. Existing P30 centers were included in the evaluation because many of these are expected to apply for transition to R24 centers by the time the first cycle of competitions is completed in 2005.

Review of Progress Reports

Quantitative and qualitative materials from the progress reports were summarized into tables, to provide a collective sense of scope, coverage, and productivity. Quantitative information available from progress reports includes, for each institution: reported number of affiliated researchers; numbers of publications in peer-reviewed journals; total number of, and funding for, externally-funded research projects; number of, and funding for, new projects awarded in the previous year or pending award; and other sources of funding to support the center. Highlights from the assembled information are provided in this report.

TABLE 3. Materials Reviewed for FY2003 Funded Population Research Centers

	Grant number	Institution	Sum Stmt	2003 R24/R21 Prog Report	2003 P30 Prog Report	2004 R24 Applic	2004 R24 Prog Report
	R21 HD042831	Bowling Green State University	X	X			
*	R24 HD041020	Brown University	X	X			
	R24 HD041022	UCLA	X	X			
	R24 HD041023	University of Minnesota	X	X			
*	R24 HD041025	Pennsylvania State University	X	X			
*	R24 HD041028	University of Michigan	X	X			
	R24 HD041041	University of Maryland	X	X			
	R24 HD042828	University of Washington	X	X			
	R24 HD042839	Population Reference Bureau	X	X			
*	R24 HD042849	University of Texas – Austin	X	X			
*	R24 HD042854	Johns Hopkins University	X				X
*	R24 HD044964	University of Pennsylvania	X				X
*	P30 HD005876	University of Wisconsin			X	X	
*	P30 HD018288	University of Chicago - NORC			X	X	
*	P30 HD032030	Princeton University			X	X	
*	P30 HD005798	UNC – Chapel Hill			X		
* = R24 with prior P30 funding							

The 16 active PRC grants in FY2003 were funded at a total cost of $9,061,044. There remains substantial variation in center budgets; among the R24s, FY2003 total costs by center ranged from $154,923 to $848,726. Funding levels for the R24s are substantially lower than those for the typical P30, and they reflect a greater diversity of centers, in terms of size and scope.

The 16 PRCs reported nearly 700 affiliated scientists, representing an impressive breadth of coverage. It should be noted that the data on affiliates is self-reported by the population research centers. DBSB permits centers to devise their own standards for determining who should be considered “affiliates,” which gives centers the flexibility to involve whoever is most appropriate for their purposes. This inevitably results in great variability, in terms of both the kinds and numbers of people presented as affiliates. However, DBSB bases its funding decisions (i.e., how much to award) on their assessment of the number of researchers who are actively engaged in research that is relevant to the mission of DBSB. Since visiting professors and post-docs typically are excluded from these counts, the final DBSB count is usually much lower than the counts reported by the centers themselves. The center’s quality and impact also are taken into account when making funding decisions. On average, a population research center claims approximately 42 affiliates. With few exceptions, the number of affiliated scientists listed on the FY2003 progress reports was higher than the number listed on the original application. In the few cases in which the number reported declined, the decline generally was due to the imposition of tighter standards for membership in the PRIP. DBSB tries to make the amounts of funding per funded researcher as equal as possible, while taking into account a center’s scientific merit and impact upon the field.

Virtually all centers claim demography, sociology, and economics as key disciplines. A majority of the centers also report participation by researchers in the fields of anthropology, bio-demography/genetics, epidemiology/public health, geography, psychology, and public affairs/policy. A large minority of the centers involve affiliates in aging, history, and statistics/biostatistics, while a handful claim affiliates in the fields of business, communication, medicine, social work, survey methods, and urban planning. One center includes affiliates from the field of criminal justice, and another has affiliates in ecology/evolutionary biology. There did not appear to be a relationship between the number of disciplines represented and a center’s past P30 funding history. Although the widest breadth of disciplines was

reported by established centers with prior P30 funding, an equal number of established centers with prior P30 funding reported the fewest disciplines represented by affiliates. The new entrants generally occupied the middle range, in terms of the numbers of disciplines represented.

It is recognized that the field of population studies is growing scientifically, in terms of research domains, and is increasingly collaborative across disciplinary boundaries; research on aging and the lifespan is a clear case in point. DBSB has sought to establish a program that allows centers the flexibility to incorporate a new field, while continuing to link the amount of support to the scope of the NICHD-relevant research.

According to information found in the progress reports, summary statements, and (in some cases) applications, the funded centers are addressing the full range of DBSB research themes (Appendix 2). All funded centers claim to be engaged in research on family and household demography; health, mortality, and well-being; socioeconomic differences in health; population composition and change; work, family, and health. All but one funded center focus upon fertility and family planning as a research theme. At least half of the funded centers also engage in research on HIV/AIDS and other sexually-transmitted diseases; immigration and migration; population and environment; historical studies; formal demography; and data collection and survey methods. Of all the research themes, applied/business demography was mentioned the least frequently.

In terms of core support, virtually all of the funded population centers provide administrative and computer services/information technology; most provide some level of library or information services, as well as a research development component (e.g., seed money, speakers' series, research briefs, and/or faculty recruitment incentives). Less than half of the funded centers provide data access/analysis services and public outreach/translation support, including user support of center-based data. A handful offer more specialized services, such as geographic/spatial information analysis support, statistics/methods support, and/or use of biomarkers or biodemographic approaches (Appendix 3).

Available data show that the PRC funds appear to be highly leveraged, judging by the relatively modest proportion of total center support (Table 4). The PRIP funds from 9 reporting centers constitute 4 percent of total center support, on average. Institutions also contributed 4 percent toward infrastructure support. The remaining funds largely reflect support for research projects. Percentages for the P30 center funds differ somewhat from the PRIP, but these statistics are based on only three centers.

PRC funds have attracted matching funds or other pledges of institutional support in numerous ways. The institutional provision of new, additional, and renovated space for many of the PRCs often represents a substantial investment by universities; this can be attributed in part to the perceived status and desirability of winning a center grant or infrastructure funds. Contiguous office space for center affiliates facilitates the "center-ness" of the programs, thus enhancing its synergistic potential. Also, in many cases, the PRIP funds have provided seed money to develop new projects, which in turn have led to the submission of competitive research grant applications to the NIH and other funding sources.

Table 4. Summary Table of Research Support, 2002-2003

		R24/P30	Other NICHD	Other NIH	NSF	Other	Parent institution	Total
R24 N = 9	% of Total Center Support	**4%**	**18%**	**37%**	**6%**	**32%**	**4%**	**100%**
	Lower Range	1%	9%	0%	0%	2%	1%	
	Upper Range	16%	37%	53%	36%	37%	19%	
P30 N = 3	% of Total Center Support	**6%**	**18%**	**26%**	**10%**	**29%**	**10%**	**100%**
	Lower Range	3%	10%	4%	1%	5%	0%	
	Upper Range	13%	31%	49%	48%	49%	16%	

Notes: Estimated from Summary Table of Research Support for the Prior Year or other data provided in progress reports. Excludes data from centers that did not (or were not asked to) include a properly-completed summary table in their progress report (i.e., Bowling Green State University, UNC Chapel Hill [P30], Population Reference Bureau, and the University of Washington). Since R24 awards for Johns Hopkins University and the University of Pennsylvania began only in 2003, data from the 2004 progress reports were used for these two centers. In addition, data from the R24 application submitted in 2004 were used for Princeton University. Therefore, for these three institutions (Johns Hopkins University, University of Pennsylvania, and Princeton University), data used refer to the July 1, 2003 – June 30, 2004 period, as opposed to July 1, 2002 – June 30, 2003 for all others. If possible, efforts were made to estimate prior year support, based on project periods and total award amounts reported. Due to this imprecision, and because some centers used Direct Costs while others used Total Costs, only the percentages are shown which provide a reasonable approximation. Also, some centers reported only those projects wholly administered by the Centers; others may not have.

A number of indicators provide information about program impact, including examples of significant research advances; total publications; publications in high-impact journals; new research projects under development; dissemination of datasets; dissemination and translation of research results; examples of demonstrated policy impact; examples of support for the development and application of innovative methodologies; and examples of activities that facilitate collaboration among investigators with expertise in different disciplines or fields of study. Some of these indicators are more appropriate for evaluating the long-term (rather than short-term) success of the program. However, summarizing the information relating to long-term indicators at this point will help to provide baseline information for later reviews. Note also that some of the centers specialize in dissemination and should not be expected to have research findings or publications in high-impact journals.

With the exception of the Population Reference Bureau, which specializes in dissemination only, all of the PRIPs reported publications in high-impact journals, significant research advances, new research projects under development, recruitment of new investigators to the PRC, training and career development efforts, and leveraging of support from other funding sources. Virtually all the centers reported significant research advances and advanced interdisciplinary collaborations, and most centers also were active in disseminating datasets and research results. Although a convincing case can be made that all the PRCs support research with *potential* and even probable policy impact, few provided examples of *demonstrated* policy impact (arguably impossible given the complexity of the policy process) and the concrete translation of research results.

The “impact factor” – a measure of the frequency with which the “average article” in a journal has been cited in a particular year or period – can provide an indication of the prestige of the journals in which a given PRC’s affiliates are publishing. However, this measure should be only one of many other criteria, including informed peer review. The impact factor of a journal is calculated by dividing the number of current-year citations by the number of source items published in that journal during the previous two years. To obtain some idea of where PRC affiliates are publishing, Appendix 4 provides a list of journals with impact factors of 2.0 or higher for 2002 (based on publications reported by PRC affiliates). Applying this definition, approximately 582 articles were published or forthcoming in high-impact journals – which

represents approximately 20 to 25 percent, on average, of the total publications reported by PRC affiliates in 2002 (that is, approximately 2,400 articles, manuscripts, or book chapters). In their FY2003 progress reports, individual PRCs reported between 114 and 332 publications with publication dates of 2002 or later; the proportion of publications in high-impact journals ranged from 8 percent to 33 percent.

The greatest proportions of articles reported in high-impact journals were in the fields of epidemiology and public health (23 percent), other medical or science areas (18 percent), sociology and family studies (17 percent), economics (11 percent), psychology/neurosciences (8 percent), and general health (7 percent). About 5 percent of the total articles penetrated the highest-impact journals (e.g., *New England Journal of Medicine, Nature, Science, Nature-Genetics, JAMA*), suggesting that the research supported by the PRCs has broad appeal, beyond the immediate field of population research. Much smaller proportions appeared in titles addressing aging, anthropology, criminology, environmental sciences, genetics, and statistics/probability. The overall picture shows a healthy mix of social science and natural science outlets for PRC researchers.

It should be noted that, because of disciplinary differences in size and publishing practices, journals in the medical or health fields tend to have higher impact factors than do journals in the social and behavioral sciences. A number of top journals in the field of demography (*Population Studies, Population and Development Review,* and *International Migration Review*) had impact factors of 1.3 or lower in 2002, as did *Social Forces* in the field of Sociology. Including these titles certainly would increase the representation of articles in demography and sociology. There appears to be a correlation between prior P30 funding and number of publications in high-impact journals (correlation of 0.46). Prior funding might have had some role in creating this correlation. As some of the highest-impact journals in the biomedical fields are not the key journals of interest in the population field, a more targeted examination of citations may be more informative.

The progress reports also contain references by specific centers to significant challenges that are likely to have broader relevance for the PRIP, including:

- The need to balance investments in translational activities against the need for faculty to focus on research;
- The availability of (and professional development opportunities for) mid-career faculty to lead a center's efforts over the next decade; (Note: The degree to which centers recruit from the outside or develop from within will determine the extent to which the field as a whole will be engaged in a zero-sum game, or whether it will add considerable social product.)
- Reduced research and operational funding, which creates the need to initiate cost-saving measures (including reductions to specific cores and hiring freezes) – in the face of rising demands on a center's administrative staff, who are facing an increased numbers of grant applications and are being expected to provide guidance on increasingly complex human-subject and other Federal requirements;
- Navigating data-access requirements and establishing robust systems for facilitating data access, (particularly of restricted data) for research purposes;
- Providing center services to off-campus affiliates;
- Recruitment and retention of skilled staff, particularly in competitive fields (such as geographic information analysis, statistics, and computer programming) that complement center research interests;
- The need for more or better space; and
- The inequality of stipend levels for trainees, depending upon the source of support (e.g., university, NIH, NSF, foundations).

Review of Summary Statements

Summary statements for all 33 R21 and R24 PRIP grant applicants in FY2001, 2002, and 2003 were examined, to identify themes that might explain why some previously-funded centers failed to transition to the new R24 program, while others succeeded. Of the eight centers that had prior P30 or P50 funding and had competed for PRIP funding in FY2001, 2002, or 2003, six had been successful. Six PRIP grants had been awarded to institutions without prior P30 or P50 funding. Two of these were either entirely or substantially devoted to public infrastructure activities (largely dissemination).

The summary statements were first sorted into subgroups, according to those applicants who succeeded in receiving an R21 or R24 grant and those who did not. The summary statements of successful and unsuccessful applicants then were subdivided by whether or not they had previously received P30 funds. In general, it appears that the application reviews were quite thorough and rigorous. There is clear evidence that the review process improves the field as a whole. Applicants who resubmitted clearly had responded to earlier reviews, often streamlining operations and core functions, jettisoning less productive affiliates, and negotiating for greater concessions from their institutions, in terms of resource-sharing. Even if the resubmissions were unsuccessful in obtaining funding, the submitting center had improved as a result of the resubmission process. The perceived prestige and benefit of PRIP funding also encourages a healthy competition, which is all to the good for the field as a whole.

Funded PRIP Application; P30 Funding

The six successful PRIP applicants with prior P30 funding shared many common strengths, including high-quality Principal Investigators and associates; scientific programs of emphasis that were clearly defined and of outstanding quality; a strong sense of community or "center-ness;" significant multi- or inter-disciplinary research and training, or the clear commitment and potential for it; effective mentoring and support for junior scientists; strong institutional commitment; strong cores; a strong record in terms of translating and distributing research findings; extensive self-evaluation in terms of strengths, weaknesses, priorities, and future directions; and areas of emphasis that were well-aligned with NICHD/DBSB foci. There were no common weaknesses in this group. The only weaknesses seen were specific to particular application(s). A number of identified weaknesses stemmed from assessments of insufficient innovation (e.g., in research directions or in distinguishing current programs from the past); and lack of detail about particular aspects of the application (e.g., strategies for promoting continued synergy, reconciling research tasks with funding streams, involving collaborators, and engaging in core activities). In some cases, there also was a sense of lost opportunity. There were a number of instances in which reviewers questioned why particular centers did not do better, given their particular circumstances – i.e., in terms of institutional commitments, training junior faculty, publications in top-tier, peer-reviewed population journals.

Unsuccessful PRIP Application; Prior P30 Funding

By FY2003, three centers with prior P30 funding had applied at least twice for PRIP funding; only one of these was successful. The summary statements of the five unsuccessful applicants identified a number of common strengths, including a long-term commitment to population research; strong intellectual leadership and productivity by the Principal Investigator, who was also a highly able and effective administrator; productive and highly respected senior scholars; high-quality administrative staff; and encouraging indicators of future development. Common weaknesses included general concerns about the direction and activities of the program, specification of innovative research directions, and the development and support of junior investigators. Specific weaknesses identified in particular application(s) included uneven quality of research affiliates; weak evidence of commitment to interdisciplinary work; a physical office situation that was not conducive to promoting "center-ness" and synergy; relatively modest institutional support; and a lack of detail about the cost-effective use of resources, collaborations to be nurtured, and seed grant programs.

Funded PRIP Application; No Prior P30 Funding

Among those with no prior P30 funding, seven applicants were funded. Common strengths identified included the high overall quality and innovation of the research activities; a high likelihood of a positive trajectory; strong Principal Investigators; and strong translational activities and/or a public infrastructure component that would contribute to the public good. No common weaknesses surfaced, only weaknesses specific to particular application(s) – including the questionable impact of a given scientific program on the population field; concerns about productive development of junior scholars; a less than compelling rationale for specific research cores; inadequate space for fostering "center-ness;" and inadequate institutional resources.

Unsuccessful PRIP Application; No Prior P30 Funding

Applications from fifteen population centers were in this category, including three revisions and five unscored applications. Even in this category, however, the proposed Principal Investigators were generally strong (although not all of them had expertise in population research topics). Among the scored applications, a common weakness appeared to be a research environment that was not yet strong enough to make the most of a PRIP grant, and a center's need to reach a "critical mass" point, in order to attain a high-level research portfolio. Specific weaknesses tended to focus on deficiencies in, or lack of clarity about, specific aspects of the proposed PRIP (e.g., current staff, description of cores, governance of the center, how interactions are optimized, and modest institutional commitment). For unscored applications, common weaknesses were that the research program was underdeveloped or not well described, making it difficult to evaluate; a program was either stagnant or on a downward trajectory; there was limited evidence of past impact on the field; and the institution showed little potential to make important discoveries or become a major or innovative research center. Specific applications in this group showed deficiencies in key personnel; a lack of "center-ness;" and inadequate detail regarding particular components of the application (e.g., specifics about developmental infrastructure, organizational structure, or governance procedures).

III. EVALUATION BY EXPERT GROUP

An expert review of the PRIP process and its progress was convened by teleconference on May 19, 2004. It began with brief introductory remarks by Dr. Christine Bachrach, Chief of the Demographic and Behavioral Sciences Branch, NICHD. After a question-and-answer period with program staff, the DBSB staff withdrew from the teleconference to allow reviewers to convene in a closed executive session. Representatives from the NICHD Office of Science Policy, Analysis and Communication (OSPAC) continued to audit the executive session, in order to observe the review process for planning purposes. In anticipation of the teleconference, reviewers were given both quantitative and qualitative summary information about the DBSB-funded population centers and/or programs (including P30 Center Core Grants, R24 Infrastructure Award, and R21 Developmental Award), as discussed in Section II above. Specifically, the following information was provided to reviewers:

1) Workbook with the following information:
    a. All currently-funded population centers (Table 2) and descriptors about the unfunded applications.
    b. Materials reviewed – which formed the primary basis for information regarding funded centers (Table 3).
    c. Total costs awarded and number of affiliates, as reported by the centers.
    d. Summary of research support (Table 4).
    e. Disciplines represented by center affiliates.
    f. DBSB research themes addressed by center affiliates (Appendix 2).
    g. Core functions supported by population center grants, by institution (Appendix 3).
    h. Count of population center affiliates' publications in high-impact journals.

i. Qualitative measures of impact, as reported in progress reports.

2) Population center accomplishments (mostly from FY2003 progress reports).
3) Reported instances of institutional resource-leveraging associated with NICHD PRC funds.
4) Significant challenges noted in progress reports (Section II above).
5) *DBSB Guidance on Content of Progress Reports for Population Research Infrastructure Grantees*, April 30, 2002 (Appendix 1).
6) Link to the most recent PRIP RFA: http://grants1.nih.gov/grants/guide/rfa-files/RFA-HD-03-026.html
7) Link to the DBSB report of the 1999 Centers review that led to the creation of the PRIP program: http://www.nichd.nih.gov/about/cpr/dbs/pubs/report.pdf
8) Comparison of R21 vs. R24: http://www.nichd.nih.gov/RFA/HD-03-026/HD-03-026.htm#summary
9) Strengths and weaknesses identified in R21 and R24 summary statements, grouped by prior P30 funding status and PRIP funding outcome.

Evaluators were invited to submit questions to DBSB staff in anticipation of the teleconference; one reviewer did. The four invited reviewers represented both funded centers (Myron Gutmann and Amy Tsui) and non-funded centers (Linda Martin and Doug Wolf). They were reminded that the evaluation is not of each individual center but of the PRIP as a whole, and that the information and deliberations should be kept confidential and materials destroyed after the teleconference. (The agenda for this teleconference is included as Appendix 5 to this report.) The invited experts addressed each of the questions listed on the teleconference agenda , and after a great deal of engaged discussion, they made a number of observations, drew conclusions, and provided recommendations. Their remarks are summarized below; a full report of teleconference deliberations is available upon request.

PRIP Adds Value

The PRIP adds value and is supporting activities that advance, or are likely to advance, the quality and quantity of population research, its accessibility, and its applications. This conclusion was based on a number of observations:

- The PRIP is characterized by an unprecedented level of participation from much more diverse centers than were seen with the dynastic P30 centers. The participation of fairly specialized centers (e.g., University of Minnesota and the Population Reference Bureau) is a clear strength, complementing existing infrastructure in important and attractive ways.
- NICHD infrastructure funding provides strong incentives for university administrators to augment their own support in ways that are remarkably effective for population research.
- NICHD infrastructure funding provides strong leverage for additional external funding, providing (on average) only 4 percent of the funding that centers are receiving, which suggests substantial value-added.
- NICHD infrastructure funding reduces the burden of project administration on Principal Investigators, allowing them to give fuller attention to the substantive research issues and providing greater continuity in research management.
- NICHD infrastructure funding supports a critical mass of researchers and students in the areas of population science, interdisciplinary approaches, and funding/publishing. Their expertise adds enormous value to how well, and how quickly, the field will advance.
- NICHD infrastructure funding facilitates the creation of strong training programs and lays the groundwork for sustained productivity.
- The value of NICHD infrastructure funding to researchers' productivity is an important recruitment tool. Top candidates look for strong centers or tend to create them.

- PRIP is succeeding in stimulating the development of effective mechanisms (e.g., seed grant programs) for advancing high-quality, innovative research.
    - The PRIP has introduced new cores (including public outreach/translation) that support new areas of expertise and bring new strengths to the field – i.e., in the areas of biomedicine or geographic information systems (GIS); this continues a trend that began near the end of the P30 era.
    - Seed money programs are bringing new investigators and new projects to fruition, with several clear examples of success. Several of the PRIPs reported that they have successfully used seed money to generate new and competitive applications.

Reviewers acknowledged that it is difficult to conclusively attribute important findings and significant numbers of publications to PRIP funding, when other activities at the institution (including individual research grants) combine to support research. Ideally, one should examine the non-successes, as well as the counter-factual scenario in order to determine where the field would be without the PRIP, or whether PRIP funds were spent in other ways. Even if such an analysis were possible, however, the findings would not negate the conclusion that PRIP is a highly productive program that adds a great deal to the field of population science.

R21 Developmental Infrastructure Awards

Special consideration was given to the R21 Developmental Infrastructure Awards, which reviewers considered to be extremely valuable (so long as there are centers developing new programs), because they encourage greater outreach to smaller centers. Despite the DBSB's efforts to support the development of small centers, PRIP has a tendency to award, promote, and maintain large-sized centers. Reviewers observed that the two institutions that have won an R21 award (including one that is expected to be awarded in FY2004) made substantial efforts in the years prior to the award in order to recruit population scientists and develop their programs.

Although large centers have been tremendous engines of success, a mix of center sizes was considered to be ideal. Some reviewers were optimistic and felt that it simply takes time for new entrants to learn how to apply successfully for a PRIP grant. There has not yet been a long enough exposure period to assess the success of the R21. Reviewers encouraged the program staff to consider investing additional resources or efforts in encouraging, recruiting, and facilitating smaller centers of excellence, in an effort to improve adherence to the stated goal of the RFA.

Although limited experience with the R21 makes conclusive findings about its success premature, there are early indications of potential concerns, including the apparent inability of truly small centers to show a record of successful application. Grant application reviewers tend to penalize small center applicants on the grounds of cost-effectiveness and limited impact. Reviewers recommended that greater attention be given to the evolution of the review process, since reviewers often are slow to break out of established review modes. Others recommended support for micro-centers, which could involve a cluster of three to five core researchers who are engaged in top-quality population research.

Review Concerns

A more general concern about review was registered regarding reviewers' highly subjective (and perhaps indiscriminate) use of innovation as a review criterion. For example, one of the weaknesses identified in one R24 application was limited innovation in the administrative core. Participants questioned whether innovation in such a core was truly necessary or desirable. As the more senior, accomplished reviewers tend to have a broader perspective and are often better able to recognize innovation, the need for careful reviewer selection was underscored.

Funding Process

Reviewers considered the current infrastructure funding levels to be adequate, although they acknowledged that there is insufficient information at this juncture to determine an optimal level of funding or needed sites.

Reviewers noted the variety of funding levels for individual centers, as well as the clear break (in terms of funding levels) between centers still finishing up their P30s (and funded more generously) and those that have been awarded R24s. Even among R24 grantees, the awarded dollars per claimed affiliate vary substantially, perhaps because of differences among awardees in the proportion of affiliates pursuing research related to the DBSB mission. (See discussion in Section II.) Reviewers were reticent about judging individual centers without knowing the institutions' programs, budgets, and budget justifications, and without knowing why research infrastructure support seems to be more expensive at some institutions than at others. Nevertheless, they noted that the DBSB goal of tying award levels to the size and scope of individual programs may not have been completely successful. In this sense, it is unclear whether or not the project is meeting its goal of leveling the playing field.

Reviewers felt it would be unwise to establish a target number of PRIPs, each funded at a capped level. They considered the overall program level to be adequate and found it difficult to imagine justifying expending significantly more on this program; nonetheless, they did not recommend decreasing funding levels. One reviewer stated that the virtues of having a larger number of diverse centers outweigh the constraints suffered by centers that are accustomed to receiving more generous funding. Reviewers perceived that DBSB is accomplishing a great deal for its money, and they endorsed its efforts to maintain, if not increase, the average quality-for-dollar-spent. Reviewers did not feel they had sufficient information to answer the question regarding un-met needs, and they recommended obtaining appropriate data from potential bidders who have yet to apply.

Few Alternatives to the PRIP

The PRCs' efficacy in obtaining outside support from other sources for research projects is attributed in great part to the basic infrastructure at the center(s). Experience suggests that infrastructure grants tend to facilitate networking by individual researchers and foster interdisciplinary projects. Few alternatives to the PRIP exist for creating a structure that makes such connections possible. Institutional commitments, while helpful, generally depend upon the NICHD funding. Some reviewers recommended fostering coordination between the NIA and NICHD infrastructure programs, in order to streamline requirements for center reporting. The new NIH Roadmap activities were mentioned, as were P01s and the judicious use of R01s. The use of these mechanisms for interdisciplinary research often depends upon having the infrastructure to facilitate contact between scientists from different disciplines.

Frequency of Competitions

Reviewers recognized that decreasing the frequency of PRIP competitions would help to reduce workload and give staff more flexibility (i.e., by pooling funds). However, centers seeking to revise and resubmit their applications could be put at a disadvantage, and this would exacerbate the challenges that arise when recruiting reviewers. Having an annual competition is beneficial, because it permits bridge funding, which enables unsuccessful NICHD-funded centers to try again. Reviewers could not come up with a smooth way to decrease the frequency of competitions, given the five-year funding period; they worried that allowing any more than two years to elapse between competitions would have a negative impact on the program's momentum. Given the vagaries of NIH funding, reviewers recommended that annual competitions continue. Since budgets are allocated annually, there is no reason to deviate from an annual schedule; in fact, severe problems have been associated with moving away from the annual competition format. In the end, reviewers believed that this is an operational question, which is best sorted out by program staff members who are most familiar with institutional constraints.

Free-standing Research Projects

Given that none of the successful applicants have sought funding for free-standing research projects (outside of seed programs), reviewers supported DBSB's plan to remove this option in the next round of competition, due to an apparent lack of interest by applicants.

Progress Reporting

Reviewers were cognizant of the program's legitimate need to measure the productivity generated by PRIP grant funds, without overly burdening the centers' management. The program reasonably seeks to ascertain the ratio of PRIP support to university support, or the ratio of seed money support to grant applications produced and grant money secured. Essentially, the program hopes that centers will help answer the question: "What would research at your institution be like, in terms of productivity and scientific advances, without the center grant?"

Although it is more useful than the P30-era core usage data, the current reporting mechanism does a less than optimal job of answering such questions. The lack of uniformity among (and, in some cases, absence of information provided in) progress reports suggests the need to standardize responses sufficiently, in order to facilitate comparisons. These issues are a function of both the established guidelines, as well as uneven compliance with established guidelines.

It is important to assess the effectiveness of seed money, but this would require (1) clearer reporting of how seed money was used, and (2) a framework for determining the value of the cores. Echoing the 1999 Report, reviewers sought to reduce the administrative burden on Principal Investigators, to allow them to engage in more science. However, a strategy is needed for measuring the burden placed on the Principal Investigator by PRIP administration, without having that strategy also generate excess burden in the process. Participants also brainstormed about other ways to evaluate the efficacy of seed programs, including possible counter-factual comparisons.

Another researcher recommended using templates more liberally. For example, for publications lists, grantees could be directed to count only those articles that were published or in the press within a certain window of time (i.e., the last five to ten years), in order to minimize double-counting. In addition, grantees should be given instructions about how to report articles with multiple authors. It also would be useful to know how many grant applications were submitted within a given time period, and how many of these were funded. Because summarizing performance measures can be onerous, reviewers recommended a longer reporting period. It is important that DBSB clarify that the information being sought will not be used to measure individual PRIPs, but is valuable data for monitoring the PRIP program as a whole.

Summary of Recommendations by Expert Panel

- Continue the population research infrastructure (R24) and developmental infrastructure (R21) programs, because (1) they add value and (2) there are few alternatives to the PRIP. The advancement of population research depends upon having this kind of infrastructure in place, in order to allow multiple disciplines to interact in the pursuit of knowledge related to population issues.
- Promote greater outreach to smaller centers.
- Continue to focus upon recruiting appropriate review panels, with sufficient representation by senior members who are able to recognize innovation; also, promote better alignment of review behavior with published review criteria.
- Consider smaller amounts of support for "micro-centers," which would involve a cluster of three to five researchers who are engaged in top-quality population research.
- Eliminate free-standing research projects in future PRIP RFAs.
- In the absence of overriding reasons not to, maintain the current format of annual competitions.

- Improve progress reporting requirements:
    - Consider asking PRIP grantees to count the number of seed projects started per year, as well as the number of applicants seeking and being awarded funds.
    - Consider more liberal use of templates in order to facilitate aggregation of information from all centers.

IV. FEEDBACK FROM POPULATION RESEARCH COMMUNITY

DBSB staff contacted the population research community through email lists and other venues to inform them about this evaluation, and invited voluntary comments about the program, its structure and guidelines, and functioning to be submitted directly to Dr. Rose Li to allow for anonymity. The objective of this activity was to provide members of the population research community an opportunity to express their opinions about any aspect of the program and bring to staff attention any problems in its design or operations. Written responses were received from principal investigators of three NICHD-funded centers all of which benefited by prior P30 funding. Verbal input was received from an affiliate of an applicant institution that held prior NICHD center support but has not been successful in the PRIP competition. The comments identified a number of positive aspects of the PRIP, raised few concerns, and offered suggestions for improvement. These are summarized in more detail in Appendix 6; highlights are presented below.

The majority of respondents considered the transitioning of P30s to R24s to be an improvement because it has been accompanied by more innovative thinking in the application process, it has increased competition for awards, and it has placed greater emphasis on promoting scientific discovery, including production of collective public goods for the scientific community, rather than staff support. As one respondent stated, “the competition from new centers is forcing the well established and older centers to be thinking more aggressively and creatively about the future than they would have otherwise. I also feel that in this day and age, centers do need to streamline as much as they can, and look for savings by partnering with other centers with complementary (rather than duplicative) assets.” More generally, the process of applying for the PRIP requires beneficial self-study to determine strengths and weaknesses, both scientifically and organizationally

Other positive aspects were noted:

- Focus on production of scientific knowledge and collective goods for the scientific community, including but not limited to generating external grants and contracts; the value of colleagues who make enormous intellectual contributions but do not produce large-dollar revenues is appropriately recognized.
- Recognition that pre- and postdoctoral training are intimately connected with the production of high volume, high quality research, and should be accorded value in the awarding of infrastructure support
- Opportunities to direct funds directly to research, consider new forms of core support to fit the talents and mission of each unique center
- Clearer and more sensible instructions and organization of the application with each year of experience

Concerns expressed by one or more of the four respondents included:

- Reductions in funds for large, highly productive research centers may have costs that outweigh the value of adding new, often smaller, collections of population scientists.
- Broadening of the base of centers being funded may reduce the overall quality of the program.
- The program’s emphasis on counts of affiliates and encouragement of interdisciplinary work may overshadow the primacy of research quality (this respondent stressed the value of single

disciplinary approaches and argued that program claims of interdisciplinarity should be rigorously tested).

- Population research infrastructure grants awarded to institutions that focus on just one or two areas, and not several of the [DBSB-supported] population areas.
- Tension between DBSB encouragement of creating new interdisciplinary collaborations and unwillingness to consider affiliates not doing population research in making funding decisions.
- Annual competitions that create year-to-year variations in funds available for specific RFAs, possibly distorting when new entrants compete and creating potential disparities in the treatment of applications across funding years.
- The absence of site visits as part of the review process; site visits, while expensive, "provide a level of familiarity that is at once critical for a full and fair appraisal and impossible to achieve any other way."

V. CONCLUSION

The field of population studies is growing scientifically in terms of research domains and is increasingly collaborative across disciplinary boundaries. Overall, the PRIP provides a unique and cost-effective way to ensure that the field advances scientifically. Population centers seek to add value by promoting interdisciplinary research, expanding faculty participation in population research, and reducing administrative burdens to free up more time for valuable research. The 1999 transformation of the population centers made the program more flexible, and interjected a greater sense of urgency, creativity, and innovation that has on the whole been well-received by the research community. Although one public comment took issue with funding new centers without expanding overall funding for the program, none of the expert reviewers raised this as a concern.

The impressive breadth of disciplinary coverage by the nearly 700 affiliated PRC scientists addresses the full range of DBSB research themes. Available data show the PRC funds to be highly leveraged, judging by its relatively modest proportion (about 4 percent on average) of total center support. In addition to institutional resource commitments, the PRIP funds have also in many cases provided seed money to develop new projects that have led to the submission of competitive research grant applications to the NIH and other funding sources. A number of indicators of program accomplishments increase confidence that the research being conducted by the centers is innovative, exciting, and important. The overall picture shows a healthy mix of social science and natural science publications outlets for PRC researchers. About 5 percent of the total articles reported in progress reports penetrated the highest impact natural science and biomedical journals, suggesting that the research supported by PRCs has broader appeal beyond the immediate field of population research.

There is clear evidence that the review process improves the field as a whole. The improvement results from the process of responding to reviewer comments by streamlining operations and core functions, jettisoning less productive affiliates, and negotiating for greater concessions from their institutions, in terms of resource sharing. The perceived prestige and benefit of PRIP funding also encourages competition to the good of the field. The PRIP not only fosters healthy competition among aspiring and funded centers, but also motivates affiliated investigators to be productive in order to retain the benefits of membership. Although such incentives serve an important purpose, making clear the expectations and indicators for success, infrastructure programs must be careful not to penalize researchers seeking to do deeper, more exciting work that may not be reflected in grant getting or high rates of publication, and may take longer to reach fruition.

There appear to be few alternatives to the PRIP. Experience suggests that center grants tend to foster interdisciplinary projects and facilitate networking by individual researchers. Few alternatives exist for creating a structure that makes such connections possible on such a fundamental level. Advancement of

population research depends on having this kind of infrastructure in place to allow multiple disciplines to interact in pursuit of knowledge related to population issues. There would be little or no existing infrastructure for this within universities without the incentives provided by the program.

The focus of the PRIP progress reports on accomplishments and impact is considered far superior to the prior P30 progress reports focused on usage of cores, personnel, and publications, with no information provided on most important research advances, new projects under development, or indicators of "centeredness." Some Center Directors have also been heard to say that the R24 applications are more fun to write compared to the earlier P30 applications. Suggestions for improving progress reporting are documented in this report. The greater standardization of information fields has the added advantage of facilitating NICHD/DBSB's ability to respond to *ad hoc* and ongoing requests by policymakers and other officials.

Although the assessment of the PRIP is generally positive, there are some instances where an assessment must await a longer passage of time. This includes any conclusions about the success of the R21 Developmental Infrastructure Award to transition to R24 status, whether or not the PRIP has succeeded in ultimately "leveling the playing field," and whether there are any unmet needs. Nevertheless, there are sufficiently numerous indications that PRIP provides invaluable infrastructure support for the population research field to warrant enthusiastic support for at least another 5-year cycle.

Appendix 1. DBSB Guidance to Population Research Infrastructure Grantees on Content of Progress Reports, April 30, 2002

DBSB is requesting that grantees under the Population Research Infrastructure Program (PRIP) provide, in their annual progress reports, information that will be used to evaluate the success of the program on an ongoing basis. This document summarizes the content requested for progress reports submitted by grantees in their annual noncompetitive continuation applications. To give grantees a sense of how their information may be used, it also summarizes the criteria DBSB will consider in evaluating the PRIP.

(1) Content requested in annual progress reports

Please Note:

- The content requested below is to be included in the "Progress Report Summary" portion of form PHS2590. Please continue to follow all procedures, and provide all information, required for continuation applications from your institution.

- We request that grantees send electronic copy of their progress reports to DBSB (cbachrach@nih.gov) *in addition* to submitting them per the instructions in the continuation application package. Once NICHD transitions to the electronic submission of continuation applications, this will no longer be necessary.

Program description and status
Briefly summarize the objectives, signature population-related themes, and components of the infrastructure program, highlighting any significant changes.

Note any changes in key scientific and technical personnel. Append biosketches for new personnel.

Provide a "summary table of research support" for the prior year (see http://www.nichd.nih.gov/RFA/HD-01-010/HD-01-010.htm#research)

Accomplishments
Describe scientific activities and accomplishments during the last year, for example:

- Important new research project grants or contracts awarded or pending award (provide brief summary, no longer than an abstract in an NIH grant application). A complete list of active and pending research projects for key personnel is required elsewhere in the continuation application – do not repeat this here! Rather, highlight the most important new projects.
- A complete, integrated list of publications of program scientists during the last year, arranged alphabetically by first author. If presentations, working papers, etc. are included, please include in a separate section.

- The most significant research advances produced by program scientists (summarize what they are and why they are important). (Limit to no more than one for every five program scientists.)
- The most significant new research projects under development (describe aims and significance). (Limit to no more than one for every five program scientists.)
- The most significant evidence of other scientific accomplishment and impact, e.g., awards, specific evidence that methods, data, etc. developed by program scientists have resulted in significant research advances for the field. (Limit to no more than one for every five program scientists.)

Describe activities and accomplishments related to the dissemination and application of population research. Illustrative examples include:

- Statistics on the dissemination and use of datasets provided by the program
- Information on any research summaries, fact sheets, or other products prepared to communicate population research findings to nonscientific audiences, and the nature and size of audiences served by these products.
- Information on the activities of program scientists and technical staff in communicating with representatives of the media and policy-makers at the local, state, and federal levels.
- Evidence of "translational" activities that apply basic research to programs, service delivery, and other activities to improve the health and well-being of the population.
- Evidence that research findings of program scientists have influenced the formulation, implementation, or continuation of policies, programs, or other strategies affecting health and well-being.

Infrastructure Components

For each component funded under the grant, highlight briefly:

- significant changes in the objectives, organization, or functioning of the component, if any;
- significant accomplishments specific to the infrastructure component (not discussed under scientific accomplishments above); and
- significant problems experienced and how they have been or will be addressed.

For the infrastructure program as a whole, provide a few examples (no more than one for every five program scientists) that illustrate how the program is facilitating and sustaining high-quality, innovative research. Examples might include specific instances in which the activities of the program have:

- advanced the objectives of the program by supporting the development and application of innovative methodologies or approaches to population research;
- facilitated collaboration among investigators with expertise in different disciplines or fields of study;
- effectively contributed to the training and career development of new population scientists;
- attracted new investigators into population research; and/or
- leveraged resources from other funders in support of population research.

(2) Evaluation Criteria for PRIP

The following criteria will be used by the DBSB to evaluate the success of the PRIP program as a whole. Three primary factors will be considered.

Mission:

Is the PRIP supporting activities relevant to the mission of the DBSB?

Impact:

Are the grantee programs supported by the PRIP advancing the quantity and quality of population research, its accessibility, and its application? E.g., as appropriate:

- How has the research conducted in grantee programs advanced scientific knowledge relevant to population research?
- Have the activities of grantee programs led to the development of new projects that advance research?
- Have investigators in grantee programs achieved a substantial record of high-quality publications?
- Has the research had an impact on scientific concepts, theories, methods, or accomplishments?
- Have grantee programs disseminated important research findings to non-scientific audiences, e.g., policy-makers, communities, and interest groups with a stake in the research, and/or the general public?
- How has the research influenced the formulation, implementation, or continuation of policies, programs, or other strategies affecting health and well-being?

Process:

Have the grantee programs supported by the PRIP developed effective mechanisms for facilitating and sustaining high-quality, innovative research? E.g., as appropriate:

- How have the activities of grantee programs supported the development and application of innovative methodologies or approaches to population research?
- How have the activities of grantee programs facilitated collaboration among investigators with expertise in different disciplines or fields of study?
- How have the activities of funded programs contributed to the training and career development of new population scientists?
- Have the grantee programs been successful in attracting new investigators into population research, including newly trained scientists and experienced scientists trained in other fields?
- Have the grantee programs been successful in attracting other funding sources and have they leveraged other resources in support of population research?

Appendix 2. DBSB Research Themes Addressed by Center Affiliates

	Bowling Green State University	Brown University	Johns Hopkins University	Pennsylvania State University	Population Reference Bureau	Princeton University	UCLA	UNC-Chapel Hill	University of Chicago-NORC	University of Maryland	University of Michigan	University of Minnesota	University of Pennsylvania	University of Texas, Austin	University of Washington	University of Wisconsin
Fertility and family planning, including abortion, infertility, contraceptive use and acceptability, sexual behavior		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
HIV/AIDS and sexually transmitted disease	•		•			•	•	•			•		•		•	•
Family and household demography, including partnering and parenting, cohabitation and divorce, family structure, adoption, intergenerational relationships, fatherhood, child care, child support	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Health, mortality, and well-being including biodemography, aging	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Socioeconomic differences in health, including race & ethnicity, gender, health disparities	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Immigration and migration	•	•		•	•	•	•	•			•		•	•	•	•
Population composition and change, including population projections	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Work, family and health, including income and wealth effects	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Population and environment, including spatial demography	•	•		•		•	•	•		•	•			•	•	•
Historical studies		•	•				•	•	•		•	•	•			
Formal demography, including demographic methods	•	•	•	•		•							•		•	•
Data collection and survey methods			•	•		•	•	•	•	•	•	•	•		•	•
Applied demography/business demography	•				•					•		•				

Note: Based on information found in progress reports, summary statements, and applications in some cases.

Appendix 3. Core Functions Supported by Population Research Center Grants by Institution

	N	Bowling Green State University	BrownUniversity*	Johns Hopkins University*	Pennsylvania State University*	Population Reference Bureau	Princeton University**	UCLA	UNC-Chapel Hill*	University of Chicago-NORC*	University of Maryland	University of Michigan*	University of Minnesota	University of Pennsylvania*	University of Texas, Austin**	University of Washington	University of Wisconsin*
Initial Year of P30 Support			1991	1973	1991		1979	2001	1973	1984		1976		1978	1971		1972
Administrative	15	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•
Computing services/Information technology	15	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•
Library and information services	11	•	•	•	•		•	•		•		•			•	•	•
Data access/analysis services	6				•		•					•	•	•			•
Development (e.g., seed money, speakers, briefs, faculty recruitment)	11	•	•	•	•		•	•			•	•		•	•	•	•
Geographic/spatial information analysis/systems	3				•				•								•
Statistics and other methods	5				•		•		•							•	•
Biodemography or biomedical, STD and biomarkers	3			•					•							•	
Public outreach/translation, including user support of center-based da	7			•		•	•				•	•	•	•			

Notes: * = Continuous prior P30 funding; **Interrupted prior P30 funding

Appendix 4. Reported Publications in High Impact Journals, 2002*

Category	Journal title	ISInet impact	Frequency
Aging	Journal of the American Geriatrics Society	3.1	3
Anthropology	American Journal of Physical Anthropology	2.1	3
	Current Anthropology	2.0	3
Criminology	Criminology	2.4	4
Demography	Demography	2.1	33
Economics	American Economic Review	2.1	31
	Brookings Papers on Economic Activity	3.0	1
	Journal of Economic Growth	2.0	1
	Journal of Economic Literature	4.3	3
	Journal of Economic Perspectives	3.1	8
	Journal of Health Economics	1.7	1
	Journal of Political Economy	2.0	9
	Quarterly Journal of Economics	3.9	7
Environmental Sciences	Economic Geography	2.5	3
	Environmental Health Perspectives	3.5	1
	Progress in Human Geography	2.8	4
Epidemiology and Public Health	American Journal of Clinical Nutrition	5.6	2
	American Journal of Epidemiology	4.2	16
	American Journal of Public Health	3.3	19
	Annals of Epidemiology	2.2	3
	Annual Review of Public Health	4.1	2
	Bulletin of the World Health Organization	2.7	5
	Epidemiology	4.0	7
	Health Services Research	2.3	6
	International Journal of Epidemiology	2.4	8
	Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology	3.9	18
	Journal of Adolescent Health	1.5	13
	Journal of Epidemiology and Community Health	2.1	5
	Journal of Infectious Diseases	4.8	5
	Journal of Nutrition	3.6	7
	Sexually Transmitted Diseases	2.4	8
	Sexually Transmitted Infections	2.2	6
	Vaccine	2.8	1
General Health	Health Affairs	2.9	7
	Health Economics	1.7	2
	Milbank Quarterly	2.0	2
	Social Science and Medicine	1.9	31
Genetics	American Journal of Human Genetics	10.6	1
	Behavioral Genetics	2.8	1
	European Journal of Human Genetics	3.1	1
	Human Genetics	3.4	2
Other Medical or Science	Addiction	2.9	3
	AIDS	6.0	13
	AIDS Research and Human Retrovirus	2.3	1
	American Journal of Medicine	4.9	3
	American Journal of Obstetrics and Gynecology	2.6	9
	American Journal of Preventive Medicine	2.6	2
	American Journal of Psychiatry	6.5	1
	American Journal of Tropical Medicine & Hygiene	2.1	4
	Archives of Internal Medicine	6.7	1
	Archives of Pediatrics and Adolescent Medicine	2.1	3
	Cancer Causes and Control	2.9	3
	Clinical Infectious Diseases	4.8	2
	Diabetes Care	5.5	4
	Drug and Alcohol Dependence	2.5	2

Appendix 4. Reported Publications in High Impact Journals, 2002*

Category	Journal title	ISInet impact	Frequency
	Hormones and Behavior	2.8	4
	Hypertension	5.0	1
	International Journal of Cancer	4.1	1
	International Journal of Obesity	2.4	2
	Journal of Clinical Microbiology	3.6	1
	Journal of Pediatrics	3.2	2
	Journal of the American Academy of Child and Adolescent Psychiatry	3.7	2
	Journal of the American College of Cardiology	6.3	1
	Journal of the National Cancer Institute (JNCI)	14.5	1
	Medical Care	3.2	6
	Medical Care Research and Review	2.6	5
	Medical Decision Making	1.9	2
	Neurology	5.3	2
	Obesity Research	3.0	5
	Obstetrics and Gynecology	2.5	7
	Pediatrics	3.4	9
	Prostate	3.2	1
	Psychosomatic Medicine	3.2	4
Psychology/Neurosciences	Annual Review of Psychology	7.9	1
	Journal of Child Psychology and Psychiatry	2.5	2
	Journal of Health and Social Behavior	2.5	25
	Journal of Personality and Social Psychology	3.6	2
	Child Development	3.3	8
	Developmental Psychology	2.5	4
	Health Psychology	3.5	2
Sociology and Family Studies	American Journal of Sociology	2.1	12
	American Sociological Review	2.8	13
	Annual Review of Sociology	2.7	9
	Family Planning Perspectives	2.2	1
	Journal of Marriage and Family	2.0	64
Statistics and Probability	Econometrica	2.7	3
	Journal of the American Statistical Association	1.7	5
	Journal of the Royal Statistical Society Series B--Statistical Methodology	1.8	1
Top Science/Medical	Annals of Internal Medicine	11.4	3
	British Medical Journal	7.6	1
	JAMA	16.8	8
	Lancet	15.4	2
	Nature	30.4	5
	Nature-Genetics	26.7	1
	New England Journal of Medicine	31.7	3
	Proceedings of the National Academy of Sciences	10.7	2
	Science	29.0	4
	Scientific American	2.5	1
		Subtotals	582

Source: 2002 JCR Science or Social Science Edition

*Journals with an impact factor of 2.0 or higher for 2002 as reported in Science or Social Science ISI Journal Citation Reports (JCR).

Notes: Based on publications reported by PRC affiliates in 2002-2003.

The "impact factor" is a measure of the frequency with which the "average article" in a journal has been cited in a particular year or period. The impact factor of a journal is calculated by dividing the number of current year citations to the source items published in that journal during the previous two years.

Appendix 5. PRIP Expert Review Teleconference Agenda

Evaluation of NICHD Population Research Infrastructure Program (PRIP)
Teleconference
May 19, 2004 • 1:00 – 2:30 P.M.

AGENDA

1:00	Brief introductory remarks by DBSB Staff
1:20	Discussion (See Formal Evaluation Questions below)
2:30	Adjourn

Formal Evaluation Questions:

Based on the materials you've been given, please give your general assessment regarding:

1) What initial evidence exists that:

- The PRIP is succeeding (or not) in supporting activities that advance (or are likely to advance) the quality and quantity of population research, its accessibility, and its application?
- The PRIP is succeeding in stimulating the development of effective mechanisms (e.g., seed grant programs) for advancing high-quality, innovative research?

2) What, if any, problems of program design, process, or management (e.g., RFA guidelines, review) are affecting the success of the program?

3) What steps could be taken to address these problems or to enhance program performance?

In addition to these questions, DBSB staff has some specific points on which they'd like advice:

1) None of the successful applicants have sought funding for free-standing research projects (outside of SEED programs), and DBSB is considering removing this option in the next round of the program. Is there any reason to retain this option?

2) What benefits and costs do you see in retaining the R21 program?
Note: To date there have been two successful applicants for the R21 program - Bowling Green and one from the current round. Funds for this program will not be drawn from the PRIP pool in future years but from the general pool for research grants. However, R21 grantees that transition to R24s will be drawing from the PRIP pool.

3) Currently, competitions for PRIP funding are held annually. Would you see any disadvantages to holding competitions less frequently, say, twice in every five year period?

And some general questions:

1) To what extent can you comment on the value-added of the centers, and what would NOT have been accomplished had center funds not been available? What evidence do you look for in helping to assess if the centers are (or are not) adding value?

2) Should this program continue? Why or why not?

3) Are funding levels for individual centers generally adequate? Too generous?

4) If the PRIP program continues, what guidelines would you give the Institute regarding the optimal level of funding or number of sites that you think is needed adequately serve the field of population research? How much higher or lower could these levels go without undermining the purposes and/or quality of the program?

5) Without the PRIP, what alternatives would be available to accomplish the goals of innovation, "centerness" and interdisciplinarity?

6) Should progress reporting requirements be clarified or modified in any way? (What would you want to know that the progress reports are not capturing?)

Appendix 6. Summary of Comments from Population Research Community

DBSB staff contacted the population research community through email lists and other venues (e.g., Center and Training Directors' Breakfast at the Population Association of America meeting in 2004) to inform them about this evaluation, and invited voluntary comments about the program, its structure and guidelines, and functioning to be submitted to Dr. Rose Li to allow for anonymity. The objective of this activity was to provide members of the population research community an opportunity to express their opinions about any aspect of the program and bring to staff attention any problems in its design or operations. Written responses were received from principal investigators of three NICHD-funded centers all of which benefited by prior P30 funding. Verbal input was received from an affiliate of an applicant institution that held prior NICHD center support but has not been successful in the PRIP competition. The comments identified a number of positive aspects of the PRIP, raised few concerns, and offered suggestions for improvement.

Positive Aspects

Respondents who considered the transitioning of P30s to R24s to be an improvement believed this to be the case because "(1) it has encouraged more innovative thinking in the application process…(2) it has increased competition for awards, in part because the greater flexibility allows more new competitors, and (3) it has shifted the orientation somewhat towards the science and away from means of supporting core staff. Of course these have happened to various degrees, and probably there will be ongoing shifts in these regards over several rounds." Another respondent echoed this assessment, stating that "the competition from new centers is forcing the well established and older centers to be thinking more aggressively and creatively about the future than they would have otherwise. I also feel that in this day and age, centers do need to streamline as much as they can, and look for savings by partnering with other centers with complementary (rather than duplicative) assets."

Other positive aspects were noted by a third respondent, including:

- Focus on production of scientific knowledge and collective goods for the scientific community, including but not limited to generating external grants and contracts; the value of colleagues who make enormous intellectual contributions but do not produce large-dollar revenues is appropriately recognized.
- Recognition that pre- and postdoctoral training are intimately connected with the production of high volume, high quality research, and should be accorded value in the awarding of infrastructure support
- Opportunities to direct funds directly to research, consider new forms of core support to fit the talents and mission of each unique center
- Clearer and more sensible instructions and organization of the application with each year of experience

More generally, the process of applying for the PRIP requires beneficial self-study to determine strengths and weaknesses, both scientifically and organizationally

Perceived Weaknesses

The funding of new centers and new activities within centers without new money was seen to directly conflict with recommendations of the P30 expert review panel. According to this view, "The policy

decision was, in effect, to reduce support for large, highly productive research centers without an examination of the potential costs of such reductions weighed against the value of adding a few additional, sometime smaller, collections of population scientists." This respondent added that the PRIP competition "set up expectations for everyone to take up the new activities or to claim that they were already engaged in them," which resulted in an implicit program decision "that current core research support is unnecessary or too costly and must be reduced – again, without an examination of that claim or the costs of reduction." This concern was echoed by another respondent who worried that "new centers are being funded by cutting funds for existing centers. In my estimation this will inevitably reduce the quality of population science in the United States."

Contradictory messages about access to infrastructure resources were also perceived. "While stressing the need to bring in scholars from disciplines in which population research is neither common nor highly valued," DBSB has created "boundaries on participation and 'body counts' as a basis for infrastructure support."

Other comments took issue with the types of centers being funded. One respondent contended that "population research infrastructure program grants should only go to institutions that focus on several of the [DBSB-supported] population outcomes and dynamics [e.g., the determinants, consequences, and patterns of population size, growth, and change, including such topics as fertility, mortality, migration, family patterns, and population health], and not to institutions that only focus on one or two, i.e. health only, labor force only, etc. The latter, in my estimation, DO NOT DEFINE A PROGRAM of "Population Research."

By broadening the base of centers being funded, one perspective holds that quality is in decline. One respondent contended that counts of affiliates and purported interdisciplinary commitments have overshadowed the primacy of research quality, which is not constrained by the extent of interdisciplinarity. Elegant studies using single disciplinary approaches should not be dismissed, and may be preferred in some cases. This respondent also observed that claims of interdisciplinary approaches need a more rigorous test. He proposed that greater reliance be placed on joint publications and actual attendance at seminars outside of one's primary discipline.

One respondent perceived the maintenance of the old funding cycle to be a weakness, because "funds are much greater in some years than others (which may distort when new entrants come in and may mean that equal applications are funded very differently depending on which round they are funded)." This respondent also noted some "tendency, despite more innovative applications, to end up preserving the old core structure more than intended because of previous staff commitments that are hard to change quickly so they persist when budgets are cut as drastically as they have been cut (but hopefully this will change over time)."

Suggestions for Improvement

A suggestion was made that site visits be reintroduced as part of the review process. "They're expensive, and at times controversial, but they provide a level of familiarity that is at once critical for a full and fair appraisal and impossible to achieve any other way."

One respondent raised a number of suggestions for improving progress reporting:

- Explicitly include direct internal support for research (as opposed to infrastructure) in the table for external and internal funding
- Standardize the number of pages for biosketches for NIH applications; for PRIP the biosketches are restricted to 2 pages while for other grant applications, including training grants held by many of the same centers, the page restriction is 4 pages.

- Consider eliminating requirement for applicants to describe how each member would use each type of infrastructure support – “the validity of guesses about how much or in what way each person will use such staples as administration, computing, information or methodological support is in my estimation almost zero…”