National Institute on Aging (NIA)
National Advisory Council on Aging (NACA)
Behavioral and Social Research (BSR) Program Review Committee

BSR Review Committee Report

May 2004

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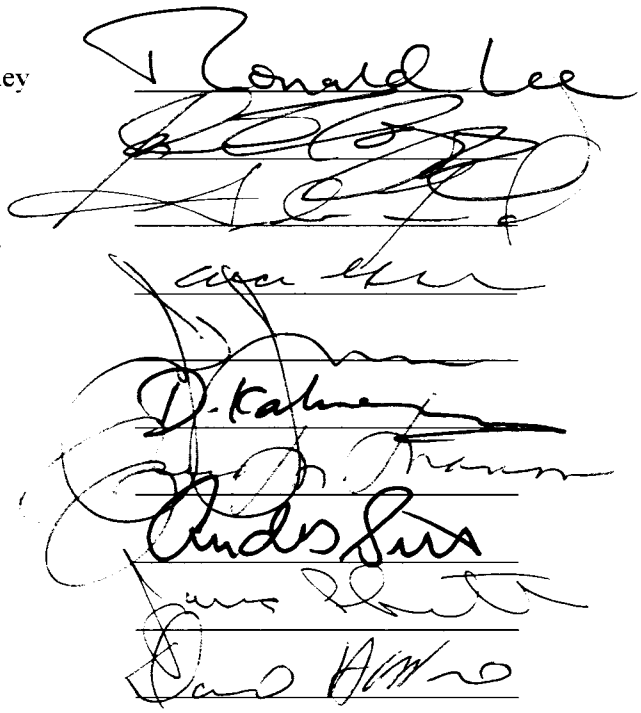

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I. INTRODUCTION

The present review of the Behavioral and Social Research (BSR) Program is part of the NIA's periodic and broader review of its programs to assess whether the overall performance and more importantly the future trajectory of research being promoted and supported by a Program are appropriate. Some of the challenges include assessing the balance of what is being supported, and perhaps most challenging of all is to imagine those areas that are underrepresented or not represented. The reviews are meant to help staff improve the programs through self-evaluation and advice.

Previous reviews of the BSR Program were conducted in February 1998 and May 2000, with the latter focused on BSR's reorganization and future directions. The 2004 review committee consisted of ten distinguished scientists, of whom five are current NIA Council members and three are former NIA Council members. Several of the current committee members served on one or both of the previous BSR reviews (Alan Garber, James Jackson, Anderson Smith, James Smith, and David Wise).

We received considerable background material from Dr. Richard Suzman, Associate Director of the BSR Program, including three detailed letters that presented several issues and important context for our review, copies of the prior review reports, summaries of program efforts and staffing, and trends in topic area support. In addition to written materials provided by BSR staff, we interviewed selected individuals, participated in three 90-minute conference calls (April 23, May 3, and May 17) prior to the actual review on May 23-24, 2004, and each participated in a number of separate subgroup deliberations. We attended a working dinner meeting on May 23 that included a closed executive session, and met at the NIH on May 24 with Drs. Hodes, Salerno, Suzman, BSR staff, and several other members of the NIA staff.

Our review was guided by seven overarching questions:

1) What promising areas for future research should BSR be encouraging?
2) Has BSR been supporting a balanced, high quality, and innovative portfolio of research?
3) Is the allocation of funds across the various mechanisms appropriate, e.g., regular research, program projects, centers, training grants, basic research grants?
4) Is the Program adequately staffed?
5) Is the review process working adequately for BSR? (Should a separate body be constituted to investigate this?)
6) What should be the role of BSR in funding data gathering in the future? (Should a separate body be constituted to investigate this?)
7) Are BSR's relationships with other components of NIA and NIH, as well as other Federal and international agencies, appropriate and optimal? (e.g., biobehavioral linkages and collaboration with other NIA programs; life course perspectives and collaboration with NICHD; interagency support for Census and NCHS activities)

Twelve subgroups were formed to examine specific research topic areas (shown in Appendix 1 with rationales for their inclusion, subgroup members, and others who provided consultation), to provide a brief statement highlighting BSR achievements and shortcomings in those areas, and to outline guidance for future directions. The topic areas were not meant to be comprehensive and were suggested from a number of sources, including BSR staff and NIA Council members. They represent important, burgeoning areas or areas needing extra attention that may be perceived as being deficient or potentially important for progress. The subgroups were asked to think broadly and not be constrained in scope when defining priorities for their assigned areas, and also to help BSR define boundaries in some cases (e.g., health services research).

II. DESCRIPTIVE BACKGROUND

The BSR Program is organized into two branches under the direction of the Associate Director, Dr. Richard Suzman. The Chief of the Individual and Behavioral Processes branch is Dr. Sidney Stahl, and the Acting Chief of the Population and Social Processes branch is Ms. Georgeanne Patmios. The Office of Research Resources and Development coordinates and implements initiatives related to research data and resources.

BSR managed $162.3 million in extramural grants activity in FY2003, with the greatest amount of funding (at least $7.0 million each) associated with research in demography, social psychology and personality, cognitive functioning, health care (including caregiving but not exclusively Alzheimer's Disease-related), databases and research methods, health, work and retirement, health and behavior, and health disparities. Behavioral genetics represented a relatively small but growing proportion of program activity. These areas tracked fairly well with the areas of emphasis that BSR has publicized since 2000.

BSR also managed $4.5 million in interagency agreements in FY2003, primarily to the Census Bureau, National Academy of Sciences, World Health Organization, and the National Center for Health Statistics. These agreements support program development, creation of research resources and infrastructure, and dissemination of information on aging. BSR has commissioned the NAS to help develop certain areas.

III. REVIEW OF SCIENTIFIC TOPIC AREAS

The BSR program is creative, dynamic, and takes risks. It has aggressively pursued new and promising areas, which are often interdisciplinary. This interdisciplinarity is a defining characteristic of the program.

This section lists the recommendations for each scientific topic area. Fuller descriptions of the deliberations and recommendations are available upon request. ***We want to underscore that the number of recommendations or length of write-up for these topic areas in the full report is not indicative of the relative importance attributed by the Committee to the different topics.*** Length simply reflected the differing styles of the groups assigned to each topic.

A. Biodemography

BSR has supported pioneering research in biodemography over the past decade. In the future it should:

- In collaboration with other units of NIA and NICHD where appropriate, support biodemographic research using human and nonhuman organisms.

- Develop genetic topics in biodemography, such as the study of (see full report for examples): phenotypic outliers; intersection of social sciences and genetics; extend formal theory to include multiple genes and multiple phenotypes; extend formal theory related to variability in time of death in heterogeneous populations; collaborative work by physiologists, geneticists and demographers on age related changes; experimental demography of non-human organisms.

- Continue to develop and support the current lines of research.

- Encourage collaborative interdisciplinary studies. Specific suggestions include: (1) One RFA that invites applications in the identified areas. (2) Conference funding to support 2 - 3 meetings on the intersection of formal demography and biodemography. (3) Summer training programs

B. Health and Retirement Economics

Some of the most important contributions of BSR have been in the area of health and retirement broadly defined. This is an area in which BSR through its investments in data infrastructure and research has effectively transformed the field so that the old walls between the disciplines that existed a decade ago have been lowered. It is a singular accomplishment for which BSR staff should be singled out for their contribution. BSR should:

- Build upon foundation of BSR-supported retirement studies to consider more comprehensive models of retirement that help improve understanding of the likely effects of major policy changes (e.g., personal social security accounts, the labor supply response to lump sum versus annuity payouts, and other policies).

- Continue important international leadership efforts to cofund international studies that parallel those supported in the U.S. Prominent examples include the English Longitudinal Survey of Aging (ELSA), the Survey of Health, Retirement, and Aging in Europe (SHARE), the Indonesian Family Life Surveys, the WHO aging surveys, and the English Whitehall study.

C. Behavioral Economics

The domain of behavioral economics includes studies of the economically relevant implications of Richard Thaler's claim that people are characterized by “bounded rationality, bounded selfishness and bounded self-control.” NIA has been involved in studies of saving behavior, where important advances have been made in recent years. This work highlights the themes of bounded rationality and limited self-control, and it has significant policy implications. The central instrument for research in this area is surely the HRS. In recent years, the domain has expanded to include studies of well-being. Several behavioral economic topics seem particularly relevant to the NIA research agenda. These would include:

- Continue to support research in behavioral economics of particular relevance to NIA, including on (1) quality of decisions about retirement, savings behavior, financial literacy, and about life arrangements in old age; and (2) measurements of well-being.

- Consider issuing an RFA on the general area of behavioral economics. This RFA should not be limited to a specific application topic, but should instead seek out the most innovative work on a variety of substantive applications including but not limited to those mentioned in the full report. The solicitation should also encourage the use of cost effective innovative methods of measurement, including internet surveys, since most conventional surveys were not fielded with the needs of behavioral economics in mind.

D. Cognitive Aging

How cognitive functioning changes with age has been a major focus of BSR over the past decade. In the future, BSR should:

- Continue to support advances in cognitive aging, especially through the appropriate application of new techniques and analytic methods such as neuroimaging.

- As much basic research on cognitive aging within broader sociocultural contexts remains to be done, and given the scope and interdisciplinary nature of these opportunities, encourage greater collaboration with other NIA programs (especially with Neuroscience and Neuropsychology of Aging that has a large portfolio in cognitive aging) and other offices (e.g., Office of Behavioral

and Social Science Research) and institutes at NIH to support investigator-oriented research opportunities, infrastructure needs, and large-scale research initiatives. For instance, we echo the NRC Committee's recommendation for a large-scale multi-site, population based longitudinal study of cognitive aging to better understand the needs of an increasing proportion of the U.S. population.

- Promote research on optimal cognitive aging as well as normal and abnormal cognitive aging to identify those facets of cognition that are improved or sustained into older life.

E. Psychological Development and Integrative Sciences

In recent years, BSR has made a deliberate effort to promote integrative scientific training and research. BSR is to be lauded for its leadership role in this effort and encouraged to continue especially in the areas of genetics and psychology. BSR's experiences over the past few years raise several issues that warrant consideration.

- Ensure that the theories and expertise from various scientific fields are represented in a deep and meaningful way. Costly large scale databases supported by BSR also should strive to include broader ranges of expertise to make integrative analyses possible.

- Peer review of integrated science applications is critically important to insure the higher expenses typically associated with such efforts is worthwhile. Because of challenges associated with recruitment of appropriate reviewers for integrative research efforts, develop an RFA to promote more such applications and plan on the additional staffing needed to promote, review and manage such applications.

- By definition, integrative science requires endorsement by other programs. The recent report of the Geriatrics Program underscored where interfaces with BSR might be productive, and we echo their recommendations. Structural issues, procedures and resources (e.g., staffing) for inter-program and inter-branch collaborations to promote integrative science warrant attention.

- Consider an RFA that invites applications that exemplify integrative science in the study of lifespan development and aging

F. Behavioral Genetics

BSR seeks to connect genetics more broadly with behavior, which is interrelated to multiple environmental factors, and to better link social and behavioral sciences to genomics activity at the NIH and elsewhere. BSR has been trying to address how genes influence behavior and more complicated questions around dynamics that have to do with gene-environment interactions, and how environment might influence genetic expression. Some of the topics outlined in the Biodemography section (above) should be considered valuable starting points for BSR to pursue in terms of the types of research that BSR is interested in promoting that build upon its current research portfolio. BSR has not focused on specific phenotypes primarily because of potential conflicts with other NIH units. Here are suggestions for future directions:

- Develop a set of criteria for making decisions concerning priorities for the content of the BSR Program portfolio that embraces genetics and genomics (See full report for sample criteria and illustrative high priority research themes.)

- Support interdisciplinary training programs for behavioral geneticists who understand complex phenotypes to increase their awareness of the enormous power of molecular techniques. This is a major educational issue and opportunity.

- Assemble a small expert group to discuss priority areas that focus on bringing together social sciences and genetics, to produce a more focused statement of what should be pursued. There are whole areas of genetics intersecting with behavioral and social sciences research (e.g., biodemography) that have not been covered by the two workshops that BSR has already convened.

- Some specific topics that might be particularly tractable include: obesity, mild cognitive impairment, late-life depression, hypertension, and neurogenesis.

- Consider appropriate inducements to recruit permanent staff with relevant interdisciplinary expertise to help manage behavioral genetics, and to carve out what is unique enough to BSR that it does not overlap with other NIA areas of interest.

G. Health Services Research

The boundaries issue is more salient for health services research than in many other areas, both because HSR itself is an ill-defined field, and because NIA has to decide which pieces of HSR it should consider part of its domain. NIA's priorities in health services research should reflect the unique strengths and interests of the Institute. We have some very specific recommendations about how to define the boundary here:

- Refrain from pursuing health services research questions that do not have specific implications for the elderly. Give special consideration to substantive areas that are clearly within the domain of NIA interests and are only sporadically funded by other agencies. Promote health services research related to initiatives that NIA is pursuing. Studies of the delivery of health care to older persons with multi-morbidity, frailty, and/or disability would be an especially appropriate focus for such efforts. Make research related to the Medicare program a high priority.

- Reflect NIA's deepening interest in promoting cross-disciplinary and multidisciplinary research, including work that brings together the biological sciences and the social sciences, in its health services research agenda.

- Support the development of methods, including better measurement of functional limitations, to improve the ability to address high priority substantive research areas.

- Omit from BSR's HSR agenda purely clinical evaluations, such as clinical trials of medical interventions, as distinct from evaluations of behavioral interventions; studies only incidentally related to aging; studies that would be more appropriate for another agency with a well-defined agenda.

H. Behavioral and Social Interventions

Interventions are a growing part of BSR's portfolio, and BSR has requested guidance on how to structure it. BSR is to be congratulated for leading in funding of integrative studies of aging at the population level, bringing in-depth assessment of health factors, such as psychologic factors, to population research. This type of research is a model for future directions.

The working group focused on health related interventions, and did not consider economic interventions. Some related thoughts on economic interventions may be found in the full reports on translational research and behavioral economics.

Our suggestions for interventions research are:

- Invest in a substantive, in-depth review in this area by a broader review group. BSR should seek ways for training and research to support the integration of biological, social, psychological and economic expertise.

- Emphasize behavioral and social interventions to improve health, particularly those that integrate biology, behavioral and social factors to preserve physical and cognitive function. Contributions in these areas need to be more interdisciplinary, have more theoretical depth, increased innovation, and improved generalizability.

- Focus on maintaining physical and cognitive function, resiliency, and reserves with aging as the primary health outcomes of interest. Increase investment in improving physical function outcomes, including through interventions beyond physical exercise.

- Enhance population level research on health, and integrate individual level and population based research.

- Tailor the level of intervention to the scientific area.

I. Health Disparities

A relatively large part of NIA's minority aging research programming is located in BSR. The Resource Centers for Minority Aging Research (RCMARs) represent an important resource for facilitating study participant recruitment, retention, and ensuring culturally relevant approaches to the identification, operationalization, and measurement of key constructs. The National Research Council is due to release a major report updating the 1999 minority aging research, training, and outreach study. It was designed to inform NIA about recent research findings in this area and to help develop its future research agenda for reducing racial and ethnic health disparities in later life. Topics of particular relevance to BSR include the nature and extent of racial and ethnic disparities in life-expectancy, and health and disability in later life; the extent to which these disparities in racial and ethnic differences in later life can be attributed to differences in life-style risk factors, access to health care, and other biological, social and economic factors; and SES gradient within minority populations and examination of immigrant populations that seemingly have better health than native-born populations. Since that report will provide far deeper coverage of this topic than is possible in our report, we will defer to it, while supporting interventions that help reduce health disparities.

J. Translation of Research Findings

Translating research into practice or policy has become a top priority for much biomedical research. It is also important for behavioral and social research, although translation poses challenges that are different from those faced by traditional biomedical research. The research supported by BSR can result in new ways to organize care, to finance it, and to understand its impact. The ultimate impact may be very large, and larger than the impact of a specific medical intervention. However, it can be difficult to establish that the impact is a direct result of the research. Challenges in measuring translation, and challenges in translation itself, should be addressed by BSR. Two important steps that can be taken are:

1. To consider the potential for an impact on practice or policy when setting funding priorities;

2. To develop strategies to ensure that translation occurs and methods to accomplish this.

To promote a translational agenda, the NIA should:

- Support the development of better methods for translating behavioral and social research into practice and policy. Among the challenges are improved communication of results to diverse audiences; providing substantive information to audiences that can act on it, such as policy makers, health care providers, and other caregivers; and ensuring that the results can be implemented at reasonable cost and effort.

Some research areas supported by BSR are particularly promising for translation: quality of decisions about timing of retirement; savings behavior and retirement planning; human factors research and technology use; health plan choice; decisions about living arrangements; efficiency of specific health practices such as Alzheimer's treatments.

- Conduct an examination of the Roybal Centers experience, an activity explicitly devoted to translational research, including areas of success and obstacles to implementation that might lead to lessons that are applicable to other BSR research.

K. Analytic Methods Including Survey Methods Especially Important for BSR Agenda

There are major methodologic issues that are central to meeting the current agendas of BSR and NIA in general. Through supporting these research needs, BSR would also be supporting the methodologic needs of multiple programs at NIA.

- Consider reissuing PA-02-072 (Methodology and Measurement in the Behavioral and Social Sciences) when it expires in 2005. Many of the needs and issues described would benefit from further investigation. Particular emphasis on older age should be strengthened.

- Address significant needs for new and improved analytic methods for the discovery of causes and risk factors, improved diagnosis and early detection, understanding declines in disability rates, and reducing health disparities, and for construct and phenotype measurement, conduct and analysis of multilevel trials and longitudinal surveys, design of new treatment strategies, and as infrastructure and resources for clinical trials.

- Support development of new methods to support cross-fertilization of fields, translation, and brainstorming. Mechanisms beyond a one-time conference grant are needed to support multidisciplinary innovation. A combination of approaches are likely needed, particularly ones that lead to substantive progress through facilitating collaboration of methodologists with other scientists.

- Provide continued leadership in the development and implementation of approaches that lead to results of methodologic research being known widely and having an impact. Potential approaches could be to require investigators to make the case for the value and applications of their research, and to require investigators to address the translational implications of their work. Reports should be prepared for nonspecialists; special issues of journals on new methods should be considered; cross-disciplinary training programs should be supported; training grants should incorporate new methods.

- NIA's next strategic plan for post-2005 should include assessment of statistical and other methodologies needed to accomplish goals of the strategic plan.

L. Training Program in Psychology

Training grants in the psychology of aging seem to come in two forms. The first represents interdisciplinary gerontology programs that include psychology among other disciplines. A few of these programs have been funded for over 25 years (USC, Penn State, Duke). These programs are typically housed in campus-wide Gerontology centers. The second form of support seems to represent more focused programs specifically dealing with psychology and housed in psychology departments.

- We suggest a systematic study of the influence of training programs in the development of scientists studying the psychology of aging is needed.

- Develop procedures to ensure that T32 grants are awarded to institutions with state-of-the-art training programs. One possibility would be to issue a targeted training grant announcement, focusing on the areas that now receive inadequate attention.

- When it comes to the research portfolio, NIA and BSR have procedures in place to identify areas of special opportunity for understanding aging and for improving the lot of the elderly. Nothing similar seems to exist for T32s. Major scientific advances (e.g., the human genome map), methodological advances (e.g., functional imaging technologies), statistical innovations (e.g., various covariance and longitudinal analyses, cross-lagged multilevel modeling, nonlinear dynamical analyses), and multidisciplinary developments (e.g., behavioral economics, cognitive & social neuroscience) change the training needs for scientists in the field of aging.

M. Macroeconomic-Demographic Aspects of Population Aging

Recent work has focused on the implications of population aging for social security systems and for health care, and there is no lack of work in these areas. Many of the dire implications of population aging are likely to be mitigated by saving, changes in retirement, and other policies.

- While this area need not be a principal focus, there are opportunities for serious research on important issues have received less attention. BSR should welcome and facilitate good research applications directed to these questions, such as: How will population aging affect aggregate savings and capital formation in industrial and developing nations? How will the inflows to asset markets when the baby boomers are aging and the subsequent outflows when they retire affect financial market returns? How might such effects be moderated by international capital flows? How will GDP be affected by possible declines in the labor force? What about the effect of an aging labor force on productivity? How will demand in different sectors of the economy be affected by older consumers? What are the implications of such effects for equity returns? What might be the macro effects of an expansion of the health care sector to 30% of GDP?

N. Formal Demography

BSR has played an important role in funding work in formal demography in the past. The power of formal demography lies in its ability to connect the micro and macro demographic processes, and in its ability to link these micro and macro demographic processes to related processes in other fields, such as sociology, economics, psychology, public health, anthropology, or biology (evolution). Formal demography provides a valuable and rigorous interface with important formal work in many other disciplinary approaches, and thus is a cornerstone for interdisciplinary research.

- We believe that research in formal demography is most appropriately conducted on substantive problems of interest, not for its own sake. We therefore believe that it is important that BSR be open to applications on any topic which take the approach of formal demography. It would be useful to increase the representation of reviewers in study section with relevant backgrounds.

- The teaching of formal demography has declined in the past two decades, and training programs do not have a critical mass of students with the necessary math skills and the interest to support a course in mathematical demography. One possibility is a summer training program that could gather students from around the country at one place. Such a program might be co-funded with NICHD.

- Consider a RFA for formal work in specific areas, e.g., evolutionary biodemography, forecasting, biological and socioeconomic models of heterogeneity.

IV. GRANT APPLICATION REVIEW PROCESS

BSR asked us to consider any issues related to the review process for grant applications, particularly in cross-cutting areas. There is the possibility of both giving a poor or mediocre score to an outstanding application and of giving an outstanding score to a weak or pedestrian application. We believe these are the exceptions, and on balance, the peer review process is working well. Although there are occasional complaints about the review process, we do not have evidence to determine whether there are systematic problems with grant review. Several committee members had the impression that the review process for applications in BSR areas has improved in the past two years. We could not evaluate the grant review process fully without additional information. One problem, for example, is that unfunded applications are not made public. Another complication is that applications which are initially unfunded may ultimately be funded. We concluded that substantial effort would be required to ensure a meaningful review of this issue, including whether it really is an issue, and that this is beyond the purview of our group.

It was also noted that potential problems might arise from relatively thin expertise because NIH study sections must serve multiple institutes and are not captive to one institute or program. This creates an inherent problem during regular reviews because an application can end up subject to the perspective of a few reviewers for a very long time. Specific examples of need for relevant reviewers were mentioned in the areas of formal demography and in the integrative sciences.

Frustration was also noted over the lack of inclusion of researchers with specific expertise on specific racial/ethnic minority groups whether as an ad hoc or on a standing basis. This has been recognized as a frequent and continuing deficiency, albeit one that is difficult to overcome.

V. BSR ROLE IN FUNDING DATA COLLECTION EFFORTS

BSR currently has a research portfolio on data collection that is $30-$40 million dollars per year on data collection alone. While the Health and Retirement Study is by far the largest single grant (almost $10 million a year), there are currently about 80 distinct projects. The substantive span of the projects is equally impressive, covering intervention studies, cognition, health and SES, disease risk factors, social determinants of disease and well-being, immigration and health, biodemography, and pyscho-social pathways. There is also an impressive international component to the portfolio with at least partial funding being provided to parallel studies in most continents of the world.

The current state of BSR's investment in data collection as one of its principal infrastructure investments has come a long way since 1987 when a report singled out the lack on data in aging as one of the principal constraints on the development of the science. While most of the currently funded projects appear to be investigator-initiated, it is also clear that BSR staff and in particular its director have played a crucial role

in leadership and facilitation. ***This represents one of the stellar achievements of BSR over the last decade.***

The issues now appear to be very different than they were at the end of the 1980s. A partial list of those issues might be: (1) Is there unnecessary overlap in these investments? (2) Are the data being placed in the public domain in a timely fashion? (Our assessment from examining the projects is that the answer to that question is mostly yes and great progress has been made but that there are a few problem areas remaining.) (3)Are there major gaps still to be filled (perhaps in the area of cognition, see Cognitive Aging above) and if so, what is the best way to remedy the situation? These questions go beyond the scope of this panel. BSR has proposed to constitute another advisory body for this purpose, similar to the one that was convened in 1987, and we strongly endorse this approach given the substantial funds devoted to data collection infrastructure projects. We further recommend that BSR encourage that all data collection that it funds be placed in the public domain within a reasonable timeframe (usually less than a year) after the data are collected, consistent with the NIH Data Sharing Policy.

VI. FUNDING MECHANISMS

Although BSR appears to rely more heavily on Program Project (P01) grants compared to other programs, it is difficult to judge the appropriateness of this practice without studying the grants, and we did not have any reason to suggest the current allocation is inappropriate. We noted specific examples of judicious use of certain funding mechanisms by BSR. The Research Centers on Minority Aging Research (RCMARs) exemplifies the ability of a centers program to create a critical mass for moving an agenda forward particularly in the early stages. Dr. Suzman's approach in reissuing the Roybal RFA after the initial recompetition did not draw sufficient numbers of high quality applications was highly commended. It was also noted that the P01 and linked R01 mechanisms often provide better options for achieving meaningful collaborations among experts in the study of integrative sciences that bridge multiple disciplines and levels of analyses. We would encourage BSR to review this issue more carefully in the near future, as the distribution of mechanisms may again become an NIH-wide issue which could have implications for NIA support strategies.

VII. THE SCOPE AND QUALITY OF BSR'S RESEARCH PORTFOLIO AND ITS RELATIONSHIPS WITH OTHER COMPONENTS OF NIA, NIH, AND OTHER FEDERAL AND INTERNATIONAL AGENCIES

A. General Principles

As we noted above, the BSR program is creative, dynamic, and takes risks, and it has aggressively pursued new and promising areas, which are often interdisciplinary. This interdisciplinarity is a defining characteristic of the program. Because of this interdisciplinary dynamism, it comes in contact with other programs, giving rise to a number of issues. Such issues are bound to arise for any program, but perhaps occur more frequently for BSR. In this regard, we suggest the following principles:

- BSR should encourage the use of the most appropriate methodologies to answer the research questions they address, including such innovative techniques as neuro-imaging and those used in genetics. The BSR program area should be defined by content rather than method.

- The points of complementarity and interface should be identified and embraced as a way to bring expertise together. These areas may actually represent the most important opportunities for program development.

- There is a need to share expertise across programs. Sometimes this might take place through inter-program collaborations, but other times it might be more efficient through collaborations

between HSAs in other programs, without formal inter-program collaboration, which appears to be costly in terms of staff time.

- There is ambiguity and conflict over applications at the boundaries. We suggest that in some cases, HSAs may be able to draft guidelines periodically to simplify the assignment decisions.

- It is necessary to maintain sufficient flexibility so that the program can adapt as the science evolves.

- It is important to try to minimize the stress and time costs for staff as the program parameters change.

B. Extent of Collaborations

The amount of collaboration across BSR, across NIA, and across NIH has escalated over the years. BSR in particular has had very extensive collaborations with other agencies and departments such as the Administration on Aging (AoA), Centers for Medicare and Medicaid Services (CMS), the Census Bureau, the National Center for Health Statistics (NCHS), the World Health Organization (WHO), and the Department of Justice.

We conducted telephone interviews with staff at other offices, including Dr. Christine Bachrach at the Demographic and Behavioral Sciences Branch of NICHD; Dr. John Ruffin at the National Center for Minority Health and Health Disparities (NCMHD), Dr. Nell Armstrong at the National Institute of Nursing Research (NINR), Mr. John Wren and Mr. Brandt Chvirko at AoA, and Ms. Maria Theresa Connelly at the Department of Justice with specific focus on relations involving the Individual and Behavioral Processes Branch and health disparities; the Neuroscience and Neuropscyhology of Aging (NNA) Program (Drs. Marcelle Morrison-Bogorad, Associate Director of NNA and Molly Wagster, head of cognitive aging for NNA); and BSR staff (Drs. Sid Stahl, Chief of the Individual Psychological Development Branch and Jeff Elias, head of cognitive aging for BSR).

The Behavioral and Social Research Program has an extremely strong record of interagency collaboration that extends NIA's impact far beyond its own organizational borders. In many cases, BSR has developed and sustained critical alliances with other agencies within as well as outside of the DHHS. These relationships have prominently featured NIA-sponsored research and training, have facilitated the translation of that research into community practice, and have attracted resources beyond those available in NIA alone to leverage a range of activities central to the Institutes' mission. The challenge, with increased pressure on limited personnel, is how to maintain and expand these partnerships.

Among the many examples that demonstrate this impact:

- Collaboration with the Census Bureau, National Center for Health Statistics, National Heart, Lung and Blood Institute, and the National Cancer Institute in cosponsoring the National Longitudinal Mortality Study, a long-term prospective record-linkage mortality follow-up study of 1.3 million persons to permit investigations of socioeconomic, demographic (e.g., race, ethnic status, region), and occupational differentials in mortality within the US.
- One of three core agencies (with the NCHS and Census Bureau) to establish the Federal Interagency Forum on Aging-Related Statistics (Forum), which has expanded to include 9 other agencies. The Forum has played a key role by critically evaluating existing data resources and limitations, stimulating new database development, encouraging cooperation and data sharing among Federal agencies, and preparing collaborative statistical reports.

- Collaboration wit the Centers for Medicare and Medicaid Services (CMS) to support the data processing and logistical arrangements necessary to provide Medicare claims data to NIA's research projects.
- Collaboration with AoA to demonstrate how NIA-funded intervention research findings can be put into practice in senior centers and to link the NIA REACH Project with AoA's Alzheimer's Disease Demonstration Grants to States (ADDGS) Program. Both initiatives were highlighted recently by NIA Director Hodes and AoA Assistant Secretary Carbonell as examples of how the two agencies are working together at a joint appearance before the House Appropriations Committee.
- Collaborations with NINR and NCMHD in joint sponsorship of the Resource Centers for Minority Aging Research (RCMAR). The NCMHD Director credited the RCMAR initiative with significantly influencing his program's design of the Centers of Excellence in Partnerships for Community Outreach, Research on Health Disparities and Training (Project EXPORT).
- Collaborate with NICHD and other NIH Institutes and Offices in supporting a number of PA's and RFA's on topics as varied as social and demographic studies of race and ethnicity in the United States, social and cultural dimensions of health, maintenance of long term behavioral change, pathways linking education to health, intergenerational family resource allocation, long-term care recipients, methodology and measurement in the behavioral and social sciences

C. BSR and NNA

The relationship between NNA and BSR has been an issue addressed in previous BSR reviews. It remains an issue. Previous reviews emphasized that the portfolio of grants in cognitive aging was spread between NNA and BSR. Scientists were concerned about the perceived arbitrary assignments of grants to the two divisions, the ability of the two divisions to develop joint initiatives to take advantage of research opportunities, and the possibility that cutting-edge research could "fall between the cracks." Because of these concerns, a study by the National Research Council was commissioned by BSR that resulted in a book, "The Aging Mind: Opportunities in Cognition." To follow through on the recommendations of this study (see Cognitive Aging above) would seem to call even more strongly for joint initiatives across the two divisions (e.g., neuroimaging and cognition in context). The fact that there are as many as 20 conflicts between BSR and NNA for cognitive aging grants for a recent Council meeting validates the perceived overlap among the two programs. Although there is generally a good working relationship between program staff, stronger leadership and support at higher levels would benefit NIA as a whole in terms of constructive joint initiatives to further the field. This should be a higher priority at the NIA.

VIII. BSR STAFFING

There has been an almost complete turnover of professional staff since Dr. Suzman assumed the Associate Directorship in the fall of 1998. The committee spent considerable time deliberating how best to support the efforts of BSR and to facilitate what is perceived to be a very effective and successful program.

Although some excellent new staff members have joined BSR in the last few years, and many capable staff have stayed with the program over the years, it appears to be extremely challenging for BSR to recruit new staff and many key positions remain vacant. BSR reported four vacant FTEs (out of a total of 16 available) as of April 8, 2004, including the position of PSP Branch Chief. As a result, individuals who remain are required to perform not only their usual responsibilities but must take on additional duties out of necessity, and assist with training new staff and others that rotate through the program (including IPAs, temps, summer interns). As staffing was also a major concern 4 years ago at the last BSR review, it must be acknowledged that this appears to be an ongoing challenge that requires some serious attention. The

impending departure of the Deputy Associate Director compounds the problems for an already overtaxed staff.

The current BSR staff should be commended for their dedication and commitment to the program, particularly in the face of these continued hardships. Although Drs. Suzman and Hodes have found many creative ways to assist with BSR program development activities (e.g., Drs. Jennifer Harris, Julia Lane, and Teresa Seeman through part-time contracts; Mr. Kevin Kinsella through an Interagency Agreement; NAS; SSRC), much of the burden for the administrative functions has fallen on the Federal employees within BSR (the HSAs, Program Analysts, and other support staff) who are the backbone of BSR. The Committee was dismayed to learn that departing administrative staff cannot be replaced pending the resolution of the OMB A-76 situation affecting extramural support staff positions, the uncertainty of which effectively encourages the exodus of the most qualified individuals.

There are many indications that the understaffing at BSR has very real implications. a) Grantees among the Review Committee members have experienced a perceptible decline in the services provided to them by staff, and in the timeliness of those services. For example, one of the ways in which the staffing limitation manifests is the feedback on application reviews. b) Data provided to us by BSR show that the grant per HSA load in BSR is higher than in most, but not all, other units in NIA, although this measure does not reflect the heavy costs of collaborative arrangements, cooperative agreements, and P01s. c) Staff in other parts of NIH, such as NICHD, perceive BSR to be seriously understaffed. d) Staff professed an inability to meet their own and the community's expectations of the level of service to the grantee community, and are hindered in their ability to spend the creative time to organize and plan new scientific initiatives because they are so swamped with administrative tasks. This situation clearly impacts negatively on staff morale at all levels.

Although BSR is constrained by both staffing and budget limitations, the committee believed that BSR is not optimizing its potential because it currently is underinvested in staff. NIA/BSR could attract a larger budget if they had a tighter grip on their administrative processes. While this assessment of the situation does not fully reflect the contributions of Dr. John Phillips, a newly hired HSA, it also does not reflect the departure of the Deputy Associate Director, Dr. Laura Shrestha, who left at the end of May 2004 to take another position. In the near term, these problems are likely to worsen with Dr. Shrestha's departure. The committee agreed to strongly recommend recruiting more staff.

Possible steps to take:

1. The group believes that the first priority should be filling the position of Deputy Associate Director (DAD), one of whose important tasks should be to help Dr. Suzman clearly prioritize workload issues. The group believes an effective DAD must understand the science *and* be strong in administration. Since Dr. Suzman travels extensively, he or she should be fully versed in all the disciplines covered by the program. To make the job more satisfying, it might be useful to let a middle-level staff member handle the administrative details and give the deputy sign-off authority. Unfortunately, in the current situation of significant understaffing, fewer people are available to provide administrative assistance.
2. In addition, it important that there be a regular branch chief in PSP, and another HSA in IBP.
3. Therefore at least 3 available FTEs need to be filled in order for BSR to be staffed at even a minimal level. In the near term, until the staffing situation is resolved, research areas and functions need to be prioritized. Although BSR is constrained by both staffing and budget limitations, the group believed that NIA is not optimizing its potential, because it currently is underinvested in staff. BSR might attract a larger budget if they had a tighter grip on their administrative processes.

4. There may be some possibilities of using outside resources. IPAs are great for program development, but internal staff must be buttressed. Perhaps BSR could be given more flexibility to contract out for higher level administrative services.
5. The group felt it would be unwise to cut down on the number of areas recommended for program development. If recommendations for funding must be trimmed because of staff constraints, then the staffing problem is a major emergency. If the staffing problems are impairing real functions, this is a major concern that borders on a crisis.
6. See also staffing recommendation specific to Behavioral Genetics (Section II above).

IX. CONCLUSION

The outcome of our multi-faceted and heavily consultative deliberations reflects the richness of the BSR research portfolio, its many successes along multiple disciplinary and interdisciplinary trajectories, and the great potential for discovery in a number of arenas. BSR has many notable achievements of which NIA should be justifiably proud. These include pioneering research in biodemography over the past decade, transformative investments in data infrastructure and research in health and retirement economics, important advances in the area of savings and behavioral economics, the growing focus, coverage, and scope of the behavioral genetics portfolio, deliberate efforts to promote integrative scientific training and research, and highly productive collaborative arrangements with other Federal agencies and programs. The group recognized the impressive and demanding contributions that are being made by existing staff to move BSR's research agenda forward. Nevertheless, BSR's understaffing relative to its research portfolio prevents it from being able to fully exploit research opportunities.

The overriding consensus of the committee was to strongly endorse the scientific directions that BSR is pursuing. We have not recommended any specific changes, but have elaborated on some of the directions and highlighted some structural issues (e.g., staffing, collaborations with other NIA programs) that need to be resolved to maximize synergies. As we noted above, the BSR program is creative, dynamic, and takes risks, and it has aggressively pursued new and promising areas, which are often interdisciplinary. This interdisciplinarity is a defining characteristic of the program. Indeed, BSR long has been at the vanguard of promoting the interdisciplinary approach that NIH has recently embraced more formally through its Roadmap activities. The NIA leadership should be commended for bringing great vitality to behavioral and social research on aging. We also believe it should support BSR's efforts to encourage the use of appropriate methodologies, including such innovative techniques as neuroimaging and behavioral genetics, to answer the research questions of greatest import.

X. REFERENCES

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APPENDIX 1
TOPIC SUBGROUPS, PARTICIPANTS, AND RATIONALE

Topic Area	Review Panel Member (Subgroup leader(s) in BOLD)	Other Participants (*Council member)	Rationale
Macroeconomic-Demographic Aspects of Population Aging	**David Wise**, Ron Lee, Jim Smith		This is a possible area for increased activity. There is not much recent research on this topic, other than work focused on pension and health care systems, their fiscal problems, and consequences of their growth. So the central question is whether there could and should be work encouraged in this area. A provocative article by Cutler, Poterba, Sheiner and Summers (1990) sets out some of the issues that might be tackled in future research: population aging and increased longevity in relation to saving rates (normative and positive), labor productivity, rate of return to capital, foreign investment flows as an outlet for expected increases in capital accumulation, sectoral and overall consumption demand? To these might be added the potential macro effects of an expansion of the health care sector in recent decades, and looking forward to growth from 15 percent to maybe 30 percent in the next half century. These kinds of issues have attracted a lot of popular attention in certain quarters, but we need to think about whether there is also scope for a serious research agenda here.
Formal Demography, including Mathematical Demography	**Ron Lee**	Robert Schoen (Penn State), Shripad Tuljapurkar (Stanford)	Formal and mathematical demography are often said to be in decline, with little training of new researchers in the various training programs. Applications from strong investigators are often rejected in study section. Some feel this is appropriate, that the field lacks behavioral content, is just accounting identities, and deserves to die. Others think formal demography continues to be the soul of demography, and of great use to policy makers and modelers in other areas.
Biodemography	**Ron Lee**	George Martin (U Washington), Dan Promislow (Georgia), Shripad Tuljapurkar (Stanford)	Biodemography has been an apparently dynamic and successful area of BSR funding over the past decade, and looks promising for the future. Do we agree with this assessment? Suggestions for developing it further? Problems?
Health and Retirement	**Jim Smith**, David Wise	Angus Deaton (Princeton), Alan Gustman	This appears to be an active, high quality, productive field, fueled by the availability of the Health and Retirement Study (HRS) and other datasets. Possibly some issues in retirement economics have not been answered by

Topic Area	Review Panel Member (Subgroup leader(s) in BOLD)	Other Participants (*Council member)	Rationale
Economics		(Dartmouth)	current research. While BSR has permission for an RFA on retirement, is one still needed, perhaps calling for integrative research on pensions, health, and family? On health economics there are larger issues that intersect with health services research. Should BSR develop a special focus on the Medicare system, particularly given the new prescription drug benefit that becomes effective in 2006? Is the BSR/NIA portfolio of funded grants optimal in terms of not duplicating SSA funding?
Behavioral Economics	**Danny Kahneman,** Jim Smith, David Wise		This has been identified as a potential area for expansion of BSR activities. Past BSR efforts include a meeting in August 1999 on Psychology and Economics and a meeting in January 2000 on Measurement of Well-Being. Should this area continue to be expanded? If so, how should it be developed? What obstacles must be overcome? This area also has implications for behavior change, though many of the formal concepts are foreign to those who work in behavior change, though the problems are familiar.
Cognitive Aging	**John Cacioppo**, Andy Smith	Laura Carstensen (Stanford)	This is a major area for NIA and relevant questions include how successfully BSR has implemented the NAS report "Aging Mind," and whether suggested directions in interventions and a focus on decision making are sound.
Psychological Development and Integrative Science (across BSR areas, see BSR brochure)	**John Cacioppo**, Spero Manson	Ilene Siegler (Duke)	This has been one of the new foci for BSR and is also being taken up by the NIH more generally. BSR welcomed feedback on their performance in this area.
Behavioral Genetics	Ron Lee (ex-officio)	**Burt Singer** (Princeton), Kaare Christensen (U of Southern Denmark), George Martin (Washington), Gerry McClearn (Penn State), Matt McGue (Minnesota), Michael	Growing from a tiny base this is likely to be one of the fastest growing areas for quite some time. Feedback on BSR development efforts and how this area can be integrated with other areas, notably biodemography and psychological development and integrative science, was welcomed.

Topic Area	Review Panel Member (Subgroup leader(s) in BOLD)	Other Participants (*Council member)	Rationale
		Rutter (King's College London)	
Health Services	**Alan Garber,** Linda Fried, Danny Kahneman, David Wise	Chad Boult (Hopkins), Nicholas Christakis (Harvard), David Cutler (Harvard), Amy Finkelstein (Harvard), Elliott Fisher (Dartmouth), Dana Goldman (RAND), Vincent Mor (Brown), Frank Sloan (Duke)	BSR tends to receive grant applications from individuals whose health services research interests are better aligned with the AHRQ but who seek to tap into the substantially larger NIH funding base. How should BSR decide which applications are more appropriate for NIA as opposed to AHRQ? Funded research on this topic is a grab bag that needs greater coherence and focus.
Behavioral and Social Interventions	**Linda Fried**, Alan Garber	George Kaplan (Michigan), Carol Ryff (Wisconsin), Teresa Seeman (UCLA and NIA/BSR)	In terms of interventions research, what should be the focus, e.g., caregiving, savings, health behaviors? Interventions are a growing part of BSR's portfolio (including REACH and ACTIVE) and probably needs to be heavily managed. BSR needs to choose and select endpoints (cognition is an endpoint that BSR has decided should continue to be a focus) on which to focus, and some designs need to be selected, e.g., whether to move toward multi-level approaches. Not written up yet but very relevant to the current work on the disability decline, are embryonic plans for multi-level (including medical) community interventions to reduce disability, probably outside the US in order to make the studies affordable.
Health Disparities	**Spero Manson**, Alan Garber, James Jackson, James Smith		BSR expects to have to make decisions after release of the NAS Report on race and ethnicity and aging and on how to react within a no-growth budget. In the current funding environment, what should BSR activities be?
Translational Research	**Alan Garber**	Judy Riggs* (Alzheimer's	As the science matures this is also a growing part of BSR and while the Roybal Centers have been the main vehicle for applying and translating our results into everyday applications, there has perhaps been more success

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		Association)	within the policy fields adopting research results from the demography and economics area. To help improve this area, especially for SBIR grants, BSR commissioned the newly available report on Adaptive Technology from the NAS. BSR will probably issue a program announcement and perhaps an RFA. What more should BSR be doing?
Analytic Methods including survey methods especially important for BSR agenda	**Linda Fried**	Karen Bandeen-Roche (JHU); Laurel Beckett (UC Davis), Dan McFadden (UC Berkeley)	This topic was suggested by Linda Fried. Should BSR actively encourage research on methods that would be particularly useful to behavioral and social research on aging? For example, special issues in surveying the elderly, or special dynamic methods including recursive portioning (*cf.* NIA seminar by Burt Singer). There may also be significant value in disseminating methods more generally since many methods appear to be unnecessarily discipline-specific.
Training Program in Psychology; could be broadened to consider other training issues, such as interdisciplinary and multidisciplinary programs	**Andy Smith**, John Cacioppo, James Jackson, Danny Kahneman	Ilene Siegler (Duke)	It has been suggested that the training programs in psychology have not spread much from departments of human development into the major psychology departments as in other areas. Is this cause for concern, especially given BSR's emphasis on integrative science, and if so, what should be done about this situation? Are there other issues around training in other areas besides psychology that should be raised? In order to prepare for a more interdisciplinary research environment BSR is considering increasing the number of MD-PhD training programs, and is looking into dual PhD programs (on dissertation), some with radical opinions have suggested that what are needed are programs in quantitative social and behavioral science that merge current disciplines (unlikely).