Partnering to Advance Health Research: Philanthropy’s Role

March 3 & 4, 2004
Washington, DC

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THE HEALTH RESEARCH ALLIANCE:  
A Consortium of Biomedical and Health Research Organizations
PARTNERING TO ADVANCE HEALTH RESEARCH: 
PHILANTHROPY’S ROLE 
MARRIOTT WARDMAN PARK HOTEL, WASHINGTON, D.C. 
MARCH 3-4, 2004 

AGENDA

Day 1 – March 3, 2004

7:30 a.m.  Meeting Registration ~ Continental Breakfast ~ Resource Center – Delaware Room  
(room where participants can display information about their organizations)

8:30  Opening Remarks – Formalizing the Alliance – Virginia Room  
Nancy Sung, Ph.D., Burroughs Wellcome Fund

SYMPOSIUM 1:  Accelerating New Therapeutics and Vaccines: The “First Translational Block”  
Moderator:  Queta Bond, Ph.D., Burroughs Wellcome Fund

8:45  Keynote Address: The NIH Roadmap: Implications and Opportunities for Private Funders  
Speaker: Elias Zerhouni, M.D., National Institutes of Health

9:45  Panel 1: Interagency Partnering to Target Diseases  
Moderator:  John Stevens, M.D., American Cancer Society  
Panelists:  Susan Weiner, Ph.D., Children’s Cause/North American Brain Tumor Coalition  
Robert Goldstein, M.D., Ph.D., Juvenile Diabetes Research Foundation International  
Robert Beall, Ph.D., Cystic Fibrosis Foundation

10:45  Break – hallway outside Virginia Room

11:15  Panel 2: Interagency Partnering to Impact Global Health  
Moderator: Elaine Gallin, Ph.D., Doris Duke Charitable Foundation  
Panelists:  Seth Berkley, M.D., International AIDS Vaccine Initiative  
Maria Freire, Ph.D., Global Alliance for TB Drug Development  
Joseph Cook, M.D., International Trachoma Initiative

12:30 p.m.  Lunch – Delaware Room

SYMPOSIUM 2:  Accelerating Translation to Better Health: The “Second Translational Block” – Virginia Room

1:30  Introduction:  Constance Pechura, Ph.D., Robert Wood Johnson Foundation

1:45  Keynote Address: Future Environment for Clinical Research and Effective Strategies for Improving Clinical Care  
Speaker: Clement Bezold, Ph.D., Institute for Alternative Futures

2:30  Panel: Partnership Models that Influence Health Outcomes  
Moderator:  Debbie McCoy, M.A., M.H.P., Arthritis Foundation  
Panelists:  Clem Bezold, Ph.D., Institute for Alternative Futures  
Robert Bonow, M.D., Northwestern University Feinberg School of Medicine  
Lewis Sandy, M.D., UnitedHealthcare

3:30  Introduction for Breakout Groups  
Moderator:  Pat Hinton, M.A., M.S., American Heart Association

3:45  Break – hallway outside Virginia Room
Day 1 – March 3, 2004 (continued)

4:00 Breakout Sessions – Five Strategies: – Virginia Room
   Strategies: Discussion Questions:
   1. Support for research and training How is this strategy underutilized and how can it be better used?
   2. Clinical trial recruitment Which tools are likely to have the greatest impact in the future?
   3. Information dissemination How will the strategy benefit from cross-sector collaboration (federal, pharmaceutical, healthcare payers, etc.)?
   4. Quality assurance programs
   5. Advocacy

4:30 Report Back from Breakout Sessions - Pat Hinton, M.A., M.S., American Heart Association

5:00 Summary of the Day and Next Steps - Nancy Sung, Ph.D., Burroughs Wellcome Fund

5:45 Reception and Dinner - Maryland Room
   Introduction: Robert Goldstein, M.D., Ph.D., Juvenile Diabetes Research Foundation International

Day 2, March 4, 2004

7:30 a.m. Final Registration ~ Continental Breakfast ~ Resource Center – Delaware Room

SYMPOSIUM 3: Program Evaluation and E-Grantmaking – Virginia Room
   Moderator: Martin Ionescu-Pioggia, Ph.D., Burroughs Wellcome Fund
   8:30 Program Evaluation Fundamentals & Best Practices
   Moderator: Maryrose Franko, Ph.D., Howard Hughes Medical Institute
   Leader: Dan Stryer, M.D., Director, Center for Quality Improvement and Patient Safety
   Agency for Healthcare Research and Quality

10:00 Break – hallway outside Virginia Room

10:30 Panel Discussion: Lessons Learned in Real-World Evaluation - Virginia Room
   Moderator: Georgine Pion, Ph.D., Vanderbilt University
   Panelists: Lester W. Baxter, Ph.D., The Pew Charitable Trusts
   William Galey, Ph.D., Howard Hughes Medical Institute
   Laura Leviton, Ph.D., Robert Wood Johnson Foundation
   Judith Woodruff, J.D., Northwest Health Foundation

12:00 pm Lunch with Roundtable Discussions on Evaluation Issues - Delaware Room

1:30 Report Back from Roundtable Discussions - Virginia Room

2:15 Break – hallway outside Virginia Room

2:45 Update on E-Grantmaking - Virginia Room
   Moderator: T.J. Koerner, Ph.D., American Cancer Society
   Speakers: Charles Havekost, M.S., Grants.gov Program Manager
   Acting Director, Office of Grants Management and Policy
   Israel Lederhendler, Ph.D., Interim eRA Program Director, National Institutes of Health
   David Wright, Chief, Requirements Analysis Branch, National Institutes of Health

4:00 Next Steps & Closing Remarks - Debbie McCoy, M.A., M.H.P., Arthritis Foundation

4:15 Adjourn
In March 2004, a group of philanthropic organizations sponsored a conference in Washington, D.C. with the goal of examining opportunities for collaboration in addressing biomedical and health research needs.

“Partnering to Advance Health Research: Philanthropy’s Role” was attended by representatives from 78 biomedical research foundations and voluntary health agencies. Participating organizations included those that focus on a particular disease, as well as those whose mandate is as broad as the term “health.” Participating organizations included roughly equal numbers of those with annual budgets of less than $1 million and those with more than $100 million, with the majority scattered in between.

The overwhelmingly positive response to this event underscored the reality that there currently exists no coordinated forum in which non-governmental funders of health research can study the changing landscape of health research and its funding, identify emerging opportunities, forge collaborations around common interests, and share best practices. Participants also agreed that, in an era of constrained resources and increased accountability, there is a heightened need for coordination, not only of grant making, but also of evaluation of program outcomes.

At the conclusion of the meeting, participants indicated their interests in a more formalized alliance of health research funders and identified issues they felt warranted immediate action. A clear consensus emerged that a formal organization was needed to enable progress on these issues, include a larger number of interested funders, and, perhaps most importantly, provide a unified voice for the community of non-governmental funders of health research.

Several working groups were formed, and subsequent steering committee meetings were held in 2004 and 2005 at the offices of the Howard Hughes Medical Institute, the Doris Duke Charitable Foundation, and the American Association for Cancer Research Foundation. This new organization, the Health Research Alliance, will be officially launched in the fall of 2005 with a broad invitation to the community of private, non-profit funders of health research.

This publication reports on the proceedings of the March 2004 conference by capturing the main themes that emerged from the presentations and discussions. It is our hope that it will be of use to other funders of health research as they develop new programs, evaluate existing programs, and consider how best to leverage their resources in support of their missions.
CONFERENCE ORGANIZING COMMITTEE

Chair: Nancy Sung, Ph.D., Burroughs Wellcome Fund

Maryrose Franko, Ph.D., Howard Hughes Medical Institute
William Galey, Ph.D., Howard Hughes Medical Institute
Elaine Gallin, Ph.D., Doris Duke Charitable Foundation
Robert Goldstein, M.D., Ph.D., Juvenile Diabetes Research Foundation International
Pat Hinton, M.A., M.S., American Heart Association
Marc Hurlbert, Ph.D., Juvenile Diabetes Research Foundation International
Martin Ionescu-Pioggia, Ph.D., Burroughs Wellcome Fund
T. J. Koerner, Ph.D., American Cancer Society
Debra McCoy, M.A., M.H.P., Arthritis Foundation
Constance Pechura, Ph.D., Robert Wood Johnson Foundation
Melanie Scott, Burroughs Wellcome Fund
Debi Vought, M.S., Burroughs Wellcome Fund
Jerome Yates, M.D., M.P.H., American Cancer Society

Meeting Logistics: Catherine Voron, C.M.P., C.M.M., Burroughs Wellcome Fund
FORMATION OF THE HEALTH RESEARCH ALLIANCE

Foundations and voluntary health agencies view themselves as providing the “risk capital” in the biomedical research enterprise and take pride in their ability to recognize and support innovation leading to medical breakthroughs. Their organizational missions and approaches to problems are as varied as the individual donors whose philanthropic passions have brought them into existence.

The robustness of the American community of private grant makers is, in large measure, due to this history of entrepreneurial individuality. This particular strength is mirrored in the biomedical research enterprise, in which research initiated by individual investigators has been the engine driving the development of new therapies and in which the insights of individual clinicians can generate unexpected hypotheses.

Despite the importance of individuals’ ideas in science and philanthropy, the need for both scientists and funders to collaborate has become increasingly apparent in recent years. The number of diseases that can be traced to a single gene defect is dwarfed by the number whose etiology is far more complex and involves interactions among many genetic, environmental, and behavioral factors.

Increasingly, chronic diseases involve comorbidities that cannot be understood or treated within isolated specialties. Progress will require the diverse expertise of clinicians, biomedical and behavioral scientists, computational scientists, and engineers, working in collaborative teams.

Likewise, the issues that impede the translation of biomedical research into better health practices are systemic and are unlikely to be solved by private funders working in isolation and funding research on individual diseases. Although scientists routinely share their results at professional meetings and in scientific literature, the community of funders of health research has had no established forum in which to consider the changing scientific and medical landscape, to share their experiences of what has worked and what has not, and to identify common ground for collaborations.

It was with this reality in mind that a group of private funders of health research first convened in 1998 at the meeting “Strengthening Health Research in America: Philanthropy’s Role.” Jointly organized by the American Cancer Society, the Burroughs Wellcome Fund, the Howard Hughes Medical Institute, and the Pew Charitable Trusts, this gathering attracted attendees from more than 100 private grant-making agencies. Together they considered the future of biomedical research in light of major changes occurring in the funding streams for research within academic health centers. In 2002, the group met again at the meeting “The Role of the Private Sector in Training the Next Generation of Biomedical Scientists.” One day was devoted to the training of basic scientists and the next to the training of clinical investigators.

At that time the economy was booming, as were foundation budgets. By 2002, however, foundations and voluntary health agencies were both reeling from diminished endowments and donations, forced to scale back programs, reduce workforce, and look for greater efficiency of operations. The topic of the third meeting, “Research Funders’ Conference on Electronic Grantmaking,” sponsored by the Burroughs Wellcome Fund in 2002, was therefore timely. In addition to “shared intelligence” about scientific and programmatic
opportunities, the group found that it could benefit tremendously by sharing best practices on basic operational processes.

The ethos of these meetings was simple: they were jointly organized by funders for funders and they focused on fact-finding rather than pushing a particular agenda. The goals were to build a health research funders’ network and to identify a few ideas around which smaller groups could take action. Following the meeting in 2000, one such group—the Clinical Research Alliance—began to meet periodically. The group included a mix of private foundations and voluntary health agencies focusing on cancer, diabetes, arthritis, and heart disease.

Although some of these organizations can rightly be considered competitors—for donor dollars and for talented clinical investigators in their disease areas—members recognized that they share a very compelling common ground.

Primarily, they all must devote concentrated attention to the early career stages of clinical investigators—even before they “differentiate” into specific disease areas—by addressing the systemic disincentives that are driving the next generation of clinicians and scientists out of research. Fewer graduating medical students are expressing interest in research careers. Applications for research fellowships are declining in many subspecialties. Academic health centers provide few rewards for those desiring to move basic discoveries into clinical studies. The regulatory burden for clinical research is growing.

This concept of early career funding for “predifferentiated” investigators was admittedly counter-cultural to the disease-oriented funders in the group. However, the image of watering the roots of a tree in the hopes that it would one day produce different kinds of fruit—clinical investigators in different disease areas—helped to crystallize the need to work together on the common issues facing young investigators.

EARLY ACTIVITIES OF THE CLINICAL RESEARCH ALLIANCE

New Investigator Award Template

The alliance’s first joint effort, spurred by leadership from the Juvenile Diabetes Research Foundation, was to develop a “Cadillac” award template for new investigators. The group discussed the terms, eligibility, and features of such an award, agreeing that awards should be portable, should provide generous (up to $150,000/year) funding for at least five years, should be designated for those investigators whose work involves human subjects, should require a minimum of 75% protected time for research, should require proof of institutional commitment and mentoring, and should encourage didactic training in clinical research methods.

In response, several members of the group, including the Juvenile Diabetes Research Foundation and the American Heart Association, launched new awards programs based on the template. At the time, the Damon Runyon Cancer Research Foundation (DRCRF) had just pioneered a Clinical Investigator Award with a loan-repayment component. DRCRF’s willingness to share its experience shortened the learning curve for other groups that sought to incorporate loan repayment into their programs.
The alliance also studied several models for attracting underrepresented minorities into research careers and for providing research experience to medical students. Although it is too early to evaluate the impact of the programs that resulted from these discussions, the alliance members agreed that the sharing of experience and insight resulted in more focused efforts.

**Understanding the Scope of Private Investment in Career Development**

Recognizing that the scope of foundation funding for biomedical research was largely unknown and buried in annual reports, the group then assembled data showing that between 1997 and 2001, collective support from the Clinical Research Alliance had more than doubled, with the total annual amount for career development of clinical researchers increasing from $37 million to $78.5 million. Armed with this evidence of its substantial investment, the group authored several prominently placed editorials and met with the leaders of the National Institutes of Health (NIH) to express a shared concern for career development of clinical investigators and to press for rapid implementation of the NIH extramural loan-repayment program.

**Providing Career Development Resources**

Clinical investigators work in a complex environment. Beyond NIH, as a funding source, and academic health centers, as employers, are professional societies whose role is to establish and advance the careers of their members by providing opportunities to disseminate medical advances, recognize those who made them possible, and build a network among members. In recent years, the number of specialty societies has mushroomed. Although some of these organizations have made nurturing careers in clinical investigation a priority, as reflected in their annual meetings and programs, for most, the primary focus is on medical practice issues. As a result, in many subspecialties, fellows have nowhere to go to gain some of the basic skills they need to launch a research career such as how to write grants and papers, how to balance clinical and research responsibilities, how to turn a clinical observation into a research question, how to design a clinical study and lead an interdisciplinary research team, and how to navigate the regulatory environment.

Concurrent with the growth of specialty societies and the increasing disincentives to careers in academic medicine, the few viable “general” medical research societies saw a significant decrease in their memberships. These “nonspecialty” societies were in a better position to address generic research career issues, yet they were competing with one another for members and for a very limited pool of funds for career development programs. Here the role of the Clinical Research Alliance as a neutral convener became very apparent.

The alliance recognized that the leaders of these professional societies had never before worked together to identify opportunities for synergy. The alliance provided the invitation and location (at the offices of the Doris Duke Charitable Foundation in New York City) for these discussions, with the challenge to develop collaborative, nonredundant approaches that would target the career development of new clinical investigators. The alliance also provided a “carrot”: representatives from 10 private funding agencies would listen to their ideas and consider joint funding of a single proposal submitted by the group of professional societies. As a result, since 2000, several different societies have experimented with linking their annual meetings with joint career development sessions for trainees.
Addressing Systemic Challenges of Clinical Research

Beyond encountering hurdles in career development, clinical investigators who aim to translate basic science discoveries into clinical knowledge face many systemic barriers. Among them are the increasing regulatory burden to ensure the safety of human subjects, the lack of the capacity for electronic medical records to facilitate clinical research, the difficulty in securing adequate research funding, and support for the medical care of clinical trial participants. Recognizing that these issues were far too complex to be solved by a single organization, members of the Clinical Research Alliance became active in the Institute of Medicine’s Clinical Research Roundtable. This effort brought together system-wide stakeholders representing the interests not only of academic investigators, but also of pharmaceutical companies, government agencies, patient advocates, health insurance companies, and large employers who pay the bulk of health care costs. Emerging from this extended dialogue was the concept of “two translational blocks,” represented schematically below:

THE TWO TRANSLATIONAL BLOCKS

The first block is at the point of translation of basic biomedical discoveries into preclinical and clinical studies. The second is at the point of translation of clinical knowledge into clinical practice and better health.

THE HEALTH RESEARCH ALLIANCE

Concurrent with the conceptualization of the clinical research enterprise as a complex system was the end of the era of budget doubling for NIH and the charting of its Roadmap initiative for medical research in the coming century. The Roadmap process identified gaps and opportunities that no single institute within NIH could solve alone. One of the Roadmap’s three major themes is “Re-Engineering the Clinical Research Enterprise.” Portending major changes in the landscape of funding for clinical research, these events provided the impetus for the Clinical Research Alliance to convene a large meeting designed to explore the unique role of private funders of biomedical and health research in addressing the two translational blocks. The major themes and discussions that emerged from that meeting are documented in this publication.
At the conclusion of the meeting, 17 of the participating organizations formed several working groups that reported on their plans at a follow-up gathering at the Howard Hughes Medical Institute in May 2004. What emerged from that day was a strong consensus that the heretofore informal Clinical Research Alliance should be formalized and renamed the Health Research Alliance to reflect its focus on research that extends along the entire health research continuum from biomedicine to improved health. The new organization’s mission is to improve communication, foster collaboration, and enhance the overall effectiveness of grantmakers in the field of biomedical and health research.

In practical terms, a more formal organization will enable the working groups to make greater progress, will enable the inclusion of a larger number of interested funders, and perhaps, most importantly, will establish a unified voice for the community of nongovernmental funders of health research. Member organizations approach their work with a wide variety of concerns, priorities, and strategies, but they share a common goal: fostering basic science discoveries and removing barriers that prevent those discoveries from being translated into clinical studies, and from clinical studies into better health.
CHAPTER 1

THE FIRST TRANSLATIONAL BLOCK: Accelerating New Therapeutics

“Progress in the future of health research will depend on partnerships such as the one that has brought together the participants in today’s meeting.”

—Elias Zerhouni, M.D.

Our nation’s investment in basic biomedical research during the past half-century has resulted in an unprecedented opportunity to translate these discoveries into tangible improvements in the public’s health. Accomplishing this translation will increasingly require partnerships across the various sectors of the clinical research enterprise—between public and private funders, between for-profit and nonprofit entities, and between academic centers and communities.

This session began with a presentation from Elias Zerhouni, M.D., director of the National Institutes of Health (NIH), who outlined NIH’s approach to overcoming the first translational block. Zerhouni’s talk was followed by a panel discussion describing several partnership models adopted by private foundations.

THE NIH ROADMAP: ACCELERATING MEDICAL DISCOVERY TO IMPROVE HEALTH

The nation’s largest provider of public monies for medical research, NIH consists of 27 Institutes and Centers (ICs) charged with pursuing “fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability.”1 The Roadmap (see sidebar), a major initiative created under the direction of Zerhouni, is intended to identify both major opportunities and major gaps in biomedical research that cannot be addressed by the individual components of the agency.

Zerhouni reported that he recently asked an audience of medical researchers what percentage of what we need to know in biomedicine is currently known. Most of the audience said somewhere around 10%. He used this response to illustrate the reality that it is not possible to translate a language without making a significant investment in understanding it. He maintained that NIH, as well as private funders, need to make comprehensive investments—in both new knowledge and new infrastructure—that will be orders of magnitude more effective than current approaches. The Roadmap initiative calls for fundamental changes in the infrastructure and functioning of the system, recognizing that new functions within the clinical research enterprise, made possible by scientific and technological advances, will require new structures.

Partnering to Expand Clinical Research Networks in the United States and Abroad

The challenges and complexities of clinical research call for a reengineering of the research enterprise, the third major Roadmap theme. Ideally, clinical research will no longer exist as a cottage industry, focusing on single disease areas, but will consist of integrated, networked research communities that focus on increasingly difficult problems. These

THE NIH ROADMAP

The NIH Roadmap is a set of initiatives and accompanying timelines, with steps for achieving various goals.

Theme 1: New Pathways to Discovery is an attempt to help scientists tackle the emerging complexity of biological systems in order to improve the ability to predict the health impact of these systems. Initiatives under this theme are providing resources to better understand biology and developing new tools for medical research. Focus areas include building blocks, biological pathways, and networks; molecular libraries and imaging; structural biology; bioinformatics and computational biology; and nanomedicine.

Theme 2: Research Teams of the Future stems from the recognition that, increasingly, advances in a given field both depend on and apply to other fields. Initiatives under this theme therefore promote research as a multidisciplinary and interdisciplinary enterprise. Focus areas include high-risk research, interdisciplinary research, and public-private partnerships.

Theme 3: Reengineering the Clinical Research Enterprise seeks to accelerate the pace at which research translates into practice. System-wide structural changes are needed, and collaboration with other agencies will be essential. Focus areas include clinical trials networks, clinical research policy analysis and coordination, clinical research workforce training, dynamic assessment of patient-reported chronic disease outcomes, and translational research.

Information on current activities under the Roadmap initiatives is available on the NIH Web site (http://nihroadmap.nih.gov/), where a number of Broad Agency Announcements, Requests for Proposals (RFPs), and Requests for Applications can be retrieved.
networks need to be truly interoperable, with a standard informatics infrastructure to minimize duplication and facilitate data sharing. As expected, they will include researchers based in academic centers, but increasingly must also involve community-based health practitioners and broader patient populations. The greater connectivity of this new approach to clinical research networks, as envisioned by Zerhouni, is illustrated in Figure 1.1. In addition to providing greater efficiency for multicenter clinical trials for new therapies, these networks will build the evidence base for medical practice by facilitating outcomes and health services research, as well as through conducting comparative, practical clinical trials.

TYPICAL NIH NETWORK:
Academic Health Center Sites and Data Coordinating Center

INTEROPERABLE NETWORKS SHARE SITES AND DATA
The necessity of partnerships in achieving this vision is clear. In particular, the involvement of voluntary health agencies (VHAs) will be critical. Through their communications and volunteer efforts, VHAs have successfully reached out to and won the trust of the patient population in many disease areas. By working with NIH, these agencies can enhance public participation in clinical studies conducted within these new research networks.

For example, the Cystic Fibrosis Foundation (CFF) has worked with NIH to conduct Phase I clinical trials (see box on next page for definitions). From its start, with 30 staff members at the coordinating center at Children’s Hospital and Regional Medical Center in Seattle, the CFF Therapeutics Development Network (TDN) expanded to include seven centers based at academic medical institutes. Today, it has grown to include 18 centers nationwide that perform trials. CFF also works with 115 participating cystic fibrosis care centers around the country on phase III trials. The 18 centers in the TDN are set up specifically for phase I trials and are connected by the Internet in a secure, paperless environment. TDN centers provide reference laboratories and internal support for the network. The Cystic Fibrosis Data Safety and Monitoring Board approves every clinical trial sponsored by CFF or conducted within the TDN; this reassures patients that their interests come first.
The involvement of VHAs with an international reach can vastly increase the enrollment in and subsequent impact of NIH-sponsored clinical trials. With more than 40,000 new cases per year, juvenile (type 1) diabetes falls somewhere between a huge disease and an orphan disease—a disease with no “blockbuster drug” potential because it afflicts few people—according to panelist Robert Goldstein, M.D., Ph.D., of the Juvenile Diabetes Research Foundation, International. (JDRF). A critical part of JDRF’s strategy has been to support research wherever it would best serve the goals of treatment and cure of diabetes. Sweden and Finland, for example, have a high frequency of type 1 diabetes and highly integrated health care systems. A higher percentage of patients participate in clinical trials, and the costs of participation are lower in those countries than in the United States. Accordingly, JDRF supports clinical trials for the prevention and cure of type 1 diabetes, partnering with the National Institute of Diabetes and Digestive and Kidney Diseases, the National Institute of Arthritis and Infectious Diseases, and the National Institute of Child Health and Human Development. There are about 10 U.S. TrialNet sites; JDRF’s funding of the international sites expands the reach of the trials. Including the international sites involves only a modest additional investment, the cost of which is dwarfed by the value of the trial results to the joint sponsors.

In addition to setting up clinical trial sites and networks abroad, JDRF’s international strategy has also involved working in other countries to support research that is not possible to pursue in the United States. For example, human embryonic stem cells may offer promise for the treatment of type 1 diabetes as a source of transplantable, insulin-secreting cells. Federal restrictions on this research, however, have stalled U.S. research progress on stem cells, so JDRF participates as the only nongovernment partner in the International Stem Cell Forum (ISCF). Organized by the Medical Research Council of the United Kingdom, the ISCF has enlisted the support of 12 countries. Because these other governments consider human stem cell research to be a public good, new cell lines that are developed will be made freely accessible to researchers worldwide. See the box for a listing of some past and current JDRF international partnerships.

### Partnering to Nurture New Researchers

By design, Roadmap initiatives focus not on a single disease but on issues that transcend the interests of any single institute within NIH, such as clinical research workforce training, listed under the third Roadmap theme. According to Zerhouni, the nation must move from today’s model of individual apprenticeship and mentoring in particular fields toward training scientists in the discipline of clinical research within multidisciplinary teams. This is an area that is ripe for partnership with private funders, as illustrated by the following examples. The John A. Hartford Foundation, the Atlantic Philanthropies, and the Starr Foundation partnered with NIH’s National Institute on Aging (NIA) to support the training of multidisciplinary researchers whose work will bring insight into many disease areas. A different group of private funders, including the John A. Hartford Foundation, the William Randolph Hearst Foundation, the Cleveland Foundation, the Cardinal Health Foundation, the Lillian R. Gleitsman Foundation, and an anonymous donor, have teamed with NIA to provide summer fellowships in aging research to medical students. Other private funders, notably the Howard Hughes Medical Institute (HHMI), have a long history of partnering with NIH to provide research experiences to medical students before their interests differentiate into specific disease areas.

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**Clinical Trial Phases**

- **Phase I:** Unblinded study in a few volunteers to test safety
- **Phase II:** Randomized, blinded, controlled study to test tolerability and dose, using surrogate outcomes in a small group of volunteers
- **Phase III:** Randomized, blinded, controlled study to test efficacy of therapy on clinical outcomes, using a larger group of volunteers

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**JDRF International Partnerships**

1998–2003: With the Swedish Medical Research Council and the Wallenberg Foundation, which funds infrastructure, JDRF supported research networks on type 1 diabetes when the council was reluctant to fund disease-specific research.

2001–2004: With INSERM (Institut National de la Santé et de la Recherche Médicale) and Fondation pour la Recherche Médicale, JDRF supported research networks in type 1 diabetes.

2003–2008: With the Swedish Medical Research Council and the Swedish Diabetes Association, JDRF supports stem cell research through project grants and networks. This is a way to engage smaller foundations in a larger partnership.

2004–2007: With INSERM; the French Ministry of Youth, National Education, and Research; and Association Française contre les Myopathies, JDRF supports multidisciplinary research on adult stem cells in France.
Zerhouni stressed that clinical investigators, particularly physician-scientists, face an array of disincentives that can discourage them from building careers in research.

NIH can and does address some of these issues—for example, by offering fellowship support that requires protected time for research and offering repayment of educational loans.

Private foundations can complement these efforts by providing some of the "intangibles" that are more difficult for NIH to provide, for example, supporting convening events that focus on specific career issues or funding community-building events for clinical research trainees, either within their institutions or in the context of professional society meetings. Another example is a course on laboratory management codeveloped by the Burroughs Wellcome Fund (BWF) and Howard Hughes Medical Institute. Initially intended for the benefit of BWF and HHMI awardees, the content is freely available on the Internet, and the course organizers are working closely with NIH staff to disseminate the course content to NIH-funded trainees.

A ROADMAP FOR DRUG DEVELOPMENT

In addition to prescribing an overhaul to the nation’s clinical research enterprise, the NIH Roadmap acknowledges, through its New Pathways to Discovery initiative, that clinical science depends on a robust pipeline of new potential therapeutic agents. Despite being generated by the thousands by pharmaceutical companies, such compounds many remain on the shelf if they fail to show the expected level of bioactivity in a particular preclinical assay. Most researchers in the public sector do not have access to these compounds or the capacity to screen them against potential drug targets. The New Pathways initiative will establish a publicly accessible library of some half-million small molecules, will work with the research community to screen these compounds, will create a comprehensive database of chemical structures and their biological activities, and will develop new technologies for synthesizing new chemically diverse compounds, as well as new assays and predictive tools. This important step by NIH should vastly decrease the number of potential therapeutics that quickly come to a halt when they are abandoned by pharmaceutical companies.

Beyond NIH: Spurring Drug Development for Orphan Diseases in the For-Profit Sector

Researchers and funders and patients who have orphan diseases enthusiastically welcomed the NIH Roadmap. One such organization—CFF—did not wait for NIH but took matters into its own hands when it faced the challenge of convincing biopharmaceutical companies to develop drugs for cystic fibrosis (CF). Although it is the most common fatal genetic disease in the United States, CF affects fewer than 30,000 patients in this country and 70,000 worldwide—clearly not a “blockbuster” market. In 1998, CFF created the Therapeutics Development Program (Figure 1.2) to provide funding and research support to for-profit pharmaceutical partners to encourage the development of CF drugs. Roughly 25 different drugs for CF are now in development stages ranging from preclinical testing to approval for marketing (Figure 1.3). For example, clinical trials conducted in 2002 with Pfizer, manufacturer of Zithromax (azithromycin), showed that the drug could reduce CF hospitalization rates by 50 percent and thus improve quality of life for CF patients. According to speaker Robert J. Beall, Ph.D., President and CEO of CFF, this bold program proceeded from assumptions that CFF must do the following:

- Have knowledge of the basic defect and underlying pathophysiology of CF (the CF gene was identified in 1989)
- Work to minimize the risk to partners in entering the CF field
- Establish business relationships with partners, structured with milestones—a business approach leads to respect
The CFF Therapeutics Development Program supports a process with the following steps: discovery of a potential therapeutic agent, preclinical and clinical development, Food and Drug Administration approval, and distribution for availability to cystic fibrosis patients.
Through its Therapeutics Development Program, CFF has developed strategic alliances with more than two dozen biotechnology companies (see box), with financial awards from the CFF to companies ranging in size from $250,000 to $25 million. The basic elements of CFF’s agreements with business partners, as of 2004, are summarized in the box.

Most of the therapies that are currently available for CF, including those used in clinical trials, would not have been developed without these partnerships. Potential therapeutics are continually being added to the pipeline to enhance the odds that some will be effective and approved. CFF has found that once its “seal of approval” is granted, companies are able to raise additional capital elsewhere.

**Building a Coalition of Funders: A Work in Progress**

The examples above involve partnerships among U.S. and foreign governments, nongovernmental grantmakers, and for-profit companies. What happens when there is no single dominant player but there is a pressing need? Susan Weiner, Ph.D., who represents the North American Brain Tumor Coalition, explained that unlike CF, which is the result of a single genetic defect, brain tumors take more than 120 forms. Only 18,000 malignant brain tumors in adults are diagnosed in the United States each year, excluding metastases from other primary tumor sites. Because they are rare, so diverse, and so often rapidly fatal, primary malignant brain tumors present only a modest market for pharmaceutical companies.

**North American Brain Tumor Coalition**

- American Brain Tumor Association
- Brain Tumor Action Network
- Brain Tumour Foundation of Canada
- Brain Tumor Society
- The Childhood Brain Tumor Foundation
- The Children’s Brain Tumor Foundation
- The Central Brain Tumor Registry of the United States
- Florida Brain Tumor Association
- National Brain Tumor Foundation
- The Preuss Foundation
- Southeastern Brain Tumor Foundation
- T.H.E. Brain Trust

*All participants in this venture have learned that trust, goodwill, resources, and an overriding commitment to patients and families are cornerstones of a successful partnership.*

Although newer technologies involving gene expression profiling have made it possible to identify brain tumor subtypes, the five-year survival rate for adults with brain tumors is less than 35 percent and has changed little in the past 20 years. For children, that rate has slowly increased, to approximately 70 percent. Current treatments are necessarily invasive, and neurocognitive and functional impairments, which are often severe, can result from both the tumor and its treatment. The effects of brain tumors are a threat to personhood and the passion of families and friends who are affected by them drives the engine for improvement in the treatment of this devastating medical challenge.
Private funding for brain tumor research offers scattered grants ranging from $5,000 to more than $1 million, but because these individual programs feature largely the same small pool of medical advisers, reviewers, and grantees, applicants “shop” the same proposals from one funder to another. The dearth of formal evaluation of these programs makes it difficult to assess their impact.

In 2000, the National Cancer Institute (NCI) and the National Institute of Neurological Disorders and Stroke (NINDS), in an attempt to consolidate brain tumor research efforts, assembled more than 125 researchers, clinicians, and patient advocates to devise an interdisciplinary five-year plan for brain tumor research. Even though the report is still considered valid, the advocacy community has become impatient with the pace of implementation.

NCI-supported brain tumor research involves consortia for phase I and II clinical trials and Specialized Programs of Research Excellence (SPORES). The larger NCI cooperative groups carry out phase III trials. Research on cancer biology through NCI sometimes includes brain tumors; research on basic brain science tends to be under the purview of the National Institute for Neurological Diseases and Stroke (NINDS). This split in research focus has had both positive and negative results. Extramural brain tumor research programs are not well coordinated between the institutes, and researchers have observed that greater interdisciplinary research is likely to advance understanding of brain tumors and their treatment. However, there is an intramural, inter-institute NCI-NINDS Neuro-Oncology Branch, which addresses basic, translational, and clinical research and participates in the brain tumor consortia.

In response to the slow implementation of the NCI-NINDS plan, three new brain tumor research foundations emerged, founded by families affected by brain tumors. These new research funders had substantial resources and were staffed by sophisticated and committed administrators. The question in the nonprofit brain tumor community now became: if the private funding groups pooled some of their resources, rather than waiting for NIH to adopt novel and integrated research strategies, could outcomes for patients be changed more rapidly?

The resulting Brain Tumor Funders’ Collaborative began as “a dream of the possible.” The central question posed by the nascent group was: where should a strategic deployment of private resources be made in brain tumor research to result in better outcomes for patients?

A planning committee of representatives from several groups established a set of values, based on goodwill and generosity of spirit, an explicit and repeated commitment to keep the focus on improving patient outcomes, and a deliberate effort to avoid organizational or personal self-interest. The group agreed to focus on barriers and gaps in translational research and in drug discovery and development that impede treatment advances and to ensure that any effort it funded would be project-managed.

Participation in the collaborative remains open to any foundation or nonprofit organization that funds or is interested in funding brain tumor research. At an initial meeting, individual organizations committed to work together openly, to be vigilant against divisiveness, and to distribute work and responsibilities. Ten neurooncologists were invited to the meeting to give their assessment of scientific and practical barriers to advancing research in this area, and the group considered where their pooled funding might help break the logjam. This project is still a work in progress, and there are as yet no outcomes to report. It is highly

**THE HEALTH RESEARCH ALLIANCE:**
A Consortium of Biomedical and Health Research Organizations

**CHAPTER 1**

**MANAGEMENT PRINCIPLES OF PARTNERING TO ACCELERATE DEVELOPMENT OF NEW THERAPIES**

- The more partnership-driven an organization becomes, the more management- and labor-intensive it becomes.

- Partnerships work only when adequate funding is provided to ensure adequate management.

- If research grants are funded without a high-quality system of scientific review, the funders run the risk of having little or no progress to report down the line. It pays in research results to have a tightly managed, strictly controlled, scientifically advised grants process. Small foundations that do not have this infrastructure would do well to partner with others.

- Cultural change, at the level of foundation staff as well as in expectations of the grantee community, is necessary when an organization moves from basic research toward projects and alliances with multimillion-dollar contracts that include monitoring expected milestones.

- When partnering with for-profit entities, foundations must find creative ways to minimize the risk borne by the other partner.

- Outsourcing and use of consultants may be the best way to handle a partnership-driven increase in management requirements. It is critically important to find consultants who have no conflicts of interest.

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likely, however, that by aiming their collective resources at a single strategic target, the group will make a greater impact on brain tumor outcomes than if they had not collaborated.

CONCLUSION

Many of NIH’s proposed new initiatives, articulated in the NIH Roadmap, will result in significant improvements in the pace of translation from basic science discovery to better health. The changing landscape for clinical research creates an opportunity for and the necessity of increased partnership—between private and federal funders, between nonprofit and for-profit sponsors of research, and perhaps most importantly, among the many private funders with common interests. This session highlighted several models for such partnerships, as well as lessons learned. Panelists did not underestimate the time and human resource costs of partnership, as well as the challenges in the area of intellectual property protection and maintaining organizational distinctions. In each case, however, the benefits outweighed the costs.

Contributed by Nancy Sung, Ph.D., Burroughs Wellcome Fund

REFERENCES


CHAPTER 2

INTERAGENCY PARTNERING TO IMPROVE GLOBAL HEALTH

“...market forces have driven industry-sponsored research and development away from the infectious diseases that disproportionately afflict the developing world.”

The philanthropic community has an extensive history of working to improve global health and has long recognized the complexity of the economic, political, and cultural issues that influence population health in the developing world.1 In the last decade, philanthropies have increasingly joined forces with governmental and for-profit partners, as well as with one another, in addressing this daunting challenge.

In the industrialized world, chronic disease is the primary cause of morbidity and mortality. The resulting market forces have driven industry-sponsored research and development away from the infectious diseases that disproportionately afflict the developing world. This portion of the meeting highlighted three different models in which philanthropies have worked with companies and governmental agencies to develop new therapies and preventive measures for the infectious diseases tuberculosis, trachoma, and AIDS.

DEVELOPING NEW DRUGS TO TREAT TUBERCULOSIS

Maria Friere, Ph.D., CEO of the Global Alliance for TB Drug Development (TB Alliance), discussed the well-known barriers that often keep new products from moving forward in the drug-development pipeline. First, studies of new therapies frequently stop at the basic research stage and are never translated into clinical studies. Second, other studies cease at the stage of clinical trials. Third, even when a new product receives approval from the U.S. Food and Drug Administration (FDA), it may fail to reach the patients who need it because they can’t afford it, they don’t have access to it, or health care providers delay in prescribing it. The typical players involved in shepherding new drugs through this process are academia, government, and the pharmaceutical industry. Unfortunately, the costs and risks of the drug development process are high, with only 8 percent of compounds entering the pipeline emerging successfully from the other end.2 Thus, pharmaceutical companies often have been reluctant to develop drugs that target diseases predominately affecting the developing world, such as tuberculosis (TB).

One-third of the world’s population is infected with the TB bacillus, and 8 million people annually develop active TB, Friere reported. Established in 2000, the TB Alliance is a public-private coalition of some two-dozen organizations that have pledged to support the effort to find new, faster-acting drugs for the disease. The alliance capitalizes on the latest scientific advances by enlisting the best public and private laboratories worldwide to stimulate TB drug research and move TB drug candidates through the pipeline of research and development. By promoting the development of derivatives of existing TB drugs, supporting research on expanded indications for existing antibiotics, and trying to develop new compounds, the TB Alliance has jumpstarted the TB drug pipeline that had been stagnant for a generation.
The TB Alliance takes a ‘portfolio’ approach, investing in the development of an array of promising compounds at the late discovery stage, when promising compounds are identified and optimized. Those that successfully meet milestones are moved forward into preclinical development and eventually into clinical trials. Because only a small minority of potential therapies will emerge successfully at the other end of the drug development pipeline, the portfolio approach lowers the initial investment risk.

The TB Alliance identifies prospective partners in the development of compounds for TB treatment by seeking out the best, most cost-effective science and technology worldwide. Its cooperative relationships forged with both public and private laboratories have predefined milestones and are negotiated based on the following factors:

- Public health impact of the technology
- Level of investment
- Stage of scientific and clinical development
- Pipeline requirements
- Timing
- Other business, economic, and public health considerations

For example, in negotiating the exclusive worldwide license to PA-824 and related compounds, Chiron Corporation and the TB Alliance agreed to eliminate royalties for drugs marketed in less developed economies, including impoverished countries that have a high burden of TB.

THE INTERNATIONAL TRACHOMA INITIATIVE

Nearly 20 years ago, trustees of the Edna McConnell Clark Foundation identified trachoma as a neglected disease that should be a focus in its Tropical Disease Research program. The world’s leading cause of preventable blindness, this bacterial disease currently blinds about 6 million people and has debilitated families and communities in the poorest regions of the developing world, according to speaker Joseph Cook, M.D., executive director of the International Trachoma Initiative. The foundation spent $28 million on trachoma research from 1974 to 1999, but realized that real progress against the disease would come only through a public health approach. The World Health Organization (WHO) had already initiated its GET 2020 (Global Elimination of Trachoma by 2020) plan, which recommended the SAFE strategy: surgery to prevent blindness in those who have trichiasis/entropion, antibiotics (tetracycline ointment or azithromycin) to combat active chlamydial infection, facial hygiene, and environmental change.

The Edna McConnell Clark Foundation recognized an opportunity to advance this strategy by bringing more partners to the table. Thus in 1999, they created the International Trachoma Initiative, an independent, publicly supported 501(c)(3) charity, to coordinate GET 2020 and oversee implementation of the SAFE strategy in 10 countries. The foundation collaborated with Pfizer and the company contributed both financial support and its antibiotic product azithromycin—a drug shown to be effective in the control of trachoma. By introducing azithromycin in affected communities, this collaboration has addressed the “A,” or antibiotic, component of GET 2020’s SAFE strategy, and it has been instrumental in achieving significant gains against the disease. From 1999 to 2003, antibiotic treatment for trachoma increased nearly seven-fold.
Antibiotic treatments for trachoma have increased steadily each year. From 1998 to 2003, program coverage expanded from two to nine countries.

**EVALUATION RESULTS: MOROCCO**
Active disease in children reduced by more than 90%

Active trachoma in children has been reduced by more than 90 percent since 1997. Data from five Moroccan provinces are shown.
Pfizer has pledged to make azithromycin available for as long as programs supported by the International Trachoma Initiative continue to make progress toward the global elimination of trachoma. Table 2.1 shows the potential benefits and risks of the proposed association that were identified by each partner.

### POTENTIAL RISKS AND BENEFITS OF PARTNERSHIPS

<table>
<thead>
<tr>
<th>Entity</th>
<th>Benefits</th>
<th>Risks</th>
</tr>
</thead>
</table>
| Edna McConnell Clark Foundation | • Control trachoma worldwide  
• Learn from a new approach to grantmaking | • Potential diversion of resources from other diseases  
• Decrease in government financing due to private philanthropic contributions  
• Potential failure |
| Pfizer | • Practice corporate values regarding contributing to needs in the community  
• Increase employee satisfaction through good deeds  
• Create a positive public relations opportunity  
• Increase market awareness of Pfizer | • Logistical and bureaucratic obstacles  
• Possible damaging public relations situations  
• Issues related to selection of countries to receive the drug  
• Complexity of programs |

### THE INTERNATIONAL AIDS VACCINE INITIATIVE

A decade ago, against a backdrop of an escalating AIDS epidemic and stalled vaccine development efforts, the Rockefeller Foundation convened an international meeting in Bellagio, Italy. There, participating scientists, public health officials, and leaders from the pharmaceutical industry and nongovernment organizations called for a new type of global organization to accelerate the development of AIDS vaccines. This and a later meeting in Paris provided the impetus for the creation of the International AIDS vaccine initiative (IAVI) in 1996, according to Seth Berkley, M.D., CEO of IAVI. IAVI operates the second-largest AIDS vaccine research and development program in the world and has invested more than $100 million in vaccine research and development to date. Through donations from governments, foundations, corporations, and multilateral organizations, IAVI finances and directs partnerships with more than 30 private companies, academic entities, and government agencies.

With a focus on reducing obstacles to vaccine development and filling the gaps in the current effort, IAVI complements existing national and international activities. Its mission is to ensure the development of safe, effective, and accessible vaccines to prevent HIV infection that are appropriate for use throughout the world. IAVI uses several parallel approaches to achieve its goal. These include, advocating for support of vaccine work, supporting the science needed to move promising vaccines through development and clinical trials, creating incentives for investment by the private sector, and working to ensure global access to vaccines that are developed.
To this end, IAVI has forged relationships with international AIDS agencies around the world and works to protect the intellectual property (IP) generated by its support. The complex IP landscape can sometimes result in significant bottlenecks to the development and distribution of a vaccine (e.g., production of the recombinant hepatitis B virus vaccine requires 14 different patents). IAVI addresses those barriers on a case-by-case basis and also works to influence international agreements such as the General Agreement on Tariffs and Trade, IP laws in individual countries, and current vaccine pricing practices on IP strategies.

LESSONS FOR SETTING UP PARTNERSHIPS

The TB Alliance, the International Trachoma Initiative, and IAVI represent three productive outcome-driven partnerships that address critical public health issues. Because of their inherent managerial complexity, they have each required an infrastructure. While foundations have an opportunity to participate in such alliances, perhaps their more significant contribution is in helping to create and support these alliances. By providing neutral convening ground and the initial resources for the early planning stage, the Edna McConnell Clark Foundation and the Rockefeller Foundation were the drivers behind these much needed collaborative efforts.

For those interested in setting up partnerships, the three speakers recommended the following steps:

- Convene all stakeholders on neutral territory
- Identify areas of need and areas requiring coordination
- Define foci of collaborative efforts
- Address financial and structural issues
- Define roles of all stakeholders
- Establish early benchmarks
- Demonstrate short-term success
- Continue to engage the community over time

All of the speakers emphasized that those embarking on a cross-sector partnership need to understand that some loss of control is inevitable and that administrative resources for a new entity are likely to be greater than anticipated. Nevertheless, these issues are often more than compensated for by the advantages of these partnerships.

Contributed by Elaine Gallin, Ph.D., Doris Duke Charitable Foundation, and Nancy Sung, Ph.D., Burroughs Wellcome Fund
CHAPTER 3

THE SECOND TRANSLATIONAL BLOCK: Accelerating the Translation of Clinical Research Findings to Better Health

“...many funders of health research are interested not only in discovering cures for disease but also in ensuring that these cures are available and offered to the patients who need them....”

The second translational block is defined as the gap between clinical knowledge and incorporation of that knowledge into clinical practice and improved health care. It takes about 17 years for new knowledge from a controlled clinical trial to be incorporated into the daily practice of clinical medicine. For example, the rate that beta-blockers, which were proven clinically effective in the 1980s, are prescribed following a heart attack varies considerably across the United States, and in some locations is still under 20 percent (Figure 3.1). Because many funders of health research are interested not only in discovering cures for disease but also in ensuring that these cures are available and offered to the patients who need them, the second translational block was the focus of the afternoon session at the meeting.

The group was first challenged to consider how the “ideal” health care system of the future ought to incorporate new research findings and then was encouraged to seek partnerships with health insurers and other funders. Finally, participants shared their own experiences and their organizations’ practices in addressing the second translational block.

EVIDENCE BASED MEDICINE
Not always in evidence

Under-use of Beta Blockers following Heart Attack

Percentage of patients prescribed beta-blockers following a heart attack in the United States, 2000.
A FUTURIST’S VIEW:  
The Plausible and Visionary Health Care System of the Future

In his remarks, Clement Bezold, Ph.D., president of the Institute for Alternative Futures, conceptualized three types of futures:

• The plausible future. What is likely, what might happen—this is the “future for the head.”
• The preferred future. What is visionary, what one wants to create—this is the “future for the heart.”
• The aspirational future. What is clearly defined that stakeholders can collectively and wisely strive to achieve. This is the “buildable future.”

Bezold then described a future to which the community of private funders of health research might aspire in light of current trends. This vision included the rapid and effective diffusion of innovation into clinical practice driven by technological advances.

One such advance is the “paperless” medical practice with standardized electronic medical records and personal biophysical monitoring, which can serve to integrate clinical care and clinical research. According to Bezold's vision, health care providers and patients/consumers will have instant access to appropriate information on therapeutic choices (many based on genomics and behavioral data) and patient preferences.

More importantly, the future of health care in the United States will be characterized by an increased focus on chronic disease and preventive or “predisease” medicine, as well as greater continuity of care and awareness of multiple and coexisting health conditions in relation to an individual’s life stage. Bezold envisioned greater satisfaction for health care providers and patients alike as their relationships become more effective and as consumers take on greater responsibility for their health status. According to a recent Institute of Medicine report, the health care system of the future should aspire to be safe, effective, patient-centered, timely, efficient, and equitable.²

Bezold envisioned an expanded role for nongovernmental funders of health research in achieving this aspirational future, as they choose the level at which to target their advocacy efforts. By working together, these funders can effect change at the level of the practitioner, the patient, the pharmacist, and the payers of health care, with the ultimate goal of reinventing the health care system, based on shared values.

Discussing the anticipated shift in focus to chronic disease, Bezold pointed out that 125 million Americans suffer from chronic diseases. More than half have multiple chronic conditions, and those with five or more chronic conditions account for:

• Half of Medicaid spending
• Two-thirds of Medicare spending
• Three-quarters of private insurance spending
• Two-thirds of prescription drugs
• 80 percent of health care visits
Of the total health care dollars spent each year in the United States, 95 percent are devoted to treatment; little goes to reducing unhealthy behaviors. A patient with five or more chronic conditions sees 13 different doctors a year. All patients must navigate a complex system, coordinate care, and transmit information. Most records are paper, and electronic records, when they do exist, are often incompatible among different providers, who are not reimbursed for coordination. A disease management paradigm is focused on only one problem or disease, and there is usually no team leader in a patient’s care.

The effective treatment of chronic disease must shift from this paradigm of disconnected interventions toward deliberate and personalized prevention, just as the field of dentistry did. Rather than focus only on treatments, health care consumers and providers will focus on diet, activity and stress levels, personal meaning, spiritual condition, and social contribution. Electronic medical records will allow a more holistic determination of risk factors and will foster increased self-care, including biomonitoring, which will enable a shift to the home as the center of care. People expressing identified biomarkers will be diagnosed earlier and treated preventively and more individually, shifting the focus of care to the “predisease” state. Figure 3.2 illustrates an example of how these trends could affect cancer care.

**CURRENT CANCER MANAGEMENT**

1. **Discover cancer through symptoms or screening**
2. **Evaluation & Staging** *(including tissue diagnosis)*
3. **Therapy based on stage and cancer type** *(surgery, radiation, chemotherapy, other)*
4. **Monitor**
5. **More therapy for recurrences** *(chemotherapy, radiation, surgery, other)*

Currently, most cancer is discovered once it is symptomatic, then treated based on stage and cancer type. Yet most cancer cells undergo dysplasia, which progresses in severity over a period of years before the cells are fully neoplastic, or cancerous.
Individualized cancer treatment focuses on monitoring of the pre-disease state, as well as on a treatment strategy based on the individual’s genetic profile.

Another vital piece of the aspirational future of health care, and one that is of particular interest to conference participants, is the integration of clinical care and clinical research. Clearly, foundations should invest in research on interventions that would produce the greatest health gain while reducing health disparities. Targeting these investments well, however, requires communication among funders of different disease areas and active participation of scientists, professional healthcare providers, patients, insurers, and the public. As was described in Chapter 2, sometimes a funder can jump-start this kind of progress by serving as a neutral convener, bringing together all of the stakeholders with the charge of crafting a research question that will result in the greatest possible health impact.

**PARTNERING AMONG TRADITIONAL COMPETITORS**

Even those funding agencies that are traditionally in competition for donor dollars can successfully partner with each other to address the second translational block. For example, the American Heart Association (AHA), the American Cancer Society, and the American Diabetes Association, succeeded in working together to develop a program promoting common and coordinated health and disease-prevention messages. Foundations and voluntary
health agencies can also partner with government agencies, as the American Stroke Association has done, to address issues at the level of the second translational block. Not every potential partnership gets off the ground, however. For example, plans for the AHA to share a Web portal with the American College of Cardiology encountered difficulties, in part because each group had its own publisher. Thus, they remain competitors for the attention of cardiologists.

PERSPECTIVE FROM THE AMERICAN STROKE ASSOCIATION

The American Stroke Association (ASA) was created as a division of the American Heart Association (AHA) to bring together partners focused on stroke. Partners are essential to AHA’s strategic impact goal of reducing coronary heart disease, stroke and risk by 25 percent by 2010. Attaining this goal will require changes in behaviors, awareness, and ultimately the health care system. AHA recognized that the goal of better health could be achieved only through addressing comorbidities and working together with other groups, because no one constituency has sufficient resources or influence to accomplish it alone. Among AHA’s current partnerships are the following:

• Through a formal memorandum of understanding, AHA’s 2010 goals were aligned with the Department of Health and Human Service’s (DHHS) Healthy People 2010 goals. The two also coordinate public health messages for cholesterol lowering, for example, from the National Heart, Lung, and Blood Institute; NINDS, and the Centers for Disease Control and Prevention (CDC). AHA, along with the Centers for Medicare and Medicaid Services, have contributed to the CDC and DHHS cardiovascular public health action plan to prevent heart disease and stroke.

• The American Diabetes Association, the American Cancer Society, and AHA, which have historically competed with each other, have forged a new relationship. Simple preventive messages to the public from all three organizations—such as “see your doctor about blood pressure, watch your diet, don’t smoke”—provide a unified voice for advocacy on Capitol Hill and elsewhere.

• A certification program of the Joint Commission on Accreditation of Healthcare Organizations for stroke centers will be ready for launch soon, based on recommendations from the Brain Attack Coalition and guidelines from the ASA. This is the first nationwide certification program to evaluate stroke care provided by hospitals. It will assess compliance with consensus-based national standards, effective use of primary stroke center recommendations and clinical practice guidelines to manage and optimize care, and performance measurement and improvement activities.

• The National Committee for Quality Assurance’s Heart/Stroke Recognition Program targets primary care physicians and others who care for patients with cardiovascular disease in managed care organizations. Its purposes are control of blood pressure, use of a complete lipid profile, control of low-density lipoprotein (the “bad” cholesterol) levels, use of aspirin or other antithrombotic agents, and information about smoking status and cessation advice or treatment. AHA’s Pharmaceutical Roundtable, AstraZeneca, and Pfizer fund the program.

These partnerships help support and disseminate other AHA and ASA programs and are good examples of partnering strategies to address the second translational block: scientific advances and medical interventions lead to redefining of the standard of care, which in turn leads to the encouragement, recognition, and adoption of new standards in hospital or private practice settings. The end result is improved effectiveness of care.

SEEKING NONTRADITIONAL PARTNERS

Lewis Sandy, M.D., of UnitedHealthcare, brought to the conference the conviction that private funders have much to gain by partnering with health insurers, given their interest in removing barriers to improve the effectiveness and cost-effectiveness of clinical practice. Further advantages to partnering with insurers are access to their data and patients, their
FOUNDATION INTERACTION WITH HEALTH CARE Payers

For years the Robert Wood Johnson Foundation has funded the Changes in Health Care Financing and Organization program, which strives to bridge the health policy and health services research communities. The program not only funds research aimed at understanding innovation in health care financing, but also promotes dissemination of research findings through invitational convening events such as workshops and symposia. As a result, a significant body of foundation-funded evidence has been built and incorporated into both public and private health care policy.

The Health e-Technologies Initiative is a $10.3 million national program of the Robert Wood Johnson Foundation. The program aims to advance scientific knowledge regarding the effectiveness of interactive applications (i.e., Internet, interactive TV and voice response systems, kiosks, personal digital assistants, CD-ROMs, and DVDs) for health behavior change and chronic disease management. The overarching goal is to find out whether or not these applications improve processes and outcomes of care for culturally diverse groups of patients/consumers and support provider adherence to evidence-based care.

analytic capability, and their population perspective. Sandy pointed out that when building such partnerships, it is important to remember to look for win-win intersections, bearing in mind the cultural differences that distinguish foundations from insurers. For example, an insurance company, while it may share a foundation’s interest in promoting health, will be most interested in only that research that solves an existing business problem.

Sandy recommended that foundations begin such partnerships by working with associations (such as America’s Health Insurance Plans and Blue Cross Blue Shield Association) seeking to partner up front, thus building relational rather than contractual links. Foundations should view insurers as sources of hypotheses and research ideas, as objects of research, and as cofunders or collaborators in research. Ultimately, insurers are the targets for dissemination of research results. Foundation-supported research aimed at understanding organizational, interventional, and technological factors, as well as best practices in diffusion of information, can have an enormous impact on decisions made by health insurers. Two model programs from the Robert Wood Johnson Foundation are highlighted in the sidebar.

A SURVEY OF CONFERENCE PARTICIPANTS

In advance of the conference, participants were asked to rank five strategies to influence health outcomes in terms of level of their organization’s investment, degree of effectiveness, and interest in further development of each strategy. The objectives of this exercise were to understand the general landscape of strategies already in use and to consider how each strategy might benefit from cross-agency collaboration.

Results of the survey are shown in Table 3.1. It appears that many believe that their organizations are committed to and are relatively successful in addressing the second translational block through support of research projects and training programs. This strategy also registered the most interest in further development, indicating the timeliness of sharing best practices among those foundations supporting research and training. Likewise, there was significant interest in further developing the strategy of dissemination of funded research results. The strategy with the greatest disparity between the current level of investment and the interest in further development was advocacy, indicating that this particular strategy is ripe for collaborative approaches among like-minded funders.

RESULTS OF CONFERENCE PARTICIPANT SURVEY

<table>
<thead>
<tr>
<th>Strategy to influence health outcomes</th>
<th>Level of investment</th>
<th>Degree of effectiveness</th>
<th>Interest in further development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support for research projects and training</td>
<td>46</td>
<td>40</td>
<td>36</td>
</tr>
<tr>
<td>Dissemination of research results and practice guidelines</td>
<td>24</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>Advocacy</td>
<td>19</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>Clinical trials recruitment</td>
<td>6</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Quality assurance programs to encourage compliance with guidelines</td>
<td>7</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

Based on 68 total responses. Each respondent ranked his or her own organization’s level of investment, degree of effectiveness, and interest in further development for each of the five strategies shown. The values presented represent the number of respondents who assigned a rank of either 1 or 2 (1=highest and 5=lowest ranked) to the particular strategy.
Further discussion in breakout groups at the conference produced a number of suggestions for activities and partnerships to address the second translational block and improve health outcomes. It became apparent through the discussion that the sharing of information and experiences is invaluable, and that given the enormity of the second translational block, partnering with one another and partnering across sectors are essential to make significant progress toward the “preferred future.”

**STRATEGIES TO INFLUENCE HEALTH OUTCOMES**

**Support for research projects and training**

- Share models and best practices among funders of research and training
- Develop central database of foundation-funded research and training grant awards so that funding gaps and imbalances are apparent
- Coordinate program evaluation by developing common outcome measures
- Develop strategies to match investigators with appropriate funding agencies (international, sister agencies, NIH, industry) at appropriate stage in career and/or project
- Collaboratively fund targeted technology development and preclinical studies

**Dissemination of research results and practice guidelines**

- Study and emulate success stories where behaviors changed as a result of effective dissemination of information (such as use of seat belts)
- Go directly and collaboratively to the public with message (e.g., through popular culture, magazines) as well as working through physicians to promote participation in trials and uptake of research results
- Partner with WebMD/Medscape to develop standard format for disseminating research results
- Require dissemination strategy as part of research grant proposals
- Collaboratively fund multisite, multipopulation studies to reach broader audience
- Share messages within this convened group of foundations and voluntary health agencies to identify new partnerships

*Contributed by Patricia Hinton, M.A., M.S., American Heart Association, and Nancy Sung, Ph.D., Burroughs Wellcome Fund*
CHAPTER 4

FUNDAMENTALS OF PROGRAM EVALUATION

Evaluation is an essential element in any process of continuous improvement. In the context of research and outreach programs, it is an important but often undervalued tool that can help funders make the most of the dollars they spend. This session explained why funders should make the investments needed to develop effective evaluation programs and presented general principles on how to do so, with supporting examples.

WHAT IS EVALUATION AND WHY EVALUATE?

At a basic level, evaluation is a multi-step examination of the return on an investment—what a program is achieving compared with specific, measurable, hoped-for results. It is a means, not an end. Evaluation improves the ability to assess what is and is not effective and should guide decision making about continued program support. To be effective, it should be integrated into program development so that criteria for success are identified up front.

According to Dan Stryer, M.D., of the Agency for Healthcare Research and Quality, the two principal forms of evaluation are formative and summative. Formative evaluation assesses the value of a program while its activities are being developed or are in progress for the purpose of improvement and growth. This type of evaluation focuses on the process and is often done iteratively. Summative evaluation assesses the value of a program when it ends. This type of evaluation focuses on the outcome, and can be used to demonstrate the merit of a program. It has been said, “When the cook tastes the soup, that’s formative; when the guests taste the soup, that’s summative.” Both types of evaluation can be used to grow a field in which the foundation is interested or to ensure that an investment is progressing as planned. It can be directed to an external audience, such as a board of directors or a donor community, or purely for internal learning, answering the question: “How will we know that our work made a difference?”

Although organizations may have differing reasons for engaging in evaluation, there was widespread agreement that it should not be done for accountability. When the purpose is finger-pointing, those being evaluated may feel threatened and withhold important data, resulting in strife and an unproductive effort. Those involved in the process should be sensitive to the fact that even when well designed and managed, evaluation can create anxiety by raising red flags about a program’s performance.

WHAT TO MEASURE AND HOW AND WHEN TO DO IT

Experienced evaluators offer general principles for this activity: Keep it simple, practical, and cost-effective, and tailor it to the program that is being assessed and the information that is desired.

Evaluating a program at the end is difficult, especially if goals and objectives have not been clearly outlined. Evaluation should ideally start in the planning phase of program development and flow from the program context, setting expected benchmarks, timelines, and objectives. Doing this prospectively, when budgets are built and grantees are first
selected, can go a long way toward avoiding adversarial relationships. Forming evaluation partnerships with grantees gives them an incentive to provide the best description of their projects. Convening events can further promote collegial communication between funders and those they fund. Another effective but less cordial approach would be to require reporting of results as a condition of further funding. Setting up evaluative components at the start of a program also avoids a purely retrospective analysis, which can face significant gaps in tracking what has happened since the program began.

By definition, mission drives measures: an organization must know what it cares about before it can identify measures capable of quantifying results as well as which qualitative information is of value to the funder. In many cases it is important to have both quantitative and qualitative information—the data as well as the stories. It is critically important that the measures themselves be explicitly related to the goals of the program. They also should be simple, objective, and flexible enough to change over time if necessary. Two other characteristics are important as well. Measures should be:

- Time sensitive (e.g., in a training program, measures will vary according to whom you have trained and what they are doing)
- Nonjudgmental and substantive (ask “What are you doing?” rather than “Are you happy?”)

**Creating a Supportive Organizational Culture**

Each organization must learn how to perform evaluation to assure validity, and how to use the information gained from it. Every program has multiple audiences, and it is important to understand the expectations of each—such as donors, grantees, the board, and the public—and what they regard as success. Different communication styles are appropriate for these different audiences. For the public, it may be necessary to explain the scientific peer-review process. To “get boards on board,” it may be helpful to use legal arguments about their fiduciary responsibility, pointing out that evidence is needed to foster evidence-based practice. Support from the top echelons of management, including the board, is essential in creating an environment in which internal review and self-assessment are expected and accepted. An inclusive approach to involving all stakeholders and audiences fosters a cooperative environment in which evaluation can flourish.

**OPPORTUNITIES FOR PARTNERING**

Foundations serving similar communities could collaborate to develop and fund evaluation courses for their grantees. Judith Woodruff, J.D., of the Northwest Health Foundation also recommends academic partnerships as a means of enhancing limited resources for this purpose. In NWHF’s experience, faculty members are pleased to help nonprofit programs and small foundations and it taps into various disciplines for consultation, assistance, and feedback. The foundation’s Learning Laboratory Series outlines concepts, principles, and techniques and present them in simple and practical ways, in workshop format, to non-profit leaders in their area.

Foundations could collaborate to develop sets of common outcome measures, which can be used to evaluate similar programs, particularly for clinical investigators at different career stages. This way the results of an outcome study can be more easily generalized and programmatic elements that may have influenced results are more easily identified. The
Inputs: Resources that are devoted to supporting the program (money, time, expertise, facilities, etc.)

Outputs: Short-term measures of program strategy implementation (number of awardees supported annually, dollar expenditures per awardees, etc.)

Outcomes: The short and longer-term effects of the program strategies on knowledge, behavior, attitude, and/or perceptions (the actual important scientific discoveries made by your awardees, improved human health, enhanced science education, etc.)

Surrogate outcomes: Stand-ins for the results to be monitored or measured. For example, in antiretroviral management of HIV, as numbers of CD4 cells and viral load are surrogates for the effect of treatment.

Doris Duke Charitable Foundation and the Howard Hughes Medical Institute have done precisely this, coordinating the evaluation of programs that provide one year of research support for medical students.

Foundations could enter award data in a common database, similar to NIH’s CRISP database. Currently, privately funded grant award data is not aggregated in any central place. Such a database would allow tracking of researchers throughout their careers. Additionally, it could assist foundations in program development by demonstrating any funding gaps.

CONCLUSION

Evaluation is a means, not an end, and evaluation for growth requires organizational commitment. Whenever an organization undertakes an evaluation, it should:

• Be clear about why it is evaluating
• Be clear about what it is measuring
• Be careful how it measures
• Be careful not to base assessments on assumptions
WHY EVALUATE: A BRIEF EXAMPLE
Historically, standard continuing medical education (CME) programs have been only rarely evaluated. When they were, it was apparent that didactic CME did not change physicians’ behavior. This finding demonstrated that other non-traditional methods needed to be explored to assure adoption of best practices.

EVALUATION: A SHORT LIST OF PROS AND CONS
Evaluation may
- Drain programs of both time and dollars
- Weaken the staff’s control over its own program
- Raise (prematurely) red flags about program performance
- Create anxiety among grantees and other stakeholders
- Tend to be academic

But when evaluations are well designed and conducted, they
- Are straightforward
- Are easy to manage
- Deliver clear “yes/no” answers
- Aid decision making
- Raise (appropriately) red flags about program performance

PLANNING AND EVALUATION AT THE PEW CHARITABLE TRUSTS
The Pew Charitable Trusts invests in planning and evaluation to inform its critical decision-making, strengthen the design and management of its work, and broaden its knowledge base. Pew expects to derive four major benefits from its evaluation program:
- An assessment of return on its investment
- Information about the effectiveness of specific strategies
- An informed perspective on options for adapting program strategy to upcoming opportunities
- Lessons of broader interest that can help the organization to become stronger

Each year approximately 0.5 percent to 1 percent of Pew’s payout is earmarked for evaluation studies. One of the principal expenses is the organization’s eight-person evaluation staff, which costs roughly $1 million annually.

Pew has an internal strategy cycle for planning and evaluation that repeats every five years. Year 1 is devoted to the development of a particular strategy, which is implemented in Years 2-4 and reviewed in Year 5

THE PEW CHARITABLE TRUSTS’ INTERNAL STRATEGY CYCLE

<table>
<thead>
<tr>
<th>Staff</th>
<th>Year 1: Development</th>
<th>Year 2-4: Implementation</th>
<th>Year 5: Cluster Review</th>
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<tr>
<td>Planning and evaluation staff</td>
<td>• Provide objective input</td>
<td>• Consult on tracking plan</td>
<td>• Design and manage cluster review</td>
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<td></td>
<td>• Convene and chair peer review process</td>
<td>• Design and manage targeted evaluations</td>
<td>• Present cluster review findings to decision makers</td>
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<td>• Make recommendations to management</td>
<td>• Review annual plans for data quality and clarity</td>
<td>• Ensure that cluster review findings inform subsequent programming</td>
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<tr>
<td>Program staff</td>
<td>• Research and design strategy</td>
<td>• Develop and recommend program investments</td>
<td>• Provide input on design of cluster review</td>
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<td></td>
<td>• Write strategy paper</td>
<td>• Monitor grants and track strategy</td>
<td>• Review reports for rigor and accuracy</td>
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<td>• Develop annual plans for the board</td>
<td>• Prepare recommendations for program adjustments</td>
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TWO ASSESSMENT APPROACHES FOR HHMI RESEARCH TRAINING PROGRAMS

To compare a cohort of its program alumni with other medical students, the Howard Hughes Medical Institute (HHMI) contracted with the Association of American Medical Colleges (AAMC) and gathered data from its own internal evaluation. The two programs evaluated were the HHMI–National Institutes of Health (NIH) Research Scholars Program, which began in 1985, and the HHMI Research Training Fellowships for Medical Students Program, launched in 1989. Both programs aim to increase the number of physician-scientists by exposing medical and dental students to a year of full-time biomedical research. The assessment was intended to quantitate the success attained by program alumni and to determine whether the programs increased the likelihood that a participant will become a physician-scientist. Measures of success were the procurement of an academic position in a medical school, number of publications, and receipt of an NIH postdoctoral fellowship or research grant.

HHMI evaluated alumni from in-house data collected by its program alumni administrator. AAMC compared the HHMI program alumni with applicants to the two programs who were not accepted, the general medical student population, and students pursuing M.D.-Ph.D. degrees, using databases to which it had access.

HHMI found 85 alumni with verified faculty positions for one period, whereas AAMC found 79. Reasons for this discrepancy included inaccurate data, a lag in data, and data that were not collected for some physicians. Comparing 21 program alumni who had faculty positions, AAMC found 109 publications, whereas HHMI found 306. One probable explanation for this discrepancy was that the AAMC only tracked first-author publications while HHMI counted all publications irrelevant of where the person fell in the author’s list. AAMC verified that about 25 percent of alumni had continued on to do research, but the HHMI alumni database identified this proportion as 50 percent.

Although both evaluation programs were effective, neither approach met all of HHMI’s needs. The Institute found that:

• External evaluation is objective and may be more acceptable to some, but data may be less accurate and complete.
• In-house data collection is more accurate and complete, but it is also more labor intensive and costly and does not easily accommodate comparisons.

Positive Results from a Negative Conclusion

In a clinical trial on improving end-of-life care in hospitals, physicians and hospitals were randomly assigned to receive an intensive training intervention to provide respectful support to family members of dying patients. Evaluation of the trial deemed no discernable effect for the training intervention—a negative conclusion.

Grantees often fear that funding will be withdrawn if an intervention yields a negative conclusion. However, in this case, the opposite occurred. Because the negative result illustrated how little is known about end-of-life care, the funder made a 10-year investment to improve such care.

While this study results challenged the perceptions of both grantmakers and grantees, the funder’s response illustrates the importance of being able to change key assumptions in order to improve an area and also demonstrates how philanthropies can use evaluation.
EVALUATING THE MEANS AS WELL AS THE ENDS

Through Active for Life demonstration projects, nine organizations—including the Detroit mayor's office, the Chicago YMCA, and Blue Cross of California—are funded to adapt one of two models for encouraging older people to be more physically active. The Cooper Institute and Stanford University developed the two evidence-based models, which target lifestyle. A two-part evaluation of the program addresses both process and outcomes. The process evaluation focuses on one question: How and why must these evidence-based models be adapted to local circumstances? This question reflects concern about the difficulty of translating research into practice and knowing whether the model is adapted in a valid fashion, which in turn can be expressed in additional questions: Is the model good, and can it be shared? If not, how can it be improved? The Active for Life evaluation is similar to the collaborative improvement method that is gaining currency in health care, but in this case, sharing information and learning from the process give the grantee a stake in the evaluation.

The Robert Wood Johnson Foundation develops strategies to achieve specific aims (e.g., reducing childhood obesity), then applies performance indicators to those strategies. It has three categories of indicators:

1. Short-term indicators are used to improve understanding of what is going on within a program when the available science base may be limited.

2. Intermediate indicators are used to detect and help implement effective interventions through policies or programs.

3. Long-term indicators focus on behaviors, such as healthy eating and active living, to lower the prevalence of certain health conditions.

AN EXPERIMENT IN FORMATIVE EVALUATION BY PEERS

The Howard Hughes Medical Institute explored a new model for formative evaluation of the educational programs it funds. The purpose of this project was to understand how other programs are doing evaluation, rather than to conduct an actual evaluation of the programs. In the pilot phase, three teams of peer evaluators and directors of HHMI-funded pre-college science education programs made site visits to programs that were in operation. Teammates were charged with helping each other improve their internal evaluation capacities. Each team was small but diverse, with four program directors representing both informal and formal science education settings (biomedical research institutions and museums and science centers) and rural and urban or inner-city programs. In the process of coordinating and conducting site visits, explaining how they evaluate their own programs, and preparing reports of their findings, the team members became “critical friends.” HHMI did not participate in these visits. Grantees found this exercise to be effective and useful. They modified their programs on the basis of what they learned, and many report that they continue to rely on each other as resources. This approach has now been built into a new program at HHMI.

“...if you want to believe that the universe is unfolding as it should, avoid evaluation, for it tests reality. Evaluation threatens complacency and undermines the oblivion of fatalistic inertia. In undisturbed oblivion may lie happiness, but therein resides neither knowledge nor effectiveness.”


An example from the American Cancer Society (ACS) illustrates some of the challenges in knowing what to measure and how to measure it. When ACS tried to evaluate one of its training programs by comparing “success measures” for applicants whom it did and did not fund (e.g., subsequent faculty status and publications), it found very few differences between the two groups. This finding raises several questions:

- Was the sample size adequate for conclusions?
- Is the ACS marker of success the people who are interested in applying for its program, or is it the program itself?
- Is ACS making the difference, or did the applicants it did not fund find similar support for their research somewhere else?

Contributed by Maryrose Franko, Ph.D., Howard Hughes Medical Institute
CHAPTER 5

E-GRANTMAKING

“Technical and data standards…and a central profile system (for applicants) provide the richest collaborative opportunities for private grantmakers with regard to electronic grantmaking.”

Many private grantmakers are considering electronic processes for receiving and processing grant applications. Some have already begun to implement electronic processes within their organizations. A few have been using electronic grantmaking for several years. Government institutions began moving toward electronic records in 1999 under the Government Paperwork Act (GPEA), Public Law 105-277. In response to GPEA, the National Institutes of Health established the electronic Research Administration (eRA) to make all transactions electronic by October 2008. The purpose of this session was to provide an update on the current landscape and direction of federal electronic grantmaking efforts, as well as to explore any opportunities in this area for collaboration between the federal government and private grantmakers.

GRANTS.GOV

Grants.gov (http://www.grants.gov) is a cross-government initiative, sparked by the recognition that federal agencies have different processes for making awards and different reporting requirements, which creates a burdensome environment for potential grantees trying to apply and for awardees trying to comply. The program was created with the recognition that while large research universities may have enough staff to assign a grants expert to handle each federal funding agency, most potential applicants don’t have this level of support. For them, the options are to hire someone to help guide them through the thicket of opportunities, limit themselves to a single agency, or reconcile themselves to the fact that there might be suitable opportunities they will never learn about or be able to respond to. The result is less diversity among those funded and greater disparity with those not funded.

The initiative’s goal is to create a single point of entry for potential grant applicants, providing a unified way to electronically find and apply for competitive grant opportunities from all 26 federal agencies. Beginning November 7, 2004, the Office of Management and Budget required all agencies to post their grant opportunities on the Grants.gov Web site. Through the “Find Grant Opportunities” function, applicants can search the entire Grants.gov site using several parameters, including keywords, to learn of grant opportunities from across all federal agencies. In addition, applicants can register to receive daily e-mail notification of all new grant announcements. The “Find” function of Grants.gov was piloted in July 2002 and is now fully deployed.

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The initiative is currently working on a uniform way to submit grant applications electronically—through the “Apply for Grants” function. In October 2003, a pilot rollout of this function was successful, and the number of federal grant programs making the transition to fully electronic submission continues to increase. Grants.gov also offers the ability to download grant application forms so applicants can complete them offline and easily route them.
Many grantmaking groups have moved the cost of paper to applicants by asking them to make and mail all copies requested. With an electronic process, that burden can be reduced or shifted entirely to the grantmaking entity. Options include subsidizing the cost of printing for reviewers, making fewer copies at the receiving end, or negotiating with the grantmaking organization about what constitutes the right amount of paper. On the subject of cost transference, reviewers now have to use their own supplies to print copies, but it’s still cheaper for NIH to reimburse reviewers $15 to $50 for paper and ink cartridges than to mail large quantities of paper and CDs.

Q: Do the National Science Foundation (NSF) and NIH need a data standard outside the core of Grants.gov?

A: Yes. The Grants.gov core is not suited for other required information (e.g., on laboratory animals and place of performance). NSF, the Department of Energy, and other agencies need to collect some information that Grants.gov can’t accommodate. These research agencies got together, explained how Grants.gov didn’t fit their needs, and proposed extensions to the core component, essentially creating a research market segment that could cross all agencies. That proposed standard will be delivered (through Charles Havekost) to the Office of Management and Budget (OMB). After it receives OMB approval, it will be put in Grants.gov as a package for all research agencies, to minimize the agency-specific information needed.

This is expected to be a truly transformational change, which will increase standardization for the research community across agency boundaries. When the standard receives temporary approval, that fact will be published, and it can move forward through a Federal Register announcement and request for comments. The entire approval process will

through their organization for review. Once the grant application is complete, the applicant can log back onto the site and submit it for consideration.

It is hoped that Grants.gov will become a “trusted broker” between applicants and federal grantmaking agencies, to the benefit of both groups. The federal government views Grants.gov as an initiative that will have an unparalleled impact on the grant community. The U.S. Department of Health and Human Services is the managing partner for Grants.gov, and Charles Havekost, Grants.gov program manager, reported on this initiative.

**NIH ERA COMMONS AND ELECTRONIC APPLICATION RECEIPT**

The electronic Research Administration Commons, or eRA Commons, is the National Institutes of Health’s (NIH) external, Web-based system that allows grantee organizations and grantees to interact with NIH about grant matters such as administration, progress reports, and financial status reports (http://commons.era.nih.gov). The overall objectives of the eRA Commons are to convert the millions of pieces of paper in the NIH application, review, and award and postaward administrative process to an electronic medium for full electronic grants administration, and to integrate with other NIH systems. Current features of the eRA Commons include the ability of registered users to:

- Review the current status of pending and awarded grant applications, including the priority score and summary statement
- Access Notices of Grant Award, progress report face pages, and other grant-related documents
- View NIH staff contact information for each application
- Access study section rosters and dates of meetings
- Access No-Cost Extension and Just In Time information

eRA Commons also provides an interface, internet assisted review (IAR), for reviewers to submit critiques and preliminary scores of grant applications and have online discussions about grant applications before a study section meeting. A demonstration facility, which contains all the functionality of the production system, is also part of the eRA Commons, thereby facilitating hands-on, local training for system users.

At the time of the meeting, two grant-related documents could be electronically submitted to NIH via eRA Commons. Noncompetitive progress reports can be submitted via eSNAP, the electronic streamlined non-competing award process section of the eRA Commons, and a statement of grant expenditures, or financial status report (FSR), can be submitted via the FSR section. The electronic submission of competitive grant applications (CGAP) to NIH via the eRA Commons is in the pilot phase, involving a limited number of institutions. The submission of modular R01 applications was successfully piloted in the fall of 2003; another pilot is planned for March 2004.

As part of the eRA Commons project, NIH is encouraging external service providers to develop a system-to-system interface for electronically submitting grant applications and conducting other grant-related transactions to NIH. Commercial companies as well as grantees can become NIH eRA service providers. Current eRA service providers participate in regular conference calls, receive technical support from the eRA team, work with principal investigators and grantees to submit grant applications
in the ongoing pilots using their services or products, and attend periodic update meetings with NIH staff. Several eRA service providers participate in this effort as part of a Small Business Innovation Research award.2 The applications and services developed as part of this initiative can be purchased or licensed to NIH grantee organizations.

Ultimately, the eRA Commons will be NIH’s infrastructure for conducting interactive electronic transactions for the receipt, review, monitoring, and administration of NIH grant awards to biomedical investigators. The NIH eRA Commons enables communication with its partners in the research community through the use of current technology. David Wright, chief of the Requirements Analysis Branch of the National Institutes of Health, reported on the NIH eRA Commons.

OPPORTUNITIES FOR COLLABORATION AMONG PRIVATE FUNDERS

The process of electronic submission of grant applications requires technical and data standards—the key to the entire system. In addition, a central profile system—divided into professional profiles for individuals and institutional profiles for organizations—would significantly ease the process for users, as they would not need to re-enter this data with every grant application. These areas provide the richest collaborative opportunities for private grantmakers with regard to electronic grantmaking. Meeting participants were encouraged to become more involved in these areas, not only with the federal government, but with each other, working toward a higher degree of standardization, resulting in a more streamlined electronic grantmaking process for everyone.

Contributed by Debi Vought, M.S., Burroughs Wellcome Fund

REFERENCES
