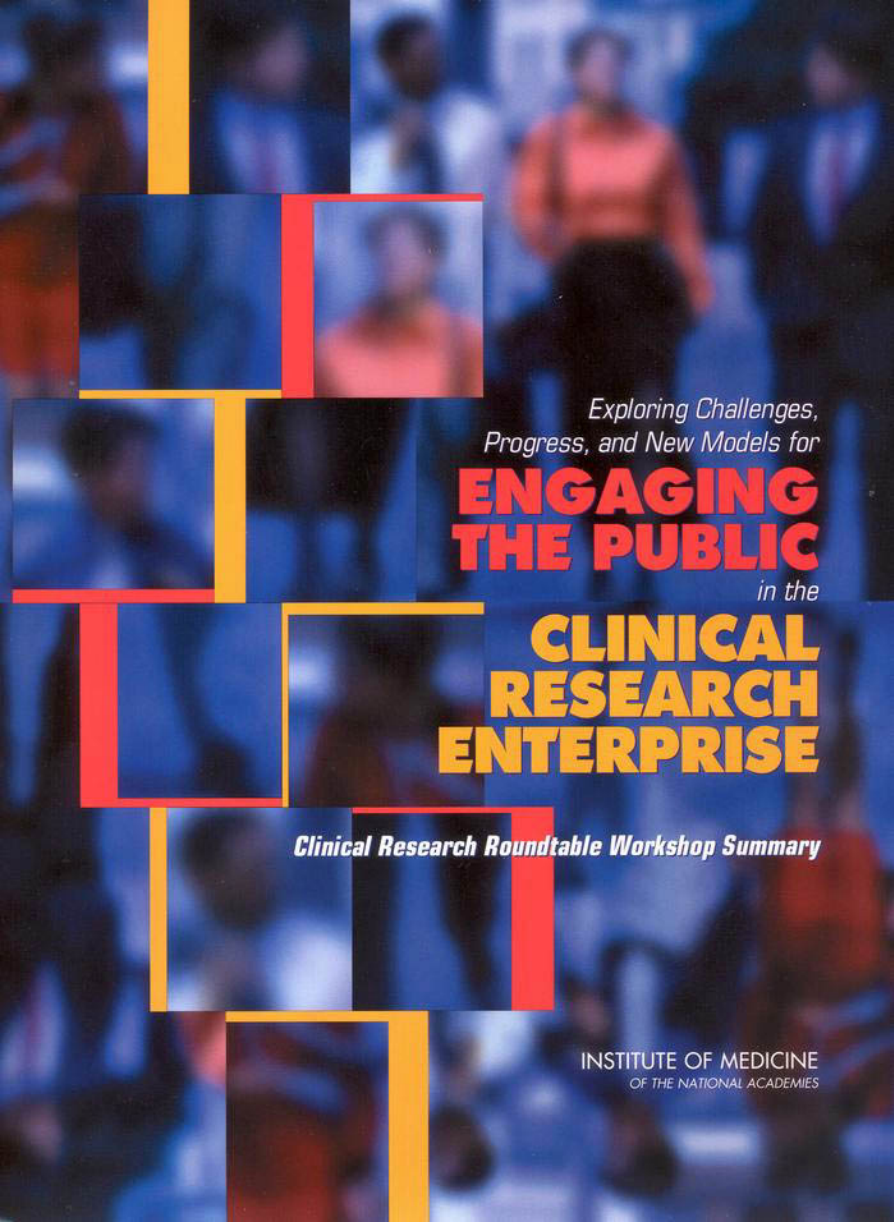

Exploring Challenges, Progress, and New Models for

ENGAGING THE PUBLIC *in the* CLINICAL RESEARCH ENTERPRISE

Clinical Research Roundtable Workshop Summary

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

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Clinical Research Roundtable Workshop Summary

Based on a Workshop of the Clinical Research Roundtable
Board on Health Sciences Policy

Jessica Aungst, Amy Haas, Alexander Ommaya, Lawrence W. Green, *Editors*

INSTITUTE OF MEDICINE
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THE NATIONAL ACADEMIES PRESS
Washington, D.C.
www.nap.edu

THE NATIONAL ACADEMIES PRESS 500 Fifth Street, N.W. Washington, DC 20001

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Support for this project was provided by the Agency for Health Care Research and Quality, American Medical Association, Association of American Medical Colleges, BlueCross/BlueShield Association, Burroughs Wellcome Fund, Centers for Disease Control and Prevention, Centers for Medicare and Medicaid Services (formerly HCFA), Department of Veterans Affairs, Doris Duke Charitable Foundation, Food and Drug Administration, Johnson & Johnson, Merck and Company, National Institutes of Health, Pfizer Inc., and the Robert Wood Johnson Foundation. The views presented in this report are those of the authors and are not necessarily those of the funding agencies.

International Standard Book Number 0-309-08946-8 (book)
International Standard Book Number 0-309-51726-5 (PDF)
Library of Congress Control Number: 2003107016

Additional copies of this report are available from the National Academies Press, 500 Fifth Street, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area); Internet, http://www.nap.edu.

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Willing is not enough; we must do."
—Goethe

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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the NRC's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

Dolph Chianchiano, Ph.D., National Kidney Foundation, Inc.
Patricia Hinton, American Heart Association
Susan L. Weiner, Ph.D., The Children's Cause, Inc.

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the final draft of the report before its release. The review of this report was overseen by Mel Worth, Scholar-in-Residence, Institute of Medicine, who was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

Foreword

The Institute of Medicine convened the Clinical Research Roundtable (CRR) in early 2000 to provide a forum for stakeholders to discuss approaches to resolving both acute and long-term issues affecting the Clinical Research Enterprise. It strives to enhance mutual understanding of clinical research between the scientific community and the general public, while improving the public's understanding of and participation in clinical studies.

The stakeholders involved in the CRR include individuals from the academic health community, federal agencies sponsoring and regulating clinical research, private-sector sponsors of clinical research, foundations, public- and private-sector insurance programs, health plans and insurance companies, corporate purchasers of health care, and representatives of patient interests.

Since its inception, the Roundtable has discussed many issues relevant to clinical research and has sponsored several symposia, the proceedings of which are available on its website, www.iom.edu/crr. The issues addressed by the CRR include workforce career development in clinical research across the health profession; the linkage between discoveries in basic science and their application to improved patient care; the essential coordination of clinical research within and between research entities and disciplines; the ability of academic health centers to conduct clinical research and training; the broad participation of health professionals in clinical research across all practice settings and emerging health care systems; the timely incorporation into clinical practice of new research findings and findings on health outcomes; and the availability of financial and other data to monitor and assess the different components of patient- and population-based health research.

During the dialogue between the various stakeholders that has been facilitated by the CRR, the Roundtable members realized that the Clinical Research Enterprise is not an entity; it is a very complex enterprise made up of many stakeholders—the doctors, the patients, the public, the academic health centers, the industry entities—who do not necessarily function in a seamless fashion.

The CRR has identified four major challenges to the Clinical Research Enterprise: enhancing public participation in clinical research, which includes making the system safer and faster; developing the necessary information systems that are needed to make the clinical research enterprise a coordinated and seamless whole; fostering an adequately trained workforce; and ensuring adequate funding for clinical research.

In addition, the CRR has identified two translational blocks—from basic science into clinical practice and from the clinical identification of things that work into broader application to improve medical care and the public's health. This workshop summary addresses the contribution of the public to overcoming these obstacles.

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Workshop Summary

The Clinical Research Enterprise depends upon practitioners, policy makers, and others for participation in trials, ethical review of research, and continued support of research funding. However, the role of the public has expanded beyond this traditional model as consumers have begun to demand a role in the formulation of the research agenda and in the design, review, and pursuit of research. In addition, consumers are taking a greater role in accessing health information and pushing for better translation of research into practice.

Exploring the role of the public in the Clinical Research Enterprise was the focus of this workshop. Mary Woolley of Research!America opened the workshop by noting that support for research is strong, but the public lacks much basic knowledge about the Clinical Research Enterprise.

NIH Director Dr. Elias Zerhouni added that engaging the public in the Clinical Research Enterprise is a strategic imperative for several reasons—the public can aid the translation of research findings into practice, help to speed up the clinical research process, and help to make the research process more efficient. He also noted that translation from clinical findings into practice is often the weak link in the Enterprise and that there is a need for improved infrastructure to support the National Clinical Research Enterprise. The three major priorities for engaging the public in the Clinical Research Enterprise listed by Dr. Zerhouni are trust, ongoing bi-directional communication between the research community and the public, and education.

WHAT IS PARTICIPANT-CENTERED RESEARCH?

Defining Participatory Research

Dr. Larry Green stated that members of the public traditionally have been seen as passive recipients of research results rather than as active partners in the Clinical Research Enterprise. Participatory research extends the role of the public in clinical research beyond participation in trials. It actively involves members of the public in the research process by incorporating public views in the prioritization, review, and translation and dissemination of research. This fosters trust in the Clinical Research Enterprise, increases research participation, addresses issues of the most importance to communities, and aids the translation of research results into practice.

Participatory research has been in existence in various forms for decades, but is difficult to define in practice. The CDC, in collaboration with the University of British Columbia, has defined it as a "systematic inquiry, with the collaboration of those affected by the issue being studied, for purposes of education and taking action or effecting change" (Green et al., 1996). Workshop participants used the terms community-based participatory research, participatory research, community-based research, and participant-centered research to describe similar concepts.

Benefits of participatory research listed by Dr. Green and others include:

- enhanced data quality and quantity;
- results are more immediately actionable in local situations;
- results are relevant to the interests, circumstances, and needs of those who would apply them;
- findings are more credible to practitioners and policymakers;
- translation and sustainability of research findings are enhanced;
- research awareness is increased;
- trust between the research community and the public is enhanced;
- research definitions and directions are improved;
- translation and sustainability of research findings is enhanced; and
- the community's health, education, and economic

situation are improved as a result of involvement in participatory research programs.

Disadvantages of greater participant involvement, outlined by Dr. Jerome Yates, include:

- program costs for training efforts and committee discussion time; and
- participation costs such as time for learning and ensuring that participant members can stand behind their views when questioned by scientists and others.

Factors to Facilitate the Use of Participatory Research

Successful community-based participatory research (CBPR) should include community focus and equal collaboration between community and academic partners, and should ultimately benefit the community, according to Dr. Marshall Chin. Creating centers and other resources to help investigators make contacts in the community and changing how CBPR is viewed within academic health centers could encourage CBPR at academic institutions.

According to Dr. Chin, the community-based participatory research system would be improved by developing:

- pilot developmental grants;
- incentives for community members and researchers to work together;
- grant review study sections that understand and value CBPR; and
- appropriate grant review criteria for CBPR.

To encourage CBPR at academic institutions:

- the next generation of professors who are more accepting of participatory research could influence others;
- foundations and others could create programs to support postdoctoral fellowships in CBPR;
- institutions could create centers and resources to help investigators make contacts in the community; and
- institutions could change how CBPR is viewed in academic health centers, particularly for tenure and promotion decisions.

Participant Involvement

Zelda Tetenbaum noted that engaging the public in clinical research is difficult until people actually have a disease and see a trial as a potential last hope. Literacy Volunteers of America, American Cancer Society's "Reach to Recovery" program, and the Research Subject Advocacy Programs at General Clinical Research Centers provide some models for engaging the public in the clinical research enterprise and enabling potential participants to better understand research.

Informed consent and conflicts of interest are major concerns for patients, families, and patient advocates, said Ms. Tetenbaum. Informed consent should be an ongoing and significant process. The Association of American Medical Colleges, Association of American University, Institute of Medicine, National Bioethics Advisory Commission, and the National Human Research Protections Advisory Committee have recently offered recommendations to address the issue of conflicts of interest, and the U.S. Department of Health and Human Services has drafted guidance on the topic.

Encouraging Participant Enrollment and Physician Awareness

Doctors' recommendations, awareness in the community, and association with people who have participated in research were identified by workshop participants as important factors that promote participant enrollment in clinical research. However, Dr. Leslie Ford noted that there is little organized data that would indicate the most influential factor for encouraging participation in clinical research.

Dr. Jerome Yates noted that awareness on the part of trusted physicians is critical to encourage participant enrollment in clinical trials. However, many physicians are unaware of available clinical trials.

Challenges to Community Involvement

Challenges to community-based participatory research and potential solutions offered by workshop participants include:

- public's distrust of scientists and research—researchers must be prepared to meet community needs;
- power imbalance—establish equal partnerships that acknowledge strengths and weaknesses of all parties;
- multidisciplinary needs—involve a broad spectrum of disciplines in the research process;
- the need to educate and engage the public, including doctors—make trial information more accessible and train staff.

Effectiveness of Public Involvement

Dr. Kenneth Olden stated that the most important measure of the success of CBPR is the short- and long-term impact on public health and health policy of research using the CBPR process. Two outcomes that could be used to measure the success of CBPR are involvement of more members of the public in the research process and improvement of the overall health of the public. The latter is more difficult to determine and measure.

Model Participatory Research Collaborations

Models for collaboration include the approach of the National Institute of Environmental Health Sciences, the Congressionally Directed Medical Research Programs, the National Breast Cancer Coalition, Genentech's collaboration with breast cancer advocates, the American Cancer Society's Stakeholder Program, and the National Cancer Institute's Community Clinical Oncology Program.

INCREASING THE ROLE OF THE PUBLIC IN RESEARCH OVERSIGHT

IOM Report

The review of research involving human participants is essential to the conduct of ethical research. Members of the public are not only affected by the results of such reviews, they also play an important role in the review process. As outlined by the IOM report, *Responsible Research: A Systems Approach to Protecting Research Participants*, transparency of this process also is crucial to maintaining the public's confidence in research (IOM, 2003).

Dr. Daniel Federman, chair of the Committee on Assessing the System for Protecting Human Research Participants, discussed the recommendations of the committee regarding participant involvement in the oversight and review of research. The report also addresses the importance of quality improvement activities in the process of human protections. The committee's recommendations discussed by Dr. Federman during the workshop include the following:

- All research involving human participants should take place within the framework of a human research participant protection program (HRPPP) that fosters a culture of ethical research conduct and integrity and is supported by the highest authorities within organizations and given the resources to function effectively;
- A three-pronged process of review that includes complementary assessments of science, financial conflicts of interest, and a comprehensive review focused on ethics should be utilized to review research. It is essential that these review mechanisms be properly staffed and able to share information effectively with each other;
- At least 25 percent of the Research ERB membership should be unaffiliated and nonscientific;
- Obtaining informed consent should be an ongoing process rather than a discrete moment;
- All studies that have more than minimal risk should be monitored, with prompt reporting of adverse events to investigators and Research ERBs, as well as sponsors; and
- People nonnegligently injured in the course of research should be compensated for at least medical care and rehabilitation expenses, without regard to fault.

The government should assume responsibility for collecting baseline data on the protection system. Currently, no one knows either the number of people injured in research or the number of people participating in research (the "numerator" and "denominator").

Issues Regarding Independent Members of IRBs

Nancy Dubler noted that some IRB chairs have welcomed the prospect of more public members, but others have expressed concerns, as have unaffiliated, nonscientist IRB members. Her certification program aims to address the concerns of both of these groups by educating and recruiting unaffiliated, nonscientist IRB members as well as providing guidelines for them.

Angela Bowen discussed Western IRB, an independent review board that could serve as a model for others. WIRB panels are generally composed of three physicians, three other scientists, and three nonscientists, and use alternates and consultants as necessary. They meet weekly, and members are paid for their service. The Board offers nonfinancial support to its members as well, including training, indemnification, and adequate staff support. Service on IRBs by unaffiliated and faculty members could be encouraged by raising the profile of IRBs, compensating for time away from other work, and including IRB service in tenure and promotion decisions, according to Dr. Bowen.

Public Involvement in the Accreditation Process

Marjorie Speers emphasized the importance of public involvement in oversight, including a human research protection program accreditation process. This is one way of fostering public trust and increasing public support. The board of directors of the Association for the Accreditation of Human Research Protection Programs (AAHRPP) includes five public members, and the Association incorporated participant concerns into its standards. Potential research participants can use the accreditation status of institutions as an aid to decision-making when choosing whether to participate in research at a particular site. AAHRPP will make public the accreditation status of institutions.

New Models of Ethical Review

Dr. Greg Koski stated that in the current system, there is an overreliance on IRBs to ensure that research participants are protected. The ethical conduct of research requires the support of an entire program, which includes an effective administrative staff, an information system, and a communication system, as well as quality assurance, management, and compliance functions. He further emphasized that the goal of the protection system should be prevention of harm and ex-

cellence in the conduct of research rather than simple compliance with the regulations.

Alternatives to the current system of ethical review include the distributed network consortium, centralized consortium, tandem, and practice-based network models. These models will function only to the degree that institutions are willing to trust their review partners.

Currently, interpretation of ethical review regulations is extremely variable. OHRP offers guidance for interpretation and hopes that its developing quality assurance process will provide a "gold standard reference" of best practices to share through OHRP. The first phase, quality assurance, has begun and the tools are available from OHRP.

STEPS TO IMPROVE THE TRANSLATION AND DISSEMINATION OF THE RESULTS OF CLINICAL RESEARCH

The Internet and Health Communication

The Internet is now the primary way that most people in the United States get health information, according to Dr. Barry Wolcott of WebMD. The Internet can be used to conduct research, facilitate connections between researchers and potential participants, and promote behavioral change. He emphasized that the Internet should be a major component of any marketing campaign to recruit for clinical trials and IRBs. However, there are concerns about privacy, confidentiality, validity, and credibility on the Internet that must be addressed.

The Role of VHAs

Voluntary Health Associations (VHAs) inform patients about the availability of clinical trials, recruit patients to trials, sometimes conduct or fund trials, and provide information about research results. John Walsh noted that several VHAs have expressed frustration about the difficulties of getting, sharing, digesting, and translating existing information; the lack of basic information collected about their disease; and the lack of information about indirect costs to society of particular diseases.

The Alpha-1 Foundation is a model of community-centered collaboration that includes consumers, clinical researchers, government, and industry, all of which are part of the research infrastructure employed by the group. Community-centered research coordination includes stakeholder liaison meetings; expert advisory committees; FDA participation; consideration of ethical, legal, and social implications; and outcome studies.

Translation and Dissemination of Research Results at NIH

NIH has employed consensus development conferences for 25 years in order to consolidate and communicate information of public health importance. The public aids in identifying issues of importance and in interpreting some information. The results of the conferences are distributed to targeted audiences. However, there is still a need for evidence about how to translate this knowledge into behavioral change.ClinicalTrials.gov was launched in early 2000 to provide a single point of access for reliable trial-related information. The site is easily searchable and contains approximately 7,100 trial listings. The entries include the purpose, eligibility criteria, location, contact information, number of patients required, and the study status of the trials.

According to Steve Katz, challenges to translating and disseminating information include:

- translating knowledge into behavior change of health care providers and the public;
- making information available to all Americans (this includes disseminating information at an understandable literacy level, and sensitivity to culture and vulnerable populations);
- making information available in many forms;
- knowing when and how to communicate the information; and
- providing enough valid information.

Targeting Messages

There is a need for more research about how to engage health care practitioners in lifetime learning. Dr. Wolcott commented that restating research findings, such as those presented in NIH Consensus Reports, in the form of specific questions for patients to ask their physicians would encourage practical use of the research. Personal interest stories, such as those pairing a patient and doctor to talk to the media, also can aid in the dissemination of information.

Funding for Research Translation

Dr. Hugh Tilson noted that there is a lack of funding for research to determine the most effective mechanisms for translating and disseminating research results. Dr. Wolcott noted that companies build these costs into their expenses for research and development, but other sectors have not marketed discoveries with the same vigor.

CONCLUSION

During the workshop, speakers identified obstacles to the application of community-based participatory research and also potential ways to counter those obstacles. The Clinical Research Roundtable will continue to address similar issues that affect the Clinical Research Enterprise to ensure that it is functioning optimally—producing and sharing the results of research that are necessary to improve human health.

1

Priorities for Engaging the Public in the Clinical Research Enterprise

WORKSHOP INTRODUCTION

A recent editorial in the *Journal of the American Medical Association* noted that the clinical research enterprise is in crisis (Rosenberg, 2003). The accompanying article identified enhancing public participation in the Clinical Research Enterprise as a top priority for ensuring that the Clinical Research Enterprise is functioning optimally (Sung et al., 2003). Key concerns regarding public involvement in clinical research include conflicts of interest, diversity of participation, community involvement, safety, and privacy. Because participatory-based research methods involve members of the public in all stages of the design and conduct of research, there is greater opportunity to address diversity of participation, community involvement, privacy, and other concerns. Training for clinical researchers and participants about the ethical conduct of research, including policies and procedures to monitor financial conflicts of interest, also have been suggested as ways to address these concerns (IOM, 2003; Schwetz and Dobs, 2002; Sung et al., 2003). For these reasons, enhancing the role of the public in the Clinical Research Enterprise was the focus of this workshop.

Opening the workshop, Mary Woolley, M.A., President of Research!America, noted that members of the public—patients, healthy participants, family members, and others—are very willing to take part in the research process. Research, she said, offers hope, which is a powerful motivator for the public to work with the research community.

Researchers, too, are committed to speeding up the research process and making it as safe as possible through accountability and a willingness to learn from the public and to answer questions about research. Ms. Woolley cautioned, though, that the research community must stay out of the lecture mode and out of the habit of thinking that researchers know what the public "needs to know." Instead, they should listen to and learn from members of the public, she said.

Numerous polls have shown that the public believes that supporting research is a very high national priority, as reflected by the bipartisan commitment to double the National Institutes of Health (NIH) budget in five years. However, Ms. Woolley pointed out that only about half the members of the public can name a single place where research is conducted (Charlton Research Company, 2002a). In addition, only about 2 percent recognize the NIH and its purpose (Charlton Research Company, 2002b). Ms. Woolley stated that members of the public want to be involved and will listen and learn as quickly as possible, but they do not want to be patronized. The public will be respectful, but they will not be docile; they will help researchers because all of us want research to succeed.

The research community has not been very successful in attracting patients to participate in clinical trials—only 4 percent of adult cancer patients are enrolled in clinical trials, commented Ms. Woolley. Research is an enterprise that most people have had no contact with, and in the past, researchers appear to have liked it that way, thinking that people without scientific training could not understand, much less intellectually contribute to, their research.

Patient engagement should inform and saturate every aspect of research, from formulating a research agenda to study design, to study review, to oversight at all levels, to dissemination and to translation to practice, she noted. This requires making a seat at the table for not just one but for several nonscientists.

According to Ms. Woolley, the purpose of the workshop was not to determine a rigid definition of what patient-centered research should or should not be, but rather to identify and agree to act upon ways in which the research community can more actively and more productively engage the public.

Ms. Woolley concluded by describing the ideal outcome of engaging the public in clinical research. At that point, she said, when a member of the public asks a researcher what she does, the researcher will respond, "I am a researcher. I

work for you. I serve the public's interest." And the questioner will not say, "What are you talking about?" but instead will reply, "Yes, I know how research works for me; tell me how I can do more to support research."

PRIORITIES FOR ENGAGING THE PUBLIC

Since National Institutes of Health (NIH) Director Dr. Elias Zerhouni began his tenure at NIH in May 2002, he has quickly confronted a number of challenges facing the Institutes. At the workshop, he made clear that engaging the public in the clinical research enterprise is a top priority.

According to Dr. Zerhouni, engaging the public must be considered not as a nice gesture, but as a "strategic imperative" for a number of reasons. First, translating basic advances into clinical reality is increasingly difficult. Second, discoveries and clinical validation must be accelerated to meet the rapid growth rate of healthcare needs and expenditures. As a percentage of GDP, the United States has the highest expenditure on health care in the world, and that rate is increasing (Levit et al., 2003). Third, clinical approaches must be more efficient, by an order of magnitude, than current ones. Finally, public support and participation are essential, because these goals cannot be achieved without the public's help and understanding. Dr. Zerhouni pointed out that public participation in AIDS trials and coronary heart disease research has led to declines in the number of deaths from those diseases.

"There is no doubt that if we just keep practicing medicine as we know it today, there is very little that we can see that will change the population dynamics of health and disease in our country," Dr. Zerhouni noted. He listed three major priorities to further engage the public in the clinical research enterprise: trust, ongoing bi-directional communication, and education.

Trust

While trust, defined by Dr. Zerhouni as "the ability to predict someone's behavior," has been an issue of concern for some time, it is now "the number one issue, and we need to tackle it and tackle it fully," he said. Retaining the trust of the public requires transparency, predictability, respect, quality assurance, and a vibrant and respected national Clinical Research Enterprise.

In Dr. Zerhouni's view, there are many aspects of the relationship between the public and the Clinical Research Enterprise that are not sufficiently transparent. He cited conflict of interest as one example, noting that conflicts must be addressed in a manner that is transparent both in reality and in the perception of the public. An actual lack of transparency can foster distrust, but so can the *perception* that there is a lack of transparency.

Dr. Zerhouni commented that maintaining a cadre of scientists and investigators who possess an invariant set of core values is important to foster predictability. Currently, in Dr. Zerhouni's view, the public believes that the core values are variable or not as strong as they should be within the Clinical Research Enterprise. He noted that a system cannot be built on regulations alone if it is to gain the trust of the public.

> "There is no doubt that if we just keep practicing medicine as we know it today, there is very little that we can see that will change the population dynamics of health and disease in our country."
>
> —*Elias Zerhouni*

> "It is no longer possible for us to tell people what research we are going to do from the top. We need to have collaboration; otherwise, you will not get the results that you want from the Clinical Research Enterprise."
>
> —*Elias Zerhouni*

Respect also is essential if the Clinical Research Enterprise is to retain the trust of the public, but the question is how to create the necessary respectful relationship. Privacy issues are one component of this relationship. Furthermore, with such a large Clinical Research Enterprise, there is a need for quality assurance mechanisms, including the credentialing of investigators, according to Dr. Zerhouni.

Dr. Zerhouni noted that the current system is not working properly. In his view, the problem cannot be fixed through unitary solutions, but will require a systems engineering approach, including an assessment of the relationships in the system between patient advocacy groups, the public, academic health centers, and community physicians. He noted that the ability of the United States to extract clinical research data from its investment in health care is not comparable to that of other countries, such as Sweden or England, because of a fragmented health care system in the United States and a lack of an interoperable information infrastructure.

Bi-Directional Communication

Referring to bi-directional communication between the research community and the public, Dr. Zerhouni said, "It is no longer possible for us to tell people what research we are going to do from the top. We need to have collaboration; otherwise, you will not get the results that you want from the Clinical Research Enterprise." He noted that public input at NIH is protean, and currently relies primarily on one-way

communication. The Council of Public Representatives (COPR) is an example of public input. Dr. Zerhouni believes that there is a need to ensure that patient advocacy groups are involved in collaboration early in the process, because they can accelerate the pace of research and can make it more effective and cogent.

The United States public is diverse, and therefore, there is no one-size-fits-all solution. There are many, many ways to engage the public, but there has not been enough scientific study on the most effective ways to interact with the public, Dr. Zerhouni commented. Communication must be adapted to each segment of the public and be sensitive to trusted intermediaries such as doctors, patient advocacy groups, churches, and the media, he said. Dr. Zerhouni cited the media as a particularly important conduit for information. In addition, he noted that some members of the public, such as minorities and underserved people, are left out; they need to be included in the process.

Physicians are essential for a vibrant Clinical Research Enterprise, but the proportion of academic physicians conducting and translating research has decreased since 1980—6 percent of doctors reported research as their primary career activity in 1980 versus 2 percent in 2000, according to data from the Medical Marketing Service presented by Dr. Zerhouni. "So, no matter how you slice it, we are in a crisis mode," said Dr. Zerhouni.

Education

Dr. Zerhouni also commented that currently, there is a need to better educate the public about clinical research. He also noted that a well-informed public is supportive of clinical research and that public trust is based on education. He called upon clinical researchers to ensure that information given to the public is accurate and not misleading. He cautioned against creating false expectations in the public on the basis of incomplete information and called on NIH and others to "take the highest road possible on these issues."

> "Engaging the public is a major priority, it is a national priority, it is not an option."
>
> —*Elias Zerhouni*

Dr. Zerhouni cited the Internet as one source to educate the public. Compared to other federal dot.gov websites, NIH is the most visited site in the country, with around 3.6–4.6 million users per month in 2002, according to NetRatings, Inc. "Engaging the public is a major priority, it is a national priority, it is not an option," said Dr. Zerhouni. To do this, there is a need to move from an institution-centric and investigator-centric system to one that is patient-centric.

KEY ISSUES FACING THE CLINICAL RESEARCH ENTERPRISE

Asked about the challenge of translating research discoveries into practice, Dr. Zerhouni responded that the problem is complex, and that there is a need to address the ecosystem—the relationship of academic health centers and communities to each other. He added that there already is a deficit (of practitioners, funds, etc.) facing clinical practice, without the additional resources needed to translate research into practice.

He noted that often the weak link in the Clinical Research Enterprise is translating findings into practice, in part because economic terms do not support this. Researchers make their discoveries and then move on to the next project, because this is where the funding is. Referring to the need to address clinical research as an enterprise, Dr. Zerhouni commented that the elements of the discussion will have to include how to standardize and build a common infrastructure across the country and how to serve the country better in terms of spending on health care that is not effectively educating doctors about what is right for patients.

The public and private sectors should not be completely separate, but appropriate safeguards are essential to earn public trust, according to Dr. Zerhouni. "It is a symbiotic relationship, and we will have to do as well as we can to make sure that you have the ability to translate those discoveries into reality," he said.

Regarding the perceived bias in funding of clinical versus basic research, Dr. Zerhouni countered, that the numbers do not indicate to him that there is a cultural bias. In fact, because study sections have been redesigned to facilitate the review of clinical research by a critical mass of peers, the success rate of clinical applicants is now similar to that of other applicants for funding. He further commented that he wants a balanced portfolio that looks at the impact of the research that is being done.

Dr. Zerhouni, responding to a question about NIH funding more outcomes research, commented that measuring to ensure that the modifications to healthcare patterns are more effective than those currently in use is very desirable. However, he added that while this is important, it is not the mission of the NIH to support a lot of outcomes research, unless there is potential to make a quantum change in the way clinical research is conducted.The clinical research system needs to be reengineered in a multidisciplinary fashion to best serve the country, he said. Referring to input from advocacy groups to the NIH, Dr. Zerhouni said that he is very impressed with the amount of interaction that occurs: The Institutes are very open. They have public representation on their Councils. "I don't have that sense of an ivory tower fortress from the Institutes," he commented. However, he noted that cross-Institute coordination is more complicated.

Furthermore, he commented that earmarking congressional funds is detrimental, and the groups that focus solely

"[There is a need to] work with patient advocacy groups, especially when you can have combinations of advocacy groups with a scientific agenda that really understand the spectrum of research activities that need to occur for progress in any one disease to happen."

—Elias Zerhouni

on one disease or outcome are not necessarily helpful to the larger process. There is a need to "work with patient advocacy groups, especially when you can have combinations of advocacy groups with a scientific agenda that really understand the spectrum of research activities that need to occur for progress in any one disease to happen," he commented.

REFERENCES

Charlton Research Company for Research!America. 2002a. *Public Doesn't Know Where Research Is Conducted*. Data from Research!America polls 1998-2002.

Charlton Research Company for Research!America. 2002b. *Aggregate 2002: Most Do Not Recognize NIH*. Data presented by Research!America.

Institute of Medicine. 2003. *Responsible Research: A Systems Approach to Protecting Research Participants*. National Academies Press: Washington, DC.

Levit K, et al. 2003. Trends in U.S. health care spending, 2001. *Health Affairs* 22(1):154–164.

Rosenberg RN. 2003. Translating biomedical research to the bedside. *JAMA* 289:1305–1306.

Schwetz B, Dobs A. 2002. Streamlining the Clinical Research Enterprise. *Journal of Investigative Medicine* 50(5):22–26.

Sung N, et al. 2003. Central challenges facing the national clinical research enterprise. *JAMA* 289:1278–1287.

Box 1.1 Summary

Mary Woolley

Support for research is strong, but the public lacks much basic knowledge about the Clinical Research Enterprise and the research process.

Researchers and others have had limited success recruiting participants to clinical trials.

The research community is committed to making the research process faster and safer.

Patient and public involvement is important at every stage of the research process.

Elias Zerhouni

Engaging the public in the Clinical Research Enterprise is a strategic imperative, because the public can aid the translation of research findings, help to speed up the clinical research process, and help to make the process more efficient.

The three major priorities for engaging the public in the Clinical Research Enterprise are:

- Trust (requires transparency, predictability, respect, and quality assurance),
- Ongoing bi-directional communication between the research community and the public (tailored to a diverse public),
- Education (to foster a greater understanding of research and increase support for it).
- Translation from clinical findings into practice is often the weak link in the Enterprise.

There is a need for improved infrastructure to support the National Clinical Research Enterprise.

2

What Is Participant-Centered Clinical Research?

INTRODUCTION

The Clinical Research Enterprise depends upon and ultimately serves the interest of the public, yet members of the public often have been seen as passive recipients of research results rather than as active partners in the Clinical Research Enterprise.

Participatory research actively involves the public in the research process by incorporating public views and representation into the prioritization, review, conduct, and translation and dissemination of scientific research. This fosters trust in the Clinical Research Enterprise, increases research participation, addresses issues of the most importance to communities, and aids the translation of research results into practice.

According to participants of a National Institute of Environmental Health Sciences (NIEHS) meeting about community-based participatory research (CBPR) held in 2000, CBPR can benefit schools of public health, state and local health departments, and public and private funding institutions, as well as the general public. The overall benefits of CBPR identified by meeting participants were enhancement of data quality and quantity by establishing trust; moving beyond categorical approaches; improving research definitions and direction; enhancing translation and sustainability of research findings; and improving the community's health, education, and economics by sharing knowledge obtained from projects (Fallon et al., 2000).

The participants in this section of the workshop focused on the basics of participatory research and models for its application. Because participatory research is loosely defined and exists in multiple forms, workshop participants used the terms community-based participatory research, participatory research, community-based research, and participant-centered research to describe similar concepts. Similarly, the term "community" is used in multiple contexts to describe communities consisting of various individuals and locations and of various sizes. Larry Green offered a definition of participatory research and outlined some of its benefits. Marshall Chin described factors that facilitate participatory research. Zelda Tetenbaum discussed the Council of Public Representatives and research participant issues. Kenneth Olden described participatory research at the NIEHS. Fran Visco discussed the National Breast Cancer Coalition and its role as an advocacy organization, Kenneth Bertram spoke about the Congressionally Directed Medical Research Programs, and Jennifer Bryson described the partnership between Genentech and breast cancer advocates for the Herceptin trial. Jerome Yates discussed the stakeholder program of the American Cancer Society. Leslie Ford concluded this portion of the workshop by describing the Community Clinical Oncology Program of the National Cancer Institute.

DEFINING PARTICIPATORY RESEARCH

Lawrence W. Green, Dr.P.H., Director, Office of Science and extramural research at the Centers for Disease Control and Prevention (CDC), began the discussion about participant-centered research by citing the two translational blocks to applying science to improve human health—from basic science to clinical research and from new knowledge to practice (see Figure 2.1). Engaging participants more actively in clinical research primarily addresses the second block by aiding the application of studies carried out in research settings to situations in which they can serve the most people most effectively.

Participatory research has been in existence in various forms for decades, and there is a body of literature about the topic and some experience from which to draw, particularly from research in developing nations.[1] However, the term

[1] Israel BA, et al., 1998 provides an overview of community-based research and has 200 references to the work of others. In addition, the recently published *Community Based Participatory Research for Health* offers information about the history and origins of CBPR, as well as theoretical and methodological issues (Minkler and Wallerstein., 2002).

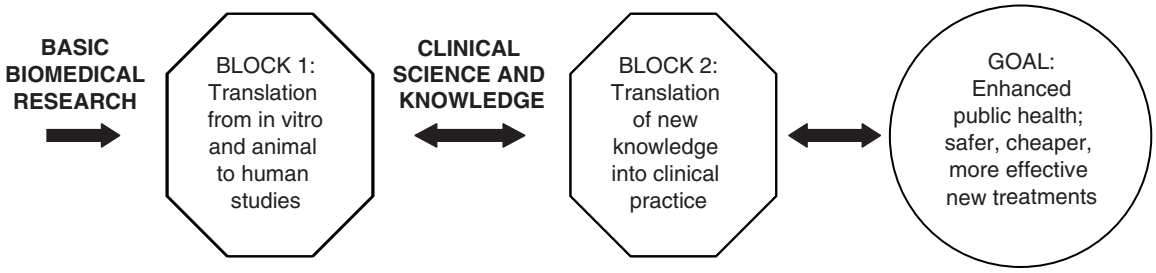

FIGURE 2.1 The Translational Blocks

participatory research is difficult to define in practice, commented Dr. Green.

To address this lack of definition, the CDC, in collaboration with the University of British Columbia, is developing a set of guidelines and criteria for participatory research that define it as a "systematic inquiry, with the collaboration of those affected by the issue being studied, for purposes of education and taking action or effecting change" (Green et al., 1996; see Box 2.1).[2]

According to Dr. Green, participatory research has three defining elements: science, co-learning, and action. Each criterion for classifying participatory research can be placed on a continuum from most participatory to least, and each alternative emphasizes one of the three objectives, generally at some cost to the other goals.

While a definition of participatory research is important, Dr. Green emphasized that understanding what participatory research is *not* also is essential. It is not, for example, just involving people more intensively as subjects in conventional research. It also is not an alternative research methodology. Rather, it is an approach that can be applied to any methodology—survey, epidemiological, experimental, qualitative, or others—appropriate to the research questions that people want answered.

"Participatory research is not the academic researcher merely going out to the community for a perfunctory meeting to explain the laudable purpose and methods of the research," he commented. These meetings should take place in the interest of informed consent, but alone they do not constitute participatory research, he added.

Dr. Green listed multiple benefits of participatory research, including:

- results are relevant to interests, circumstances, and needs of those who would apply them;
- results are more immediately actionable in local situations for patients and/or practitioners; and
- generalizable findings are more credible to practitioners and policymakers elsewhere, because they were generated in partnership with people like themselves.

Flexibility and adaptation to local circumstances are important factors for getting the most from applied scientific research. Dr. Green said, "[Participatory research] represents an innovative and valuable corrective to the tendency of conventional clinical research to package intervention methods and programs into one-size-fits-all, off-the-shelf approaches based on a notion of universal best practices."

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—*Lawrence Green*

The local, contextual considerations also offer an alternative to centralized regulations for protecting research participants by building trust. According to Dr. Green, there has been a "push" from government agencies and foundations for researchers to move their research into the community. This push needs to be coupled with a "pull" from clinical practitioners and community-based organizations, he said.[3]

[2] An Institute of Medicine report, *The Future of the Public's Health in the 21st Century*, was released on the day of the workshop. That report defines *community-based participatory research* as "involving all stakeholders in each aspect of a study designed to evaluate the application and impact of new discoveries aimed at improving the health of a defined population, frequently involving the evaluation of interventions designed to promote health in community settings" (IOM, 2003a, p.382).

[3] See also Green LW and Mercer SL. 2001. Can Public Health Researchers and Agencies Reconcile the Push from Funding Bodies and the Pull from Communities? *American Journal of Public Health* 91(12):1926–1929.

Box 2.1 Guidelines for Classifying Participatory Research Projects in Health Promotion

1. Participants and the nature of their involvement:

(a) Is the community[a] of interest clearly described or defined?
(b) Do members of the defined community participating in the research have concern or experience with the issue?
(c) Are interested members of the defined community provided opportunities to participate in the research process?
(d) Is attention given to barriers to participation, with consideration of those who have been underrepresented in the past?
(e) Has attention been given to establishing within the community an understanding of the researchers'[b] commitment to the issue?
(f) Are community participants enabled to contribute their physical and/or intellectual resources to the research process?

2. Origin of the research question:

(a) Did the impetus for the research come from the defined community?
(b) Is an effort to research the issue supported by members of the defined community?

3. Purpose of the research:

(a) Can the research facilitate learning among community participants about individual and collective resources for self-determination?
(b) Can the research facilitate collaboration between community participants and resources external to the community?
(c) Is the purpose of the research to empower the community to address determinants of health?
(d) Does the scope of the research encompass some combination of political, social, and economic determinants of health?

4. Process and context—methodological implications:

(a) Does the research process apply the knowledge of community participants in the phases of planning, implementation, and evaluation?
(b) For community participants, does the process allow for learning about research methods?
(c) For researchers, does the process allow for learning about the community health issue?
(d) Does the process allow for flexibility or change in research methods and focus, as necessary?
(e) Are procedures in place for appraising experiences during implementation of the research?
(f) Are community participants involved in analytic issues: interpretation, synthesis, and the verification of conclusions?

5. Opportunities to address the issue of interest:

(a) Is the potential of the defined community for individual and collective learning reflected by the research process?
(b) Is the potential of the defined community for action reflected by the research process?
(c) Does the process reflect a commitment by researchers and community participants to social, individual, or cultural actions consequent to the learning acquired through research?

6. Nature of the research outcomes:

(a) Do community participants benefit from the research outcomes?
(b) Is there attention to or an explicit agreement for acknowledging and resolving in a fair and open way any differences between researchers and community participants in the interpretation of the results?
(c) Is there attention to or an explicit agreement between researchers and community participants with respect to ownership of the research data?
(d) Is there attention to or an explicit agreement between researchers and community participants with respect to the dissemination and application of the research results?

Note: The authors of the guidelines state that those deciding whether or not to classify research as participatory should determine the weight of each aspect in relation to the others in light of the circumstances of the proposed research.

Source: Green et al., 1996.

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[a] The term community is defined in this context as any group of individuals sharing a given interest; this definition includes cultural, social, political, health, and economic issues that may link together individuals who may or may not share a particular geographic association. This definition also includes the traditional concept of community as a geographically distinct entity.

[b] Though the general term researcher can refer to both the community participants involved and external persons with specialised training, this usage of researcher refers to external persons with specialised training in research methods. In a theoretical sense the collaboration of people in participatory research makes artificial the distinction of specialised researchers.

"Despite skepticism, participatory research is doable without sacrificing good science in the name of community participation."

—Lawrence Green

He noted, "Despite skepticism, participatory research is doable without sacrificing good science in the name of community participation." Academia may be the slowest to change to accommodate participatory research, because the promotion and tenure systems are mired deeply in a tradition of autonomous research, said Dr. Green. He believes that the next generation of public health scientists can change this with the help of tenured professors who can support some of the necessary academic reforms and clinical or community initiatives to facilitate participatory research.

FACTORS TO FACILITATE THE USE OF PARTICIPATORY RESEARCH BY RESEARCHERS

As a general internist, a primary care physician, and a health services researcher, Marshall H. Chin, M.D., M.P.H., Associate Professor of Medicine at the University of Chicago, has had some experience with participatory research. He commented, "The current system that we have set up is not conducive to either patient participatory research or community-based participatory research."

"The current system that we have set up is not conducive to either patient participatory research or community-based participatory research."

—Marshall Chin

According to Dr. Chin, the community-based participatory research (CBPR) system would be improved by developing the following:

- pilot developmental grants;
- incentives for players to work together;
- grant review study sections that understand and value CBPR; and
- appropriate grant review criteria for CBPR.

In addition, successful CBPR must have community-focus, including an effort to involve vulnerable or particularly hard-to-reach populations; provide collaboration between community and academic partners in equal partnerships; and should ultimately benefit the community, with an emphasis upon reducing disparities.

"Participatory research requires time to establish trusted relationships, to develop the research infrastructure, and to develop a track record to be competitive for larger grants," noted Dr. Chin. Therefore, pilot programs are essential and require adequate funding. The Centers for Disease Control, the Agency for Health Care Research and Quality, the Robert Wood Johnson Foundation, and the W.K. Kellogg Foundation all have notable pilot programs.[4]

According to Dr. Chin, funders also need to provide incentives to ensure that the many players—funders, researchers, the public, and agencies—are working together and not allowing the needs of any one player to overcome the greater need for the public good. This partnership reduces conflicts of interest, but is riskier and more ambitious than traditional models, he commented.

"Participatory research requires time to establish trusted relationships, to develop the research infrastructure, and to develop a track record to be competitive for larger grants,"

—Marshall Chin

Dr. Chin's third recommendation, creating grant review mechanisms that understand CBPR, is perhaps the most important issue currently, in his view. He pointed out that even if there was universal agreement that CBPR is a positive development, projects utilizing it will not be funded if grant reviewers do not understand its methods and importance.

To help people understand CBPR, grant review criteria that are appropriate for CBPR must be created, said Dr. Chin. He noted that study sections see the randomized controlled trial as the "gold standard," but that the study question is crucial to deciding the most appropriate method of research. While the randomized controlled trial is the most rigorous study design in terms of internal validity, the results may not be applicable to real world populations. Dr. Chin concluded that achieving these goals to facilitate the conduct of CBPR will require a culture change.[5]

Encouraging CBPR at Academic Institutions

Lewis Sandy, M.D., Executive Vice President of the Robert Wood Johnson Foundation (RWJ), commented that

[4] In October 2002, the CDC announced awards for community-based research totaling $11.4 million (CDC, 2002). The Robert Wood Johnson Foundation is revising its Clinical Scholars Program to emphasize CBPR. The W.K. Kellogg Foundation's Community Health Scholars Program increase the number of faculty at health professional schools who are capable of performing CBPR (University of Michigan, Undated).

[5] Dr. Chin also noted that in 2003, the *Journal of General Internal Medicine* will have a special issue on CBPR. In that issue, the journal will highlight outstanding examples of CBPR and will include editorials and papers that discuss key issues involved in advancing CBPR.

RWJ has been trying to promote CBPR, and is revamping its Clinical Scholars Program to emphasize such research. He then asked what institutional mechanisms could help to promote CBPR, particularly at academic health centers.

Dr. Green responded that while traditional researchers have not generally been enthusiastic about participatory research, the next generation of professors has been more accepting and could have a strong influence by encouraging the participatory research model.

The Association of Academic Health Centers and schools of public health are addressing the shift toward participatory research, and a recent Institute of Medicine report encourages the implementation of CBPR (IOM, 2003a). The Kellogg Foundation, which has a program of postdoctoral fellowships and community scholarship, also has been a leader in promoting CBPR.

Dr. Chin offered two specific suggestions to encourage participatory research at academic health centers. The first was to create centers and resources to help investigators make contacts in the community. His second suggestion was to change how CBPR is viewed within academic health centers, particularly for promotion decisions. In order to do this, there have to be criteria set up that make it so that academic health centers truly value community service and rigorous community-based participatory research, and then, similarly with the study sections, there must be people on these promotion committees who understand and value this type of work, said Dr. Chin.

PARTICIPANT INVOLVEMENT

Members of the public are involved in the research process as advocates, tax payers, research consumers, research participants, and as family and friends of patients. They serve on ethical review and other oversight bodies and support research through public funds, as well as participate in trials themselves. Their concerns often include issues such as informed consent, conflicts of interest, and access to new therapies. As a long-time health educator, Zelda Tetenbaum of the Council of Public Representatives at the National Institutes of Health (NIH) has found that it is difficult to involve people in health studies before they actually have a disease and see a trial as their last hope. Until you get down to that real crunch time, many patients are in denial of their situation, she said.

Literacy Volunteers of America, a recognized group of trained volunteers who work on a one-to-one basis with individuals who want to learn how to read, is one model for engaging the public in clinical research, Ms. Tetenbaum said.[6] Under this model, an independent advocate/interpreter would advise each participant throughout the course of a research project, providing clear and direct access to information at a level appropriate to individual research participants' needs. The volunteer would provide ongoing information about the results of the trial, including any possible adverse outcomes.

Similar programs already exist within many patient advocacy groups. One example is the American Cancer Society's "Reach to Recovery" program, in which trained volunteers offer support and comfort to patients before, during, and after breast cancer treatment.[7] In the clinical trial setting, the role of the volunteer would be to interpret and explain, but not to expand upon, the directions and orders given by the physician or the nurse to the participant, according to Ms. Tetenbaum.

The National Center for Research Resources of the NIH has instituted a Research Subject Advocacy Program in each of its General Clinical Research Centers (GCRCs).[8] Each GCRC funds a full-time employee to help research participants gain access to resources and to help them understand issues concerning participation in clinical trials.

> "One of the things that we have to do is try to educate the public better about clinical research trials, why they are important, and what kinds of questions they should ask so that when they are facing their diagnosis, they at least have some background."
>
> —*Jerome Yates*

Informed Consent

Elaine Larson, R.N., Ph.D., FAAN, Professor at Columbia University School of Medicine, expressed concern that the informed consent process can be intimidating to a newly diagnosed patient, particularly because written forms often contain difficult language, including legalese. While the public seems to be fairly well informed about individual research studies and findings, very few know and understand the measures in place to protect them as research participants. She cited a survey of 900 patients in a large academic health center, the majority of whom had been in a research study, that showed that only 45 percent knew there were protective measures for their own rights or that there was, for example, an Institutional Review Board. However, they still volunteered for studies (Larson and McGuire, 1990).

Jerome Yates of the American Cancer Society noted that from a patient perspective, it is extremely difficult to assimi-

[6] See www.literacyvolunteers.org for more information about Literacy Volunteers of America.

[7] For more information, see www.cancer.org/docroot/ESN/content/ESN_3_1x_Reach_to_Recovery_5.asp?sitearea=ESN.

[8] See www.ncrr.nih.gov/clinical/cr_gcrc.asp for more information about the GCRCs and the Research Subject Advocate program.

late information after being told about a new diagnosis, especially a diagnosis of cancer. "One of the things that we have to do is try to educate the public better about clinical research trials, why they are important, and what kinds of questions they should ask so that when they are facing their diagnosis, they at least have some background," he said.

Conversations with the patient during the consent procedure and throughout the trials are more important than the contents of a written document, said Dr. Yates. Ms. Tetenbaum noted that the informed consent process should be regarded as ongoing and significant, not a quick, one-time conversation.

While consent forms may be made more intelligible, their interpretation by a patient population remains problematic, she commented. A recent study found that the text of many informed consent forms fails to meet the readability standards set by the IRBs that provided the consent language (Paasche-Orlow et al., 2003).

The average time for obtaining informed consent is estimated to be no greater than 10 minutes, and that is a generous estimation. Because of this, one may question whether the information is appropriately conveyed and fully understood, and whether the patient is sufficiently competent and literate to provide informed consent, said Ms. Tetenbaum. She noted that patients have demonstrated a better understanding when their own physician has described the trial fully, reviewed the consent form in detail, and discussed all the implications in a patient-centered environment. Sufficient time should be provided for the patient to seek additional help deciding whether or not to participate, and informed consent should work toward empowering the patient, she added.

> "Patients who choose to enroll in a clinical trial should enter a system that envisions them as equal participants in the research effort."
>
> —*Zelda Tetenbaum*

"Patients who choose to enroll in a clinical trial should enter a system that envisions them as equal participants in the research effort," commented Ms. Tetenbaum.

Veronica Catanese, M.D., Senior Associate Dean of the New York University School of Medicine, wanted to know how an informed consent patient participation support group could be formed, given that clinical research takes place in a variety of venues. She asked if there was a role for voluntary health organizations in organizing such groups, and if the groups should be disease-specific or have a more broad, cross-disciplinary focus.

Ms. Tetenbaum replied that there appear to be many disease-specific programs in place, and that as a volunteer effort, a broader and more inclusive focus might work equally well. She suggested taking advantage of the NIH presence already established in many of the research institutions and research centers around the country to establish a generic core of people to act as informed consent advisers.

Conflicts of Interest

Ms. Tetenbaum commented that a key focus of NIH-sponsored clinical trials is the assurance of the highest ethical standard for the conduct of research and the protection of the human subject, and that individuals who support the concept of patient-based clinical trials must endorse this effort in order to retain public trust.

She added that conflicts of interest on the part of researchers and/or institutions administering clinical trials are becoming a very serious issue in the eye of the public. The American Association of Medical Colleges and the Association of American Universities recently published reports dealing with investigator and institutional conflicts of interest (AAMC, 2001a,b; AAU, 2001). In addition, the Institute of Medicine report about protecting research participants, the former National Bioethics Advisory Commission, and the former National Human Research Protections Advisory Committee have made recommendations regarding the management of conflicts of interest (IOM, 2003b; NBAC, 2001; NHRPAC, 2001). The Department of Health and Human Services has drafted guidance on the topic (DHHS, 2001).

ENCOURAGING PARTICIPANT ENROLLMENT AND PHYSICIAN AWARENESS

In order to encourage relatively healthy, early stage disease patients to participate in clinical research, there is a need to reach out to the specialists and the general practitioners who are seeing these patients. Various mechanisms under consideration to do this are: creating celebrity public service announcements, working through chapters and local support groups, encouraging counselors at specialized centers to promote patient participation, and providing doctors greater access to information about trials and how to enroll patients in those trials.

Leslie Ford of the National Cancer Institute (NCI) commented that there are little organized data that would indicate the most influential factor in promoting participation in clinical trials. The success of celebrity endorsements is hard to determine; the public is made aware of the availability of trials through spokespersons, but this awareness does not necessarily encourage enrollment. Doctor's recommendations, awareness in the community, and association with people who have participated in other research are all important factors to encourage participation in trials.

Dr. Yates agreed that physician awareness is critical to encourage participant enrollment in clinical trials. While patient awareness is also important, trust and confidence in

the physician appear to be the most significant factors. Generally speaking, physicians will participate only if they think there is patient benefit, according to Dr. Yates.[9] Cost, inconvenience, and discomfort that may result from the experiment are patient issues that may block participation.

He pointed out that a study of English physicians noted that trusting relationships that have been nurtured over time, often found between primary care physicians and their patients, are especially critical in encouraging participant enrollment (Fallowfield et al., 1998). The survey also found that initially only about 44 percent of respondents said they would participate in a randomized clinical trial. Given additional information and time with a knowledgeable person, though, that proportion increased to 83 percent.

Despite the importance of physician awareness of clinical trials, an NCI survey of primary care physicians recently found that 37 percent said they were not aware of pertinent clinical trials, and 40 percent said they leave the discussion of clinical trials to the patient's oncologist and generally do not continue to follow patients (Crosson et al., 2001).

CHALLENGES TO COMMUNITY INVOLVEMENT

The needs of researchers and communities can differ, and researchers who are moving into the community must be prepared to meet community needs and to address potential distrust of scientists and research. Forming partnerships between the scientific community and the public could aid this process, but as Dr. Chin noted, in some situations there may be an imbalance in which one partner has more expertise than the other. To address this difference in expertise, it is important to establish equal partnerships that acknowledge the strengths and weaknesses of all parties involved, according to Dr. Chin.

The multidisciplinary nature of CBPR presents a similar challenge. The issues that affect health in the community are multifactorial—clinical, economic, social—making input from various disciplines essential. Dr. Kenneth Olden of the National Institute of Environmental Health Sciences (NIEHS) commented that behavior has an important impact on health and noted that it is necessary to involve a broad spectrum of disciplines in the research process, especially representatives with social science expertise.

Engaging and educating the public are other challenges for clinical research. Dr. Yates noted that while primary care physicians are often the conduits to patient enrollment, only a few of them are actually involved in the majority of patient enrollments. He noted that for physicians, understanding the clinical information is not the problem. Rather, the lack of accessibility to trial information is a hindrance to enrolling patients. Availability of information on the Internet and training other staff in the office are critical in order to make physicians the best resource for patients. While not easy, it is important to involve the primary care physicians through educational efforts. "But the bottom line," he commented, "is that the patients trust very much in what their physicians tell them."

> "But the bottom line," he commented, "is that the patients trust very much in what their physicians tell them."
>
> —*Jerome Yates*

E. Albert Reece, M.D., Ph.D., M.B.A., Vice Chancellor and Dean of the University of Arkansas College of Medicine, expressed concern that activist subsections of the public could overtake CBPR projects, and wanted to know how to ensure that a cross-section of the public is represented rather than a small faction.

Dr. Olden replied that NIEHS has a multi-prong approach for outreach and communication that employs town meetings and brainstorming sessions on a national level with CBPR partnerships and collaborations developed by the 40 NIEHS centers in their own communities. (See NIEHS section).

RELEVANCE OF COMMUNITY STUDIES

Hugh Tilson, M.D., Dr.P.H., Senior Advisor to the Dean, University of North Carolina School of Public Health, wanted to know how to ensure that research is addressing fundamental unanswered questions, particularly in community health, while also being locally relevant. There is a need for a better framework to discuss the tradeoff or balance between specificity and generalizability, he commented.

Dr. Green replied that the scientific community has not yet fully determined how to maximize both generalizeability and local relevance. Primarily clinical, biological questions are being replaced by community- and population-based interventions in different settings. The biological questions deal with the human organism, which is fairly homogeneous within the species, while community- and population-based interventions deal with human behaviors, cultures, laws, and societies, which are heterogeneous across settings, jurisdictions, states, and countries.

When findings are applied in settings other than research, there is a need to apply them with some modification, Dr. Green noted. The findings need to be subjected to a process similar to continuous quality improvement—applied, tested, fit to the local population and practitioner's situation, and piloted in those situations—to be effective in varied settings. The findings would not necessarily have to be tested in each setting, but would not be blindly applied either (Green, 2001).

[9] In a related development, survey results published subsequent to the workshop indicated that many oncologists view patient benefit rather than the creation of generalizable future knowledge as the main societal purpose of clinical trials (Joffe S and Weeks JC, 2002).

MODEL PARTICIPATORY RESEARCH COLLABORATIONS

National Institute of Environmental Health Sciences

Kenneth Olden, Ph.D., Director of NIEHS, commented that his number one priority is to make the Institute responsive to the needs of the American people, who pay for the research. Community involvement is essential to accomplish this goal, and openness is critical to successful communication with the public, said Dr. Olden. Therefore, the scientific community must ensure that processes are open, accessible, and understandable to the public. This openness would allow stakeholders to form partnerships based on credibility.

The NIEHS was the first institute within NIH to make a serious effort to support CBPR, establishing several key activities to ensure community involvement and community participation. The Institute funds CBPR projects,[10] and recently created the Federal Interagency Working Group for Community-based Participatory Research to strengthen communication between federal agencies interested in supporting CBPR methodologies for biomedical research, education, health care delivery, or policy (NIEHS, 2002).

To support what Dr. Olden terms "citizen-based priority-setting," the Institute hosts town meetings throughout the country, primarily with the lay public but also including some scientists in the region. Audience members are asked to express their expectations and concerns about the involvement of various agencies in community health and the environment. This information is then used to set NIEHS priorities for clinical research, epidemiological studies, community outreach, and basic sciences research.

NIEHS also holds brainstorming sessions in which scientists and public interest groups meet to discuss research strategies in the specific areas of research that affect them. In addition, a 30-member Public Interest Liaison Group made up of senior leadership of major advocacy groups meets twice a year to talk about the investments of the NIEHS and the relevance of these investments to the concerns of the advocacy groups and their constituents.

By involving all the stakeholders from the beginning of the research process, NIEHS addresses concerns, reservations, and questions throughout the process, rather than only after results are announced, Dr. Olden noted. This aids the conduct of the research as well as its translation into practice in the community. The major challenge to implementing this principle at the NIEHS has been changing the culture of the agencies and of the research community and ensuring that they create mechanisms and vehicles to communicate with the public, said Dr. Olden.

Dr. Olden also commented that there is a direct correlation between the outreach activities of the NIEHS and the projects that the Institute ultimately funds. When NIEHS hosts town meetings and outreach activities, participants listen to the public concerns and then talk with experts in the field to address the scientific opportunities and gaps dealing with those issues. For example, in response to town meetings in places like Marin, California—where breast cancer rates are seemingly inexplicably higher than in the rest of the nation—and with the help of brainstorming sessions with breast cancer advocacy groups and scientists, NIEHS has decided to create three Breast Cancer and Environment Centers around the country.

> "The objective of clinical research is to improve the health of the American people, and the American people ought to have an important role in the development of the research agenda."
>
> —*Jerome Yates*

In addition, based on discussions with Parkinson's disease advocacy groups over a number of years, NIEHS recently created a consortium center of three institutions to address the environmental aspects of Parkinson's disease. "The objective of clinical research is to improve the health of the American people, and the American people ought to have an important role in the development of the research agenda," commented Dr. Olden.

The Congressionally Directed Medical Research Programs

Kenneth A. Bertram, Colonel, U.S. Army Medical Corps, Director, Congressionally Directed Medical Research Programs (CDMRP), began his presentation by noting that the creation of CDMRP is a result of consumer advocates telling Congress that there was a need to better meet research goals. The Program was assigned to the Army's Medical Research and Materiel Command in 1993 and involves consumers, the Department of Defense (DOD), and scientists and clinicians from both academia and industry.

The CDMRP cycle begins with advocates going to Congress and requesting money to address unmet research needs. Congress then appropriates funds to the Program (see Figure 2.2). The Office of the CDMRP then brings together a selected group of the nation's leading advocates, consumers, scientists, clinicians, and representatives from other government agencies to advise them on how to best invest each year's appropriations. Responding to Program Announcements, scientists, clinicians, and consumers write proposals that are peer reviewed. Recommended proposals receive funding grants and the CDMRP continues to monitor them for the life of the awards.

Each group involved in the collaboration process has responsibilities, outlined in Box 2.2.

[10] See http://www.niehs.nih.gov/translat/cbpr/grantees.htm for a list of grant recipients.

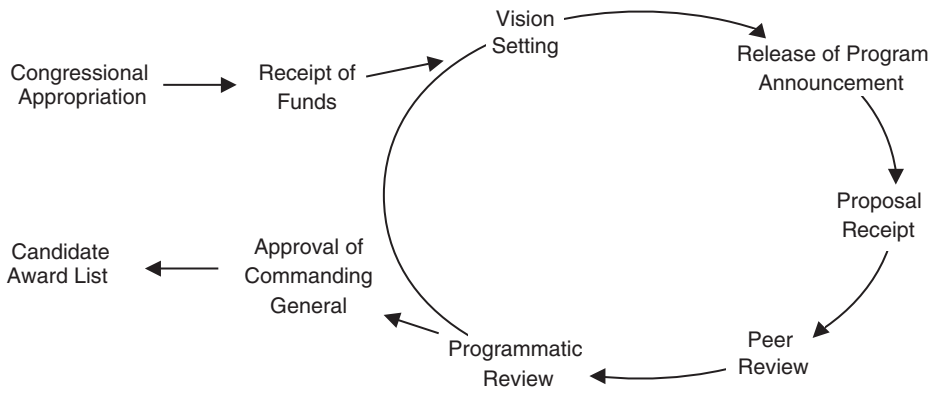

FIGURE 2.2 The CDMRP Cycle
*Dr. Bertram presented this figure during the workshop.

Consumers have helped to define the DOD's award mechanisms. For example, consumers were instrumental in making innovation a critical underlying theme for the awards. The Exploration Award supports the initial evaluation of an imaginative concept for which no preliminary datum is available and the Innovator Award encourages creative and visionary breast cancer research. The HBCU/MI (Historically Black Colleges and Universities/Minority Institutions) Partnership Awards are designed to address health disparities.

Part of the programmatic criteria for the Breast Cancer Center of Excellence Award is that breast cancer consumers and survivor groups must be active participants at all levels, from the beginning. The Collaborative Clinical Transitional Research Award supports cooperation among academic centers, community-based oncology clinics, consumers, and the private sector. These two award mechanisms are essentially CBPR programs, commented Dr. Bertram.

The DOD also has a Consumer Working Group to maintain and increase participation of consumers in peer review and all programmatic review decisions and to continue to raise awareness about the research that they are funding in the community. (See Box 2.3). "The Office of CDMRP continues to embrace the partnership philosophy and has used that to manage their programs and to do ongoing evaluations of their programs," concluded Dr. Bertram.

"The Office of CDMRP continues to embrace the partnership philosophy and has used that to manage their programs and to do ongoing evaluations of their programs."

—*Kenneth Bertram*

Box 2.2 Responsibilities of CDRMP Participants

Consumer Advocates
- Continue Congressional support
- Write/participate in research protocols
- Define program vision
- Review proposals (peer/programmatic)

Scientists and Clinicians
- Define program vision
- Write/conduct research proposals
- Review proposals (peer/programmatic)

Department of Defense
- Create opportunities
- Manage programs
- Evaluate programs

Dr. David Rimoin, M.D., Ph.D., Chairman of Pediatrics and Director of Medical Genetics-Birth Defects at Centers Cedars-Sinai Medical Center, asked how the DOD became involved in such a broad array of projects—including breast cancer, prostate cancer, neurofibromatosis, and tuberous sclerosis research—and how disease-specific advocates could take advantage of this funding mechanism. Colonel Bertram responded that specific projects at the DOD have been directed and funded through Congressional mandates.

The breast cancer program, which was largely the result of lobbying by breast cancer advocates, was the first DOD program funded and has become the model for subsequent disease programs at the DOD. Breast cancer advocates continue to work to make certain that Congress recognizes the importance of that model, regardless of the constituency, noted Dr. Bertram.

Box 2.3 CDMRP Outreach to Consumers

Goals

Participation of consumers in scientific peer review and all programmatic decisions

Raising awareness of research within consumer community

Processes

Nominations from advocacy organizations

Selections based on advocacy, recommendations, and conveyance of community's perspective

Specific outreach to racial and ethnic minority advocacy groups

Recruitment at meetings attended by minority advocacy leaders

Targeted follow-up actions

Applicants screened through regular Consumer Working Group selection processes

The National Breast Cancer Coalition

The National Breast Cancer Coalition (NBCC) is made up of more than 600 organizations and tens of thousands of individuals from across the country who work together in pursuit of three goals—increasing access to quality care and clinical trials for women with breast cancer and all women who are at risk of breast cancer; increasing the influence of breast cancer advocates in all decision making about the disease, including funding decisions for breast cancer research; and increasing collaboration in the design of new strategies to prioritize research.

To meet these goals, the NBCC has developed advocate-training programs.[11] Project LEAD (Leadership, Education and Advocacy Development), for example, is a science-training course for breast cancer advocates. The NBCC provides the four-and-a-half day course at no charge to nominated individuals. During the training, participants learn about the scientific process and gain other tools that enable them to contribute to research review discussions. Project LEAD has trained about 1,000 advocates to date. The NBCC also has a clinical trials project that educates constituents about the importance of clinical trials through a number of programs and outreach materials.

In addition, the NBCC developed a pilot program with Genentech for trials of Herceptin (see the next section for more information). Genentech initially asked NBCC for help with a compassionate use policy; NBCC agreed on the condition that Genentech pilot-test the Coalition's clinical trials project. This required that NBCC representatives participate on the steering committee for the trial and on the Data and Safety Monitoring Committee, help with outreach materials for the trial, and attend all of the investigator meetings. Investigators also were partnered with trained advocates for community outreach and to accrue trial participants.

The NBCC has developed similar relationships with a number of other companies, including the Breast Cancer International Research Group, but the Coalition reserves the right to be selective, Ms. Visco emphasized. The NBCC has developed a set of criteria against which it judges clinical trials to see if they warrant participation of members and to prioritize these trials.

Genentech

Before 1995, Genentech rarely worked with the patient advocacy community, according to Jennifer Bryson, Director of Corporate Affairs for the company. Breast cancer advocates originally approached Genentech regarding an expanded access program, but they now have input to trial design and implementation issues. Advocates also help with outreach and communications to recruit participants and raise awareness about the research.

Initially, the corporation was concerned that the advocates' request for access could distract from the primary mission of the trial, that they could not appreciate the complexity of drug development, that they would not accept what the company said, that they would remain vocal critics despite the company's responsiveness, and that they would not have much to contribute to the larger goal of trial completion and approval, commented Ms. Bryson.

Corporate employees soon realized, though, that they shared with advocates a desire to find answers and that advocates brought a unique and relevant perspective to the process. Advocates gave fundamental feedback about the trial design and the protocol, helping to widen the eligibility criteria and look at some of the standard exclusion criteria that were not necessarily relevant to the trial. In addition, advocates convinced Genentech to remove the placebo arm of the study so that more people could have access to potential therapies.

Once they felt the trial was acceptable, advocacy groups helped to recruit participants to the study. Prior to the formation of the Clinical Trial Network, Genentech was recruiting an average of 16 patients per month for its Herceptin trial; after the partnership was established, the company recruited about 40 patients per month, largely due to changes in protocol design and outreach activities made possible by partner input, according to Ms. Bryson.

Advocates became involved in investigator meetings, the Steering Committee, and the Data and Safety Monitoring Committee. In addition, they assisted investigators in performing community outreach—a clinical trial network system partnered local, trained advocates with trial sites to com-

[11] See www.natlbcc.org/bin/index.asp?strid=554&depid=7&btnid=0 for more information about the NBCC's education and training opportunities.

Box 2.4 Lessons Learned Through the Genentech Partnership for Herceptin

Input of the patient advocate community does not mean that the interests of science will be compromised.

Discussion with the advocate community does not bind you to accept and implement all their input.

Advocates can provide meaningful, unique insight that can increase the relevance of the scientific question, the adoption (enrollment) of clinical research, and the speed of scientific progress.

Advocate communities have a diversity of interests, needs, and knowledge levels.

municate in a culturally relevant way about the trial and its availability. To counteract patients' fears about clinical trials in general, advocates discussed why the Herceptin trial was important and then talked about the eligibility criteria and the specifics of the trial.

The advocates were able to reach out using their networks, and Genentech provided additional technical assistance, including educational tools such as posters, communication kits that included fact sheets, local press releases, and advertisements. The company also created a newsletter specifically for advocates, *HER2 News*. Genentech has learned much from their collaboration with breast cancer advocates on the Herceptin trial (See Box 2.4). "Advocates can provide meaningful and unique insights that can increase the relevance of the scientific question, the enrollment of clinical research, and the speed of scientific progress," commented Ms. Bryson.

"Advocates can provide meaningful and unique insights that can increase the relevance of the scientific question, the enrollment of clinical research, and the speed of scientific progress,"

—Jennifer Bryson

American Cancer Society

Jerome Yates, M.D., National Vice President for Research at the American Cancer Society (ACS), discussed the stakeholder program of the ACS, which involves consumers or patient advocates in the research proposal review process. The ACS recruits individuals who have either had cancer or have had family members with cancer and have a strong interest in cancer control. They bring the patient/caregiver perspective to the discussion, provide a perspective on practical and financial issues that those involved in clinical research do not always recognize, assure a full discussion of the relevance of the research proposed, and become a critical resource to the research committee, according to Dr. Yates.

The American Cancer Society holds training sessions to educate these stakeholders about the basic concepts of cancer biology and research, how the peer review process works, and how to review a grant application. The one-and-a-half day sessions with research department staff also provide a review of the American Cancer Society Research and Training Program. In addition, candidates attend peer review meetings for a year as ad hoc members to observe stakeholders in action and to interact with peer-review panel members, scientists, and nonscientists. They are then appointed to two-year terms.

The stakeholders play an important role in cancer prevention programs, ensuring that there is a full discussion of cancer relevance at peer review committee meetings and also becoming better-informed resources and research advocates for their home communities about the role of cancer research and training in the battle against cancer, said Dr. Yates.

The advantages of public participation listed by Dr. Yates include:

- the sharing of community opinions;
- increased research awareness;
- recruitment of research advocates; and
- the provision of objective risk assessment.

Disadvantages include:

- program costs for training efforts and committee discussion time; and
- participation costs such as time for learning and ensuring that participant members can stand behind their views when questioned by scientists and others.

"We have to do a better job at educating the public and getting physicians committed to the importance of clinical trials," he said.

National Cancer Institute

Leslie Ford, M.D., Associate Director for Clinical Research, Division of Cancer Prevention at the National Cancer Institute spoke about community collaborations at two levels—the physician/researcher community level and the participant community level.

The NCI philosophy has been that if community physicians participate in clinical trials, they will upgrade the quality of care provided in communities. In keeping with this philosophy, the NCI created the Community Oncology Program and then the Community Hospital Oncology Program, predecessors of the Community Clinical Oncology Program (CCOP), which was established in 1983. The CCOP is a consortium of community hospitals and practicing physi-

cians funded through peer-reviewed cooperative agreements who participate in NCI-approved cancer treatment, prevention, and control clinical trials. The basic mission of the CCOP is to bring state-of-the-art cancer research to individuals in their own communities by involving community physicians and patients in NCI-approved clinical trials and involving primary health care providers in the research process.

Currently, there are 50 CCOPs in 30 States; 11 minority-based CCOPs in 8 States, the District of Columbia, and Puerto Rico; and 12 research bases, or coordinating centers, across the country. The minority-based CCOPs were started in the late 1980s specifically to target the problem of accrual of minority populations to cancer clinical trials.

In the CCOP model, the research bases develop protocols with the input of the CCOP practicing physicians and consumer advocates. They are responsible for data management and analysis and quality assurance of the data. Members and affiliates assist in the recruitment of participants.

Over the last 20 years, the CCOP has accrued over 90,000 patients into treatment clinical trials. Over 50,000 patients and individuals at risk for cancer have been accrued to prevention and control clinical trials. Currently, more than 4,000 physicians and over 400 hospitals are involved in the program. Dr. Ford noted that advocates are involved with NCI through concept evaluation panels in state of the science meetings, in cooperative groups, on Data and Safety and Monitoring Committees, on scientific disease committees in which the protocols are developed, and on participant advisory boards.

The NCI study of tamoxifen and raloxifene, known as STAR, is one example of successful community collaboration. This study has a projected sample size of 19,000 women and, at the time of the workshop, had accrued almost 15,000 post-menopausal women at increased risk for breast cancer. The participant advisory board, a group of 16 women who have been randomized to the trial and nominated by their local centers to participate on the board, provide feedback to NCI about aspects of trial design, communication strategies, and recruitment and adherence.

EFFECTIVENESS OF PUBLIC INVOLVEMENT

Answering a query from Adrian Dobs, M.D., Professor at the Johns Hopkins School of Medicine, about how best to measure whether initiatives to involve participants and communities are working, Dr. Olden stated that the most important measure of the success of CBPR is the short- and long-term impact on public health and health policy of research using the CBPR process. Two outcomes that could be used to measure the success of CBPR are involvement of more members of the public in the research process and improvement of the overall health of the public. The latter is more difficult to determine and measure.

Recently, the CDC awarded $11.4 million to fund 25 CBPR projects (CDC, 2002; DHHS CDC, 2002). One is an actual trial to compare groups who have engaged more actively in the community with groups who have not, and how they achieve various benchmarks in the program process. These projects will likely provide basic concrete data about the efficacy and benefits of participatory research.

The CCOP provides an example of successful community participation. There was much skepticism about the program at its initiation, but it has had much impact on community participation, according to Dr. Yates. Currently, 80 percent of participants in NCI clinical trials are coming from communities around the CCOPs, he said. Dr. Olden mentioned that CBPR programs are not just about "feeling good;" there is a need for established benchmarks to measure results.

ADVOCACY AND PUBLIC INVOLVEMENT

Myron Genel, M.D., Associate Dean of the Office of Government and Community Affairs at the Yale University School of Medicine, wanted to know how successful models of disease-focused advocacy could be used to engage advocates to deal with overarching health issues, such as the epidemic of obesity, that are not disease-specific. He noted that translating active advocacy into true partnership at the local levels is a challenge to successful advocacy.

Ms. Visco commented that the NBCC is a good model of how to bring advocacy to a community level, because it is a coalition of organizations, as opposed to a chapter organization; the Coalition members are existing groups in their communities. Most of them are local support groups, and they are not all specific to breast cancer; many of them deal with women's issues and health generally. The Coalition members take back to their communities what they learn through NBCC programs and are encouraged to make connections with clinical researchers and institutions in their own communities. As trained advocates, they develop relationships and programs on a local level similar to those that the NBCC develops on a national level.

She pointed out that the breast cancer advocacy movement built on the experiences of AIDS groups and that while these two movements are focused on specific diseases, their experiences can serve to inform future advocacy activities. More collaboration at the community level would help to spread models and experiences to other diseases and areas of health. Dr. Ford added that the AIDS community successfully used the CCOP as a model. Instead of cooperative groups and cancer centers, the AIDS contingent has its own Research Council made up of consumers, patients, and researchers to develop clinical trials that they then disseminate nationally.

Regarding the role of researchers as advocates—either on their own behalf or on behalf of research in general—Ms. Visco said that while there are widely varied perspectives about this role for researchers, the agendas of patient advo-

cates and researchers do sometimes overlap. From the patient advocacy community, the scientific community learned how to advocate and how to lobby, abilities which have led efforts such as the doubling of the NIH budget, she commented.

Colonel Bertram added that CDMRP scientists are not required to garner funds through advocacy and that many science organizations have designated advocacy groups that lobby Congress for additional money.

ROLE OF INDUSTRY

Eighty percent of all funding and activity for clinical trials of medical therapies and medical device intervention comes from industry, and two-thirds of all patients who participate in clinical trials are in industry-sponsored programs (Top AHCs, 2002). Ken Getz, M.B.A., president of CenterWatch, wanted to know what industry can do to play a part in engaging and educating the public without appearing to be self-serving.

Ms. Bryson noted that Genentech enjoys a reputation of credibility among oncology advocacy groups, because of its decision to work with advocacy groups around substantive issues. They have kept their discussions very science-based, and because of that, they always tend to be related to a specific product, but the conversation is always about the science, she said.

Ms. Visco has approached the pharmaceutical industry to form partnerships that could create a new model of doing clinical research, making certain that trials that the NBCC believes to be important will move forward as quickly as possible and ensuring that Coalition constituents and members are educated to understand the process and its importance. The NBCC is careful when determining which trials to recommend to its members, and its participation with companies around clinical trials is one of many coalition activities, said Ms. Visco. The partnership between NBCC and Genentech for the Herceptin trials mentioned earlier is a notable example of such cooperation.

In addition, NBCC has developed relationships and collaborations with industry in which the Coalition periodically brings a group of trained advocates to industry to learn how industry members make decisions and about what trials are being planned.

Dr. Ford commented that the scientific community should want to involve advocates and consumers on disease committees and on protocol design committees, not just to recruit participants but also to ensure that studies are relevant to the public.

An audience member commented on the importance of having unbiased "watchdogs" like The National Academies to ensure that clinical research and scientific information remains unbiased and stays true to scientific principle. He suggested that the government continue to promote research such as comparative studies of efficacy of different kinds of drugs and treatment modalities. Private companies are unlikely to promote research about other drugs, making overarching, unbiased evaluations by others essential.

SUMMARY

Participatory research offers benefits including results that are relevant to interests, circumstances, and needs of those who would apply them; results that are more immediately actionable in local situations for patients and/or practitioners; and generalizable findings that are more credible to practitioners and policy makers elsewhere, because they were generated in partnership with people like themselves.

However, there are still several obstacles to implementing this type of research. Four elements to improve the system of CBPR include pilot developmental grants, incentives for players to work together, grant review study sections that understand and value CBPR, and appropriate grant review criteria for CBPR. Also, there is a need to explore how to engage the public in the CRE. The programs of the NIEHS, NBCC, CDMRP, Genentech, the American Cancer Society, and the NCI can inform future efforts to facilitate participatory research.

Box 2.5 Summary

Defining Participatory Research

Participatory research is difficult to define in practice, but has been in use for decades, resulting in experiences and literature from which to learn.
The three defining elements of participatory research are: science, co-learning, and action.
Benefits of participatory research include:

- enhanced data quality and quantity
- increased local relevancy
- enhanced translation and sustainability of research findings
- increased research awareness
- improvements in the community's health, education, and economics as a result of involvement in participatory research programs.

Disadvantages of greater participant involvement include program costs for training efforts and committee discussion time and participation costs such as time for learning and ensuring that participant members can stand behind their views when questioned by scientists and others.

Factors to Facilitate the Use of Participatory Research by Researchers

The community-based participatory research system would be improved by developing:

- pilot developmental grants,
- incentives for players to work together,
- grant review study sections that understand and value CBPR, and
- appropriate grant review criteria for CBPR.

Successful CBPR also should include community focus, equal collaboration between community and academic partners, and should ultimately benefit the community.

Creating centers and resources to help investigators make contacts in the community and changing how CBPR is viewed within academic health centers could encourage CBPR at academic institutions.

Participant Involvement

Engaging the public in clinical research is difficult before people actually have a disease and see a trial as a potential last hope.

Models for engaging the public in the clinical research enterprise and enabling potential participants to better understand research include Literacy Volunteers of America, American Cancer Society's "Reach to Recovery" program, and the Research Subject Advocacy Programs at General Clinical Research Centers.

Informed consent and conflicts of interest are major concerns for patients, families, and patient advocates. Informed consent should be an ongoing and significant process, and conflicts of interest must be addressed further.

There are little organized data regarding the most influential factor for encouraging participation in clinical research. Doctor's recommendations, awareness in the community, and association with people who have participated in research have been identified as important factors.

Awareness on the part of trusted physicians is critical to encourage participant enrollment in clinical trials. However, many physicians are unaware of available clinical trials.

Challenges to Community Involvement

Challenges to community-based participatory research and potential solutions include:

- Power imbalance—establish equal partnerships that acknowledge strengths and weaknesses of all parties
- Multidisciplinary needs—involve a broad spectrum of disciplines in the research process
- The need to educate and engage the public, including doctors—make trial information more accessible and train staff

Model Participatory Research Collaborations

Models for collaboration include the approach of the National Institute of Environmental Health Sciences, the Congressionally Directed Medical Research Program, the National Breast Cancer Coalition, Genentech's collaboration with breast cancer advocates, American Cancer Society's Stakeholder Program, and the National Cancer Institute's Community Clinical Oncology Program.

Effectiveness of Public Involvement

The short- and long-term impact on public health and health policy of research using the CBPR process is an important measure. Two outcomes that could be used to measure the success of CBPR include: involvement of more members of the public in the research process and improvement of the overall health of the public.

REFERENCES

CDC (Centers for Disease Control and Prevention). 2002, October 2. HHS awards $11.4 million for community research into effective disease prevention and health promotion. *CDC Press Release*. [Online]. Available: www.phppo.cdc.gov/eprp/pr-cdc102.asp [accessed January 8, 2003].

Crosson K, et al. 2001. Primary care physicians' attitudes, knowledge, and practice related to cancer clinical trials. *Journal of Cancer Education* 16(4):188–192.

DHHS CDC (U.S. Department of Health and Human Services, Centers for Disease Control and Prevention). 2002. *Program Announcement 02003: Community-Based Participatory Prevention Research*. [Online]. Available: www.phppo.cdc.gov/eprp/docs/PA02003Final.pdf [accessed January 8, 2003].

Fallon LR, Tyson FL, and Dearry A, eds. 2000. *Successful Models of Community-Based Participatory Research: Final Report*. [Online]. Available: http://www.niehs.nih.gov/translat/cbr-final.pdf [accessed March 19, 2003].

Fallowfield LJ, et al. 1998. Attitudes of patients to randomized clinical trials of cancer therapy. *European Journal of Cancer* 34(10):1554–1559.

Green LW, et al. 1996. *Study of Participatory Research in Health Promotion*. Ottawa, Canada: Royal Society of Canada. See also: www.ubc.ca/guidelines.html.

Green LW. 2001. From research to "best practices" in other settings and populations. *American Journal of Health Behavior* 25:165–178.

IOM (Institute of Medicine). 2003a. *The Future of the Public's Health in the 21st Century*. Washington, DC: National Academies Press. Prepublication copy.

IOM. 2003b. *Responsible Research: A Systems Approach to Protecting Research Participants*. Washington, DC: National Academies Press.

Israel BA, et al. 1998. Review of Community-Based Research: Assessing Partnership Approaches to Improve Public Health. *Annual Review of Public Health* 19:173–202.

Joffe S, Weeks JC. 2002. Views of American oncologists about the purposes of clinical trials. *Journal of the National Cancer Institute* 94(24):1847–1853.

Larson E, McGuire DB. 1990. Patient experience with research in a tertiary care setting. *Nursing Research* 39:168–171.

Minkler M, Wallerstein N, eds. 2002. *Community Based Participatory Research for Health*. San Francisco: Jossey-Bass.

NBAC (National Bioethics Advisory Commission). 2001. *Ethical and Policy Issues in Research Involving Human Participants*. Volume 1. Rockville, MD: NBAC.

NHRPAC (National Human Research Protections Advisory Committee). 2001. *NHRPAC's Recommendations on HHS's Draft Interim Guidance on Financial Relationships in Clinical Research*. [Online]. Available: ohrp.osophs.dhhs.gov/nhrpac/documents/aug01a.pdf [accessed January 9, 2003].

NIEHS (National Institute of Environmental Health Sciences). 2002. *Interagency Working Group for Community-Based Participatory Research*. [Online]. Available: www.niehs.nih.gov/translat/IWG/iwghome.htm [accessed March 5, 2003].

Paasche-Orlow M, Taylor HA, Brancati FL. 2003. Readability standards for informed-consent forms as compared with actual readability. *New England Journal of Medicine* 348:721–726.

Top AHCs turning away from industry-sponsored clinical trials. 2002. *CenterWatch* 9(3):1–7.

UBC IHPR (University of British Columbia Institute of Health Promotion Research). Undated. *Guidelines and Categories for Classifying Participatory Research Projects in Health Promotion*. [Online]. Available: www.ihpr.ubc.ca/guidelines.html. [accessed January 8, 2003].

University of Michigan School of Public Health. Undated. *Community Health Scholars Program: Goals and Competencies*. [Online]. Available: www.sph.umich.edu/chsp/program/index.shtml [accessed March 5, 2003].

3

Increasing the Role of the Public in Research Oversight

INTRODUCTION

Recently, deaths resulting from research participation and federal shutdowns of prestigious institutions have elicited a great deal of media attention questioning the safety of participating in research. In response, the research community, regulators, and others have taken actions intended to ensure that research is conducted ethically and that participants are adequately protected. Some efforts have focused on the protection system as a whole, while others have concentrated on reforming Institutional Review Boards (IRBs), the bodies that have the primary responsibility for ensuring that research participants are protected. In either case, the ethical review of research is the linchpin of the system for protecting research participants; review by the IRB is required for any federally funded research and for Food and Drug Administration (FDA) approval of products developed using human research.[1]

Greater inclusion of the public on IRBs has been suggested as a way to reform the protection system. The National Bioethics Advisory Commission (NBAC) and the Institute of Medicine (IOM) both have recommended that public members constitute at least 25 percent of the board's membership (IOM, 2003; NBAC, 2001). Currently, federal regulations require that unaffiliated and nonscientific members be included as part of the IRB.[2] Inclusion of public members—also referred to as independent, unaffiliated, and nonscientific members—on the IRB is intended to further focus the board deliberations on participant issues such as informed consent. In practice, however, recruiting and retaining members, as well as ensuring that their voices are heard on boards dominated by scientific professionals, has been difficult.

Both the Office for Human Research Protections (OHRP) and the FDA have compiled information about common problems facing IRBs, including deficiencies related to noncompliance in the areas of IRB membership, research review, and oversight of informed consent (see Figures 3.1 and 3.2). In the past two years, OHRP has become more active in enforcing federal regulations—between 1990 and June 2000, the Office for Protection from Research Risks (OPRR, OHRP's predecessor) issued 40 Determination Letters (NBAC, 2001); from July 2000 to November 2002, OHRP issued 335 such letters.[3]

During this session of the workshop, Daniel Federman described the recent IOM report about the system for protecting research participants, and Nancy Dubler discussed a project to train public members of IRBs. Angela Bowen talked about recruiting and retaining independent members of IRBs, Marjorie Speers discussed the role of the public in formulating accreditation standards as well as the potential for accreditation to foster greater public input into the research process, and Greg Koski offered alternative models for the review of research.

RESPONSIBLE RESEARCH: A SYSTEMS APPROACH TO PROTECTING RESEARCH PARTICIPANTS

In the fall of 2002, IOM released *Responsible Research: A Systems Approach to Protecting Research Participants* (IOM, 2003). During the Clinical Research Roundtable

[1] 45 CFR 46 ("Common Rule"); 21 CFR 50, 56.

[2] 45CFR 46.107: " (c) Each IRB shall include at least one member whose primary concerns are in scientific areas and at least one member whose primary concerns are in nonscientific areas. (d) Each IRB shall include at least one member who is not otherwise affiliated with the institution and who is not part of the immediate family of a person who is affiliated with the institution."

[3] OHRP maintains its Determination Letters from July 2000 onward at ohrp.osophs.dhhs.gov/detrm_letrs/lindex.htm. Multiple letters sent to a single institution are included in the count.

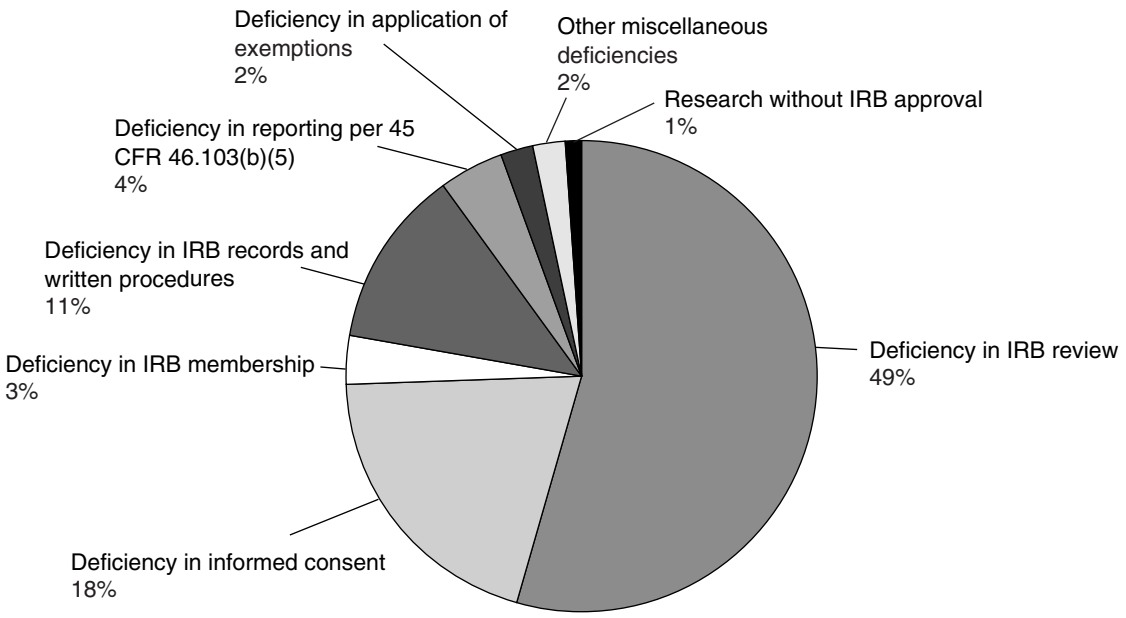

FIGURE 3.1 Distribution of Site Visit Noncompliance Findings, OHRP Compliance Data 10/98-12/2001
*This graph was redrawn from OHRP Compliance Oversight Data by Institution, October 1998 to December 2001, a report produced by OHRP in January 2002.

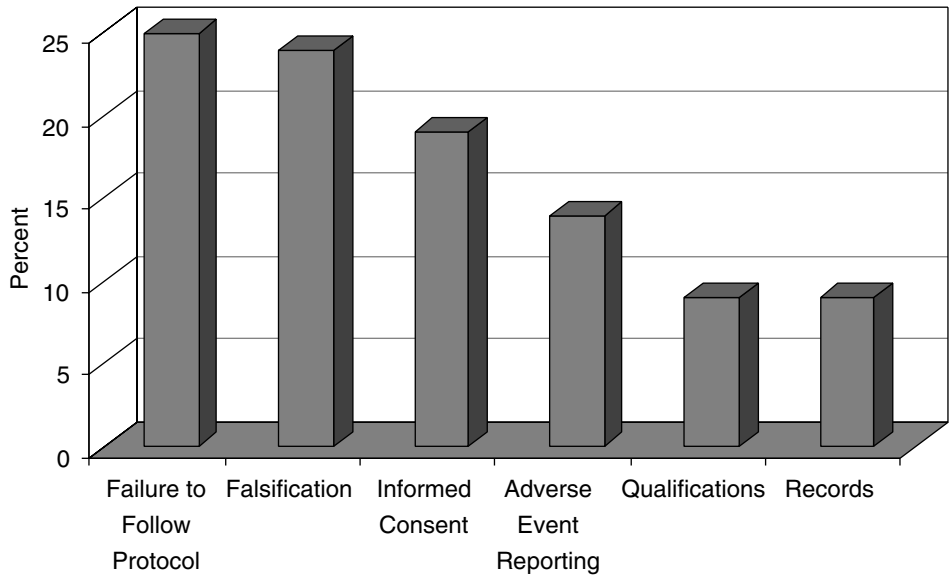

FIGURE 3.2 Formal Complaints to FDA Regarding IRB Deficiencies
*This chart was redrawn from a presentation given by Stan Woolen of the FDA Office of Medical Policy, Division of Scientific Investigations, to the IOM Committee on Assessing the System for Protecting Human Research Participants in May 2001.

workshop, Daniel Federman, M.D., Dean for Alumni Relations and Clinical Teaching at Harvard University and Chair of the IOM committee that wrote the report, presented a selection of the committee's findings that were most relevant to the public's role in the ethical oversight of research.

According to the committee, all research involving human participants should take place in a framework known as a Human Research Participant Protection Program (HRPPP). These programs must have a culture of unequivocal commitment to the ethical conduct of research and the protection of

participants that is supported by the highest authorities within organizations—the CEO of a company or president of a university, for example—said Dr. Federman. The necessary support includes fostering a culture of integrity as well as the allocation of appropriate resources for the HRPPP to function optimally, including those for ongoing quality assurance and improvement.

The IOM committee proposes that a three-pronged review of science, financial conflict of interest, and ethics should take place before research can proceed. Owing to the complexity and range of the science, the conflicts of interest issues, and the ethics of the review process, review of research is too burdensome for one group, said Dr. Federman.

The scientific review utilizes scientific expertise within a field to ensure that the science is valid, "because if it is not good science, it cannot be ethical," Dr. Federman commented. The financial conflict of interest review mechanism would employ relevant expertise on that issue.

> "Participants and community representatives have a great deal to contribute to the design, review, and conduct of projects and should be energetically recruited."
>
> —*Daniel Federman*

These review bodies should inform the Research Ethics Review Board (Research ERB, the term the committee adopted to replace IRB in order to reflect the mission of the board) of their findings and recommendations prior to the Research ERB deliberation so that it can focus on the *ethical* issues of each proposed research project in an efficient and informed way. "Participants and community representatives have a great deal to contribute to the design, review, and conduct of projects and should be energetically recruited," commented Dr. Federman.

To encourage the inclusion of public members on IRBs in practice, the committee recommends that "at least 25 percent of membership should be reserved for unaffiliated members" (IOM, 2003, p. 96). Currently, regulations require only that the IRB have at least one member with a nonscientific perspective and one member who is unaffiliated with the institution[4] (see "Independent Research ERB Members" for further discussion).

[4] 45CFR 46.107: "(c) Each IRB shall include at least one member whose primary concerns are in scientific areas and at least one member whose primary concerns are in nonscientific areas. (d) Each IRB shall include at least one member who is not otherwise affiliated with the institution and who is not part of the immediate family of a person who is affiliated with the institution."

> "Obtaining the informed consent of the participants should be an ongoing process rather than a discrete moment."
>
> —*Daniel Federman*

Referring to the issue of informed consent, Dr. Federman noted, "Obtaining the informed consent of the participants should be an ongoing process rather than a discrete moment." This requires that the consent document be redesigned to provide a clear picture of the research rather than providing information in legalistic and self-protective jargon that overwhelms the goal of informed participation, he commented.

In addition, all studies that have more than minimal risk to participants should be monitored, with prompt reporting of adverse events to investigators and Research ERBs, as well as sponsors, according to the committee. The committee's feeling is that it should be an open process, that transparency in the whole sequence is crucial to restoring confidence and then making it possible for recruitment and community participation to be restored, commented Dr. Federman.

The final recommendation that Dr. Federman discussed is that individuals non-negligently injured as a result of their participation in research should be compensated, at the least for their resulting medical care and rehabilitation expenses, without regard to fault. The committee also calls for "full recovery for economic loss, including work-related disability, and in appropriate cases, for lost earnings of a deceased participant" but acknowledges that there needs to be more research about the number and severity of research-related injuries before this is implemented (IOM, 2003, p. 193).

Comment on the IOM Report

Myron Genel, M.D., Associate Dean at the Yale University School of Medicine, supported Dr. Federman's assertion that buy-in from top leadership is very important for the protection of research participants but also expressed concern about the notion of separating scientific from ethical review. Ken Getz, M.B.A., President of CenterWatch, also wondered about this type of review and the reaction to the report.

Dr. Federman said that the response to the report has been very positive. Some of the concerns that have been expressed are an increased role for government, the complexity of the three-prong review, the difficulty of balancing informed consent and reasonable disclosure, and implementation of compensation mechanisms for research injuries.

The three-prong review has been the most controversial recommendation, because some fear that it will act as an impediment to review rather than as an aid. Dr. Federman countered that the scientific review could come from any number of sources, such as National Institutes of Health or National Science Foundation peer reviews of grants. Due to the complexity of science, the committee believed that an in-depth, prior review by a committee focused on science would allow the Research ERB to take the scientific aspects into consideration while focusing on the ethics of research proposals.

Dr. Federman also explained that the committee envisions the reviews as being separated but integral components of a human research participant protection program. In other words, they have shared assumptions about ethics, they have shared assumptions about procedures, they have shared assumptions about where the process is heading. Good communication, including a liaison between the review mechanisms, and good staffing are crucial for this process to function properly, he said.

Greg Koski of OHRP noted that according to the regulations, IRBs are responsible for ensuring that the science behind a protocol is good. He added that the complementary source of additional scientific information to inform the comprehensive review recommended by the IOM is a positive development. "The emphasis on a comprehensive review was what was really important…, where they have smaller panels with the full ability to call for additional expert scientific input from consultants as appropriate," he said.

He also commented that OHRP, which was a sponsor of the report, was hoping IOM would develop outcome measures, because people are investing a large amount of time, effort, and money in the process of improving the research participant protection system without any way to concretely measure results.

Dr. Federman responded, "No one currently knows those suffering harm from current investigation, [or] everyone currently a participant in a research protocol." Thus, one of the recommendations of the committee is that the government assume responsibility for collecting baseline data on the protection system.

Dr. Speers added that the IOM and NBAC reports had similar findings and recommendations, indicating that the executive and legislative branches of government should take the reports into consideration.

> "No one currently knows those suffering harm from current investigation, [or] everyone currently a participant in a research protocol."
>
> —*Daniel Federman*

ISSUES REGARDING INDEPENDENT MEMBERS OF IRBS

Meeting the Need for Independent Members of Research ERBs

Nancy Neveloff Dubler, J.D., Director of the Division of Bioethics at Montefiore Medical Center and Professor of Epidemiology and Social Medicine at Albert Einstein College of Medicine, began the Certificate Program in Research Ethics intending to fill the need for training unaffiliated, nonscientist IRB members. However, she soon discovered that many IRB chairs had only one independent member[5] on their boards of 20-25 and that while many chairs wanted more public members, they did not know how to recruit suitable individuals. Thus, she redesigned the project, gearing it toward recruiting *and training* unaffiliated Research ERB members.

First, Ms. Dubler had to determine whom to train. She turned for assistance to New York City Health and Hospitals Corporation, which has 11 hospitals that each have a community board. The community board members there are largely minorities, who often have been absent from the IRBs that Ms. Dubler has visited. She also is working with the United Hospital Fund, a corporate entity that gives and receives grants; the Public Service Network, a group under the umbrella of the Bar of the City of New York; and soon, specific disease groups who have participant involvement and a stake in particular types of research. She will gather resumes from members of these groups, interview them, and link them with IRB chairs, who will choose whether or not to have them sit on their particular committee.

Some IRB chairs have welcomed the prospect of including more public members, but others have been more skeptical. Concerns about independent members voiced by IRB chairs include lack of quorum (fear that independent members would not attend meetings), compromise of confidentiality, the exposure of scientific secrets, a decrease in the quality of discourse at meetings due to the presence of unknowledgeable persons, and a slowing down of the process. Some chairs also worry that lawyers will try to impose their interpretation of regulatory language and that nonscientists have nothing to contribute.

Independent IRB members have voiced their own concerns about their role on IRBs. They have said that they need more information; that they should not be specially educated, because they bring the "wisdom of everyman"; that board

[5] The terms public, independent, nonscientist, and unaffiliated were used by workshop participants to describe similar members. In general, the terms independent or public are used to describe IRB members who are unaffiliated and/or nonscientists.

Box 3.1 Guidelines for Independent Members of Research ERBs

Independent members should be:

- knowledgeable about the design and conduct of research;
- aware of developing new issues important to the ethical review of research;
- alert to new government policies that may affect research;
- prepared to study and report to the Research ERB about new protocols at all meetings;
- focused on the possible effect of the protocol on the daily life of the participant and, if the participant is terminally ill, how the protocol will affect the quality of death;
- interested particularly in the informed consent process and whether it serves participant needs;
- cognizant of the therapeutic misconception and focused on directing the attention of participants toward the most salient issues in order to minimize misinterpretation;
- committed to attend all Research ERB meetings; respectful of the confidentiality of proceedings, details of the protocols, and the discussions surrounding the protocols;
- aware that Research ERB discussions may be unduly affected by the use of independent sources of knowledge to dominate the discussion, especially if members are attorneys; and
- adaptable to the notion that Research ERB discussions and decisions are the result of a collaborative process among all of the members.

members do not listen to them; and that other members often do not understand how suspicious the community is of medical research.

Ms. Dubler noted that the IOM report recommends that "a Research Ethics Review Board's deliberative process should aim for consensus. If consensus cannot be achieved, approval of the protocol should require favorable votes by three-quarters of the voting members" (IOM, 2003, p. 98). This further convinced her that there is a need for training and recruitment of public IRB members. During her visits to seven major IRBs in New York City, Ms. Dubler found that independent members were a small, largely nonvocal, component of the boards—a circumstance that could lead to the marginalization of their perspectives.

The certificate program, which aims to address this problem, will involve a two-day retreat for independent members, followed by monthly three-hour seminars to address issues raised in Research ERBs, and a one-day meeting at the end of the year. In addition, there will be required post-meeting emails pointing out interesting or troubling issues raised during the meetings. Unaffiliated, nonscientist Research ERB members will be trained about the background of research and the context in which it takes place, scientific methodology and methodological issues, and difficult study design questions such as use of placebos. They will learn about conflict of interest and the importance of cultural competency. The "intellectual calculus" of reviewing proposals—weighing risks and benefits of specific proposals—will be essential, as will be the ability to consider the importance of proposals within the current body of knowledge. The responsibilities of IRB members—including ethics review, assessment, research participant advocacy, accountability, and community perspective—also will be addressed.[6]

Ms. Dubler also is developing guidelines for participation for independent Research ERB members, based on the principles that research is a collaborative enterprise that involves scientists, members of Research Ethics Review Boards, and research participants in a collaborative process and that the goal of therapeutic and non-therapeutic research is to develop new knowledge and protect participants (see Box 3.1).

Attracting and Retaining Unaffiliated Members—An Independent IRB Perspective

Western IRB (WIRB) is an independent review board that has been in existence for 35 years and now has 10 functioning IRB panels that serve over 60 institutions. WIRB President Angela Bowen, M.D., shared the experience of WIRB to illuminate obstacles to and rewards of including unaffiliated members on IRBs.

WIRB has 93 total board members, 80 of whom Dr. Bowen described as community members who are unaffiliated with the organization of WIRB . Of these members, 27 are medical doctors, 20 are "other scientists," and 33 are non-scientists. The members serve for an average of 5 years. The panels are generally composed of three physicians, three other scientists, and three nonscientists, and use alternates and consultants as necessary.

[6] For more detail, see page 100 of *Responsible Research* (IOM, 2003).

The initial membership of WIRB included Rotary Club members, who then recruited other community members. Since that time, WIRB has done little recruiting. Most of the members come to WIRB through word-of-mouth, networking, professional contacts, and community service affiliations. They are interviewed by the chairman of the entire board and two members, who make a recommendation to the board of directors, who then appoint new members. In 2002, 33 people applied to be board members; WIRB declined 19 of them.

Members of WIRB are paid for their participation. Medical doctors receive $300 and other scientists and nonscientists are paid $225 per meeting. Board meetings last an average of four-and-a-half hours per week, and according to WIRB members, preparation for each meeting takes four to six hours. No more than six new protocols are discussed at any meeting, in addition to any continuing review that must take place.

The benefits of participation in the process at WIRB, as cited by its members, include intellectual stimulation, adequate time for deliberation, an excellent training program, access to consultants, protection from sponsors and investigators, indemnification, decision-making only responsibility, knowledgeable and respectful staff support (WIRB provides about two staff members for each board member—226 employees that staff 10 panels), group camaraderie, and annual retreats. Dr. Bowen also noted the importance of seemingly minor conveniences such as free parking, free lunches, good snacks, and comfortable seating in a pleasant boardroom.

Dr. Bowen commented that the training program, which is both initial and continuing, has been particularly well received. It consists of about three days of didactic work in the regulations and the documents that underpin ethical research. In addition, new members are assigned mentors who attend board meetings with them from four to six weeks, depending upon when the new members feel they are ready to perform in a voting capacity. WIRB also holds three major training exercises a year for all board members.

To address the problem of intimidation of nonscientist IRB members that Dr. Bowen also has witnessed at some IRBs, WIRB screens members to ensure that they are strong, independent thinkers who can disagree with physicians and not feel marginalized.

Retaining IRB Members

E. Albert Reece, M.D., Ph.D., M.B.A., Vice Chancellor and Dean of the University of Arkansas College of Medicine, commented about the difficulty of retaining faculty members for IRBs, because of the time commitment and lack of recognition for these activities, particularly regarding tenure and promotion decisions. He asked the panel how IRBs can retain nonphysician, independent members and whether financial stipends are sufficiently attractive to recruit and retain members.

In WIRB's experience, recruiting has not been much of a challenge, according to Dr. Bowen. However, over the past couple years, WIRB has had to recruit African American members, because the board took on projects in an area where there is a higher percentage of African Americans than in Washington state, where WIRB is located. In that case, WIRB asked members and community groups if they knew anyone appropriate to fill the slots.

Dr. Bowen noted that within universities, "there are people who are genuinely interested in the work. Raising the profile of the activity can help. Put the IRB office not in the basement but up by the Dean's office, make it more visible, and give participants a free parking place."

Dr. Federman commented that the ethical conduct of research and the evaluation of research are professional responsibilities that should be recompensed to compensate for time away from other duties. He also noted that the resources necessary for an optimally functioning HRPPP are part of the cost of doing research and should be recognized as such.

"No recognition for the academic value of the work done by IRB members is an extreme injustice… we need to recognize that this is something that requires an enormous amount of knowledge and dedication and that it should be recognized… as part of the academic promotion process."

—Greg Koski

Dr. Koski added, "No recognition for the academic value of the work done by IRB members is an extreme injustice… we need to recognize that this is something that requires an enormous amount of knowledge and dedication and that it should be recognized… as part of the academic promotion process." Dr. Bowen also noted that adequate staffing for the board is very important. Ms. Dubler commented that she has received about 60 resumes for IRB positions over the past 3 years, even though the members would not be paid, except for expenses.

PUBLIC INVOLVEMENT IN THE ACCREDITATION PROCESS

The method of involving the public in oversight of research should be tailored to meet specific goals, commented Executive Director of the Association for the Accreditation of Human Research Protection Programs (AAHRPP) Marjorie Speers. If the purpose is to increase accountability of organizations for research conduct, the public could be involved in making policy decisions and sitting on policy boards or boards of directors. Educational activities or other types of community outreach could increase the public's support for research and the use of public funds for it. In-

volving community coalitions or research participants in the design of research could serve to increase enrollment in research, improve the quality of research, and enhance the translation and dissemination of research findings.

Dr. Speers focused her comments on the first goal—increasing accountability of research organizations—and specifically on AAHRPP's process of involving the public in the accreditation process.

AAHRPP's Board of Directors made a decision early in the formation of the organization to incorporate the participant perspective on site visit teams as well as on the Council on Accreditation, the body that makes the determinations regarding accreditation. Of the 21 board members, 5 represent the public; they have either been research participants themselves or have had family members who participated in research.

AAHRPP also considers the perspectives of the public and research participants in the development of its standards in two ways. First, a number of standards address participant concerns. Specifically, AAHRPP encourages establishing open channels between participants and investigators and the institutions that conduct research, and addressing outreach activities to increase the capacity of individuals to participate in research. Second, there was an open comment period on the standards as they were developed, during which the organization heard from individuals representing participant perspectives.

AAHRPP publishes the name and accreditation status (full or qualified) of accredited institutions,[7] an additional form of accountability to the public. In addition, AAHRPP intends to have an outreach effort direct the public in order to raise awareness about accreditation and what it can and cannot accomplish. This outreach also will empower participants to inquire about the accreditation status of a research organization before deciding whether to enroll in a research study.

> "When we involve the public or participants in research, we are not talking simply about having individuals sit on committees; what we want them to do is to really participate in the process, to be involved in decisions that are made."
>
> —*Marjorie Speers*

"When we involve the public or participants in research, we are not talking simply about having individuals sit on committees; what we want them to do is to really participate in the process, to be involved in decisions that are made," Dr. Speers commented.

She also noted that the criteria for choosing public members should be reasonable and cautioned against choosing members based on certain skills while ignoring the potential bias or agenda of a public member (or any other member). In addition, she called for special attention to involving groups that have experienced abuse or discrimination in research.

NEW MODELS OF ETHICAL REVIEW

Greg Koski, Ph.D., M.D., Director of OHRP,[8] offered new models of review to improve the efficiency and effectiveness of the system for responsible conduct of human research. For the past 20 years, the twin pillars of informed consent and IRB review have formed the base of the protection system. However, according to Dr. Koski, these pillars are often perceived as barriers to conducting research, and the model needs to be reconsidered. The reliance on IRBs for a variety of review functions may not be appropriate, and the discussions about improving research review and oversight have therefore come to focus on *programs* to protect participants, noted Dr. Koski. He emphasized that the goal of the protection system should be prevention of harm and excellence in the conduct of research rather than simple compliance with the regulations. A complete program requires an effective administrative staff, an information system, and a communication system, as well as appropriate processes for quality assurance and management and compliance, he said. It also requires components to manage conflicts of interest, deal with adverse events, and conduct education. He noted these things are not direct responsibilities of the human research review board; they are components of an overall protection program.

He commented that there has been a lack of accountability within the system and the research community and that, consequently, mechanisms to ensure integrity and accountability must be part of the enterprise. Dr. Koski voiced his concern that some research is conducted without the protections afforded by the Common Rule[9] and that there is a need for a more uniform and consistent approach to the process of responsibly conducting human research. The IOM, NBAC, and others have expressed the same concern and legislators have included the extension of federal oversight to all research, regardless of funding source, in their proposed bills.[10]

[7] See www.aahrpp.org for more information about AAHRPP, its process, its principles, and its standards.

[8] Dr. Koski resigned from his position as OHRP director in December 2002. He is currently a cardiac anesthesiologist at Massachusetts General Hospital.

[9] 45 CFR 46, Subpart A, The Federal Policy for the Protection of Human Subjects.

[10] Proposed bills from the House and from the Senate would require that *all* research conducted in the United States be carried out in accord with 45 CFR 46 [A Bill to Amend the Public Health Service Act with Respect to the Protection of Human Subjects in Research. H.R. 4697. 107th Congress, 2nd Sess. (2002); Research Revitalization Act. S. 3060. 107th Congress, 2nd Sess. (2002)].

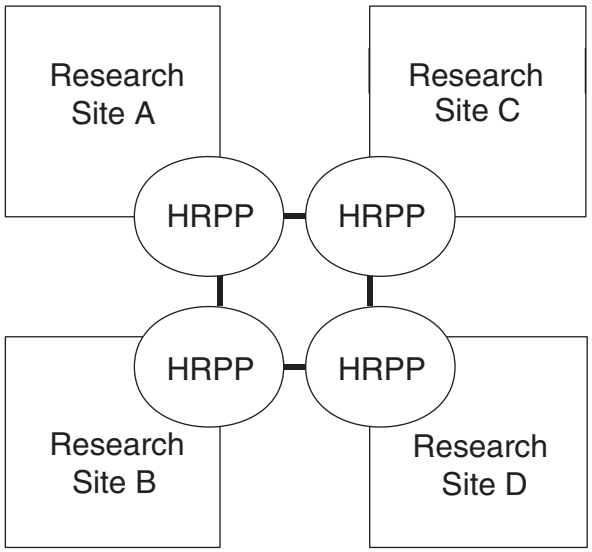

FIGURE 3.3 Distributed Network Consortium
*Dr. Greg Koski presented Figures 3.3–3.6 at the workshop.

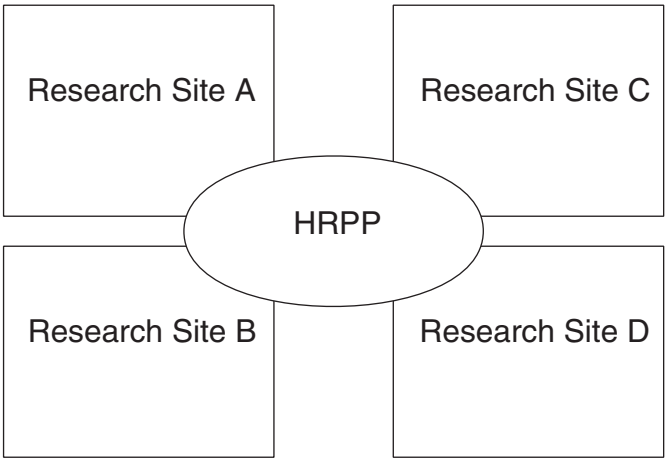

FIGURE 3.4 Centralized Consortium

Alternative Review Models

Dr. Koski outlined multiple models for the ethical review of research involving human participants—a distributed network consortium, a centralized consortium, a tandem model, and a practice-based network model. The chosen approach must be appropriate to the venue and the type of research, the components of the system must be functionally organized, and there must be unequivocal delegation of responsibilities and authority for any of these models to be effective, he noted.

In a **distributed network consortium model**, each research site has its own human research protection program (HRPP) (Figure 3.3). Rather than duplicating effort, the sites can distribute work and rely upon each other for different program functions. This could provide greater quality and more efficiency than the current system. A consortium such as MACRO (Multicenter Academic Clinical Research Organization), in which the five member universities generally accept the conclusions of each other's IRBs, is one example.[11]

The **centralized consortium** is a second model (Figure 3.4). In this model, a central HRPP is established by multiple entities that each contribute resources. Independent IRBs would fit this model, with one central IRB providing services to multiple sites.

[11] Participating members of MACRO are University of Pennsylvania School of Medicine, Baylor College of Medicine, University of Alabama at Birmingham, Vanderbilt University, and Washington University School of Medicine. For more information, see ccs.wustl.edu/macro/aboutmacro.htm.

The National Cancer Institute's (NCI's) central review pilot program is one example of the **tandem model**, in which an expert central board with public, ethics, and scientific and clinical representation carries out a high-level review and then, under a set of carefully-defined delegations of authorities and responsibilities, works with local boards that can address the issues at the local sites (Figure 3.5). This model would avoid the redundancy of numerous reviews at multiple sites while also allowing for local input.

Finally, the **practice-based network model** is designed for research that takes place within physicians' practices (Figure 3.6). Much research is done in this setting today, and practice-based research networks have been forming to meet the needs for research undertaken within physician practices (Genel and Dobs, 2003). Privacy boards and ethics boards could be folded into the network and shared among participating practices.

> "In making these models work, it is clear that institutions and their IRBs are only going to be willing to relinquish their own autonomy if they can be sure that they can trust the ones that they are going to partner with."
>
> —*Greg Koski*

Dr. Koski cautioned, "In making these models work, it is clear that institutions and their IRBs are only going to be willing to relinquish their own autonomy if they can be sure that they can trust the ones that they are going to partner with." Accreditation could possibly encourage such trust among programs.

In addition to its usual compliance functions, OHRP has been focusing on assessing and improving HRPP perfor-

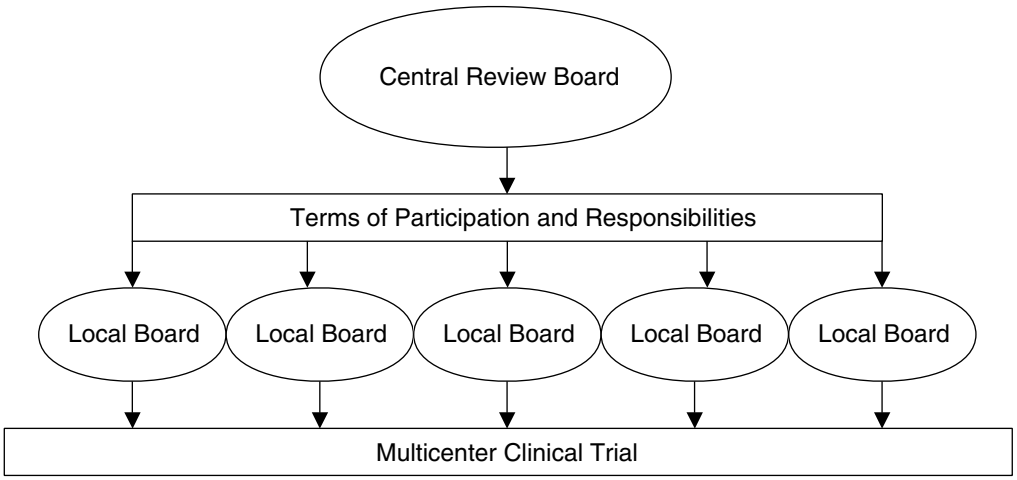

FIGURE 3.5 Tandem Model

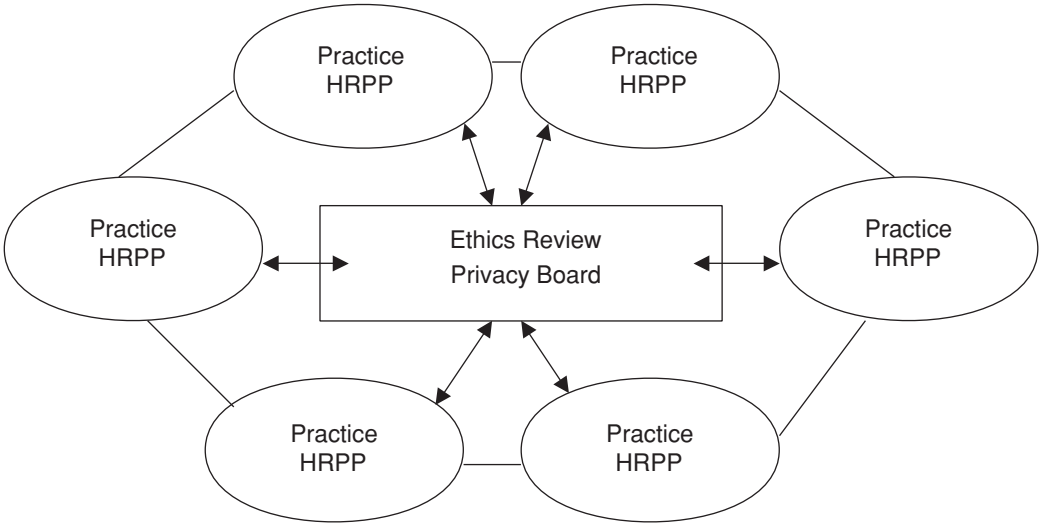

FIGURE 3.6 Practice-Based Research Network Model

mance by providing quality improvement consultation and tools to measure performance. OHRP is developing its quality improvement program in three phases—quality assurance (a self-assurance tool), quality improvement, and continuous quality improvement—to further its role in improving performance. The quality assurance phase has begun, and the tools for assessment are available from OHRP.[12] Dr. Koski noted that validation, which includes certification and accreditation, is also an important part of the performance domain.

Trust and Institutional Liability

Adrian Dobs, M.D., Professor at the Johns Hopkins University School of Medicine, commented, "Some institutions are very hesitant to trust other IRBs when, in the end, they are the ones who are going to be responsible and legally liable for any problems that develop." She and Bernard Schwetz, D.V.M., Ph.D., Senior Adviser at the FDA,[13] asked how to engender trust among IRBs so that they are willing to cede some responsibilities to each other and overcome this impediment.

[12] See ohrp.osophs.dhhs.gov/humansubjects/qip/qip.htm for more information about the quality improvement program.

[13] In January of 2003, Dr. Schwetz was named Acting Director of OHRP.

> "These things don't happen overnight. They take an enormous amount of commitment from people who really want to achieve the goal, and it is that shared goal that ultimately allows them to proceed…. This is not a one-size-fits-all game, and we have to be sensitive to that."
>
> —*Greg Koski*

Dr. Koski responded that standards of excellence such as accreditation are essential to foster trust among different research institutions. He commented further that once a group of institutions are working together, they make a commitment to achieving common goals, and the liability issues tend to fall under a simple management strategy. Clearly defining who is responsible for what and making sure there are systems in place to see that those responsibilities are fulfilled is essential for this type of review to work.

The NCI central review board is one example of this—it allows local boards to accept or reject a central assessment, preserving "an appropriate measure of autonomy," Dr. Koski noted, adding that clear lines of responsibility are essential for this to work. He cautioned, "These things don't happen overnight. They take an enormous amount of commitment from people who really want to achieve the goal, and it is that shared goal that ultimately allows them to proceed… This is not a one-size-fits-all game, and we have to be sensitive to that."

Dr. Federman commented that many faculty members at research institutions are reluctant to trust faculty from other institutions and that this reluctance "is legendary regardless of the suit implications." The IOM committee recommends regional or central review as an option rather than a requirement, allowing institutions to undertake their own review if they choose to do so while also legitimizing other review mechanisms. Dr. Bowen noted that there currently is a willingness to try different models, partly because OHRP has encouraged such innovation during Dr. Koski's tenure. WIRB survives by establishing trust with the institutions for which it provides reviews.

GUIDANCE ON INTERPRETATION OF THE REGULATIONS

David Rimoin, M.D., Ph.D., Chairman of Pediatrics at Cedars-Sinai Medical Center commented that one of the problems with individual IRBs has been the tremendous variability in their interpretation of what is regulation, what is guideline, and what is hearsay. He also noted that sometimes institutions focus on protecting themselves rather than protecting research participants and that there should be some appeals process to address this issue. Centralizing the review process (i.e., taking the "I" out of "IRB") would ensure more uniform standards nationally, he said.

Dr. Koski pointed out that OHRP handles around 14,000 inquiries from the research community about interpretation of the regulations and has a compendium of nearly 20,000 entries to guide interpretation.[14] OHRP also is systematically reviewing and revising as necessary the guidance issued by the Office for Protection from Research Risks (OHRP's predecessor) and OHRP to ensure that it is up-to-date and clear. The quality improvement program also will provide best practices and a "gold standard reference" to aid greater uniformity.

He added, "I think that we are really suffering from such a lack of confidence and such a risk-averse environment within the research community that it has led to a phenomenon that I call 'reactive hyper-protectionism'… There is a reason why we have within the regulations categories for full review, expedited review, exemptions, and even categories for research that is not human subject research. We need to get to the point where these programs and the institutions have sufficient confidence in what they are doing by having the expertise there, the training, and the feedback in order to exercise their responsibilities in an efficient, effective fashion."

> "I think that we are really suffering from such a lack of confidence and such a risk-averse environment within the research community that it has led to a phenomenon that I call 'reactive hyper-protectionism.'"
>
> —*Greg Koski*

EVIDENCE OF MISCONDUCT IN CLINICAL RESEARCH

Rick Martinez, M.D., Director of Medical Affairs for Community Relations at Johnson & Johnson, wanted to know how much actual fraud occurs in research and whether most misconduct is really technical noncompliance with confusing regulatory language.

Dr. Koski responded that OHRP does not monitor research fraud and misconduct but that FDA suggested a few years ago that as much as 5 percent of clinical trials included fraudulent data. He added, "I don't think that most of the deficiencies that we see are willing deficiencies." In OHRP's 280 for-cause visits over the last two years, the office has found that by the time it responded, the original problems had been cleared up; the causes of the visits were almost never complete system deficiencies, but rather small, correctable aspects of compliance, according to Dr. Koski (see Figures 3.1 and 3.2 for common findings of noncompliance).

[14] OHRP's policy guidance can be accessed at ohrp.osophs.dhhs.gov/polasur.htm.

SUMMARY

The review of research involving human participants is essential to the conduct of ethical research. Members of the public are not only affected by the results of such reviews; they also play an important role in the review process. Dr. Federman offered his IOM committee's suggestions to ensure that the system for protecting participants is functioning properly, Ms. Dubler described her pilot program to recruit and train public Research ERB members, Dr. Bowen shared the WIRB experience, Dr. Speers discussed the role of the public in the accreditation process, and Dr. Koski focused primarily on new models for the ethical review of research.

Box 3.2 Summary IOM Report

The IOM committee recommends that:

- All research involving human participants should take place in the framework of a human research participant protection program (HRPPP) that fosters a culture of ethical research conduct and integrity and is supported by the highest authorities within organizations and given the resources to function effectively.
- A three-pronged process of review that includes complementary assessments of science, financial conflicts of interest, and a comprehensive review focused on ethics should be utilized to review research. Good communication and staffing, possibly including a liaison, of and between these review mechanisms is essential.
- At least 25 percent of the Research ERB membership should be unaffiliated and nonscientific. Obtaining informed consent should be an ongoing process rather than a discrete moment.
- All studies that have more than minimal risk should be monitored, with prompt reporting of adverse events to investigators and Research ERBs, as well as sponsors.
- People nonnegligently injured in the course of research should be compensated for at least medical care and rehabilitation expenses, without regard to fault.
- The government should assume responsibility to collect baseline data on the protection system. Currently, no one knows either the number of people injured in research or the number of people participating in research (the "numerator" and "denominator").
- Transparency of the process is key to maintaining the public's confidence in research.

Issues Regarding Unaffiliated Members of IRBs

Some IRB chairs have welcomed the prospect of more public members, but others have expressed concerns, as have public IRB members. Ms. Dubler's certification project aims to address the worries of both these groups by educating and recruiting unaffiliated, nonscientist IRB members as well as providing guidelines for them.

Western IRB is an independent review board that could serve as a model for others. WIRB panels meet weekly, and its members are paid for their service. The Board offers nonfinancial support to its members as well, including training, indemnification, and adequate staff support.

Service on IRBs could be encouraged by raising the profile of IRBs, compensating for time away from other work, and including IRB service in tenure and promotion decisions.

Public Involvement in the Accreditation Process

Accreditation could serve as one way to foster trust between institutions for the ethical review of research.

The board of directors of the Association for the Accreditation of Human Research Protection Programs includes 5 public members, and the Association incorporated participant concerns into its standards.

Participants can use the accreditation status of institutions as an aid to decision-making when choosing whether to participate in research at a particular institution. AAHRPP will make public the accreditation status of institutions.

New Models of Ethical Review

In the current system, there is an overreliance on IRBs for ethical aspects of research. The ethical conduct of research requires the support of an entire program.

A complete program requires an effective administrative staff, an information system, and a communication system, as well as quality assurance and management and compliance.

Alternative review models to the current system of review include the distributed network consortium, centralized consortium, tandem, and practice-based network models. These will function only to the degree that institutions are willing to trust their partners regarding this review.

OHRP is developing a quality improvement program. The first phase, quality assurance, has begun and the tools are available from OHRP.

Interpretation of the regulations currently is extremely variable. OHRP offers guidance for interpretation and hopes that the quality assurance process will provide a "gold standard reference" of best practices to share through OHRP.

REFERENCES

Institute of Medicine. 2003. *Responsible Research: A Systems Approach to Protecting Research Participants*. The National Academies Press: Washington, DC.

Genel M and Dobs A. 2003. Translating clinical research into practice: practice based research networks as a promising solution. *Journal of Investigative Medicine* 51(2):64–71.

McNeilly PJ and Carome M. 2001, July 19. Human subjects protections under multiple project assurance (MPA) M-1011. Letter to Edward D. Miller and Chi Van Dang, Johns Hopkins University School of Medicine.

National Bioethics Advisory Commission. 2001. *Ethical and Policy Issues in Research Involving Human Participants, Volume I*. Bethesda, MD: NBAC.

4

Steps to Improve the Translation and Dissemination of the Results of Clinical Research

INTRODUCTION

The ultimate intent of clinical research is to improve human health, but too often, available research evidence is not translated into practice (Bero et al., 1998; Farquhar et al., 2002; Haines and Donald, 1998). There are a number of reasons for this including the large volume of published, and sometimes conflicting, research results; a shortage of well-conducted systematic reviews; the reluctance of some physicians to use guidelines; and pressures on physicians' time. Additionally, ineffectual education about and dissemination of research results, guidelines, and similar tools, and a lack of policies that foster the implementation of research results hinder translation of results into clinical practice.

Millions of articles are published in medical journals each year, making comprehension and implementation of available information nearly impossible, especially for busy physicians and other health professionals (Davies, 2002). For example, a search of PubMed for publications with the term "diabetes" in the past 5 years yielded citations for 47,000 articles.[1] Reviews and meta-analyses of available literature have been used to address this problem, but the methodology of some traditional reviews has been criticized, and there are still too few such studies to inform the array of current medical practice (Mulrow, 1994; Bero and Jadad, 1997).[2] Furthermore, there is a need for more studies that directly compare health interventions and outcomes, such as the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial,[3] and for health services research to evaluate and improve clinical practice (Song et al., 2003; Tilson et al., 2003).

While conducting systematic reviews and comparative research are important tools for translating research into practice, thus addressing the second block to applying research to improve public health, accomplishing this goal also depends upon several other factors, including physician beliefs, patient knowledge, institutional culture, and access to information (Haines and Donald, 1998; Farquhar et al., 2002). See Box 4.1 for potential methods to aid in implementing research findings in practice.

The Internet is another enabling tool for both practitioners and consumers in the translation of research. Over half of the adults in the United States have on-line access, and health and medicine is the fourth most popular type of content online, behind news, travel, and weather (Cyber Dialogue, 2000). This information helps healthcare consumers to make more informed decisions about their health. The increased access to clinical knowledge is changing the healthcare provider-patient relationship, as many of those accessing online health information are discussing the information with their doctors and asking more specific questions about their symptoms, diagnoses, and treatment (HON, 2002; Taylor and Lietman, 2001). However, there are still many people who do not have access to the Internet, and concerns about privacy, confidentiality, validity, and credibility on the web must be taken into consideration.

This session of the workshop focused on the translation and dissemination of research findings in order to address the current lag time between research discovery and application. Barry Wolcott discussed use of the Internet for health communication and research purposes; John Walsh provided information about the role of voluntary health associations in fostering clinical research and disseminating the findings of such research; and Stephen Katz described consensus development conferences, ClinicalTrials.gov, and dissemina-

[1] According to a search performed in February 2003.

[2] The Cochrane Collaboration and others have developed methodologies to reduce errors and bias in systematic reviews so that they can be used to influence practice (Clarke and Oxman, 2003).

[3] The ALLHAT recently produced articles of particular significance comparing the outcomes of using Angiotensin-Converting Enzyme Inhibitor or Calcium Channel Blocker versus diuretic for hypertensive therapy (ALLHAT, 2002a,b).

Box 4.1 Methods to Aid the Implementation of Research Findings in Practice

- Improve education of healthcare practitioners about evidence-based medicine, guidelines, and interpretation of research results for practice.
- Increase availability and distribution of guidelines (make them publicly available via Internet, direct mailings, and other methods).
- Inform consumers about research findings and encourage them to ask questions about the research and its applicability to their situation.
- Include implementation of research findings and guidelines as part of an ongoing quality improvement process.
- Encourage the implementation of research findings in practice through reimbursement and similar policies.
- Foster the development and implementation of computer decision-support systems.

Note: The information in this box was compiled from Haynes and Haines, 1998; Haines and Donald, 1998; Winkens and Dinant, 2002.

tion strategies at the National Institute of Arthritis and Musculoskeletal and Skin Diseases.[4]

THE INTERNET AND HEALTH COMMUNICATION

Barry Wolcott, M.D., Senior Vice President of Clinical Services for WebMD Health, commented that the Internet is now the primary way that most people in the United States obtain medical information. Approximately 67 percent of adults now have online access, and in a recent survey, 55 percent of respondents indicated that they used the Internet to find health information (Taylor, 2003; Market Facts, 2002a). The respondents to the Market Facts survey spent more time using the Internet than accessing other sources when seeking health information (see Figure 4.1).

Dr. Wolcott emphasized that the Internet is a valuable tool for communication in clinical research. Consumers in another recent survey reported that they were slightly to very much more satisfied with health websites than other sources of health information such as TV news, health magazine articles, pharma websites, TV ads, and magazine ads (Market Facts, 2002b).

Roughly 600,000 people a day come to WebMD looking for a variety of health information, according to Dr. Wolcott. Many of the site visitors are from specific patient communities, and they spend their time online reading information about their condition, in communities or in chat rooms. These online communities can provide a snapshot of particular disease groups. For example, there are postings about news reports, new drug releases, and folk remedies for specific medical conditions.

Within a one-month period, WebMD recruited 50,000 people who were willing to be in research groups and filled out a 4-page questionnaire about themselves. He noted that the type of research WebMD conducts is different than clinical research, but pointed out that the Internet could be used for other research purposes. A growing number of people are accessing websites that provide information about clinical trials, and these sites could facilitate connections between researchers and potential participants. Websites can provide access to large numbers of people, can allow personalized services, and have the potential to reduce the cost of trial recruitment (DHHS OIG, 2002).

"If the goal is to recruit for an IRB, for a clinical trial, to be supportive of research, to know about clinical research, the Internet should be a major component of the marketing campaign," said Dr. Wolcott.

In addition, the Internet has the potential to promote behavioral change—one of the goals of WebMD. The Internet can reach large audiences and influence individual behaviors and community norms regarding health (Levy and Strombeck, 2002).[5] However, few Internet interventions have been evaluated for their effectiveness or costs.

"If the goal is to recruit for an IRB, for a clinical trial, to be supportive of research, to know about clinical research, the Internet should be a major component of the marketing campaign."

—Barry Wolcott

Many of the people who are online have expressed concerns about privacy and confidentiality, particularly concerning other people's access to personal information (Bernhardt et al., 2002; Cyber Dialogue, 2000; Fox et al., 2000). Any entity using the Internet to recruit participants, provide general information about clinical research, or share health information must design systems that are sensitive to user concerns.

The credibility of websites that provide health information is also an important issue. According to one recent sur-

[4] Appendix E, the report *Voluntary Health Agencies and the Clinical Research Enterprise*, summarizes the contributions of Voluntary Health Agencies in clinical research.

[5] The "VERB: It's What You Do" campaign is one example of a program that is utilizing the Internet for health promotion and disease prevention. As part of the youth media campaign for VERB, verbnow.com is designed to reach "tweens" (9–13 year olds) in order to increase their levels of physical activity and positive behaviors (DHHS, 2002).

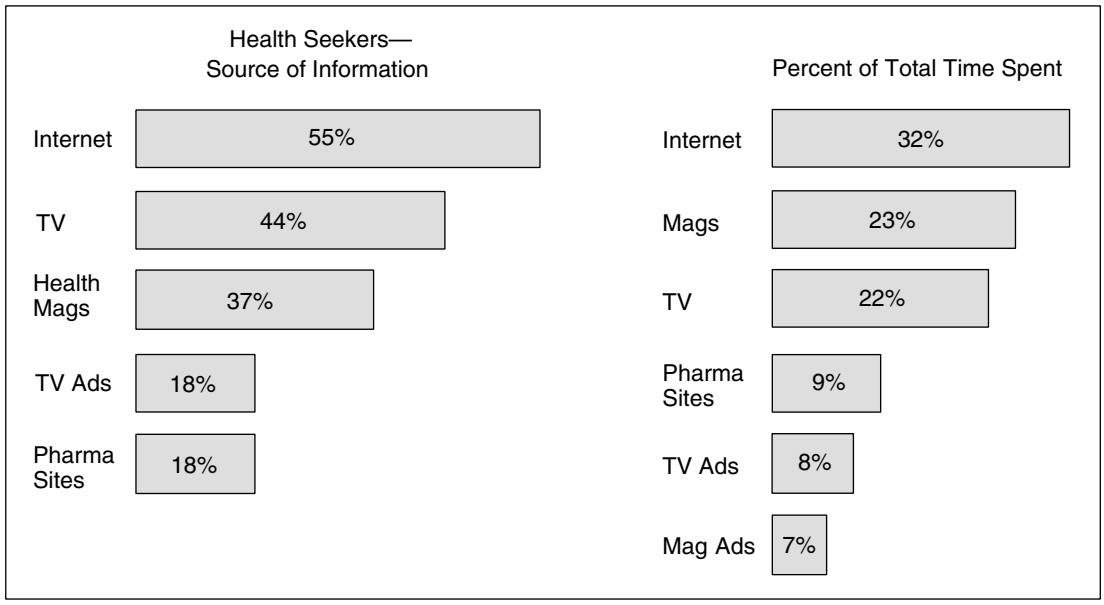

FIGURE 4.1 Sources of Health Information
Source: Dr. Wolcott presented these figures, citing Market Facts, 2002

vey, accuracy of information and trustworthiness were the two most critical concerns about the "medical Internet" (HON, 2002).[6] Anyone can have a website, so legitimate health sites must be careful to build and maintain trust, commented Dr. Wolcott. Most consumers use general search engines such as Yahoo rather than health portals such as WebMD to retrieve health information, which means that health site providers must make an effort to let people know that their websites exist and are valid, reliable sources of information (Taylor and Leitman, 2001).[7]

THE ROLE OF VOLUNTARY HEALTH ASSOCIATIONS

Voluntary Health Associations (VHAs) can play an important role in the clinical research enterprise, particularly in the translation and dissemination of research. These associations collaborate, convene, and consult with other entities in the clinical enterprise; attract and support researchers; educate clinicians, patients, and the public; and sometimes recruit patients to clinical research studies. (See Appendix E, *Voluntary Health Agencies and the Clinical Research Enterprise: Exploratory Focus Groups,* for the results of focus group surveys with VHAs regarding their role in the clinical research enterprise.)

Voluntary Health Associations use newsletters, websites, chatrooms, call centers, patient magazines, professional journals, and scientific meetings, as well as health fairs and community forums, to share information with the public, patients, and health professionals. Some VHAs reach out to minorities by translating materials, placing stories in magazines with target audiences, and participating in direct outreach to communities.

Several VHAs have expressed frustration about the difficulties of getting, sharing, digesting, and translating existing information; the lack of basic information, such as prevalence, co-morbidities, and basic disease management needs collected about their disease; and the lack of information about indirect costs to society of particular diseases.

The Alpha-1 Experience

The Antitrypsin Deficiency (Alpha-1) Foundation is one VHA that has taken an active role in facilitating, translating, and disseminating clinical research relevant to Alpha-1. John W. Walsh is President and CEO of the Foundation, which is dedicated to providing leadership and resources to encourage research about the condition. The foundation originally became directly involved in clinical research after many of its members participated in a longitudinal study that lasted for seven years. The results of the trial were not published for three years after it was completed, and the article about it was not understandable to many of the people in the Alpha-1 community, said Mr. Walsh.

The Alpha-1 model of collaboration is consumer-centered and designed to stimulate research on Alpha-1 by creating a true partnership with all stakeholders while maintain-

[6] The Health on the Net Foundation has established a code of conduct for medical and health websites in order to standardize the reliability of medical and health information on the Internet. See www.hon.ch/HONcode for more information.

[7] Appendix E includes information about the characteristic of a number of Voluntary Health Agency websites.

ing focus on the participants. This model ensures that Alpha-1 research will be conducted ethically, while leading to greater understanding, new therapies, and ultimately, a cure. Prior to the creation of the Alpha-1 Foundation, assembling and investing in the infrastructure and research for Alpha-1 was limited or nonexistent, according to Dr. Walsh.

The stakeholders in clinical research are the participants, the researchers themselves, industry, and government. Clinical investigators serve on the Foundation's board of directors and all of the scientific advisory committees with no remuneration. The government has helped people in the rare disease community to take action, hold conferences, and organize responsibly; FDA, NIH, and CDC all have participated in this process. The industry also plays an important role, getting discoveries into the marketplace. Thus, the Foundation incorporates all of these communities into its strategic planning process.

Research Infrastructure

Mr. Walsh identified a number of challenges for the Alpha-1 research community and offered his group's community-centered research infrastructure as a way to confront those issues (see Figure 4.2).

Because finding a sufficiently large cohort of individuals to participate in research is a greater challenge for researchers studying rare genetic conditions than for other disease states, the Alpha-1 Foundation has developed a research registry, now the largest in the world for individuals with Alpha-1. The Foundation gains informed consent from registry participants and recruits for additional trials. To date, the Alpha-1 registry has been used for six clinical trials, eight clinical research studies, and several surveys.

Scientific conferences and workshops have helped the Foundation establish scientific credibility within the research community. For example, a workshop with the National Institute of Environmental Health Sciences examined environmental risk factors of Alpha-1. The Foundation also has attempted to interest new researchers in Alpha-1 projects. The Foundation's Conference on Conformational Diseases: Alpha-1 as a Paradigm brought in researchers studying Parkinson's disease, Alzheimer's, hemophilia, and cystic fibrosis, to explore the conformational problems related to protein. The Alpha-1 community now has researchers from other disease fields working on Alpha-1.

The Clinical Resource Centers are another important building block in the research infrastructure of the foundation. The foundation currently collaborates with 52 centers across the country, most of which are university-based medical centers. This mechanism facilitates communication between investigators who are knowledgeable about Alpha-1 and those who know about the availability of potential trial participants. In addition, it provides materials to educate a broader physician population.

The Alpha-1 Foundation has gathered support for translational laboratories, which provide a bridge between basic science discoveries and human trials. This piece is essential to industry involvement in research on Alpha-1. The foundation also has established a DNA and tissue bank. The University of Florida College of Medicine manages the bank, but the specimens are owned by the Foundation. This bank is the world's largest repository of Alpha-1-specific DNA available to the international investigator community.

Research Coordination

Research coordination for the Alpha-1 Foundation is facilitated through stakeholder liaison meetings; expert advisory committees; FDA participation; consideration of ethical, legal, and social implications; and outcome studies (see Figure 4.3).

The FDA or industry sponsors invite the foundation to participate at many points in the process, such as in sponsor meetings for product licensure or for clinical trial design. The foundation has over 250 volunteers from the scientific and medical community participating on expert advisory committees; they serve as advisors on clinical trial design within industry among their other tasks. A liaison group was

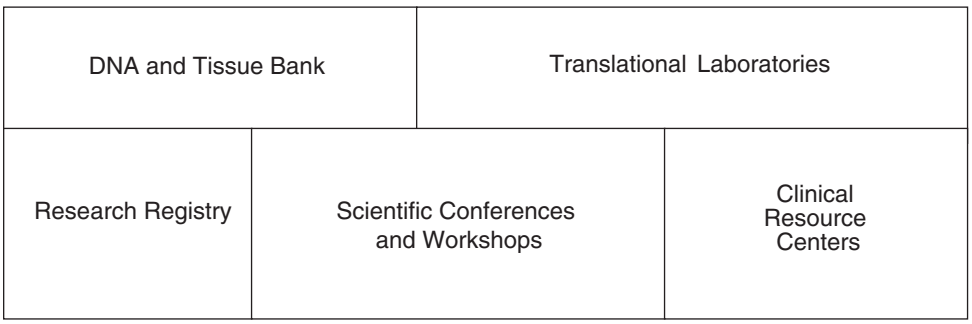

FIGURE 4.2 Community Centered Research Infrastructure
*Figures 4.2 & 4.3 were presented by Dr. Walsh.

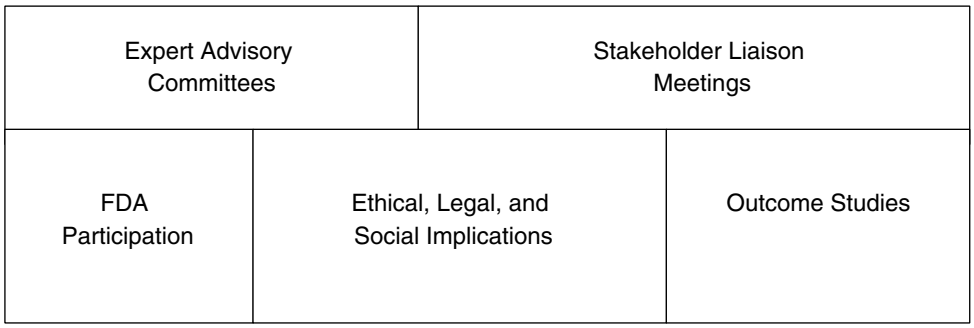

FIGURE 4.3 Community Centered Research Coordination

established to work with the FDA and NIH on Alpha-1 clinical trial design.

The Foundation recommends that the federal government, in collaboration with the private sector, establish a center to provide resources for communities to develop components for building a research program; for example, how to establish registries and DNA banks properly, with appropriate ethics considerations, under HIPAA compliance. This resource center would help the Clinical Research Enterprise to optimize its efficiency by creating tools that would assist the public and voluntary health agencies in their work with the federal government and with other clinical research activities.

TRANSLATION AND DISSEMINATION OF THE RESULTS OF CLINICAL RESEARCH AT THE NATIONAL INSTITUTES OF HEALTH

Consensus Development Conferences

Stephen Katz, M.D., Ph.D., Director of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), noted that for approximately 25 years, NIH has been utilizing Consensus Development Conferences to devise strategies to disseminate information. These conferences have been sponsored by the NIH Office of Medical Applications of Research and are conducted four to five times per year, when the knowledge base about an issue is sufficient to anticipate that the medical and scientific community can reach consensus on a particular issue. The subject is usually one of considerable public health importance, such as normal calcium intake levels or the criteria for total joint replacement.

Public involvement in the conferences is absolutely essential, not only for identifying what issues are important to the public but also for interpreting some of the information, said Dr. Katz. The conferences are advertised widely. Before they take place, invitations are mailed directly to 20,000–100,000 individuals, a website announcement is posted one year in advance,[8] and the conference notice is published in the *Federal Register*. In addition, there is a public news release two weeks prior to the conference.

The conferences are webcast while they are taking place, and a draft statement is posted on the website on the last day of the conference. A final statement is posted 4–6 weeks afterward. In addition, there is a press conference on the last day of the meeting.

After the consensus conference, final statements are mailed directly to individuals to whom the information is relevant and to others who have expressed interest. For example, the Consensus Development Conference on Diagnosis and Treatment of Early Melanoma would specifically target oncologists, dermatologists, and plastic surgeons to receive materials. The conferences also produce articles that are published in journals popular within the communities that would be impacted by the conclusions. Those who attend the conferences can receive 10–15 continuing medical education (CME) credits; after the conference, individuals can take online CME exams for one credit.

Dr. Katz noted that the Office of Medical Applications and Research Advisory Committee is exploring how best to assess the translation and impact of this type of knowledge on behavioral change.

ClinicalTrials.gov

The NIH, through the National Library of Medicine (NLM) and in collaboration with the Food and Drug Administration (FDA), has developed ClinicalTrials.gov to provide information about clinical trials for a wide range of diseases and conditions. In accordance with the FDA Modernization Act of 1997,[9] work on the project to launch the site began in September 1998; the website was launched in February 2000. Currently, it contains approximately 7,100 clinical studies sponsored by the NIH, other federal agencies, and the pharmaceutical industry. The website receives over 3 million page views per month and hosts approximately 9,000 visi-

[8] This information is available at the NIH Consensus Development Program website: consensus.nih.gov.

[9] P.L.105-115, 1997.

tors daily according to Dr. Katz's presentation. Currently, 8,250 websites link to ClinicalTrials.gov.[10]

The website designers met with many groups while designing and developing the system. In addition, before the site was launched, they conducted focused testing with 60 individuals from 19 voluntary health associations. ClinicalTrials.gov provides a single point of access for reliable trial-related information and is searchable through a variety of mechanisms. It also provides resources for understanding the risks and benefits of participating in clinical trials. Patients use the site to find out about the availability of trials, clinicians to improve medical practice, researchers for evidence-based medicine, sponsors for patient recruitment, and public policy makers to explore areas of research support, said Dr. Katz.

Clinical research sponsors prepare and submit data according to a set of standard data elements, often using a web-based protocol registration system to create, update, and release trials to ClinicalTrials.gov. For each trial, the purpose, eligibility, location, and contact information are presented, as are the number of patients required and whether the study is filled or not.

Site visitors can search for particular terms as well as closely related terms. For example, when the term "cancer" is entered, the site also searches for "neoplasm," "tumors," and "malignancies." The site recognizes spelling errors and allows the user to search within results, and users have the ability to browse by condition, sponsor, and other criteria. ClinicalTrials.gov also provides links to other relevant sites. For instance, a search for rheumatoid arthritis would provide links to the Arthritis Foundation, the American College of Rheumatology, and the American Association of Orthopedic Surgeons.

Currently, all NIH trials are listed on ClinicalTrials.gov; trials sponsored by pharmaceutical and bioengineering companies may be listed with greater frequency in the future.[11]

Dissemination at NIAMS

Dr. Katz listed a number of challenges to translating and disseminating knowledge. Those challenges include:

- translating knowledge into behavior change of health care providers and the public;
- making information available to all Americans (this includes disseminating information at an understandable literacy level, and sensitivity to culture and vulnerable populations);
- making information available in many forms;
- knowing when and how to communicate the information; and
- providing enough valid information.

Box 4.2 The Translation and Dissemination of Research Results at NIAMS

Methods of translating and disseminating the results of clinical research at NIAMS include:

- print and electronic media;
- feature stories on research and special articles for professional and voluntary organizations;
- publications such as Q and A's, handouts on health, and fact sheets that are easy to read and produced in multiple languages;
- regular electronic newsletters and other communications;
- inquiry response;
- website;
- clinicaltrials.gov and the electronic database of NIH research projects;
- dissemination through community health centers and at national, regional, and local meetings; and
- collaborations with grantee institutions and outside organizations.

The NIAMS garners input on its information development strategies from a number of sources. The Institute has an Ad Hoc Advisory Group on Information Dissemination and Communications, a subcommittee of the NIAMS Advisory Council, which started about six years ago. In addition, NIAMS interacts with 67 voluntary and professional organizations as well as patient representatives—current and former clinical study patients from the NIH—on a regular basis.

NIAMS translates and disseminates the results of this clinical research through printed materials, the Institute website, other outreach, and collaborations (see Box 4.2). In addition to other dissemination tools, NIAMS has an inquiry phone line in both English and Spanish (1-877-22-NIAMS). Over the past five years, NIAMS has nearly doubled its expenditures on public health education and information dissemination, to a total of three million dollars a year.

ENGAGING PROVIDERS IN HEALTH INFORMATION DISSEMINATION

Ken Getz, M.B.A., President of CenterWatch, asked the panel members to identify ways to better engage the health provider community in dissemination of information to the

[10] According to results of a Google web search performed on January 6, 2003.

[11] CenterWatch also has a trial registry available at http://www.centerwatch.com/patient/trials.html. The site provides a listing of many industry-sponsored trials. In addition, many websites provide information about trials for specific conditions or that meet other criteria.

> "The general public wants to be educated, wants to be aware, and we need to focus resources on this issue."
>
> —*John Walsh*

public. Mr. Walsh commented that the Alpha-1 Foundation is committed to funding dissemination of research results. The foundation initiated a process to update a standard of care document and worked with the American Thoracic Society and the European Respiratory Society to convene a writing group of 30 or 40 investigators for the task. The Alpha-1 community also played a role in the development of AlphaNet, a disease management entity that has invested several hundred thousand dollars in the development of a comprehensive disease management program that the foundation will be implementing and making available to physicians.

The Alpha-1 Clinical Resource Centers, which operate in most states in the United States, connect general practitioners who have Alpha-1 patients with specialists who can provide specific treatment and research information. The centers also follow several Alpha-1 patients.

Dr. Wolcott said that more research is needed about how to engage health care practitioners in lifetime learning. The cost of this research will be far less than the delays in implementing good clinical research, he commented.

TARGETING MESSAGES

Sometimes the willingness and the eagerness of the public to learn best practices is proportionately greater than that of the physicians who are "in the trenches" seeing patients, commented Dr. Wolcott. He noted that because of demands on clinicians' time and other pressures, it is difficult to get their attention. One way to get an NIH Consensus Report into the hands of physicians is to restate it so that it becomes a list of questions that patients ask their physicians about treatment, he suggested.

Mr. Walsh noted that the Alpha-1 Foundation has developed screening models that involve the distribution of test kits. He further commented that connecting a patient with a physician and going to a local newspaper or the local cable TV station to promote public interest in their story is a useful way to disseminate information. "The general public wants to be educated, wants to be aware, and we need to focus resources on this issue," he said. It may help to have new standards of care, but press and media involvement are important to get the message across, he noted.

FUNDING FOR RESEARCH TRANSLATION

Hugh Tilson, M.D., Dr.P.H., Senior Advisor to the Dean of the University of North Carolina School of Public Health, identified himself also as the chair of the national steering committee of the Agency for Healthcare Research and Quality-funded Centers for Education and Research on Therapeutics. He noted, from the perspective of his latter role, that the lack of money to fund research about the translation and dissemination of information regarding clinical trials is a major impediment. Research questions such as the weighting of evidence and the extent to which evidence should drive practice need to be answered for effective application of research results. He noted the importance of identifying a research agenda on effective methods for translating research into practice, as well as the need for an aggressive cross-agency program to encourage multiple agencies to invest money in this much-needed research.

An audience member then asked Dr. Katz how much NIAMS spends on research that identifies effective means of translation. He responded that NIAMS does not spend a lot of money on this issue, because although it is a fruitful area for pursuit, it is a generic problem for research. There are paradigms that have to be developed, which is one of the pursuits of the Office of Behavior and Social Science Research. The education research that NIAMS has funded has focused primarily on the area of rheumatology.

Dr. Wolcott noted that WebMD conducts consumer and marketing research that provides insight about what works, what doesn't work, and how to improve operations. Changing health behaviors is part of WebMD's product, so this information is central to its mission. WebMD also owns Medscape, which provides information services for physicians.

"What happens now," said Dr. Wolcott, "is we have huge research and development operations throughout the clinical research enterprise that generate lots of new, exciting findings, but the marketing of these discoveries is disconnected… No publicly held company would operate that way, they would build the cost into the expenses for research and development."

> "What happens now is we have huge research and development operations throughout the clinical research enterprise that generate lots of new, exciting findings, but the marketing of these discoveries is disconnected… No publicly held company would operate that way; they would build the cost into the expenses for research and development."
>
> —*Barry Wolcott*

NEGATIVE CLINICAL RESEARCH RESULTS

When an audience member commented about the lack of reporting about research demonstrating negative results,

"Orphan or rare disease communities are starving for new therapies. People understand that not everything will work and appreciate honest communication on progress of research activities."

—*John Walsh*

Dr. Katz pointed to the negative findings of the Women's Health Initiative regarding hormone therapy. He commented that much healthcare practice is not based on strict evidence like the reviews from the Cochrane Collaboration, adding that many of the clinical studies reported in the literature are driven by companies, which do not want to publish negative results. The NIH is trying to find out whether something can be learned from negative studies reported to the FDA, he said.

From a consumer perspective, the knowledge that research is being done is very important, said Mr. Walsh, and knowing what has worked and what has not worked is even more important. When a study supported by the Alpha-1 Foundation regarding use of a transgenic aerosol showed that the intervention did not work, the company that developed the aerosol, the Alpha-1 Foundation, and the investigators involved reported the negative results. This action earned them much credibility with the community.

"Orphan or rare disease communities are starving for new therapies. People understand that not everything will work and appreciate honest communication on progress of research activities," he said, adding that it is important to emphasize the positive lessons from each study and that work will continue on the problem. Reporting all results will help to keep the community engaged, he said. Dr. Wolcott commented that the general population is more interested in negative results than is the medical community. News organizations take their leads about what is medical news from the traditional medical journals, which tend not to publish negative results.

SUMMARY

High-quality clinical research is not very useful if its findings are not implemented in practice. The Internet is one promising tool for communicating the findings of health research and could be used for other research purposes. Building a community-centered research infrastructure and facilitating community-centered research also can aid in the translation and dissemination of research. Consensus Development Conferences, ClinicalTrials.gov, and dissemination strategies that include public input are important elements for translation and dissemination implemented at NIH. Private companies, government entities, and voluntary health associations all have roles to play in the translation and dissemination of research results, as evidenced by the comments of Dr. Wolcott, Dr. Katz, and Mr. Walsh.

Box 4.3 Summary

The Internet and Health Communication

The Internet is now the primary way that most people in the U.S. get health information.

The Internet can be used to conduct research, facilitate connections between researchers and potential participants, and promote behavioral change.

There are concerns about privacy, confidentiality, validity, and credibility on the Internet.

The Role of VHAs

Voluntary Health Organizations inform patients about the availability of clinical trials, recruit patients to trials, sometimes conduct or fund trials, and provide information about research results.

Several VHAs have expressed frustration about the difficulties of getting, sharing, digesting, and translating existing information; the lack of basic information collected about their disease; and the lack of information about indirect costs to society of particular diseases.

Alpha-1 provides a model of community-centered collaboration that includes consumers, clinical researchers, government, and industry, all of which are part of the research infrastructure employed by the group.

Community-centered research coordination includes stakeholder liaison meetings; expert advisory committees; FDA participation; consideration of ethical, legal, and social implications; and outcome studies.

Translation and Dissemination of Research Results at NIH

NIH has employed consensus development conferences for 25 years in order to consolidate and communicate information of public health importance. The public aids in identifying issues of importance and in interpreting some information. The results of the conferences are distributed to targeted audiences.

ClinicalTrials.gov was launched in early 2000 to provide a single point of access for reliable trial-related information. The site is easily searchable and contains approximately 7,100 trial listings. The entries include the purpose, eligibility criteria, location, contact information, number of patients required, and the study status of the trials.

Challenges to translating and disseminating information include:

- translating knowledge into behavior change of health care providers and the public;
- making information available to all Americans (this includes disseminating information at an understandable literacy level, and sensitivity to culture and vulnerable populations);
- making information available in many forms;
- knowing when and how to communicate the information, and
- providing enough valid information.

Targeting Messages

There is a need for more research about how to engage health care practitioners in lifetime learning.

Restating research findings such as those presented in NIH Consensus Reports as questions for patients to ask their physicians is one way to encourage their use.

The media is also a useful tool. Personal interest stories, such as those pairing a patient and doctor to talk to the media, can aid in the dissemination of information.

Funding for Research Translation

There is a lack of funding for research about the translation and dissemination of research results. Companies build these costs into their expenses for research and development, but other sectors have not marketed discoveries with the same vigor.

REFERENCES

ALLHAT Officers and Coordinators for the ALLHAT Collaborative Research Group. 2002. Major outcomes in high-risk hypertensive patients randomized to angiotensin-converting enzyme inhibitor or calcium channel blocker vs. diuretic: the antihypertensive and lipid-lowering treatment to prevent heart attack trial (ALLHAT). *JAMA* 288(23):2981–2997.

ALLHAT Officers and Coordinators for the ALLHAT Collaborative Research Group. 2002. Major outcomes in moderately hypercholesterolemic, hypertensive patients randomized to pravastatin vs. usual care: the antihypertensive and lipid-lowering treatment to prevent heart attack trial (ALLHAT-LLT). *JAMA* 288(23):2998–3007.

Bernhardt JM, et al. 2002. perceived barriers to Internet-based health communication on human genetics. *Journal of Health Communication* 7:325–340.

Bero L, et al. 1998. Closing the gap between research and practice: an overview of systematic reviews of interventions to promote the implementation of research findings. *British Medical Journal* 317:465–468.

Bero LA, Jadad AR. 1997. How consumers and policymakers can use systematic reviews for decision making. *Annals of Internal Medicine* 127:37–42.

California HealthCare Foundation. 2000. *The Ethics Survey of Consumer Attitudes About Health Websites, 2nd edition*. [Online]. Available: www.ihealthcoalition.org/content/CHCF-EthicsSurvey.pdf [accessed March 12, 2003].

Clarke M, Oxman AD, eds. *Cochrane Reviewers' Handbook* 4.1.6 (updated January 2003). [Online]. Available: www.cochrane.dk/cochrane/handbook/handbook.htm [accessed February 14, 2003].

Davies BL. 2002. Sources and models for moving research evidence into clinical practice. *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 31(5):558–562.

DHHS (U.S. Department of Health and Human Services). 2002, July 17. "*VERB: IT'S WHAT YOU DO" : Media Campaign to Increase Physical and Social Behavior Among the Nation's Youth*. [Online]. Available: http://www.hhs.gov/news/press/2002pres/20020717a.html [accessed March 14, 2003].

DHHS OIG (Department of Health and Human Services Office of Inspector General). 2002. *Clinical Trial Web Sites: A Promising Tool for Informed Consent*. Washington, DC: Government Printing Office. [Online]. Available: oig.hhs.gov/oei/reports/oei-01-97-00198.pdf.

Farquhar CM, Stryer D, Slutsky J. 2002. Translating research into practice. *International Journal for Quality in Health Care* 14(3):233–249.

Fox S, et al. 2000. *Trust and privacy online: Why Americans want to rewrite the rules*. [Online]. Available: www.pewinternet.org/reports/pdfs/PIP_Trust_Privacy_Report.pdf [accessed March 12, 2003].

Haines A, Donald A. 1998. Making better use of research findings. *British Medical Journal* 317:72–75.

Haynes B, Haines A. 1998. Barriers and bridges to evidence based clinical practice. *British Medical Journal* 317:273–276.

HON (Health on the Net Foundation). 2002. *Excerpt of the 8th HON's Survey of Health and Medical Internet Users*. [Online]. Available: www.hon.ch/Survey/8th_HON_results.html [accessed March 12, 2003].

Levy JA and Strombeck R. 2002. Health benefits and risks of the Internet. *Journal of Medical Systems* 26(6):495–510.

Market Facts Consumer Health Media Study. 2002a, July.

Market Facts Consumer Health Media Study. 2002b, June.

Mulrow CD. 1994. Systematic Reviews: Rationale for systematic reviews. *British Medical Journal* 309:597–599.

Song F, et al. 2003. Validity of indirect comparison for estimating efficacy of competing interventions: empirical evidence from published meta-analyses. *British Medical Journal* 326:472–477.

Taylor H. February 5, 2003. Those with Internet Access to Continue to Grow but at a Slower Pace. *The Harris Poll*. [Online]. Available: www.harrisinteractive.com/harris_poll/printerfriend.asp?PID=356 [accessed February 24, 2003].

Tilson H, Helms D, Dowdy D. 2003. Improving the US healthcare system: action plan to enhance efficiency, reduce errors, and improve quality. *Journal of Investigative Medicine* 51(2):72–78.

Winkens R, Dinant GJ. 2002. Rational, cost effective use of investigations in clinical practice. *British Medical Journal* 324:783–785.

Appendixes

Appendix A

Workshop Agenda

November 5, 2002
The National Academy of Sciences Auditorium
Washington, DC

8:45 am **Introduction—Goals for the Day**

Queta Bond, Ph.D.
Chair, Clinical Research Roundtable
President, Burroughs Wellcome Fund

Mary Woolley, MA
Workshop Chair
President, Research!America

9:00 **Panel 1: Participant-Centered Clinical Research**

Moderator—Myrl Weinberg,
President, The National Health Council

Lawrence W. Green, Dr.P.H.
Director, Office of Science and
Extramural Research
Centers for Disease Control and Prevention

Marshall H. Chin, M.D., M.P.H.
Associate Professor of Medicine
University of Chicago

Zelda Tetenbaum
Council of Public Representatives
National Institutes of Health

Jerome Yates, M.D.
National Vice President for Research
American Cancer Society

9:50 Clinical Research Roundtable Discussion

10:10 Questions from the Audience

10:30 Break

10:50 Panel 2: Model Collaborations Among Community/Disease Advocates, Researchers, and Sponsors

Moderator—Lawrence W. Green, Dr.P.H.
Director, Office of Science and Extramural Research, CDC

Kenneth Olden, Ph.D.
Director
National Institute of Environmental Health Science
National Institutes of Health

Kenneth A. Bertram, M.D., Ph.D., F.A.C.P.
Colonel, U.S. Army Medical Corps
Director
Congressionally Directed Medical Research Programs

Fran Visco
President
National Breast Cancer Coalition

Jennifer Bryson
Director, Corporate Affairs
Genentech, Inc.

Leslie Ford, M.D.
Associate Director for Clinical Research
Division of Cancer Prevention
National Cancer Institute

11:30 Clinical Research Roundtable Discussion

11:50 Questions from the Audience

12:10 Lunch

1:00 pm Panel 3: Increasing the Role of the Public in Research Oversight

Moderator—Queta Bond, Ph.D.
President, Burroughs Wellcome Fund
Chair, Clinical Research Roundtable

Daniel Federman, M.D.
Dean for Alumni Relations and Clinical Teaching
Harvard University
Chair, IOM Committee on Assessing the System for Protecting Human Research Participants

Greg Koski, M.D.
Director
Office for Human Research Protections
DHHS

Marjorie Speers, Ph.D.
Executive Director
Association for the Accreditation of Human Research Protection Programs

Nancy Dubler, JD
Division of Bioethics
Montefiore Medical Center
Albert Einstein College of Medicine
Liaison, IOM Committee on Assessing the System for Protecting Human Research Participants

Angela Bowen, M.D.
President
Western IRB

2:00 Clinical Research Roundtable Discussion

2:30 Questions from the Audience

3:00 **Panel 4: Steps to Improve the Translation and Dissemination of the Results of Clinical Research**

Moderator—Nancy Sung, Ph.D.
Program Officer, Burroughs Wellcome Fund

John W. Walsh
President and CEO
Alpha-1 Foundation

Barry Wolcott, M.D.
Senior Vice President
Clinical Services
WebMD Health

Stephen Katz, M.D., Ph.D.
Director, National Institute of Arthritis
and Musculoskeletal and Skin Diseases

3:50 Clinical Research Roundtable Discussion

4:10 Questions from the Audience

4:30 Break

4:45 **NIH Perspective: Priorities for Engaging the Public in the Clinical Research Enterprise**

Elias Zerhouni, M.D.
Director
National Institutes of Health
Department of Health and Human Services

5:15 Clinical Research Roundtable Discussion

5:30 **Adjourn to Reception**

Appendix B

Speaker Biographies

PANEL 1: PARTICIPANT CENTERED CLINICAL RESEARCH

MODERATOR – MYRL WEINBERG

MARSHALL H. CHIN, M.D., M.P.H., is Associate Professor of Medicine, Associate Director of the Robert Wood Johnson Clinical Scholars Program, and Director of the NIDDK Diabetes Research and Training Center Prevention and Control Core at the University of Chicago. He is a general internist whose research focuses on improving the care and outcomes of vulnerable patients with chronic disease in community health centers. Dr. Chin's current work tests multifactorial, community-based interventions including rapid quality improvement, chronic disease management, provider training in behavioral change, and patient empowerment. He received the 2001 National Association of Community Health Centers Innovative Research in Primary Care Award. Dr. Chin received his M.D. from the University of California at San Francisco, and completed residency and fellowship training in general internal medicine at Brigham and Women's Hospital, Harvard Medical School.

LAWRENCE W. GREEN, Dr.P.H., is the first director of the CDC Office of Science and Extramural Research and Associate Director for Prevention Research and Academic Partnerships in CDC's Public Health Practice Program Office. He served as Acting Director of CDC's Office on Smoking and Health and director of the WHO Collaborating Center on Tobacco and Health, with responsibility for the development and coordination of CDC's global tobacco control strategy in collaboration with the World Health Organization. Prior to joining the CDC, he served as Director of the Institute of Health Promotion Research and Professor and Head of the Division of Preventive Medicine and Health Promotion, Department of Health Care and Epidemiology, at the University of British Columbia.

ZELDA TETENBAUM, a science and health educator, is a member of the NIH Director's Council of Public Representatives. Her work as a patient advocate began in 1996 when her adult son was diagnosed with a brain tumor, glioblastoma multiforme. During her search for information about her son's illness, Ms. Tetenbaum has been involved with the American Brain Tumor Association and the Central Brain Tumor Registry of the United States, and the North American Brain Tumor Coalition (NABTC), a network of 13 charitable organizations dedicated to eradicating brain tumors. Currently, Ms. Tetenbaum serves on NABTC's Board of Directors and as Chairperson of its Advocacy Committee. In addition to her volunteer and advocacy work, Ms. Tetenbaum has devoted much of her professional life to education. She was a science teacher at a junior high school in Illinois for 21 years. When she retired in 1990, Ms. Tetenbaum worked on a National Science Foundation Teacher Enhancement Program at the U.S. Department of Energy's Argonne National Laboratory. Currently, Ms. Tetenbaum consults for her local school district in Illinois.

JEROME W. YATES, M.D., M.P.H., is the National Vice President for Research at the America Cancer Society. Prior to joining ACS, Dr. Yates was the Senior Vice President for Population Sciences at Roswell Park Cancer Institute. At Roswell Park Cancer Institute, he was involved in efforts to improve the prevention program and in the redefining of clinical research priorities across the institute. Previously, Dr. Yates served as the Associate Director for Centers and Community Oncology at the National Cancer Institute, where he was part of the group responsible for the generation and subsequent evaluation of the Community Clinical Oncology Program (CCOP). He was also a participant in the NCI-funded research on pain in connection with the CCOP. Dr. Yates received his M.D. from the University of Illinois in Chicago and an M.P.H. from Harvard.

PANEL 2: MODEL COLLABORATIONS AMONG COMMUNITY/ DISEASE ADVOCATES, RESEARCHERS, AND SPONSORS

MODERATOR – LARRY GREEN

JENNIFER BRYSON is the Director of Corporate Affairs at Genentech, Inc., a leading biotechnology company headquartered in South San Francisco, CA. Ms. Bryson brings extensive experience in advocacy relations and longstanding relationships with the cancer community and other patient advocacy groups. She has been instrumental in the growth of innovative collaborations between Genentech and patient communities. During the development of Herceptin, a novel breast cancer therapy, Ms. Bryson facilitated a unique and lasting partnership between the company and breast cancer advocates, which helped quickly enroll clinical trials and make the treatment widely available to patients. Before joining Genentech in 1999, Ms. Bryson held positions at Ketchum Public Relations and Bass and Howes, Inc in Washington, DC. Prior to her work at these firms, Ms. Bryson worked on several statewide campaigns for women candidates. She holds a bachelor's degree from Mount Holyoke College.

KENNETH A. BERTRAM, M.D., Ph.D., F.A.C.P., Colonel, U.S. Army Medical Corps, is the Director of the Congressionally Directed Medical Research Programs (CDMRP) at Fort Detrick, Maryland. He directs all facets of the DOD breast cancer, prostate cancer, ovarian cancer, neurofibromatosis, and other peer reviewed medical research programs, totaling $2.2 billion for the USAMRMC. COL Bertram holds an Assistant Professor appointment at the Uniformed Services University of the Health Sciences. He obtained both his Ph.D. and his M.D. from the University of Minnesota. He then moved to Madigan Army Medical Center, where he completed his Internal Medicine residency and Hematology/Oncology Fellowship and later served as Chief, Hematology/Oncology Service. COL Bertram has conducted translational research in breast cancer and participated as a site Principal Investigator in the Southwest Oncology Group clinical trials.

LESLIE FORD, M.D., is Associate Director for Clinical Research and Acting Deputy Director of the Division of Cancer Prevention at the National Cancer Institute. She is responsible for the overall direction, conceptualization, planning, and coordination of cancer prevention clinical trials at NCI. She has over 20 years experience in bringing cancer clinical trials into community medical practices. As Chief of the Community Oncology and Rehabilitation Program, she expanded the Community Clinical Oncology Program (CCOP), through which more than 10,000 men and women are accrued each year to NCI-sponsored treatment and prevention clinical trials. She received her B.S. and M.D. from SUNY Buffalo.

KEN OLDEN, Ph.D., was named as the third director of the National Institute of Environmental Health Sciences (NIEHS) and the second director of the National Toxicology Program (NTP) in June 1991. Dr. Olden is a cell biologist and biochemist by training, and has been active in cancer research for almost three decades. He was director of the Howard University Cancer Center and professor and chairman of the Department of Oncology at Howard University Medical School (1985-1991), Washington, D.C., before joining NIEHS. He joined Howard in 1979 as Associate Director for Research after a stint at the National Institutes of Health, first as a senior staff fellow, second as an expert, then a research biologist in the Division of Cancer Biology and Diagnosis, National Cancer Institute.

FRAN M. VISCO, J.D., is the first President of the National Breast Cancer Coalition (NBCC) and a member of its Board of Directors. Formed in May 1991, NBCC is a grassroots advocacy organization of more than 600 member organizations and 70,000 individual members. Ms. Visco is an honors graduate of St. Joseph's University and of Villanova Law School where she was an editor of The Villanova Law Review and a chair of the Women's Law Caucus. In 1993, President Clinton appointed Ms. Visco to the President's Cancer Panel and she was re-appointed for a second term in 1996. Ms. Visco, who was elected to chair the Integration Panel of the Department of Defense Peer-Reviewed Breast Cancer Research Program, is the first consumer to chair this panel. Ms. Visco co-chaired the National Action Plan on Breast Cancer and serves on the National Cancer Policy Board. Ms. Visco is a breast cancer survivor.

PANEL 3: INCREASING THE ROLE OF THE PUBLIC IN RESEARCH OVERSIGHT

MODERATOR – QUETA BOND

ANGELA BOWEN, M.D., established the Western Institutional Review Board (WIRB) in 1968 and has been the president since 1991. She is a graduate of Mississippi State University and completed her postgraduate education in research, medicine and endocrinology at the University of Washington. Dr. Bowen has been active in clinical research, as well as a consulting endocrinologist for over thirty years. Her research interests have included tuberculosis, diabetes, circadian rhythms and effects of hormone replacement therapy. She is an accomplished speaker and a respected author. Dr. Bowen participated in the working group to discuss revisions to the Declaration of Helsinki and in the development of the Ethics Committee guidelines for developing countries. She is active in human subject protection.

NANCY DUBLER, L.L.B., is the Director of the Division of Bioethics, Department of Epidemiology and Social Medicine at Montefiore Medical Center and Professor of Epidemiology and Social Medicine at the Albert Einstein College of Medicine. She received her B.A. from Barnard College and her LL.B. from the Harvard Law School. Ms. Dubler directs the Bioethics Consultation Service at Montefiore Medical Center (founded in 1978) as a support for analysis of difficult clinical cases presenting ethical issues in the health care setting. She lectures extensively and is the author of numerous articles and books. She is Co-Director of the Certificate Program in Bioethics and the Medical Humanities, conducted jointly by Montefiore Medical Center/Albert Einstein College of Medicine with The Hartford Institute of Geriatric Nursing at New York University.

DANIEL FEDERMAN, M.D., is the Carl W. Walter Distinguished Professor of Medicine and Medical Education at Harvard Medical School in Boston, Massachusetts. He previously served on the faculty of Harvard Medical School from 1960 to 1972, and was simultaneously on the staff of the Massachusetts General Hospital. From 1972-77 he was Chairman of the Department of Medicine at Stanford Medical School. He then returned to Harvard Medical School. Dr. Federman has served as Chairman of the American Board of Internal Medicine, Chairman of the Federated Council for Internal Medicine, and President of the American College of Physicians. He is a member of the Institute of Medicine. He has received numerous awards including the AAMC's Abraham Flexner Award for Distinguished Service to Medical Education in 2001. Dr. Federman received his M.D. from Harvard Medical School. His clinical training at Massachusetts General Hospital was followed by research training at the National Institutes of Health. He holds a D.Sc., honoris causa, from Mt. Sinai School of Medicine.

GREG KOSKI, M.D., is the first Director of the new federal Office for Human Research Protections (OHRP) within the Office of the Secretary of the Department of Health and Human Services. He also chairs the Human Subjects Research Subcommittee (HSRS) of the National Science and Technology Council's Committee on Science. Prior to joining OHRP, Dr. Koski spent more than thirty years at Harvard, during which he participated in every facet of academic life and human research. Under his leadership, the Office for Human Research Protections is moving from a reactive compliance-focused system of oversight and sanctions to a proactive system focused on prevention of harm to subjects–a system in which performance excellence is achieved through education, support and quality improvement. In collaboration with the Food and Drug Administration, the National Institutes of Health and other federal agencies, his office is working to identify new opportunities to make our system for protection of human subjects more efficient and more effective.

MARJORIE A. SPEERS, Ph.D., is the Executive Director of the Association for the Accreditation of Human Research Protection Programs (AAHRPP), which employs a voluntary, peer-driven, educational model of accreditation. She served at the National Bioethics Advisory Commission from 1999-2001, both as project director for a report on the research oversight system and as Acting Executive Director. Dr. Speers was Deputy Associate Director for Science at the Centers for Disease Control and Prevention (CDC) from 1995-2000. She held a variety of positions at CDC from 1988-1995: Director of the Division of Chronic Disease Control and Community Intervention, Chief of the Aging and Statistics Branch, and staff epidemiologist. Prior to joining CDC, she was a faculty member at the University of Texas Medical Branch and the University of Connecticut.

PANEL 4: STEPS TO IMPROVE THE TRANSLATION AND DISSEMINATION OF THE RESULTS OF CLINICAL RESEARCH

MODERATOR – NANCY SUNG

STEPHEN KATZ, M.D., Ph.D., is Director of the National Institute of Arthritis and Musculoskeletal and Skin Diseases at the National Institutes of Health and also serves as chief of the Dermatology Branch of the National Cancer Institute. He received his undergraduate degree from the University of Maryland, his MD from Tulane Medical School, and a Ph.D. in immunology from the University of London. He has previously served as the Marion B. Sulzberger Professor of Dermatology at the Uniformed Services University of the Health Sciences. Dr. Katz is the President of both the International League of Dermatological Societies and the International Committee of Dermatology. As a Dermatologist/Immunologist, he has contributed to our basic and clinical knowledge about skin and skin diseases. He is a member of the IOM.

JOHN W. WALSH was diagnosed with Alpha-1 Antitrypsin Deficiency (Alpha-1) in 1989. He has dedicated his life's work to promoting research and finding a cure for the disorder. In 1995 he established the Alpha-1 Foundation, a not-for-profit corporation dedicated to providing the leadership and resources to increase research, improve health, promote worldwide detection, and find a cure for Alpha-1. In addition, he is co-founder of AlphaNet, a not-for-profit disease management company specializing exclusively on Alpha-1, where he serves as Chairman and President. Walsh serves as an active member of various voluntary health agency committees and governmental advisory committees. He has been reappointed by the Secretary of Health and Human Services to serve a second term on the Advisory Committee on Blood Safety and Availability. He serves on the American Thoracic Society Public Advisory Roundtable,

the National Heart Lung and Blood Institute Public Information Council, is on the Board of Directors of Primary Immune Services, Inc., and is co-founder of the Plasma Users Coalition.

BARRY W. WOLCOTT, M.D., serves as Senior Vice President, Senior Medical Editor, Portal Services at WebMD Corporation, employing his experience developing and integrating patient-focused decision support systems. In January 2000, he joined CareInsite (which merged with WebMD in September 2000). Prior to joining WebMD, he was Chief Medical Officer at Access Health. Dr. Wolcott served as associate professor and the first chairman of the Department of Operational and Emergency Medicine at the F. Edward Hebert School of Medicine in Washington, DC from 1982 to 1993. Today, he continues his academic appointment at the F. Edward Hebert School of Medicine and has clinical privileges at the Naval National Medical Center in Bethesda, Maryland. Dr. Wolcott graduated from Johns Hopkins University School of Medicine in 1970 and completed his Internal Medicine residency at Walter Reed Army Medical Center in Washington, D.C.

Appendix C

Background for CRR Workshop: Exploring New Models for Engaging the Public in the Clinical Research Enterprise

PARTICIPANT-CENTERED CLINICAL RESEARCH: MODEL COLLABORATIONS AMONG COMMUNITY/ DISEASE ADVOCATES, RESEARCHERS, AND SPONSORS

The ultimate goal of clinical research is to positively affect the health of people, and those who participate in human studies are the cornerstone of the clinical research enterprise. However, the perspectives of participants have not generally been incorporated into formulating the research agenda and carrying it out; the public, including research participants, have often been seen as passive recipients of research results. This approach has led to problems in the application of research findings in the general public.

However, research participants have begun to take a greater part in the research process, from formulation of research priorities to the ethical review of research proposals to the dissemination of research results. These developments are nascent and the inclusion of participants in the traditional research model is not without problems, but if the clinical research enterprise stakeholders wish to gain the trust of skeptical populations, retain participants, address the issues of most importance to particular communities, and disseminate their results among the populations affected by the research, they must engage participants at many stages of the research process.

The Department of Defense Congressionally Directed Medical Research Programs were among the first to involve consumers in the evaluation of funding decisions for research. Since 1995, these DoD programs have included the perspective of consumers who are survivors of the particular cancer being studied (e.g., breast cancer) or their family members. Consumer reviewers are expected to represent the perspective of those affected by the disease and to ensure that the projects reflect the needs and concerns of the affected community. They are full voting members of the review panel; they can comment on the technical merits of proposals, but are not required to fulfill a scientific role. According to DoD assessments, the program has been successful—consumer reviewers feel that they have made valuable contributions to the reviews and that scientists on their panels have shown them respect and acceptance; scientists have indicated that the community presence on the panels has served as a reminder of the human aspect of disease and has enhanced communication to gain a mutual understanding.

It is important to note that the definition of participants is not limited to those directly taking part in research—researchers must also engage academic and practice communities, research advocacy groups, public health officials, and similar groups in order to ensure that their research is relevant and its results are useful. For example, clinicians must be engaged in the application of "best practices" developed through research.

Other terms for Participant Centered Clinical Research include "Community Based Participatory Clinical Research," "Community Based Research," "Participatory Research," "Participatory Action Research," "Action Research," "Empowerment Evaluation."

Selected Model Programs of Participant-Centered Clinical Research:

Department of Defense Congressionally Directed Medical Research Programs
http://cdmrp.army.mil/CWG/default.htm

Project LEAD (National Breast Cancer Coalition—this is a *training* program to aid public participation in the research process)
http://www.natlbcc.org/bin/index.htm

The Detroit Community-Academic Urban Research Center
http://www.sph.umich.edu/urc/

Prevention Research Centers (Centers for Disease Control and Prevention)
http://www.cdc.gov/nccdphp/aag/aag_prc.htm

Community Programs for Clinical Research on AIDS (NIH)
http://www.cpcra.org/
HIV Vaccine Trials Network (NIH)
http://www.hvtn.org/
Women's Interagency HIV Study (NIH)
https://statepiaps.jhsph.edu/wihs/
Community Advisory Boards (various components of NIH, no single website)

Selected References

Andejeski Y, et al. 2002. Benefits and Drawbacks of Including Consumer Reviewers in the Scientific Merit Review of Breast Cancer Research. *Journal of Women's Health and Gender-Based Medicine* 11(2):119–136.

Bastian H. 1994. *The Power of Sharing Knowledge: Consumer Participation in the Cochrane Collaboration*. http://www.cochraneconsumer.com/p_Involve.asp.

Department of Defense. *Department of Defense Congressionally Directed Medical Research Programs: Consumer Involvement*. http://cdmrp.army.mil/CWG/default.htm.

Dresser R. 2001. *When Science Offers Salvation: Patient Advocacy and Research Ethics*. New York, NY: Oxford University Press.

Israel BA, et al. 2001. The Detroit Community-Academic Urban Research Center: Development, Implementation, and Evaluation. *Journal of Public Health Management and Practice* 7(5):1–19.

Green LW and Mercer SL. 2001. Can Public Health Researchers and Agencies Reconcile the Push from Funding Bodies and the Pull from Communities? *American Journal of Public Health* 91:1926–1929.

Rich IM, et al. 1998. Perspectives from the Department of Defense Breast Cancer Research Program. *Breast Disease* 10(5–6):33-45.

Wakefield S, et al. 2002. *Models of Community Participation in NIH-Funded HIV-Research Networks*. Presentation at the September 19, 2002 U.S. Conference on AIDS.

INCREASING THE ROLE OF THE PUBLIC IN RESEARCH OVERSIGHT

As outlined above, research participants are essential to carry out clinical research and also have a role in promulgating research results. In addition, they have a role to play in reviewing research to ensure that it is ethical by the standards of potential participants, to offer a view from outside the traditional scientific mold.

The regulations governing human research in the United States require that Institutional Review Boards (IRBs) have at least one "non-scientific" member and at least one member not affiliated with the institution; their role as public members is to ensure that the ethical review of research proposals is not dominated solely by scientific professionals. Their participation in research review is essential to foster transparency to promote public trust, ensure that research is consistent with participant community values, and make sure the protection system is accountable.

However, recruiting and training participant representatives for IRBs is not always easy. While public members and consumer representatives that serve on health care licensing and similar boards are trained and supported by the Citizen Advocacy Center, there is no similar non-disease-specific group to serve this role for IRBs. Among advocacy groups , the National Alliance for the Mentally Ill offers a training guide for consumers to serve on IRBs, but this guide is the exception rather than the rule.

When public members can be identified, trained, and recruited, there is still potential that they may have difficulty in fully participating. The needs of public members may differ from those of other members, for example, meeting after normal work hours, assistance in translation and understanding of scientific issues, and other issues.

Selected References

Bastian H. 1994. *The Power of Sharing Knowledge: Consumer Participation in the Cochrane Collaboration*. http://www.cochraneconsumer.com/p_Involve.asp.

Citizen Advocacy Center. 2002. *About CAC*. http://www.cacenter.org/about.htm.

Dresser R. 2001. *When Science Offers Salvation: Patient Advocacy and Research Ethics*. New York, NY: Oxford University Press.

IOM. 2003. *Responsible Research: A Systems Approach to Protecting Research Participants*. Washington, DC: The National Academies Press.

National Alliance for the Mentally Ill. 2001. *Serving on a Research Review Board*. http://www.nami.org/research/reviewboard.html.

STEPS TO IMPROVE THE TRANSLATION AND DISSEMINATION OF THE RESULTS OF CLINICAL RESEARCH

One of the major issues blocking the application of basic scientific discoveries and the results of clinical trials to improve human health is the lack of planned dissemination and translation of clinical research results. If the results of clinical research are not shared and translated, people will not benefit from the new knowledge produced by that research and vetted clinical results will not be applied in practice.

While "best practices" and similar research are often targeted at practicing doctors and similar professionals, communication with the general public is also important to improve the nation's health. If a person has arthritis, for example, she will want to know what her options are for treatment. Perhaps she has heard that glucosamine works to

alleviate symptoms. How can she check this information for accuracy? Will she be able to understand trial results that are not communicated in nonscientific language? If she finds contradictory information, how can she determine which treatment options may be right for her? With the growing popularity of the Internet, how does she know which information is valid? If the research reflects "real world" considerations, its findings are more likely to have an impact on the health of the public.

A website developed by the Department of Health and Human Services and other federal agencies (www.healthfinder.gov), has a search engine and other features that link the user to reputable websites for more information. Additionally, other privately operated websites such as webmd.com provide health information and tools for users. The information is presented in nonscientific language and the sites are relatively easy to use. Often, however, individuals rely on press accounts that can be contradictory (i.e., the plethora of articles about what *really* makes people fat, whether mammography is effective, whether hormone replacement therapy is harmful or helpful) and are often too short to provide the full context of findings and their implications in relation to other trials.

Clinical research results and their meanings in the context of current knowledge must be communicated in order to be effective. For this to occur, the scientists who generated the results should be more involved in the translation and interpretation of those results for a broad audience. Likewise, members of the public should contribute to the translation and dissemination of research results, as well as the interpretation of the implications of new findings. It is important to note that this will require time and resources for the activities that aid translation and dissemination.

Selected References

Majumdar SR, Chang WC, Armstrong PW. 2002. Do the investigative sites that take part in a positive clinical trial translate the evidence into practice? *American Journal of Medicine* 113(2):140-145.

Lau F and Herbert M. 2001. The realities of synthesizing and disseminating research evidence. *Healthcare Management Forum* 14(4):35-43.

Wilkes MS. 1997. The public dissemination of medical research: problems and solutions. *Journal of Health Communication*. 2(1):3-15; discussion 61-62.

Appendix D

Voluntary Health Agencies and the Clinical Research Enterprise: Exploratory Focus Groups

BACKGROUND AND PURPOSE

It is estimated that in the next 5 years there will be a 6-fold increased need for study participants in clinical research. Understanding how stakeholder and participant groups, such as Voluntary Health Agencies (VHAs), fit into the Clinical Research Enterprise (CRE)—and might better fit into it in the future—is thus more important than ever. To do that effectively, the Institute of Medicine (IOM) contracted with Balch Associates to conduct exploratory focus group research on current perceptions, practices, barriers, benefits, enablers, and needs of VHAs in the CRE, and on ways to improve this role and the CRE. George I. Balch, Ph.D., presented the findings of this report to the Clinical Research Roundtable in December 2001.

METHOD

We conducted a total of four nationwide computer-assisted telephone (CAT) focus groups (see Appendix A) with 29 VHA personnel in 20 VHAs that are members of the National Health Council (NHC) and one VHA that was not a member. These were VHAs that were willing and able to participate in the study in response to inquiries from the NHC. Appendix B lists the VHAs in the study.

These VHAs represent a variety of common and rare diseases and conditions, including genetic diseases, autoimmune diseases with no known cause, birth defects, and mental illnesses. Of the 21 VHAs that participated 43 percent were membership organizations and 85 percent fund clinical research, with support ranging from $20,000 per year to $119.4 million per year.

The first focus group was composed mainly of Top Management. The remaining three groups were composed of people who play roles related to clinical research, such as program directors, science and research directors, and directors of patient education and services. In addition, two in-depth interviews were conducted with science and research directors of two other national non-profit organizations that are stakeholders in the clinical research enterprise: Paralyzed Veterans of America and the Society for Women's Health Research..

All focus groups and interviews followed a discussion guide (Appendix C) developed by Balch Associates with input from IOM. Focus group sessions were observed by a staff member of IOM and audio taped (with participants' consent) and transcribed for the sole purpose of writing reports. This report is based on analysis of those transcripts.

> **Note:** Qualitative research of this sort provides rich data that are most useful in exploring and understanding what and how people think, feel, and behave. While instructive and suggestive for the development of hypotheses, ideas, strategy, and future research, the findings are not statistically projectable to any population of individuals or organizations. Where findings are similar across groups—as they often are in this study—confidence in the findings is enhanced.

KEY FINDINGS

Benefits of Clinical Research

All participants noted important benefits of clinical research. In view of their willingness to participate in a study about the CRE, one would expect as much. Participants noted benefits to their constituents—those who have or might develop the disease or condition that their organization deals with—and benefits to their organization.

Participants expect clinical research to benefit their constituents, ultimately, by producing effective treatments, delay of onset, prevention, and cure for the disease/condition. More proximal benefits of clinical research include:

- Better treatments;
- Better care for improved quality of life;
- Helping some qualify for insurance benefits and direct care they might not be able to get otherwise;
- Providing care for those for whom clinical trials are the standard of care (e.g., kidney cancer patients);
- Providing improved management of the disease/condition;
- Helping to make treatment available to those who are not now treated (as with many mental health problems);
- A sense of hope;
- FDA approval for treatments that are now used "off-line" for the disease and not covered by health insurance;
- Early diagnosis of some diseases; and
- Identifying more of the people who have a rare disease.

They consider research fundamentally beneficial to the success of their agencies' efforts to achieve their missions. These organizations benefit from research through:

- Supporting advocacy for various issues, such as raising public awareness about the disease/condition, raising public awareness of need for community services (support in schools, transportation for disabled), raising public and private funding for research and treatment, and removing barriers to patient access to clinical trials;
- Providing the basis for education of patients and physicians;
- Showing their organization's accountability—through clinical breakthroughs;
- Supporting the credibility of the agency;
- Encouraging fund raising, a strong appeal to donors;
- Keeping pharmaceutical companies in touch with rare patient populations ;
- Helping the VHA to identify and convene researchers to focus on their specific problems; and
- Identifying new patients/constituents when doctors inform the agency of their involvement in a clinical study.

While clinical research is important to all of them, their interests go beyond clinical research. Most commonly their other priorities are *education* (of physicians, patients, and the public) and *advocacy*. Some agencies also place high priority on direct patient assistance to improve quality of life, such as direct care, support groups, and financial resources.

Moreover, clinical research is not the only kind of research they consider important. Some find it difficult to separate "basic" and "clinical" research, on the grounds that research that contributes to understanding the disease process can be based on animals or on humans. Some consider research that translates basic and clinical research into applications that doctors and patients can and do use (such as using the latest treatments, following recommendations for self-monitoring, respectively) equally important. And some have particular interest in health policy and health services research.

Kinds of Involvement in Clinical Research

These agencies are involved in a remarkable variety of efforts related to clinical research, often creative and invariably tailored to their respective missions, needs, and capabilities. In addition to direct efforts such as funding and, to a lesser extent, conducting clinical research, VHAs have found numerous unique ways to *influence* clinical research. These efforts particularly tap their ingenuity, flexibility, and special resources to encourage and enhance clinical research in the interests of their missions. They collaborate, convene, consult with other entities in the clinical enterprise; attract and support researchers, educate clinicians, patients, and the public; and recruit patients to clinical research studies.

Funding, Conducting, and Attracting Research (and Researchers)

Funding and conducting clinical research are the most direct and obvious ways in which VHAs are involved. The largest agencies fund or co-fund major clinical trials. Some of the smaller, "niche" or orphan disease agencies provide a small number of small research grants to researchers. Some of the newest and smallest agencies fund no research at this time.

Of course, VHAs are not the main source of funds for clinical research. Even the largest organizations may not be principal funders of large clinical trials. They may provide "complementary" dollars, such as bridge grants.

Many VHAs tend not to fund clinical research trials because of the large cost involved and, for many, the need and ability to have greater impact in more innovative or basic ways. For example, as will be discussed further below, they do so by funding new research and researchers to attract them and their research into their own disease area. Few of these VHAs actually *conduct* research themselves, as distinguished from funding it.

One of the major barriers and opportunities VHAs see to funding high quality research is *attracting high quality researchers* into their field. Even the largest research funders, such as the American Cancer Society (more than $100M/year), feel that they lack the funds to compete directly for researchers with the massive funding offered by private industry, NIH, and foundations (more than $6B-$7B/year). They see a large and growing shortage of physician scientists.

Many fund beginning researchers, in order to encourage them to enter research, to conduct research in their field, and to build up their work to the point where they can secure

funding from NIH. They provide funds to help beginning researchers, particularly physicians, overcome the great obstacles that they face in entering and remaining in a career in clinical research. These obstacles include the need to pay off education loans from medical school, the need to get research training, and the need for enough protected time to produce research results that enable them to compete effectively in "the larger environment" for greater funding. These VHAs tailor their grants to address these obstacles.

Collaborating and Consulting/Advocating with Other CRE Entities

Collaborating with other CRE entities is a major way in which VHAs leverage their expertise, their commitment, and their resources. Several collaborate with NIH in various ways. Some also collaborate with the pharmaceutical industry, biotechnology companies, and the FDA. They do so to educate, stimulate and enable these organizations to conduct research in their field, as well as to identify and address specific problems in the disease, treatment, research design, and approval process. VHAs have, for example:

- Developed and funded a "clinical trials network" of academic and industry partners for phase 1 and 2 research, together with the VHA's "care network" to access patients.
- Invited biotechnology and pharmaceutical companies to join a VHA "Industry Liaison Council" to interest the pharmaceuticals in their disease, provide peer coaching to help biotechnology companies navigate the difficult FDA approval process, work with insurance companies to change the reimbursement process for clinical research, develop educational materials for constituents, and provide a patient population for research.
- Created a liaison group endorsed by NIH that includes several of its Institutes, FDA, biotechnology companies, pharmaceutical companies, and their own medical and scientific leadership, as well as one or two consumers. They confer quarterly to discuss issues of clinical trial design and identify areas that industry could not discuss amongst themselves (because of competitive secrecy and federal regulation). The resulting cross-fertilization is used to develop focused workshops designed to resolve issues and develop consensus. They have also designed clinical trials together.
- Used their patient registry to enroll patients for clinical trials conducted by industry.
- Has clinical trials reviewed by the VHA's standing ELSI committee before committing patients from their registry.
- Worked with multiple institutes at NIH to establish criteria by which to offer investigators whose meritorious proposals fell below the pay line competitive bridge grant opportunities to improve their research and re-apply to NIH; some 80 percent of their grantees have succeeded with full grants of $20M-$22M that would not have otherwise been made.
- Convened regularly international research conferences among leading researchers to inform one another and VHA constituents of current research activity; and
- Convened industry and physicians who are interested in pre-clinical and clinical trials to encourage combination therapy and encourage communication and encourage more clinical trials.

VHAs also influence other CRE entities through consultation and advocacy on issues and policies. For example, VHAs have:

- Developed a data safety monitoring board, including outside experts and experts on research and care in a disease, that has been helpful in identifying and monitoring the patient's safety; they have brought their work before Congress;
- Influenced standards for clinical trial protocols in a particular disease about what happens to patients at the end of the trial, e.g., patients are informed of the results of the trial, are usually told what their particular status was in the trial, are rolled over into therapy;
- Advocated successfully for more/particular kinds of research and guidelines for protection of patients in research; and
- Had a major role in setting and monitoring compliance with new FDA and NIH guidelines on inclusion of women in federally funded research.

Recruiting or Informing Patients About the Availability of Clinical Trials

Many VHAs both inform patients about the availability of clinical trials and recruit patients to trials. Many do not.

Why and What They Do or Do Not Recruit

Those who recruit do it because of patient demand for better treatment than otherwise available to them, as well as to learn more about the disorder. Many do not recruit patients at all, and provide only links to websites and advise patients to participate at their own discretion. They are concerned primarily with the responsibility and potential liability of connecting people to trials whose safety they have not been able to assure or control.

Those that recruit patients select the trials in a variety of ways in order to address this concern. Most will refer to NIH trials, some exclusively so. Many agree that neither industry nor NIH makes it easy for their VHAs to be informed and to disseminate information. They would like speakers and written education materials in lay terms; finding, translating, and disseminating the information makes great demands of their limited time, money, and labor.

Some recruit only for trials whose researchers or research centers they support or whose protocols they have reviewed. Others also rely on third party sources of indepen-

dently reviewed trials (e.g., Center Watch and Hopelink). They are particularly leery of industry sponsored trials without independent review.

Several operate registries—databases of patients who have expressed interest in participating in clinical trials, and may have even provided blood or other samples. Researchers can then apply to the registry to use the patients or material to conduct studies. The VHAs review the protocols as a condition of granting access to the registry, and may enroll the patients directly, providing a buffer from the companies and researchers that wish access to them.

A related ethical policy concern is the reported absence of guidelines for genetic registries among small, new VHAs. These VHAs are not aware of the specific needs and techniques for protection of confidentiality of these sensitive data. The National Organization of Rare Disorders, the Genetic Alliance, and the National Health Council provide such information to members. The small, new VHAs are unlikely to be aware of these organizations.

Information Vehicles

Nearly all of the VHAs represented in our focus groups provide information about clinical trials, both about results of trials and about ongoing trials. They use newsletters, their website, and chatrooms, call centers to respond to questions, patient magazines, and even (for the American Diabetes Association) a monthly magazine on newsstands that has a monthly circulation of 100,000. They use their local chapters to put on health fairs and hold community forums. Usually, these vehicles are available to non-members as well as members. Some recruit for clinical trials through their local chapters, through the sites that they fund, and, as previously mentioned, through their registries.

Some VHAs also inform professionals (physicians and investigators) through publication in journals, magazines scientific meetings that they convene. They do this so that these professionals will distribute the information to their patients and publics.

Some VHAs reach out to minorities: translate materials into Spanish, place stories in women's magazines (for example, multiple sclerosis is more common among women). Several engage in outreach directly to communities, for example, via grass roots efforts with Native American tribes and with African American and Hispanic church-based programs. Some do so indirectly, through collaboration with minority health professional organizations, such as the National Black Nurses Association and the National Hispanic Medical Association.

Barriers to VHAs Getting Information and Some Ways They Cope

All VHAs have great difficulty finding out and keeping updated about the full range of clinical trials available, especially because of the reluctance of pharmaceutical companies and individual investigators and institutions to part with the information. They find it hard to get relevant information about research that is ongoing or even about research that is completed. They see no comprehensive, up-to-date source of information about trials. All agree that there is no single comprehensive, up-to-date source of independently reviewed clinical trials. They would love to see a comprehensive, up-to-date database on clinical trials, such as the national clinical trials database that they had expected to be in place some time ago. Competitive commercial and publication pressures keep researchers and research organizations (both commercial and governmental) from sharing until they have been published. And, some believe, some of these organizations either do not think of sharing information with VHAs very early or often, if at all, even when the information is not in usable form for VHAs to pass on to their lay constituents. (They also note that some of the government organizations are reluctant to include VHA supported clinical trials on their websites.)

In addition to the difficulties of getting, sharing, digesting, and translating existing information, several VHAs are frustrated by the lack of basic information collected about their disease, such as prevalence, co-morbidities, and basic disease management needs, as well as information about the substantial indirect costs of the disease to society. Some VHAs with rare disorders have great difficulty identifying patients, since there are no professionally recognized and distributed standards for detection of their disease to inform physicians of what to look for. These VHAs believe that the lack of this information is a disadvantage for public funding for research and services for these diseases.

The *timeliness* of the information that they get is sometimes another barrier to their effectiveness. Several find themselves uncomfortably surprised when a reporter or a constituent calls them for comment about research reported in the mass media. Among medical research journals that get substantial mass media coverage, only JAMA provides electronic alert a week in advance of publication to those who register for their e-alert list. Some VHAs rely on a web-based service that delivers mass media stories by science and health writers.

Two factors—both related to their own efforts and resources—help some VHAs to get access to relevant, timely information about clinical studies: the networks and the registries that they have built and maintained. VHAs that have committed substantial time, energy, and resources to develop and maintain contact networks with researchers, companies, and government agencies have found those efforts necessary and the results rewarding. This is a major source of their best, most timely information. It does not come easily, especially for VHAs that address rare, non-commercially-promising disorders.

For VHAs with a disorder that has commercial promise and that "own" a patient base in the form of a registry, re-

searchers inevitably come to them to recruit patients for trials. Because of this ownership, they also get early needed information about the trials for dissemination to patients and physicians.

Information Gaps for Patients

Despite their best efforts to inform, VHAs often find substantial information gaps and misconceptions in the minds of their patient publics. Some of these gaps and misconceptions result from "media hype" about the promises and risks of clinical trials, and some of them result from the desperation of those in need of treatment. Several participants would welcome a general public education campaign about clinical trials to raise awareness, dispel common misconceptions, and immunize against "media hype."

These VHA representatives find that patients need help in recognizing that:

- Not all clinical trials result in proven therapies
- Some research requires a placebo control arm
- Clinical trials have high quality of care and preparation, and are not "guinea pig" treatment.

Patients also need to be informed of the results of the trial in which they participate, which apparently does not always happen. They often need more help than is provided in understanding the informed consent process, so they have overlooked neither real risks nor benefits and have a realistic sense of the ratio.

Barriers to Patient Participation in Clinical Trials

These VHAs often found their efforts to recruit patients to clinical trials thwarted by a variety of important barriers that many are engaged in advocacy to relieve:

- Availability of trials for some disorders that are less commercially appealing;
- Availability of trials for some groups for whom it is hard to design or deliver ethical trials, such as children, people over 72 years old, people who live far from tertiary health care institutions;
- Insurance coverage of the ancillary costs for clinicians, such as costs of enrolling patients, time needed to discuss participation in trials, and time needed to administer some treatments;
- Patient concerns about trust in the system, such as fears of discrimination based on information about their genes;
- Non-responsiveness of the CRE to outcomes that patients and some VHAs value, such as ability to function with the disorder (instead of "symptom reduction" or more distal outcomes);
- Perceived inadequacy of health surveillance of patients in trials so one could "jump in early";
- Clinician reluctance to refer patients to clinical trials (and, in some cases, reluctance to apply the latest tested treatments).

Some VHAs are also concerned that more trials might be designed for the welfare of patients. For example:

- Fund some more innovative research, rather than. spreading the money around universities and relying exclusively on the inherently conservative peer review process;
- More trials with closer end points so that fewer recruits are needed and results can come earlier; and
- More research on the realities of those who live with the medical conditions, such as research on how to manage flaccid bladders for people with spinal injuries and research on the cost-effectiveness of power wheelchairs (to avoid rotator cuff problems) vs. manual wheelchairs.

APPENDIX A: COMPUTER ASSISTED TELEPHONE (CAT) FOCUS GROUPS[1]

Telephone focus groups have been in use for over 30 years, and have been enhanced by computer technology invented in the past five years. Organizations are increasingly finding it valuable for reaching people from all over the United States (and even internationally), going beyond the usual less-than-a-handful of large cities to represent many locations and kinds of participants that could not otherwise be considered. It is especially useful where participants are geographically dispersed, relatively rare, reluctant or unable to travel to a central facility, or in need of anonymity.

People participate from the comfort of their home, office, or other private place where they have access to a phone. This permits people to participate with equal ease across locations. Participants may also feel more candid than in face-to-face groups because there is less opportunity for facial "intimidation." All are equal on the phone. There are fewer distractions, less silence, less formality and posturing, and a greater sense of privacy.

Everyone can hear everyone else very clearly. Because everything is said directly into their ears, participants are all psychologically closer than in face-to-face groups. No side conversations are possible. Interaction starts fast and is often more natural and intense than in face-to-face groups. The fact that participants cannot see each other is not unusual or problematic. People use the phone to communicate all the time. Participants use complete sentences and nonverbal remarks, like "uh-huh" to substitute for the nonverbal head

[1] For further detail, see Silverman, George (1996) *Introduction to Telephone Focus Groups*. www.mnav.com/phonefoc.htm. Orangeburg, NY: Market Navigation, Inc.

nods. They are encouraged to "chorus" their agreement or disagreement. Pauses become much more obvious and meaningful. Many other nonverbal auditory cues supplement the conversation, such as participants using their name each time they speak. Products, concepts, ads, and other "hands-on" materials can be sent in advance and experienced in the privacy of participants' home or office—either during the session or before it.

The computer technology provides several unique advantages, such as: (1) the moderator can identify who is talking—on a computer screen; (2) client observers can call in from anywhere and listen without being heard and can even pass notes to the moderator (on the moderator's computer screen)[2] without interrupting the group session; (3) participants can be separated into subgroups (separate lines) while the moderator travels between them and then reunites them; (4) groups can be polled anonymously on specific issues—and results printed out.

Compared to face-to-face focus groups, telephone focus groups are more representative, easier to recruit, can be set up more quickly, and eliminate the costs, time, and inconvenience of travel for client observers as well as for participants. They permit involvement across more clients as well as participants.

APPENDIX B: VHAS IN FOCUS GROUP STUDY

- Alpha-1 Foundation
- Alzheimer's Association
- American Cancer Society
- American Diabetes Association
- American Kidney Fund
- Amyotrophic Lateral Sclerosis Association
- Asthma & Allergy Foundation of America
- Epilepsy Foundation
- The Foundation Fighting Blindness
- Kidney Cancer Association
- The Leukemia and Lymphoma Society
- The National Pemphigus Foundation
- Lupus Foundation of America
- March of Dimes Birth Defects Foundation
- Myasthenia Gravis Foundation
- National Down Syndrome Society
- National Mental Health Association
- National Multiple Sclerosis Society
- National Sleep Foundation
- Sturge-Weber Foundation
- Cystic Fibrosis Foundation (VHA not a member of National Health Council)

[2] Observers need no computer to do this; they use their telephone touchpad to contact a technical assistant who transmits the note.

APPENDIX C: DISCUSSION GUIDE FOR VOLUNTARY HEALTH AGENCY/ CLINICAL RESEARCH ENTERPRISE

Objectives: to explore current perceptions, practices, barriers, benefits, enablers, and needs of VHAs in the clinical research enterprise in order to identify realistic ways to improve this role and the clinical research enterprise.

Introduction (5-10 minutes)

Telephone Introduction

- Welcome, thanks for participating
- Introduce topic, moderator, participants—first name, VHA, part of country
- Describe process

Benefits (10-15 minutes)

- What benefits, if any, do your VHAs expect from clinical research for members?
  - For the VHA?
- In what ways are these benefits important to your VHAs?
- What's more important to them than clinical research? Less?

Current Clinical Research Involvement & General Perceptions (30 minutes)

- Let's think first about how, if at all, your VHAs now get involved in clinical research:
  - Informing members, conducting, funding, overseeing research, recruiting participants?
  - What kinds of research? (clinical trials, epidemiological, satisfaction…?)
  - Thinking about all of the things that you now do related to clinical research, what makes it hard to have a more effective role?
  - What helps make it happen?
  - What MIGHT help? Which component(s) of the CRE would do that? What contributions might VHAs themselves make?
  - Are there any other ways in which you think your VHAs could and should be involved in the CRE? What is the IDEAL role that you might have?
  - What, if anything, keeps your VHA from doing some of the things you might want to do about clinical research?

Specific Roles, Practices, Barriers, Enablers, Needs/Wants (20 minutes)

- Now let's look at some of these in more depth, starting with information:
  - What information do you provide members? (specific information about available research, results, just a link, …?) Why that?

- How do you get the information? (PROBE: specific sources, channels, …)
- How do you get the information to members? (PROBE: materials, messages, and channels)
- How, if it all, do you reach non-members? Minorities?
- How well do your members understand clinical research? (What do they need to know? What's missing?)
- What additional information would help? (on results, on how to find trials, on how to volunteer, …) What specific tools would you need to provide that information?

Recruitment of participants

- Why do you do/not do it? (PROBE: perceived need for members and VHA, barriers)
- How? (PROBE: materials, messages, and channels)
- What barriers to recruitment do you encounter? (PROBE: internal, external)
- What helps you overcome these barriers? What specific tools might help even more?

Planning the Next Three Groups (10 minutes)

- As you know, we will be conducting three focus groups with non-CEOs to understand more about the detailed processes that they do or might implement about clinical research. We need your help in planning these.
  - What kinds of positions or roles in VHAs are most likely to have this kind of information? (PROBE: patient education, call center, national programs, ...)
  - How can we best divide the various groups so that they can discuss these topics most comfortably with one another? (PROBE: volume of gross revenue, relative proportion of minorities who have the disease, role-specific divisions [which?], …?)

Check Observers for Questions While Participants Consider:

- Of all the things we've considered [REVIEW LIST], which factor makes it hardest for you and which factor makes it easiest?

Wrap-up (5 minutes)

- Anything else we should know about ways to improve the CRE for VHAs and ways that VHAs can improve the CRE?

THANK PARTICIPANTS

APPENDIX D: SUMMARY OF VOLUNTARY HEALTH AGENCY WEBSITES SURVEY

Overview of VHAs included:

- 49 Voluntary Health Agencies, all members of the National Health Council.
- Research, advocacy and education were the common goals.
- 51 percent (25) are membership organizations.

Scope of Activities to Support research

- 88 percent (43) fund research.
- 82 percent (40) fund clinical research.
- 76 percent (37) fund other types of research.
- 8 percent (4) conduct clinical research.
- Many also indicated that part of their role was to advocate for additional funding, matching funds or bridge grants from government or other organizations (biotechnology and pharmaceutical companies).

Types of Research Funding

- 82 percent (40) fund grants (seed grants, matching grants, large grants).
- 49 percent (24) fund fellowships (in addition to fellowship funding there were career development programs, scholarships for different disciplines, investigator awards).
- 26 percent (13) have professional medical/scientific advisory or peer review committees.
- 25 percent (12) fund a patient data registry (some are fully funded by the VHA, some are in cooperation with other organizations, some are part of a research study and therefore there may be registries that exist that where not identified as part of this survey).
- 12 percent (6) support institutional research or consortiums.

Clinical Trials

- 69 percent (34) provide links to clinical trials or trial database.
- 49 percent (24) list on website specific clinical trials with recruitment information.
- Most sites offer a disclaimer to information posted and encourage discussion with individual practitioner or trial site.
- Many VHAs have educational information about clinical trials: what they are, types, what they should know before they choose to participate, informed consent, cost, and ability to withdraw.

Education

- 92 percent (45) communicate with members and/or interested people who have requested information via newsletters, magazines or updates (e-mail and hard copy). Some organizations have separate periodicals for professionals. Some publications were listed as appropriate for both public and professional.
- 69 percent (34) have professional conferences (some are research symposiums, some educational).
- 67 percent (33) have conference for public regarding current findings.
- Education was generally listed as a goal or part of the mission statement with a dedicated budget. Some of the education activities are through the local chapters. The public education campaigns included help lines (86 percent), fundraisers, booths at health fairs, educational programs, resource centers, printed and web information. Many also used the print media to educate the public. A few of the larger, well established VHAs also had PSAs for radio and TV (occasionally with celebrity endorsement).
- 59 percent (29) VHAs have local chapters or affiliates where public education offered to communities or regions. It was not always clear if or how much financial support the local affiliates received from the national organization.

Outreach to Minorities

- Not always apparent on the national VHA website.
- 63 percent (31) had Spanish language information or links. Many offered links to other foreign language information.
- Review of several local chapters or affiliates indicated that cultural diversity and minority outreach was often addressed through the local chapter and was specific to their communities. (However, many local affiliates do not have websites and it is difficult to determine the extent of their outreach to minorities.)

TABLE D.1 Website Survey of Selected Voluntary Health Agencies, *follows*

TABLE D.1 Website Survey of Selected Voluntary Health Agencies

Voluntary Health Agency	Research funded $$	Do they fund *clinical* research?	Do they fund *non-clinical*?	Do they conduct research?	Kinds of clinical research activities?	Recruitment info on specific clinical trials?
TOTAL (49)	**88% (43)**	**82% (40)**	**76% (37)**	**8% (4)**	**Grants 82% (40)** **Fellowship 49% (24)** **Pt. Registry 25% (12)**	**49% (24)**
Alpha-1 Foundation * (genetic disease-Antitrypsin deficiency is a lack of blood proteins that protect tissue in lungs from being destroyed by enzymes released by own white blood cells)	$1.8 M Y2000 > $7 M since 1995	Yes (also have consumer participation in clinical trial design)	Yes	Yes (At University of FL Gainesville)	-Registry + online consent -Tissue + DNA bank -Grants -Medical + scientific advisory committee -Clinical resource centers -Fellowships -Alpha –1 Research Network -Conferences	Yes
Alzheimer's Association *	$19.3 M Y2000 >$100 M since 1980	Yes	Yes	No	Grants Conferences	Yes
American Autoimmune Related Diseases Association	$106,412 Y2000	No	Yes	No	Most research is disease-specific and not done through AARDA	No
American Cancer Society *	$119.4 M Y2000 $2.3 billion since 1946	Yes	Yes	Yes (Ca prevention studies)	Grants,Fellowships, Professorship, Masters and Doctoral programs for SWs, RNs	Yes (for Ca prevention studies)
American Diabetes Association *	$31.6 M Y2000 >$175 M since 1940	Yes	Yes	No	Grants, Physician-scientist training, Medical scholarships, Conferences	No
American Foundation for AIDS Research	$175 M since 1985	Yes	Yes	Unclear—think not	Grants, Peer Review, Scientific Advisory, Fellowships	Yes
American Heart Association	$133.6 M Y2000 > $1.9 B since 1949	Yes	Yes	No	Grants Pre and Postdoctoral Fellowships, Physician-Scientist Fellowship Research Review Program	No
American Kidney Fund *	$96,825 Y2000	Unknown	Unknown	No	Clinical Scientist Fellowship	No

Links to open clinical trial recruitment?	Clinical research info for public?	Clinical research results for pros?	How do they do public education?	Membership organization?	E-mail/listserv newsletter/magazine?	Effort to reach minorities
69% (34)	**88% (43)**	**65% (32)**	**Local chapter 59% Help line 86%**	**51% (25)**	**92% (45)**	**Spanish language info 63% (31)**
Yes	Yes	Yes. Medical/ research extranet, Conferences	Regional education days	No	Yes	Foreign language info links
Yes	Yes	Yes	Local chapters, media	No	Yes	Race specific studies, Foreign language info
Yes	Yes	Yes	Disease-specific organizations, Media, Celebrity spokes-person	No	Yes	Gender specific studies
Yes	Yes	Yes	Local chapters	No	Yes	Race specific studies, Foreign language info
Yes	Yes	Yes	Local chapters	Membership for public and pros	Yes	Community based diversity programs Church, Tribes
Yes	Yes	Yes	Unknown	No	Yes	Race and gender specific info on web
Yes	Yes	Yes	Local chapters, Media, PSAs	For Professionals	Yes	Spanish info avail on website
No	No	No -can subscribe to a clinical strategies newsletter	Health fairs, brochures, help line, financial \assist	No (membership in Discount Pharmacy program)	No (Baxter does)	Materials in Spanish. AA outreach, Screening program

continued

TABLE D.1 *Continued*

Voluntary Health Agency	Research funded $$	Do they fund *clinical* research?	Do they fund *non-clinical* ?	Do they conduct research	Kinds of clinical research activities?	Recruitment info on specific clinical trials?
American Liver Foundation (website under construction)	$4.6 M since 1980	Yes	Yes	No	Liver Scholar, Pre + Post doctoral Fellowships Grants, Donor program	Yes
American Lung Association	Yes. Details not on website	Yes	Yes	No	Grants, Fellowships, Investigator awards	No
American Tinnitus Association	$1.3 M since 1980	Yes	No	No	Data registry, Grants	No
Amyotrophic Lateral Sclerosis Association *	New grants for Y2001 $1M, plus ongoing grants w/ orig. commitment of $6.7M	Yes	Yes	No	Database (registry), Grants	Yes
Arthritis Foundation	$30 M Y2000	Yes	Yes	No	Fellowship, Physician-Scientist Development Dissertation awards, Investigator awards, Grants	No
Asthma & Allergy Foundation of America *	Approx. $20,000/yr (details not on website)	Yes	Yes	No	Seed Grants ($20,000 ea.), Scholarships, Trending + data application w/ EPA	No
Cancer Research Foundation of America	>$50 M since 1985	Yes	Yes	No	Grants ($40,000 ea), Fellowships	No
CHADD (Children + Adults w/ Attention-Deficit/ Hyperactivity Disorder)	Unknown	Unknown "Promotes" "supports"	No	No	Conferences, Clearing house for research info, Research awards	Yes
Christopher Reeve Paralysis Foundation (formerly APA)	$5 M Y2000 ($2.5 M in grants) since 1982 $22 M	Yes	Yes	No (they do lab research)	Grants, Consortium labs + Advisory panel, National survey	No
Crohn's & Colitis Foundation of America	$5.4 M Y2001	Yes	Yes	No	DNA and Cell Line Bank, Prof. Research Workshops and Conferences, Grants	Yes

Links to open clinical trial recruitment?	Clinical research info for public?	Clinical research results for pros?	How do they do public education?	Membership organization?	E-mail/listserv newsletter/magazine?	Effort to reach minorities
Yes	Yes	Yes	Celebrity PSAs, Local chapters	No	Yes	Spanish language info, Hispanic, AA and gender specific info.
No	Yes	Yes	Local chapters,	Yes	Yes	Multicultural + Spanish language info
No	Yes	Yes	Local chapters	Yes	Yes	Unknown
Yes	Yes	Yes	Local chapters, Public awareness campaign	Yes "Member" of database	Yes	Multicultural info and through local chapters
No	Yes	No	Local chapters, Fund raisers, PSAs	Yes	Yes	Ethnicity trials
No	Yes	No	Coolio talks to teens, Local chapters, health fairs, community forums	Yes	Yes	Spanish language info
Yes	Yes	No	Ed materials Prevention	No	No	Spanish language info
Yes	Yes	Yes	Local chapters, Media, Experts on chat calls	Yes	Yes	Spanish language info
Yes	Yes	Yes	Celebrity PSAs + Media	No	Yes	Gender specific research, work w/ Amer. w/ Disabilities
Yes	Yes	Yes	Local Chapters Celebrity speakers bureau	Yes	Yes	Links to foreign language sites

continued

TABLE D.1 *Continued*

Voluntary Health Agency	Research funded $$	Do they fund *clinical* research?	Do they fund *non-clinical?*	Do they conduct research	Kinds of clinical research activities?	Recruitment info on specific clinical trials?
Easter Seals (People w/ disabilities)	No	No	No	No	None (Advocacy + direct rehab services)	No
Epilepsy Foundation *	Yes. Details not on website Since 1968	Yes	Yes	No	Grants, Fellowships, Conferences, Professional Advisory Board	Yes
The Foundation Fighting Blindness *	$12 M Y2000 $150 M since 1971	Yes	Yes	No	Registry, Coop w/ Research Centers, Career development, Grants	Yes
Glaucoma Research Foundation	$8 M over last 5 yrs	Yes	Yes	No	Grants, Scientific Advisory Committee, Eye Donor Network	No
Huntington's Disease Society of America	Last 3 yrs $3.3 M since 1967	Yes	Yes	No	Grants, Fellowships, Coalition for Cure (alliance of 17 labs)	Yes
Kidney Cancer Association *	Yes. Details not on website	Yes	Yes	No	Grants, Clinical Conferences	No
The LAM Foundation (Lymphangioleio-myomatosis-muscle cell that invades lung tissue, including the airways, + blood + lymph vessels causing obstruction)	$2.2 M Y2000 $5.7 M since 1995	Yes	Yes	No	National registry, Patient Directory, Patient protocols, Grants	Yes
The Leukemia and Lymphoma Society *	$32 M Y2000 > $200M since 1949	Yes	Yes	No	129 Fellows 153 Special fellows 88 Scholars, Grants, Institutional program support	Yes
The National Pemphigus Foundation * (rare autoimmune blistering disorders of the skin multi-lingual links	Yes. Details not on website	Yes	Unknown	Unknown	Medical Advisory Board, Conferences, Grants	Yes

Links to open clinical trial recruitment?	Clinical research info for public?	Clinical research results for pros?	How do they do public education?	Membership organization?	E-mail/listserv newsletter/maga-zine?	Effort to reach minorities
No	No	No	Easter Seals sales, media	Only as a donor	No	ADA
Yes	Yes	Yes	"E-communities," Teen awareness campaign	No	Yes	Gender specific studies, some Spanish
Yes	Yes	Yes	Media, Brochures/ info in retina + vitreous physicians	No	Yes	Unknown
Yes	Yes	Yes	Unknown	No	Yes	Spanish language info
Yes	Yes	Yes	Media	No	Yes	Links to Spanish info
Yes	No (links to info)	No (links to info)	Publications Fundraising Mail campaign	Yes	Yes	Unknown
Yes	Yes	Yes	Unknown	No	Yes	Unknown
Yes	Yes	Yes	Media	No	Yes	Info in 4 language
Yes	Yes	Yes	Unknown	No	Yes	Spanish language+ multilingual links

continued

TABLE D.1 *Continued*

Voluntary Health Agency	Research funded $$	Do they fund *clinical* research?	Do they fund *non-clinical?*	Do they conduct research?	Kinds of clinical research activities?	Recruitment info on specific clinical trials?
Lupus Foundation of America *	Yes. Details not on website	Yes	Yes	No	Fellowships, Grants, Liaison council of researchers	No
March of Dimes Birth Defects Foundation *	$44.2 M 1999	Yes	Yes	No	Grants	No
Myasthenia Gravis Foundation *	Yes. Details not on website	Yes	Yes	Yes	Conferences, Scientific and RN Advisory Boards, Fellowships, Patient registry, PhD scientist, Med student, + RN research support, Grants	No
Myositis Association of America (muscle diseases involving the inflammation and degeneration of skeletal muscle tissues)	No	No	No	No	Patient registry, Patient survey	No
National Alopecia Areata Foundation	$200,000 Y2000	Yes	Yes	No	Grants, Conferences	Yes
National Down Syndrome Society *	Yes. Details not on website	Yes	Yes	No	Post doctoral fellowships, Symposiums, Scholar awards, Grants	Yes
National info Hemophilia Foundation	$1.3 M Y2000 Since 1948	Yes	Yes	No	Career devel. Awards, Fellowships, Medical and Scientific Advisory board, Lab Grants	No
National Mental Health Association *	No	No	No	No	Not listed	No
National Multiple Sclerosis Society *	> $25 M Y2000 Since 1946 $320 M	Yes	Yes	No	NARCOMS registry, Pre and post doctoral fellowships, Faculty awards, MS gene + tissue banks, Grants	Yes

Links to open clinical trial recruitment?	Clinical research info for public?	Clinical research results for pros?	How do they do public education?	Membership organization?	E-mail/listserv newsletter/magazine?	Effort to reach minorities
Yes	Yes	No	Health fairs	Yes	Yes	Info in Spanish, Black RN Assoc. Hispanic Med Assoc.
No	Yes	Yes	Media	No	Yes	Info in Spanish
Yes	Yes	Yes	Local Chapters Celebrity spokes-person(s)	No	Yes	Unknown
No	No	No	Unknown	Yes	Yes	Unknown
Yes	Yes	National campaign, Celebrity PSAs	No	Yes	Info in 5 language	
Yes	Yes	No	Help line	Yes	Yes	Info in Spanish
No	Yes	Yes	Help line, Publications	No	Yes	Spanish language
No	No	No	Local chapters	Yes	Yes	Latino stories, info in Spanish
Yes	Yes	Yes	Media	Yes	Yes	Info in multiple language, Gender specific info

continued

TABLE D.1 *Continued*

Voluntary Health Agency	Research funded $$	Do they fund *clinical* research?	Do they fund *non-clinical*?	Do they conduct research?	Kinds of clinical research activities?	Recruitment info on specific clinical trials?
National Osteoporosis Foundation	Details not on website Approx. $285,000 Y2001	Yes	Yes	No	Grants, Conference, Fellowships, Professional Partner network	No
National Psoriasis Foundation	$200,000 Y2001	Yes	Yes	No	Grants Fellowships, Tissue registry	Yes
National Sleep Foundation *	Yes, through Pickwick Club. Details not on website	Unknown	Unknown	No	National Narcolepsy Registry, Fellowships,	No
Osteogenesis Imperfecta Foundation, Inc.	Yes, since 1970 >$1 M	Yes	Yes	No	Medical Advisory conferences, Grants	Yes
The Paget Foundation (Chronic skeletal disorder may result in enlarged or deformed bones in one or more regions of the skeleton. Bone is dense but fragile. Pain is the most common symptom.)	Yes. Details not on website	Yes	Unknown	No	Patient registry, Grants, Conference	Yes
Prevent Blindness America	1997 $500,000	Yes	Yes	No	Grants, Fellowships, Detection	No
RESOLVE (National Infertility Assoc.)	No	No	No	No	None	Yes
Sjogren's Syndrome Foundation (Autoimmune disorder of moisture producing glands)	Yes, details not on website	Yes	Yes	Yes	Grants, Fellowships, Medical + scientific advisory board	Yes
Spina Bifida Association of America	Yes, details not on website	Yes	Unknown	No	Professional advisory council, Conferences, Grants	No
Sturge-Weber Foundation * (capillary vascular malformations)	Yes. Details not on website	Yes	Yes	No	Registry, Medical Advisors, Grants	No

Links to open clinical trial recruitment?	Clinical research info for public?	Clinical research results for pros?	How do they do public education?	Membership organization?	E-mail/istserv newsletter/maga-zine?	Effort to reach minorities
No	Yes	Yes	TV program on PAX TV and ongoing web cast	Yes	Yes	Spanish language info
Yes	Yes	Yes	PSAs	Yes	Yes	Unknown
No	No – public survey info	No	Local chapters	No	Yes	Links to foreign language web-sites, gender-specific studies
Yes	Yes	Yes	Unknown	Yes	Yes	Links to foreign language websites
Yes	Yes	Yes	Unknown	Yes	Yes	Unknown
No	No	No	School + community screenings	No	Yes	Media
Yes	Yes	No	Local Chapters	Yes	Yes	Unknown
Yes	Yes	No	Unknown	Yes Approx. 7,500 members	Yes	Foreign language links
No	Yes	No	Local chapters, public awareness campaign	Yes	Yes	Foreign language links
Yes	Yes	Yes	Day of Awareness	Yes	Yes	Unknown

continued

TABLE D.1 *Continued*

Voluntary Health Agency	Research funded $$	Do they fund *clinical* research?	Do they fund *non-clinical?*	Do they conduct research?	Kinds of clinical research activities?	Recruitment info on specific clinical trials?
Tourette Syndrome Association	$370,169 Y2001 since 1984 > $5 M	Yes	Yes	No	Grants, Scientific Advisory Board	Yes
Tuberous Sclerosis Alliance (a genetic disorder that causes benign tumors to form in many different organs)	$1M Y2000	Yes	Yes	Yes	Professional Advisory Board, Tissue donations, Grants, Fellowships, Investigator awards	Yes
United Ostomy Association	No	No	No	No	None	No
TOTAL (49)	**88% (43)**	**82% (40)**	**76% (37)**	**8% (4)**	**Grants 82% (40)** **Fellowship 49% (24)** **Pt. Registry 25% (12)**	**49% (24)**

Links to open clinical trial recruitment?	Clinical research info for public?	Clinical research results for pros?	How do they do public education?	Membership organization?	E-mail/listserv newsletter/magazine?	Effort to reach minorities
No	Yes	Yes	Local chapters, PSAs – TV + print	Yes	Yes	Spanish language info
Yes	Yes	No	Unknown	Yes	Yes	French language info link
Yes	No	No	Publicity efforts	Yes	Yes	Spanish language info
69% (34)	**88% (43)**	**65% (32)**	**Local chapter 59% Help line 86%**	**51% (25)**	**92% (45)**	**Spanish language info 63% (31)**

Appendix E

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