DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
NATIONAL CANCER INSTITUTE
1ST JOINT MEETING OF THE BOARD OF SCIENTIFIC ADVISORS AND THE NATIONAL CANCER ADVISORY BOARD

Summary of Meeting
June 25, 2012

Building 31C, Conference Room 10
National Institutes of Health
Bethesda, Maryland

BOARD OF SCIENTIFIC ADVISORS AND NATIONAL CANCER ADVISORY BOARD
BETHESDA, MARYLAND
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The Board of Scientific Advisors (BSA) and the National Cancer Advisory Board (NCAB) convened for the 1st Joint Meeting on 25 June 2012, in Conference Room 10, C Wing, Building 31, National Institutes of Health (NIH), Bethesda, MD. The meeting was open to the public on Monday, 25 June 2012, from 9:00 a.m. to 3:20 p.m., and closed to the public from 3:20 p.m. to 5:00 p.m. The BSA Chair, Todd R. Golub, Chief Scientific Officer, The Broad Institute of Harvard University and Massachusetts Institute of Technology, and the NCAB Chair, Dr. Bruce A. Chabner, Director of Clinical Research, Massachusetts General Hospital Cancer Center, Massachusetts General Hospital, presided during the open session. Dr. Chabner presided during the closed session.

BSA Members

Dr. Todd R. Golub (Chair)
Dr. Francis Ali-Osman
Dr. Christine B. Ambrosone (absent)
Dr. Sangeeta N. Bhatia
Dr. Andrea Califano (absent)
Dr. Michael A. Caligiuri (absent)
Dr. Arul M. Chinnaiyan (absent)
Dr. Curt I. Civin
Dr. Chi V. Dang
Dr. Robert B. Diasio
Dr. Jeffrey A. Drebin
Dr. Brian J. Druker
Dr. Karen M. Emmons
Dr. Betty R. Ferrell
Dr. Kathleen M. Foley
Dr. Sanjiv S. Gambhir
Dr. Stanton L. Gerson
Dr. Joe W. Gray (absent)
Dr. Mary J. C. Hendrix
Dr. Timothy J. Kinsella
Dr. Joshua LaBaer
Dr. Theodore S. Lawrence (absent)
Mr. Don Listwin (absent)
Dr. Maria E. Martinez
Dr. James L. Omel
Dr. Luis F. Parada
Dr. Stuart L. Schreiber
Dr. Lincoln Stein (absent)
Dr. Bruce W. Stillman
Dr. Victor J. Strecher
Dr. Louise C. Strong
Dr. Frank M. Torti
Dr. Gregory L. Verdine
Dr. Irving L. Weissman (absent)

NCAB Members

Dr. Bruce A. Chabner (Chair)
Dr. Anthony Atala (absent)
Dr. Victoria L. Champion
Dr. Donald S. Coffey
Dr. Marcia R. Cruz-Correa
Dr. Kevin J. Cullen
Mr. William H. Goodwin, Jr.
Dr. Waun Ki Hong
Mr. Robert A. Ingram (absent)
Dr. Tyler E. Jacks
Dr. Judith S. Kaur
Ms. Mary Vaughan Lester
Dr. H. Kim Lyerly
Dr. Karen M. Meneses
Dr. Olufunmilayo I. Olopade
Dr. Jennifer A. Pietenpol
Dr. Jonathan M. Samet (absent)
Dr. William R. Sellers (absent)

Alternate *Ex Officio* NCAB Members

Dr. Michael A. Babich, CPSC (absent)
Dr. Patricia Bray, OSHA/DOL
Dr. Vince Cogliano, EPA
Dr. Michael Kelley, VA
Dr. Aubrey Miller, NIEHS (absent)
Dr. Richard Pazdur, FDA
Dr. Michael Stebbins, OSTP (absent)
Dr. Marie Sweeney, NIOSH
Dr. Lawrence Tabak, NIH (absent)
Dr. Sharlene Weatherwax, DOE

Members, Scientific Program Leaders, National Cancer Institute, NIH

Dr. Harold Varmus, Director, National Cancer Institute
Dr. Jeff Abrams, Co-Director, Division of Cancer Treatment and Diagnosis
Dr. Robert Croyle, Director, Division of Cancer Control and Population Sciences
Mr. John Czajkowski, Deputy Director for Management and Executive Officer
Dr. James Doroshow, Deputy Director for Clinical and Translational Research
Dr. Joseph Fraumeni, Jr., Director, Division of Cancer Epidemiology and Genetics
Dr. Paulette S. Gray, Director, Division of Extramural Activities
Dr. Peter Greenwald, Associate Director for Prevention
Dr. Ed Harlow, Special Assistant for Science Planning
Dr. Lee Helman, Scientific Director for Clinical Research, Center for Cancer Research
Dr. George Komatsoulis, Acting Director, NCI Center for Bioinformatics and Information Technology
Dr. Barry Kramer, Director, Division of Cancer Prevention
Dr. Douglas R. Lowy, Deputy Director, National Cancer Institute
Dr. Alan Rabson, Deputy Director, National Cancer Institute
Dr. Dinah Singer, Director, Division of Cancer Biology
Dr. Sanya Springfield, Director, Center to Reduce Cancer Health Disparities
Dr. Joseph Tomaszewski, Co-Director, Division of Cancer Treatment and Diagnosis
Dr. Ted Trimble, Director, Center for Global Health
Mr. Michael Weingarten, Director, Small Business Innovation Research
Dr. Linda Weiss, Director, Office of Cancer Centers
Dr. Jonathan Wiest, Director, Center for Cancer Training
Dr. Robert Wiltrout, Director, Center for Cancer Research
Ms. Joy Wiszneauckas, Executive Secretary, Office of the Director
Dr. Barbara Wold, Director, Office of Cancer Genomics
Dr. Robert Yarchoan, Director, Office of HIV and AIDS Malignancy

Liaison Representatives

Ms. Carolyn Aldige, Cancer Research and Prevention Foundation
Ms. Paula Bowen, Kidney Cancer Association
Mr. William Bro, Kidney Cancer Association
Dr. Carlton Brown, Oncology Nursing Society
Dr. Carol Brown, Society of Gynecologic Oncologists
Ms. Pamela K. Brown, Intercultural Cancer Council
Ms. Suanna Bruinooge, American Society of Clinical Oncology
Dr. Jeff Allen, National Cancer Institute, Director's Consumer Liaison Group
Mr. George Dahlman, Leukemia and Lymphoma Society
Mr. Matthew Farber, Association of Community Cancer Centers
Dr. Margaret Foti, American Association for Cancer Research
Dr. Leo Giambarresi, American Urological Association
Dr. Francis Giardiello, American Gastroenterological Association
Ms. Christy M.P. Gilmour, American Academy of Orthopaedic Surgeons
Ms. Ruth Hoffman, Candlelighters Childhood Cancer Foundation
Ms. Rebecca A. Kirch, American Cancer Society
Dr. Steven Klein, National Science Foundation
Dr. Hal C. Lawrence, III, The American College of Obstetricians and Gynecologists
Dr. W. Marston Linehan, Society of Urologic Oncology
Mr. Richard Martin, American Society of Therapeutic Radiology and Oncology
Ms. Margo Michaels, Education Network to Advance Cancer Clinical Trials

Dr. Patricia Mullan, American Association for Cancer Education
Ms. Barbara Muth, American Society of Therapeutic Radiology and Oncology
Ms. Christy Schmidt, American Cancer Society
Ms. Susan Silver, National Coalition for Cancer Survivorship
Ms. Barbara Duffy Stewart, Association of American Cancer Institutes
Ms. Pamela Wilcox, American College of Radiology
COL (Ret.) James E. Williams, Jr., Intercultural Cancer Council

TABLE OF CONTENTS

MONDAY, 25 JUNE 2012

MONDAY, JUNE 25, 2012

I. CALL TO ORDER AND OPENING REMARKS—DRS. TODD R. GOLUB AND BRUCE A. CHABNER

Dr. Golub called to order the 1st Joint BSA and NCAB meeting and welcomed members of the Board, *ex officio* members of the Board, liaison representatives, staff, and guests. Members of the public were welcomed and invited to submit to Dr. Paulette S. Gray, Director, Division of Extramural Activities (DEA), National Cancer Institute (NCI), in writing and within 10 days, any comments regarding items discussed during the meeting. Dr. Golub reviewed the confidentiality and conflict-of-interest practices required of Board members in their deliberations.

II. FUTURE BOARD MEETING DATES—DRS. TODD R. GOLUB AND BRUCE A. CHABNER

Dr. Golub called Board members' attention to approved future meeting dates.

III. NCI DIRECTOR'S REPORT—DR. HAROLD E. VARMUS

Dr. Harold E. Varmus, Director, NCI, welcomed members of both the NCAB and BSA, noting the historic occasion of the first joint meeting of these Boards. Dr. Varmus provided an update regarding personnel changes, described the difficulties in recruiting to the NCI, and attested to the value of government employees. He announced that Dr. Joseph F. Fraumeni, Jr., who has been an NIH employee for 50 years, is stepping down as the Director of the Division of Cancer Epidemiology and Genetics (DCEG). Dr. Peggy Tucker will serve as Acting Director, DCEG, and be assisted in leadership decisions by Drs. Robert Hoover and Stephen Chanock. Dr. Varmus also indicated that a brief study of DCEG's configuration, both internally and within the NCI, will be evaluated by a small group; NCAB member Dr. Jonathan M. Samet, Professor and Flora L. Thornton Chair, Department of Preventive Medicine, Keck School of Medicine, and Director, Institute for Global Health, University of Southern California, will serve as Chair of this group.

Recruitment also is under way for permanent Directors of the Center for Cancer Genomics (CCG) and the Center for Biological Informatics and Information Technology (CBIIT). Dr. Varmus acknowledged Dr. Barbara Wold's able management of the CCG during her sabbatical year from academia and reminded members that Dr. George Komatsoulis is serving as the Interim Director for CBIIT. He noted that the searches to fill these positions have been stymied by stringent bureaucratic conditions that required advertisement at a GS-15 level before offering a more reasonable employment condition suitable to the positions.

Budget. Dr. Varmus reminded members that the NCI budget received a 1 percent decrease in FY 2011, followed by a slight increase in FY 2012. The President's Budget for FY 2013 reflects a flat budget. The Senate's FY 2013 Appropriations bill provides a $100 million (M) increase for the NIH, including a modest increase for the NCI; in addition, the Senate Appropriations Committee rejected the President's proposal to increase the program evaluation tap from 2.5 to 3.2 percent. The situation with the House bill is less clear, and the government likely will operate under Continuing Resolutions (CR) until sometime after the elections in November 2012. In addition, the possible sequestration of $1.2 trillion in early 2013 could affect up to 8.5 percent of the NIH budget. This would have a deleterious effect on NCI's grant portfolio through an estimated 50 percent reduction of awards made, and Dr. Varmus encouraged members to communicate with Congressional representatives about the importance of protecting the NIH from such a dire move.

Recent House and Senate hearings covered issues about the new National Center for Advancing Translational Sciences (NCATS) and sequestration, among other topics. A House hearing on June 21, 2012, at which Dr. Francis Collins served as the sole witness, discussed the use of Title 42 for recruiting and retaining

strong scientists, as well as the distribution of grant funding among institutions and, in particular, focused on pancreatic cancer.

Dr. Varmus told members that the NCI anticipates a flat budget for FY 2013, with approximately 1,100 to 1,200 research program grants (RPGs), similar to the past several years. NCI leadership continues to monitor Division budgets carefully. The NCI has been funding grants to those with scores in the 7th percentile or better and reviewing grants with lower scores; the results of this activity are available on NCI's website. Dr. Varmus presented several of these charts, including competing R01 applications and awards for all investigators, and investigator success rates for new and competing R01 and R21 applications.

NCI Activities of Interest. Dr. Varmus said that, during the annual NCI leadership retreat in July 2012, NCI leadership and several extramural guests, including some Advisory Board members, will discuss the Provocative Questions Initiative, the Frederick National Laboratory for Cancer Research (FNLCR), a potential new initiative called Timely Questions, and peer-review service.

Dr. Varmus has considered the extent to which the NCI Director can and should serve as the Director of the Nation's Cancer Program. The honor was conferred upon the NCI and its Director by the National Cancer Act of 1971, but the role seems unclear as the Institute does not sponsor the majority of cancer research in this country. One role is to convene workshops and other activities to advance cancer research across the United States and the world. The NCI will host a meeting of leaders of international cancer research funding organizations as a follow-on to last year's meeting. The meeting will include a public statement on topics such as the international control of tobacco, the incorporation of cancer research into global health programs, and the increased use of genomics in cancer care, especially in the advanced economies.

The NCI is working to identify major culprits in cancer causation, such as genes that provide targets for improved diagnosis and therapy. To address ongoing reports by individuals from industry who claim they have been unable to replicate findings from the academic sector on numerous occasions, the NCI is holding a meeting with authors of the articles, journal editors, and leaders in cancer research in mid-September 2012. A second activity has centered on the idea of precision medicine in promoting cancer diagnosis therapies, including a workshop held in April 2012, and another planned, to identify collaborative activities. These activities could involve comparisons of preclinical testing instruments, as well as an examination of patients who have unusual responses to agents or constellations of mutations. The NCI has been examining such "outliers" among patients with acute myeloid leukemia (AML) who were nonresponders to conventional therapy. A third activity involves the target validation exercise that Dr. Francis Collins, Director, NIH, launched in 2011 to consider the movement from genotypes to phenotypes and phenotypes to genotypes across a broad array of medical specialties. A workshop will be held this fall and focus on cancer. In addition, conversations will continue regarding how better use can be made of the "knowledge commons"; that is, centralizing information to facilitate its use by many distinct disciplines.

A workshop was held to discuss the direction of the Center for Global Health (CGH) with several hundred stakeholders in attendance. An initiative is underway to place greater emphasis on the control of cervical cancer in poor countries through the increased use of the human papilloma virus (HPV) vaccine. A workshop held at the NIH campus by the Lasker Foundation will consider various coordinated activities among federal agencies and programs, such as the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). The NCI is taking a special interest in Burkett's Lymphoma and the Epstein Barr Virus (EBV) as potential targets for CGH activity through the Uganda Cancer Center; a meeting in Philadelphia in August 2012, will address approaches to Burkett's Lymphoma, including EBV vaccine development and the genomics of Burkett's Lymphoma.

Dr. Varmus briefly described other NCI activities of interest. In addition, a verdict is awaited from the U.S. Preventative Services Task Force (USPTF) regarding its recommendation about the use of low-dose

helical computed tomography (CT) scanning; the Division of Cancer Prevention (DCP) has been developing creative ways to improve algorithms for reading low-dose helical CT scans of lung cancers to reduce the number of false negatives in the screening. Dr. Varmus' proposal to shift the NIH biosketch toward a narrative-based exposition of achievements in science was approved by the NIH Institutes and Centers (IC) Directors, and a request for information (RFI) has been released for comments. In addition, Dr. Varmus, along with Dr. Jeffrey Abrams, Acting Director for Clinical Research and Associate Director, Cancer Therapy Evaluation Program, Division of Cancer Treatment and Diagnosis (DCTD), will present to the IC Directors ideas to expand www.clinicaltrials.gov to include a requirement for the communication of results of those trials, even if they are not in a formal journal setting.

In recent months, Dr. Varmus has traveled to NCI-sponsored cancer research sites to discuss NCI initiatives and connect with NIH-supported investigators. On one occasion, he was accompanied by Senator Lindsey Graham (R-SC) and discussed cancer research in the global health arena. Dr. Varmus's international trips included Turkey and an upcoming visit to Indonesia that will include tobacco control discussions. He helped celebrate National Cancer Week in Turkey, where five distinguished universities have ambitions to conduct serious research in cancer; Turkey also is an active participant in the Middle East Cancer Consortium (MECC). Dr. Varmus also participated in a domestic interagency visit to the Centers for Disease Control and Prevention (CDC).

Provocative Questions Initiative. Dr. Douglas Lowy, Deputy Director, told members that more than 15 percent of the 750 individual investigator (R01 and R21) applications submitted in response to the 24 questions advanced to the next level of review, and that 50 to 60 applications likely will be funded. This has been a trans-NCI activity, with review by the extramural Divisions and a recent presentation to the NCI Scientific Program Leaders (SPL). Dr. Lowy indicated that awards should be made following the concurrence of the NCAB, and that future plans include a reissuance of the request for applications (RFA).

National Clinical Trials Network (NCTN). Dr. James Doroshow, Deputy Director for Clinical and Translational Research, provided an update on the NCTN. Dr. Doroshow reminded members that the BSA approved the concept reissuance in November 2011. A funding opportunity announcement is being evaluated by NIH leadership for possible release in the upcoming months. He noted that Dr. Abrams would provide an update on the NCI's implementation activities to increase the operational efficiency of its clinical trials.

Questions and Answers

Dr. Chabner asked about the potential outcome of the USPTF's further examination of lung cancer screening, noting that the clinical practice field likely would favor a cost-benefit analysis. Dr. Varmus replied that the USPTF usually measures harms versus benefits. Dr. Barnett Kramer, Director, DCP, agreed, noted the significant challenges posed by cost-effectiveness analyses, and referred members to NCI's website for information about the benefits and harms on information sites for the National Lung Screening Trial (NLST) at the NCI. Dr. Joshua LaBaer, Virginia G. Piper Chair in Personalized Medicine, Director, Virginia G. Piper Center for Personalized Diagnostics, The Biodesign Institute, Arizona State University, asked whether specific recommendations would be provided, such as packs smoked per year. Dr. Varmus indicated that recommendations would be confined to eligibility criteria and conditions followed in the trial (i.e., 30 pack years, ages 55 to 74), and he observed that the NCI's trial cost was $300 for a low-dose helical CT scan, whereas the advertised cost for entrepreneurial radiologists is up to several thousand dollars.

Dr. Chabner expressed support for the idea of publishing trial results, and he said that *The Oncologist* recently announced that it will publish abstracts in print and data online for Phase 2 trials; they will be indexed in PubMED. Dr. Varmus stated that the first step is to publish results in www.clinicaltrials.gov.

Dr. Golub asked how the Boards might help the NCI in its recruitment and retention struggles. Dr. Varmus answered that acknowledging the difficulty in a public forum and to Congress is important, as Title 42 and other employment tools are needed to make NCI competitive with other sectors. Dr. Chabner suggested that the Boards consider a motion of support, which the Boards did.

Dr. Tyler E. Jacks, Director, Koch Institute for Integrative Cancer Research, David H. Koch Professor of Biology, Massachusetts Institute of Technology, asked about future Provocative Questions workshops to elicit new suggestions for questions. Dr. Lowy replied that previous workshops have yielded new questions, and that there may be additional workshops in the future. Dr. Varmus encouraged members to submit questions directly to the NCI for consideration.

Dr. Chabner requested additional details about the Provocative Questions review process in light of the diversity of topics. Dr. Lowy responded that the initial review was an Internet-assisted process that involved three reviewers, followed by in-person reviews. He acknowledged the challenges faced by the reviewers but noted that the reviewers' broad backgrounds were helpful in evaluating the ideas, and that less insistence on the amount of preliminary data also was an advantage. Dr. Varmus added that the decision to send applications to the in-person review were not based wholly on an average score but also on the identification of highly novel applications that received several good scores.

In response to a query by Dr. Marcia R. Cruz-Correa, Associate Professor of Medicine and Biochemistry, University of Puerto Rico, and Basic and Translational Science Director, University of Puerto Rico Comprehensive Cancer Center, Dr. Lowy indicated that Provocative Questions applications submitted in a reissuance RFA would be reviewed as new applications, including any which were not funded during the first round but had been amended.

Motion. A joint motion of the NCAB and BSA to strongly support options for the NCI regarding Title 42 to ensure the recruitment and retention of talented scientists at the Institute was approved unanimously.

IV. PRESIDENT'S CANCER PANEL REPORT: THE HPV VACCINE SERIES— DR. BARBARA K. RIMER

Dr. Barbara K. Rimer, Dean and Alumni Distinguished Professor, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, informed members that the President's Cancer Panel (PCP) would begin its 2012–2013 series titled "Accelerating Progress in Cancer Prevention: The HPV Vaccine Example" and provided an update on upcoming workshops. Dr. Rimer reminded members that the Panel's mission is to monitor the development and execution of activities of the National Cancer Program and report directly to the President regarding delays in execution of the Program.

Dr. Rimer was joined by Dr. Lowy to provide an overview of the HPV vaccine series. The four meetings are structured to encourage interaction among participants through a workshop model, examining the confluence of issues surrounding the uptake and effectiveness of HPV vaccines in reducing population cancer risks and identifying provocative questions for discussion. Workshop participants will agree about priority recommendations, consider lessons from HPV vaccination applicable to future cancer prevention vaccines, and identify knowledge gaps for further study as well as application issues that require attention. The initial three PCP workshops will focus on HPV vaccine issues in the United States. The fourth will examine global issues.

Dr. Lowy described the incidence and distribution of cancers attributable to HPV. He informed members that, of cancers attributable to HPV, cervical cancer predominates over all others worldwide and accounts for 90 percent of HPV-associated cancers in the developing world. Cervical cancer is the only HPV-associated cancer for which there is an evidence-based screening test.. In the United States, however, the incidence of non-cervical cancers attributed to HPV in aggregate exceeds the number of cervical cancers.

Globally, 95 percent of HPV-associated cancers affect females, but in the United States, approximately 30 percent of non-cervical cancers attributed to HPV occur in males.

The first workshop will consider HPV vaccination as a model for cancer prevention, including dosage, age at vaccination, registries as a means of conducting surveillance, and impact of vaccination on cancer markers and will serve as a portal for the ensuing workshops; Drs. Lowy and Cosette Wheeler, University of New Mexico, will serve as co-Chairs. At the second workshop, participants will discuss how to achieve widespread vaccine uptake to benefit the U.S. populace, overcome barriers, and adapt effective approaches from other vaccine programs in the United States and other countries. Drs. Robert T. Croyle, Director, Division of Cancer Control and Population Science (DCCPS), and Noel T. Brewer, Associate Professor, University of North Carolina Gillings School of Global Public Health, will serve as co-Chairs. The remaining two workshops will cover clinical practices, standards, and economic implications as well as global challenges of HPV vaccination.

Future potential topics for PCP meetings include changing the cancer communication paradigm, accelerating clinical trials, developing a global network of cancer registries, and accelerating progress for cancers with mostly unchanged mortality rates. Dr. Rimer encouraged members to suggest additional topics, and she acknowledged the groundbreaking work completed by DCEG staff in the field, pointing to Dr. Fraumeni's effective leadership in advancing science. The Division has done some of the groundbreaking work in understanding HPV infections.

Questions and Answers

Ms. Mary Vaughn Lester, Board of Directors, University of California, San Francisco Foundation, asked about the demographics of vaccine recipients. Dr. Lowy answered that the federal Vaccines for Children (VFC) program ensures access to the HPV vaccine for children from poor families. He added that one-dose vaccination rates are similar regardless of socioeconomic status, but that follow-up rates for multi-dose vaccines are higher among families with private insurance. Dr. Rimer noted that the workshops will examine the delivery of vaccine information to appropriate populations and other communication issues.

Dr. Judith S. Kaur, Medical Director, Native American Programs, Mayo Comprehensive Cancer Center, and Professor of Oncology, Mayo Clinic, suggested that recommendations for childhood vaccination encompass both boys and girls, and that the workshop on "Achieving Widespread Vaccine Uptake" involve Cancer Centers with significant outreach programs for minority groups, such as with the Indian Health Service (IHS) and those serving the Mississippi Delta.

Dr. Bruce W. Stillman, President and Chief Executive Officer, Cold Spring Harbor Laboratory, recommended that the second workshop consider the HPV vaccine's potential to affect screening guidelines as well as preventive capability. He said that the successful uptake of the vaccine in Australia resulted in part from national pride in the role Australian scientists played in the vaccine's development and suggested that workshop attendees include national media and public relations experts. Dr. Victoria L. Champion, Associate Dean for Research, Mary Margaret Walther Distinguished Professor of Nursing, Center for Research & Scholarship, Indiana University School of Nursing, commented that part of the success in Australia has been due to the implementation of the vaccine through the school systems; she added that the ease with which economically disadvantaged populations in the United States can obtain the vaccine varies by state. Dr. Rimer observed that the overall structure of the school system in the United States poses challenges to adopting the Australian model. Dr. Stillman pointed out that the national publicity that preceded education about the vaccines in the Australian school system significantly contributed to the acceptance of the HPV vaccine.

Dr. LaBaer requested further details about the low numbers of non-cervical cancers, such as oropharynx cancer, attributable to HPV in other countries. Drs. Lowy and Varmus responded that cervical

cancer is the most common, and that global registries covering other HPV-associated cancers are limited.

Dr. Jacks asked about the extent to which critics of the HPV vaccine will be involved in the workshop discussions. Dr. Rimer said that the PCP and workshop co-Chairs are working to identify an inclusive participant roster.

V. RECOGNITION OF DEPARTING BSA AND NCAB MEMBERS—DRS. HAROLD E. VARMUS, TODD R. GOLUB, AND BRUCE A. CHABNER

On behalf of the NCI, Dr. Varmus recognized the contributions made by members of the BSA and the NCAB whose terms of office expired. He expressed appreciation for their service and dedication over the course of their terms.

Retiring BSA members included: Drs. Christine B. Ambrosone, Professor of Oncology and Chair, Department of Cancer Prevention and Control, Roswell Park Cancer Institute; Michael A. Caligiuri, CEO and Director, The Comprehensive Cancer Center, Ohio State University; Sanjiv S. Gambhir, Virginia & D.K. Ludwig Professor of Cancer Research and Chair, Department of Radiology, Professor by courtesy, Departments of Bioengineering and Materials Science & Engineering, Director, Molecular Imaging Program at Stanford (MIPS), Director, Canary Center at Stanford for Cancer Early Detection, and Member, Bio-X Program, Stanford University; Mary J. C. Hendrix, President and Scientific Director, Children's Memorial Research Center, Medical Research Institute Council Professor, Lurie Comprehensive Cancer Center, Feinberg School of Medicine, Northwestern University; Timothy J. Kinsella, Research Scholar Professor, Warren Alpert Medical School of Brown University, Department of Radiation Oncology, Rhode Island Hospital; James L. Omel, Education and Advocacy, Volunteer, International Myeloma Foundation, Volunteer, Multiple Myeloma Research, and Volunteer, Leukemia, Lymphoma, Myeloma Society; Stuart L. Schreiber, Morris Loeb Professor, Director, Chemical Biology, The Broad Institute of Massachusetts Institute of Technology and Harvard University; and Victor J. Strecher, Professor, Department of Health Behavior and Health Education, University of Michigan School of Public Health.

Retiring NCAB members included: Drs. Anthony Atala, Director, Wake Forest Institute for Regenerative Medicine, Professor and Chairman, Department of Urology, Wake Forest University School of Medicine; Bruce A. Chabner, Director of Clinical Research, Massachusetts General Hospital Cancer Center, Massachusetts General Hospital; Donald S. Coffey, The Catherine Iola and J. Smith Michael Distinguished Professor of Urology, Professor of Urology/Oncology/Pathology/Pharmacology and Molecular Science, Johns Hopkins University School of Medicine; Mr. Robert A. Ingram, General Partner, Hatteras Venture Partners; Judith S. Kaur, Medical Director, Native American Programs, Mayo Comprehensive Cancer Center, and Professor of Oncology, Mayo Clinic; and Karen M. Meneses, Professor and Associate Dean for Research, University of Alabama at Birmingham School of Nursing. Dr. Varmus expressed appreciation to Dr. Chabner for his service as Chair of the NCAB.

VI. FREDERICK NATIONAL LABORATORY FOR CANCER RESEARCH (FNLCR) STRATEGIC PLAN—DR. JENNIFER A. PIETENPOL

Dr. Jennifer A. Pietenpol, Director, Vanderbilt-Ingram Cancer Center, B. F. Byrd, Jr. Professor of Oncology, Vanderbilt University, provided an update report about the FNLCR. Dr. Pietenpol reminded members that the FNLCR was established in 1972 and received special designation as a Federally Funded Research and Development Center (FFRDC) in 1975. With a primary focus on cancer research and some on infectious disease, the FNLCR pursues innovative basic, applied, and translational research that leverages special technical expertise, physical infrastructure, and FFRDC status.

Under Dr. Varmus' leadership, the NCI participated in the recruitment of Dr. David Heimbrook as the CEO of SAIC-Frederick, the FNLCR contractor; established an advisory board (NCI-Frederick Advisory Committee [NFAC]) to review the facility; and designated the enterprise as the FNLCR. The NFAC held several meetings between August 2011 and May 2012 and provided recommendations for the best use of FNLCR's capabilities and infrastructures, including: partnership efforts through a Contractor Cooperative Research and Development Agreement (Contractor-CRADA); request to examine the process for scientific review and prioritization; website development; opening of the Advanced Technology Research Facility (ATRF); development of a Visiting Scholar's Program (VSP); and the development of a strategic plan.

Dr. Pietenpol said that Dr. Varmus asked NFAC members and others to participate in Working Sub-Groups to provide recommendations regarding the strategic direction of the FNLCR. The groups recommended optimization of the use of the FNLCR by NCI Divisions, Offices, and Centers and expanded use by other NIH ICs, federal agencies, and external investigators, to build capabilities to conduct activities that are not done elsewhere. In addition, interactions between the NCI and industry through the ATRF and contract mechanisms should be expanded, and structural changes made to remove hazards and ensure campus upgrades and redesigns when affordable. Communications with the NIH, Department of Health and Human Services (HHS), and extramural researchers who can benefit from the FNLCR's technologies should be enhanced. Education and training programs should be expanded and coordinated, and opportunities to rapidly advance new initiatives should be sought.

The FNLCR provides a unique combination of scientific expertise, an agility to rapidly adapt to changes in NCI priorities, the ability to foster special relationships among extramural and industry partners, and a unique gateway to government management. The Laboratory can integrate resources, such as the NCI Experimental Therapeutics (NExT) Program and The Cancer Genome Atlas (TCGA), provide project development/management, integrate training and education as appropriate, and determine the best ways to facilitate partnerships.

Dr. Pietenpol highlighted the major work of the past year, including: the designation of the enterprise as a National Laboratory; the opportunity for the National Cancer Program to be strategic in future directions and activities; establishment of a facility (the ATRF) to amplify the effect on science in the intramural, extramural, and private sector communities through creative ventures; development of a site for external community participation; and pursuit of opportunities to rapidly advance new bold initiatives that lead to significant advances in cancer prevention, treatment, or control.

Questions and Answers

Dr. Chabner congratulated the NCI leadership for establishing the oversight of the FNLCR and asked about the evaluation of FNLCR programs. Dr. Varmus said that the NFAC is charged with oversight of overall facilities and that the programs are examined in terms of overall effectiveness and by individual projects. Dr. Doroshow explained that a rigorous review process through a special emphasis panel has resulted in a success rate of less than 15 percent for projects initiation.

Dr. Luis Parada, Chairman, Department of Developmental Biology, Southwestern Ball Distinguished Chair in Neuroscience Research, Director, Kent Waldrep Center for Basic Research on Nerve Growth and Regeneration, and Diana & Richard C. Strauss Distinguished Chair in Developmental Biology, University of Texas Southwestern Medical Center, asked whether the research at the FNLCR remains based on contracts. Dr. Varmus confirmed that most of the research and operations in Frederick are conducted through SAIC; other contractors, such as genome and data analysis centers around the United States working with TCGA, also contribute. He added that approximately one-third of the NCI's intramural Center for Cancer Research (CCR) is based at the FNLCR, and that great synergies occur among all of the FNLCR scientists. Dr. Robert

Wiltrout, Director, CCR, briefly recalled the history of the intramural program in Frederick and noted the distinctiveness of the FNLCR programs, which advance technology and early drug development.

Dr. Stillman encouraged the NCI to consider expanding the VSP to accommodate early career and other scientists to be at the FNLCR for a 6-year period to establish their careers and thence bring their experience into academia and Cancer Centers. Dr. Varmus replied that the NCI's leadership retreat will consider the most efficient employment possibilities for the FNLCR and best use of the new facility, as well as identify projects that could be conducted by visiting extramural scientists for a 1- to 3-year period of time.

Dr. LaBaer commented on the opportunity to educate people who would like to learn how to execute the advanced technologies used at the FNLCR, drawing on the Cold Spring Harbor courses as a model. Dr. Varmus said that educational programs at Frederick extend from teaching in Frederick high schools to bringing people to the campus for training courses.

Dr. Chabner wondered about the progress made in establishing an incubator facility to attract biotechnology firms. Drs. Varmus and Pietenpol confirmed that approximately one-third of the ATRF has been reserved for this purpose, and solicitation of firms with specific biotechnology expertise (e.g., biological, physical chemistry) has commenced. Dr. Varmus added that an opening ceremony was held with prominent local and state government officials present.

Dr. Golub asked whether the NFAC had identified emerging areas that could not be addressed effectively by other organizations. Dr. Pietenpol indicated that the NFAC has begun preliminary discussions about such ideas, and Dr. Varmus referred to the FNLCR's work with the NExT Program, as well as nanotechnology and imaging activities, as special areas that already are under way. He encouraged members to provide additional suggestions for future FNLCR activities. Dr. Pietenpol recognized the need for expanded education about the FNLCR's capabilities and applicability as a national laboratory. Dr. Varmus said that he has been in discussions with the Secretary of Energy, who has extensive experience with other national laboratories.

VII. IMPROVING EFFICIENCY IN NCI/CTEP-SPONSORED CLINICAL TRIALS CENTRAL INSTITUTIONAL REVIEW BOARD (IRB) AND UNIFIED DATA COLLECTION— DR. JEFFREY ABRAMS

Dr. Abrams provided an update report on NCI activities to streamline its clinical trials system by improving efficiency in timelines, refining its approach and use of the NCI Central Institutional Review Board (CIRB), and enhancing its electronic data capture and management system. Dr. Abrams reminded members that the Operational Efficiency Working Group (OEWG) recommended the creation of target timelines and absolute deadlines throughout the process of concept to activation of clinical trials. The OEWG recommended that absolute deadlines be reduced from 840 to 450 days for Phase 1 and 2 studies, and from 730 to 540 days for Phase 3 studies. NCI established new procedures to streamline and monitor the schedule, including holding nearly 500 conference calls to prevent review iterations that may slow the approval process. The review process for Phase 1 and 2 applications has been reduced to a median of 362 days, with a target of 201 days. Specifically, the Letter of Intent (LOI) submission to approval has been reduced from 101 to 62 days, LOI approval to protocol submission from 63 to 60 days, and protocol submission to trial activation from 285 to 222 days. The timeline for Phase 3 applications has been reduced to a median of 320 days, with a target of 300 days.

The NCI established a CIRB in 2000 through a shared model that involved working with an institution's local IRB, with the CIRB having the responsibility to review studies and amendments. Approximately 330 sites are directly enrolled in the initiative, with many other sites affected less directly through partnership agreements; nearly 300 Phase 2 and 3 studies have been reviewed. A cost-benefit analysis

of the CIRB showed that 6 hours of research effort is saved by joining the CIRB, and the system is used heavily by many institutions for both adult and pediatric studies. The CIRB is composed of physicians, patient advocates, and other professionals, including statisticians and ethicists.

The NCI recently considered shifting to an independent model that would assume the work of the entire IRB rather than partake in a facilitated review, partly because the Association for the Accreditation of Human Research Protection Programs, Inc. (AAHRPP) had difficulties accrediting the CIRB because it was not clear who was being accredited. A pilot study involving 25 institutions is under way through September 2012, with more than 1,200 studies transferred and approximately 130 opened in the new model. Preliminary feedback from participants is quite positive. The Office of Market Research and Evaluation (OMRE) also is conducting a formal evaluation regarding the model, and a decision on the CIRB model will be made in late 2012. Dr. Abrams informed members that the CIRB has expanded to review studies (N01 and U01 contracts) opening in the new Early Trials Clinical Trials Network; this could involve approximately 50 new studies per year and would require another board dedicated to the review of these early trials and associated special issues. Advantages of using the CIRB include saving time for investigators and research staff, and allowing IRB members at local institutions to focus and concentrate on local research.

Dr. Abrams next described the NCI's Clinical Data Management System (CDMS), which integrates remote data capture, libraries and coding (e.g., for common toxicity criteria), data management for discrepancies and delinquencies, and preparation of data for the final analysis of results. Following the Institute of Medicine's (IOM) recommendation for a common electronic registration data capture system to increase consistency across trials and conserve resources, the NCI has developed a vision for a common CDMS that reinforces the focus on the science and patient by facilitating accurate data entry, is scalable for use for all group trials, requires minimal training and implementation costs, and reduces the data management burden for the coordinating center and participating sites. The CDMS uses Medidata Rave to allow common configuration of the system regardless of who is running a trial. The NCI worked with experienced organizations, including Alliance and the NCI of Canada, in developing the system. System integrations have commenced, including the open registration and regulatory support, with adverse event reporting, imaging, financial management, and other components to be added. Dr. Abrams demonstrated the toxicity (adverse event) page of the CDMS, which provides a single source for reporting both routine and severe adverse events. Participants thus far include the Cooperative Groups, earlier trial consortia, and the Cancer Trials Support Unit (CTSU). Deployment began in April 2011, and in July 2012, all of the Cooperative Groups will have entered their first study into the system. Dr. Abrams said that the CDMS will support the transformation of the Cooperative Groups into a network, meet all FDA requirements for drug development and approval, reduce the effort and cost of data management over the long term, promote data sharing, and improve science; remote auditing also may be possible.

Questions and Answers

Dr. Robert B. Diasio, William J. and Charles H. Mayo Professor, Director, Mayo Clinic Cancer Center, and Consultant and Professor of Molecular Pharmacology and Experimental Therapeutics and Oncology, asked about opportunities to share NCI library components, such as the common toxicity criteria platform, broadly with the extramural community. Dr. Abrams affirmed that the system will be available to all NCI partners.

Dr. Stanton L. Gerson, Director, Case Comprehensive Cancer Center, Case Western Reserve University, Director, Seidman Cancer Center, University Hospitals Case Medical Center, and Director, National Center for Regenerative Medicine, Case Western Reserve University, commented that the move to a centralized system is important and will have great effect on trial accrual and opportunities for exposure to new drugs. He asked whether the system would provide an improved way to list adverse toxicities as compared to prior systems, which Dr. Abrams confirmed. Dr. Gerson also suggested that a time limit on early phase

study activation would be helpful. Dr. Abrams agreed, noting that the NCI now has successfully implemented a 6-month limit on establishing CRADAs.

Dr. Golub asked about the use of the CIRB for non-NCI sponsored trials. Dr. Abrams replied that they have refrained from expanding outside of the NCI system because of regulatory and other reasons.

Dr. Pietenpol encouraged the NCI to view the CDMS in the context of the CTSA's IRB-sharing pilot project that aims to streamline the review process by each IRB.

Dr. Chabner asked about the integration of several functions, such as auditing and biostatistics. Dr. Abrams answered that the biostatistics component has been expanded to allow trials by investigators who are outside the Cooperative Groups to enter the system and be statistically reviewed by the same statisticians. He also said that the CTSU coordinates auditing, and this centralization, along with the electronic improvements, should facilitate the audit process.

Dr. Olufunmilayo F. Olopade, Walter L. Palmer Distinguished Service Professor of Medicine and Human Genetics, Associate Dean for Global Health, and Director, Center for Clinical Cancer Genetics, University of Chicago Pritzker School of Medicine, asked about dissemination to the Cancer Centers or community hospitals that rely heavily on informatics to provide patient care. Dr. Abrams acknowledged the challenges in working with Medidata Rave, given the significant learning curve and financial commitment involved, and he commented that melding clinical data management systems for research with electronic health records likely will be a longer term, future endeavor.

VIII. ONGOING AND NEW BUSINESS—DRS. TODD R. GOLUB AND BRUCE A. CHABNER

***Ad hoc* Subcommittee on Global Cancer Research.** Dr. Olopade told members that the Subcommittee met and discussed global cancer health registries and the Center for Global Health. Dr. Brenda Edwards, Associate Director, Surveillance Research Program, DCCPS, provided an overview of the global cancer health registries. The estimates of the global burden of cancer are based on a few registries that capture and report high-quality data. Prioritization is needed on how to conduct cancer registration. There is good collaboration between the NCI and the International Association of Cancer Registries, and the idea of developing the Global Initiative for Cancer Registry, particularly targeting low- and middle-income countries, is advancing. Because only approximately 21 percent of all patients diagnosed with cancer worldwide are included in a registry, the data captured must be of sufficient quality to be effective. The CGH will need to decide how to interact with IARC hubs, including a new hub in Mumbai and planned hubs in Turkey, Africa, and Latin America. Another important activity for the CGH is to prioritize its activities through strategic planning and funding analysis. The Subcommittee looks forward to an update about these priorities, and Dr. Olopade reported that the Subcommittee endorsed the development of improved cancer registration as a priority. The MECC was discussed as an example of a good consortium that started as a registration site and is building capacity. The NCI-Ireland Cancer Consortium also is an example of NIH investment resulting in the development of research capacity in other countries.

Dr. Lisa Stevens, Acting Deputy Director, CGH, provided an update on the CGH on behalf of Dr. Ted Trimble, Director, CGH. The CGH held an inaugural stakeholder meeting in March 2012. More than 150 attendees discussed strategies for cancer research worldwide based on six priorities outlined in a paper by Drs. Varmus and Trimble: cancers associated with chronic infection, cancer control planning and implementation, common risk factors for noncommunicable diseases, ecological niche cancers, building the infrastructure for cancer research and training, and strengthening partnerships and health research. Dr. Olopade said that through these activities, the NCI can be a convener and lead the global cancer research agenda, and she charged Subcommittee members to develop plans regarding how the NCI could serve as a catalyst in global cancer research.

Questions and Answers

Dr. Chabner encouraged the NCI to increase funding support for global research through small grants or the Provocative Questions Initiative. Dr. Varmus said that the NCI already is engaged in international activities in a profound way and that many of the provocative questions are answerable by doing research abroad. He described successful NCI activities, such as in the HPV vaccine and tobacco control areas, and partnerships, such as with the NCI of Mexico.

Dr. Varmus said that the CGH could better identify and help shift NCI's international spending into priority areas. He expressed his and Dr. Trimble's preference for the Center to coordinate activities rather than house a large grant portfolio, and he solicited feedback from members regarding this issue. Dr. Olopade cited the good recognition of the Center's inception by the international audience. Dr. Chi V. Dang, Director, Abramson Cancer Center, University of Pennsylvania, said that the CGH has an opportunity to assess ongoing U.S.-supported efforts and catalyze activities through existing networks. Dr. Varmus agreed and stated that the supplemental mechanism to Cancer Centers might be an optimal funding device. Dr. Cruz-Correa supported an oversight role for the CGH and shared an example of the NCI's successful work with the Latin America Cancer Research Network (LACRN) in helping build scientific knowledge and capacity in other countries. Drs. Jacks and Stillman also concurred with the CGH's coordinating function as primary rather than managing a large pool of funding. Dr. Varmus said that the RFAs could be developed by the Center and grants issued through the existing Division.

Dr. Stillman raised concerns about the review of applications for an Institute that is advancing a strategic initiative, such as in global health, but must undergo the traditional peer-review process through the Center for Scientific Review (CSR). He encouraged the NCI and other ICs to consider expressing their special areas of interest as part of NIH grant applications. Dr. Varmus replied that the Program Announcement with Review (PAR) provides a clearer view of the Institute's intent.

Dr. Maria E. Martinez, Professor, Department of Family & Preventive Medicine, and Program Leader, Reducing Cancer Disparities, UCSD Moores Cancer Center, suggested that the Subcommittee should examine existing infrastructure and examples of success, such as the trial of *H. pylori* eradication in Latin America through the Southwest Oncology Group (SWOG) along with the Gates Foundation.

Dr. Kaur lauded the Subcommittee for its initial survey of the global health and cancer research landscape as well as funding sources, and she recommended that the CGH provide an annual update to the Board regarding the direction of global funding and CGH priorities. Dr. Chabner asked that the presentation delineate how the CGH has addressed each of the six priorities during the year.

Motion. A motion to accept the summary report of the 24 June 2012 *Ad hoc* Subcommittee on Global Cancer Research meeting was approved unanimously.

Cancer Centers Subcommittee Report. Dr. Pietenpol told members that the Subcommittee's discussion primarily focused on proposed changes the NCI Cancer Center Support Grant (CCSG) Guidelines. The six primary revisions are to: (1) strengthen the focus on the quality of the science, the research, and its impact on the Cancer Centers; (2) harmonize the NCI mechanism; (3) foster collaborations between Centers; (4) offer a broad array of support options; (5) reduce the burden of the application; and (6) provide new guidance on eligibility and budget requests. The draft of these guidelines was reviewed by the Cancer Center Directors in April, and NCI program staff is revising the document for publication by September, with the guidelines to become effective in January 2013. The guidelines streamline the review process from two steps of research review and training/outreach into a single application, which should reduce paperwork

significantly, and allow greater focus to define how to serve the community better through the research occurring in the Centers.

Dr. Pietenpol said that the Subcommittee also discussed eligibility criteria and funding. Consideration for CCSG funding now requires existing cancer-related funding of $10 M, up from $4 M. In addition, Centers that are at or above $6 M in direct costs will be capped at their current level, and Centers below $6 million will be offered the opportunity to request a 10 percent increase through a merit review. New Centers that are still under $1 M may consider either the 10 percent increase or moving up to $1 M. The Subcommittee reported that the proposed revisions are positive overall and responsive to concerns expressed by advisory boards, Cancer Center administrators, and NCI leadership. The Subcommittee recommended revision of the application to focus reviews on the most relevant metrics.

Questions and Answers

Dr. Chabner said that the Subcommittee lauded the work that has been done and felt that a more intensive revision might further lighten the burden of the competitive renewal of the grant. Dr. Pietenpol commented that the great diversity among the Cancer Center programs poses challenges to a fair and equal review and application process, and she expressed support for a reduction in the complexity of the application. Dr. Champion said that the Subcommittee reached consensus that the application should reflect the criteria upon which the Cancer Centers are judged and not be excessive. Dr. Stillman agreed with the focus on high quality and meritorious research and suggested that NCI review staff should educate and remind reviewers of the overarching goal, with a focus on the science.

Dr. Kevin J. Cullen, Director, Marlene and Stewart Greenebaum Cancer Center, and Professor of Medicine, University of Maryland, expressed support for many of the revisions but raised concerns that the proposed funding formula locks in the funding for the foreseeable future at current levels per Center. He reminded members that the upper quartile of the Centers garners more than one-half of the budget, whereas the lower quartile of the Centers garners less than 10 percent of the total Centers budget. He stated that the proposed funding mechanism significantly disadvantages a number of Centers that serve minority and underserved, rural populations.

A discussion ensued about the need to clarify the purpose of the Cancer Center budgets. Dr. Olopade said that risk and rewards should be examined during a flat budget. Dr. Varmus suggested that funding should support specific objectives that Cancer Centers alone can meet, such as special collaborations or service to the local community. Dr. Olopade added that the Subcommittee held a robust discussion about the Cancer Centers' community activities and alignment with the NCI to both conduct research and disseminate results. Dr. Pietenpol supported the use of the supplemental mechanism to encourage increased collaboration with other organizations.

Motion. A motion to accept the summary report of the 24 June 2012 Cancer Centers Subcommittee meeting was approved with 34 ayes, 1 nay, and no abstentions.

Establish Center for Cancer Genomics Working Group. Dr. Chabner referred members to the charge for a Working Group for the Center for Cancer Genomics, which will be convened under the NCAB *Ad hoc* Subcommittee on Biomedical Technology.

Motion. A motion to form the NCAB Center for Cancer Genomics Working Group was approved unanimously.

IX. RFA/COOPERATIVE AGREEMENT CONCEPTS—PRESENTED BY NCI STAFF

Office of the Director
AIDS and Cancer Specimen Resource

Dr. Rebecca Liddell Huppi, Program Director, Office of HIV and AIDS Malignancy, presented the concept for an RFA reissuance to continue funding the AIDS and Cancer Specimen Resource (ACSR), which was established in 1994 to acquire, curate, and distribute tumor tissues and biological fluids from patients with HIV-associated malignancies. The NIH Office of AIDS Research considers the ACSR a high-priority project for funding. The ACSR collects specimens that reflect a wide variety of cancer types; processes multiple types of tumor specimens; and develops tissue microarrays, whole-genome amplified DNA, and other tools to preserve the specimen base.

The ACSR has disseminated specimens to 76 different investigators from 50 institutions since 2006, and 125 publications have resulted, representing 43 institutions, of which 11 are foreign institutions. The resource has created 24 tissue microarrays and disbursed 14,751 tissue microarray cores. A specific subset of the African collections is composed of more than 108,000 samples from 2,245 individuals, with nearly 6,000 specimens disbursed. Research supported by the ACSR includes Kaposi sarcoma (KS), lymphoma, HIV, and the San Francisco Young Men's Health Study. Studies have confirmed KS herpes virus (KSHV) as a causative agent of KS and identified the biology and role of KSHV in tumorigenesis, as well as developed an important primary effusion lymphoma cell line, devised a multi-detection algorithm for KSHV seroprevalence, and evaluated KSHV in HIV-suppressed and non-suppressed individuals. Other activities have included serving as the AIDS Malignancy Clinical Trials Consortium (AMC) Biorepository, participating on CSSI's HIV+ Tumor Molecular Characterization Project (HTMCP), providing curation services for funded NCI investigators and NIH initiatives, and assisting with the development of a regional biorepository in Africa.

Dr. Huppi told members that the ACSR will be valuable in helping address the global HIV-associated cancer burden. She noted that approximately 70 percent of the 34 million People Living With HIV/AIDS (PLWHA) reside in resource-limited Sub-Saharan Africa. This region also has a high prevalence of oncoviruses that cause HIV-associated malignancies. In addition, HIV-associated cancers are now among the most common tumors in that region, and there is a lack of adequate pathology. Changes to the ACSR in this phase will enhance cooperation and coordination, facilitate guidance and provide greater central oversight to activities, encourage flexibility to ensure more rapid response, and encompass broader scientific expertise.

Subcommittee Review. Dr. Brian J. Druker, Director, OHSU Knight Cancer Institute, Associate Dean for Oncology, OHSU School of Medicine, and JELD-WEN Chair of Leukemia Research, Oregon Health and Science University, expressed the Subcommittee's support for the reissuance concept and appreciation for NCI's response to the Subcommittee's concerns. The Subcommittee supported the refined focus of the work to be performed under this reissuance and suggested that the NCI consider additional ways to stimulate the research field to use this resource.

The first year cost is estimated at $3.9 M for one award, with a total cost of $21 M for 5 years.

Questions and Answers

Dr. Francis Ali-Osman, Margaret Harris & David Silverman Distinguished Professor of Neuro-Oncology Research, Professor (Tenured) of Surgery, Department of Surgery, Professor of Pathology, Duke University School of Medicine, Duke University Medical Center, asked about the guidelines governing the collected specimens. Dr. Huppi replied that the collection of specimens follows NCI best practices on issues of quality assurance and quality control (QA/QC). Guidelines regarding the quality of specimens adhere to the rules and laws established by specific countries.

Dr. Golub commented that the issue of adverse effect reporting and the impact that has on changes to the consent form in trials often causes delays in accrual and extends the time needed to complete a study. Dr. Huppi said that the ACSR project has corrected its consent forms to allow use of the samples for genome sequencing. Dr. Robert Yarchoan, Director, NCI's Office of HIV and AIDS Malignancy, added that the existing bank has some high-quality specimens ready for TCGA activities, and prospective collections will ensure appropriate quality for this use.

Dr. Stanton L. Gerson, Director, Case Comprehensive Cancer Center, Case Western Reserve University, Director, Seidman Cancer Center, University Hospitals Case Medical Center, and Director, National Center for Regenerative Medicine, Case Western Reserve University, encouraged the ACSR and Early Detection Research Network (EDRN) to collaborate in the prospective collection of specimens that may help identify predictors and early markers of malignancy. In addition, the EDRN could consider using the ACSR samples from this unique patient group with HIV-associated malignancies for their prospective samples.

In response to a query by Dr. Stuart L. Schreiber, Morris Loeb Professor, and Director, Chemical Biology, The Broad Institute of Massachusetts Institute of Technology and Harvard University, Dr. Huppi clarified that the concept reissuance supports the resource bank, which completes the curation of and maintains and distributes the specimens for clinical trials.

Motion. A motion to concur on the reissuance of the Office of the Director's request for the application/ Cooperative Agreement (RFA/Coop. Agr.) entitled "AIDS and Cancer Specimen Resource" was approved unanimously.

X. UPDATE: NATIONAL CANCER INFORMATICS PROGRAM—DR. GEORGE KOMATSOULIS

Dr. Komatsoulis provided a report on the National Cancer Informatics Program (NCIP). He said that the NCIP encompasses interoperability and data access technology to assist with large data collections, biomedical informatics research and development to generate new methods, *in silico* research to identify biological insights, and informatics education and training. The NCIP is located within the CBIIT, which also provides operational support for biomedical informatics as well as standard information technology (IT) and business support for the NCI.

Members were informed that a meeting to launch the NCIP and refine its focus was held at the end of May 2012, with approximately 350 attendees representing a broad range of expertise in genomics, translational research, and informatics. Dr. Varmus charged attendees with reaching consensus about the IT needs of the NCI-supported cancer research community. Participants agreed that a successful NCIP would be: aligned with the NCI's mission and vision and driven by the needs of the cancer research and care community; have just enough governance; be open, transparent, accountable, and sustainable; and be integrated with other informatics initiatives, such as TCGA, the National Library of Medicine's (NLM) National Center for Biomedical Computing, and the Bioinformatics Research Network (BIRN), among others.

NCIP informatics projects will commence in support of and be integrated into scientific initiatives. Successful pilot projects may be generalized for wider distribution when needed, and the success of NCIP projects will be determined by the success of the scientific initiative. Dr. Komatsoulis stated that working groups will continue to be convened to discuss needs and potential scientific projects. Initial focus areas identified during discussions include: access and computing on large-scale genomics data; support for precision medicine pilots; and integration of informatics into core programs. In addition, the NCIP will continue to provide core biomedical informatics capabilities to ongoing NCI research initiatives.

Dr. Komatsoulis said that the NCIP will coordinate with and make use of the capabilities that exist in the broader informatics landscape that encompasses thought leaders, regulatory agencies, government IT oversight organizations, and commercial entities.

Questions and Answers

Dr. Jacks asked about the potential relationship between the NCIP and CCG, which will provide a significant amount of data to the NCIP; he also asked about the roles of the NCIP and CBIIT. Dr. Komatsoulis said that the two Centers will work closely together and that communication links between them already have been established. He also clarified that the CBIIT manages the NCIP and provides more routine informatics capabilities to the NCI and the broader cancer research community.

Dr. Golub asked about specific priorities for the NCIP. Dr. Komatsoulis indicated that broad access to large-scale genomics-based datasets, such as from TCGA and other follow-on projects, is an emerging priority, as is support for precision medicine.

Dr. Stillman noted the challenges in transmitting large amounts of sequencing and imaging data via the Internet and asked whether the NCIP has considered ways to allow extramural investigators to conduct onsite analyses. Dr. Komatsoulis said that this is a topic to be addressed and observed that computing *in situ* is one of several options.

In response to a query by Dr. Dang, Drs. Komatsoulis and Varmus said that the NCIP's direction will be identified under the direction of the CBIIT Director, once that position is filled.

Dr. Olopade encouraged the NCIP to discourse with physicists and engineers, such as at the Argonne National Laboratory, who have longstanding experience with transferring large datasets. Dr. Komatsoulis pointed out that such a collaboration exists, and that Argonne representatives were present at the NCIP launch meeting.

XI. CLOSED SESSION—DR. BRUCE A. CHABNER

This portion of the meeting was closed to the public in accordance with the provisions set forth in Sections 552b(c)(4), 552b(c)(6), Title 5 U.S. code, and 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. appendix 2).

Members were instructed to exit the room if they deemed that their participation in the deliberation of any matter before the Board would be a real conflict or that it would represent the appearance of a conflict. Members were asked to sign a conflict-of-interest/confidentiality certification to this effect.

The *en bloc* vote for concurrence with the IRG recommendation was affirmed by all serving Board members present. During the closed session of the meeting, a total of 4,697 applications were reviewed requesting support of $1,324,542,276 and 5 FDA applications were reviewed.

XII. ADJOURNMENT—DRS. TODD R. GOLUB AND BRUCE A. CHABNER

Drs. Golub and Chabner thanked all of the Board members, as well as all of the visitors and observers, for attending.

There being no further business, the 1st Joint Meeting of the BSA and NCAB was adjourned at 3:00 p.m. on Monday, 25 June 2012.

Date	Todd R. Golub, M.D., Chair, BSA
Date	Bruce A. Chabner, M.D., Chair, NCAB
Date	Paulette S. Gray, Ph.D., Executive Secretary

NCI FY2011 Competing R01 Applications and Awards

Figure 1: All Investigators: Experienced, New and Early Stage

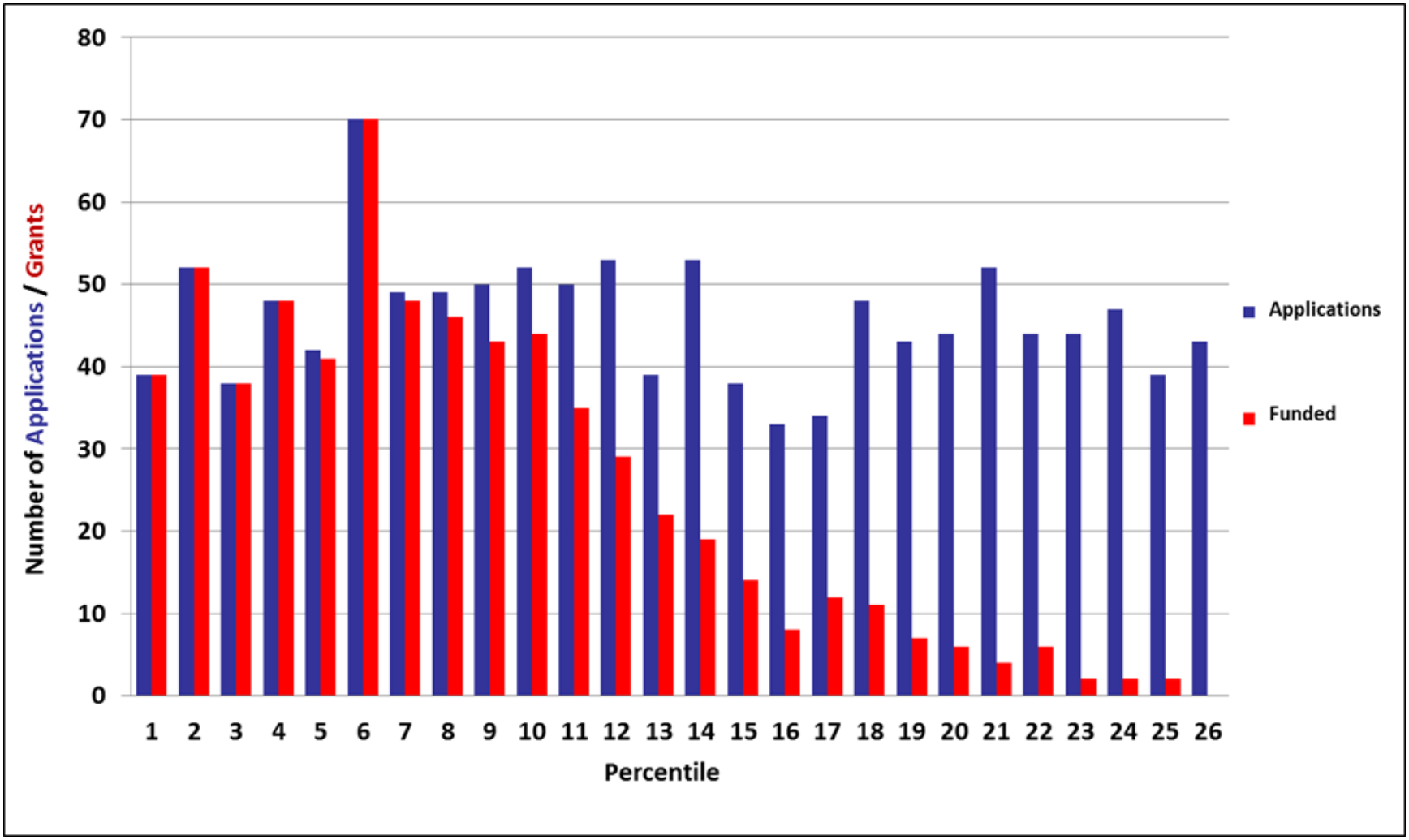


Figure 1 includes data from all categories of investigators: experienced investigators who have had NIH grants in the past, new investigators who previously have not had a substantial independent NIH award, and early stage investigators who are within 10 years of completing their training and have not had a previous grant. If applications from only experienced investigators are considered, the same pattern of funding success is observed (Figure 2).

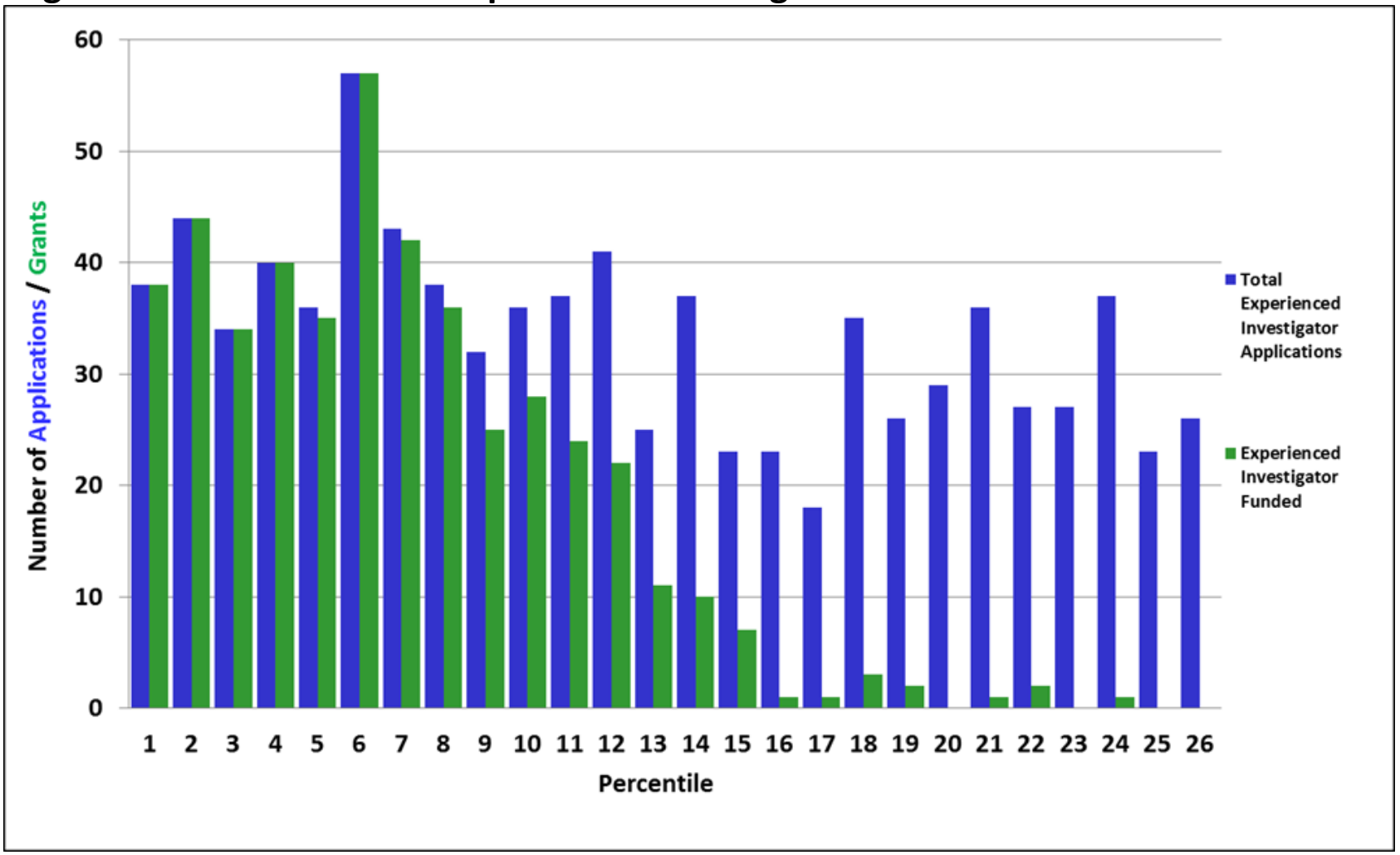
Fiscal Year 2011 R01 and R21 All Investigators Success Rates

	Total Applications	Number with Percentiles of 25 or better	Number with Percentiles of 10 or better	Funded	Success Rate
R01 – All Investigators	**4,477**	**1,145**	**487**	**652**	**15%**
Experienced Investigator - Total	**3,005**	**837**	**396**	**468**	**16%**
Type 1	**2,440**	**586**	**265**	**314**	**13%**
Type 2	**565**	**251**	**131**	**154**	**27%**
*New Investigator	**1,472**	**308**	**91**	**184**	**13%**
**Early Stage Investigator	**545**	**143**	**37**	**91**	**17%**
R21 - All Investigators	**2,242**	**484**	**201**	**223**	**10%**
Experienced Investigator	**780**	**222**	**97**	**106**	**14%**
New Investigator	**1,462**	**262**	**104**	**117**	**8%**

Total applications include all new and competing renewals that received a percentile, those with just an impact score as well as triaged or not recommended for funding.
When an amended application is considered in the same fiscal year as the original, only the one with the better percentile is counted.
*** Includes Early Stage Investigators**
****Included in New Investigators**

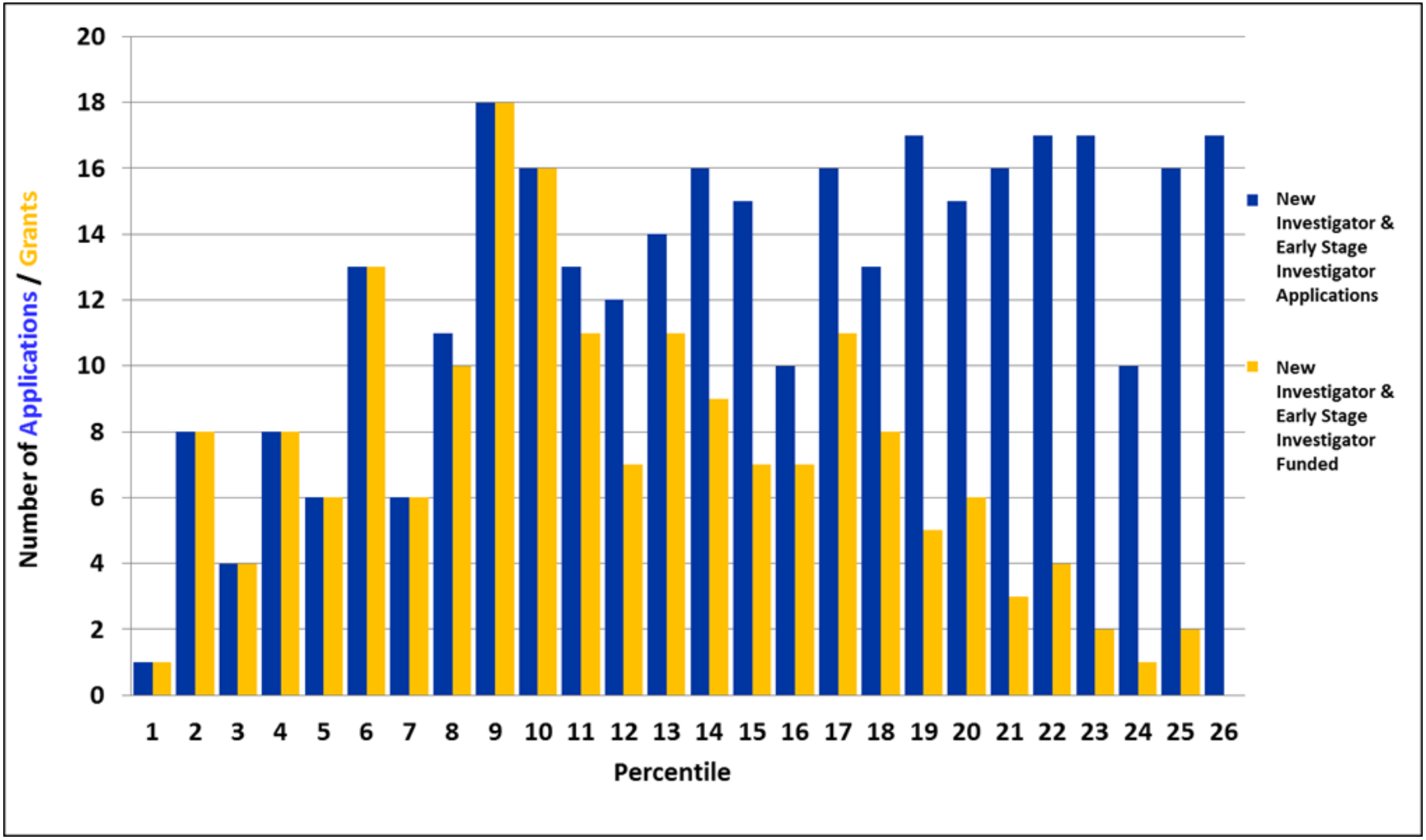
NCI FY2011 Competing R01 Applications and Awards

Figure 2: **Experienced Investigators**



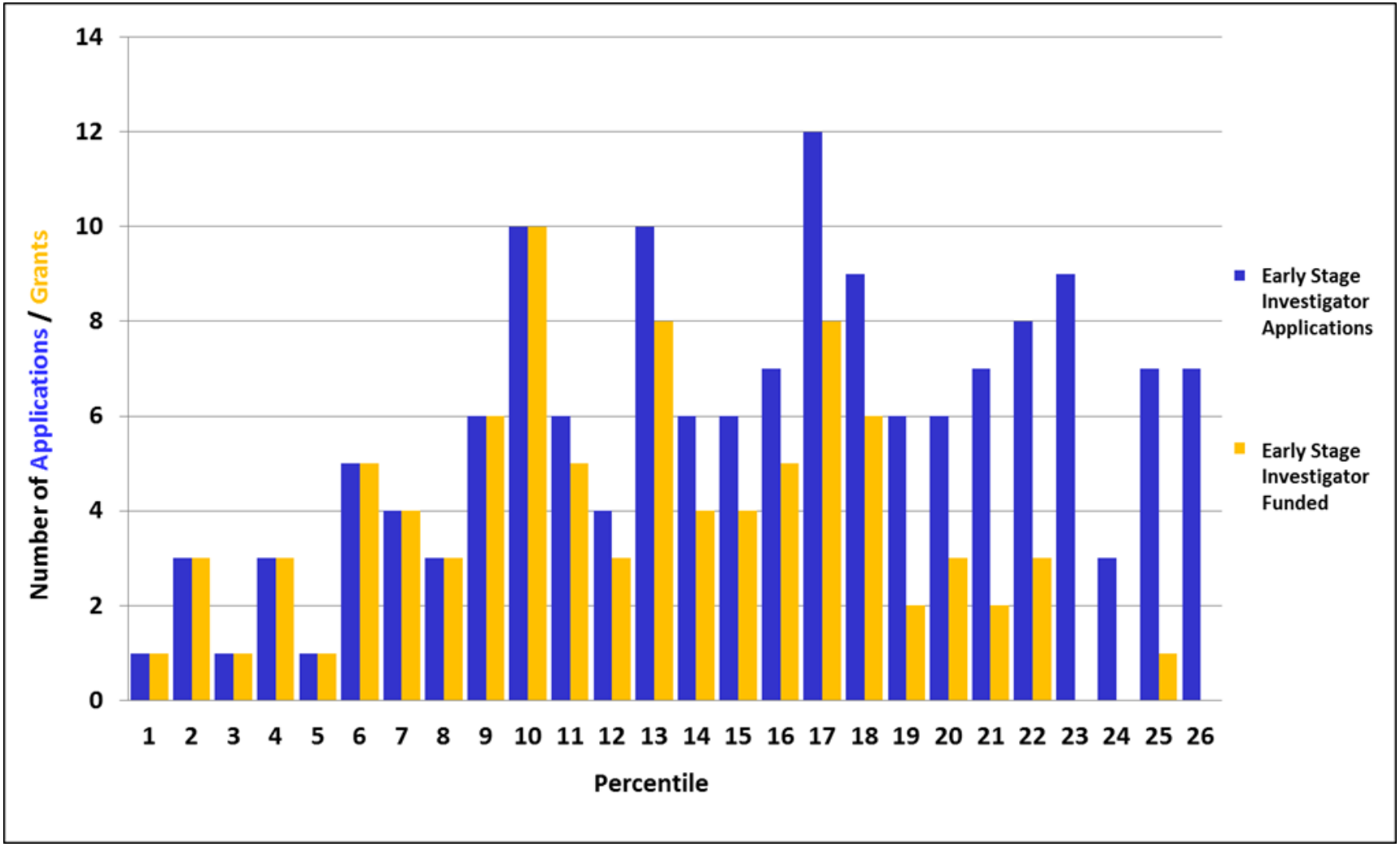
NCI FY2011 Competing R01 Applications and Awards

Figure 3: New Investigators (Includes Early Stage Investigator)



NCI FY2011 Competing R01 Applications and Awards

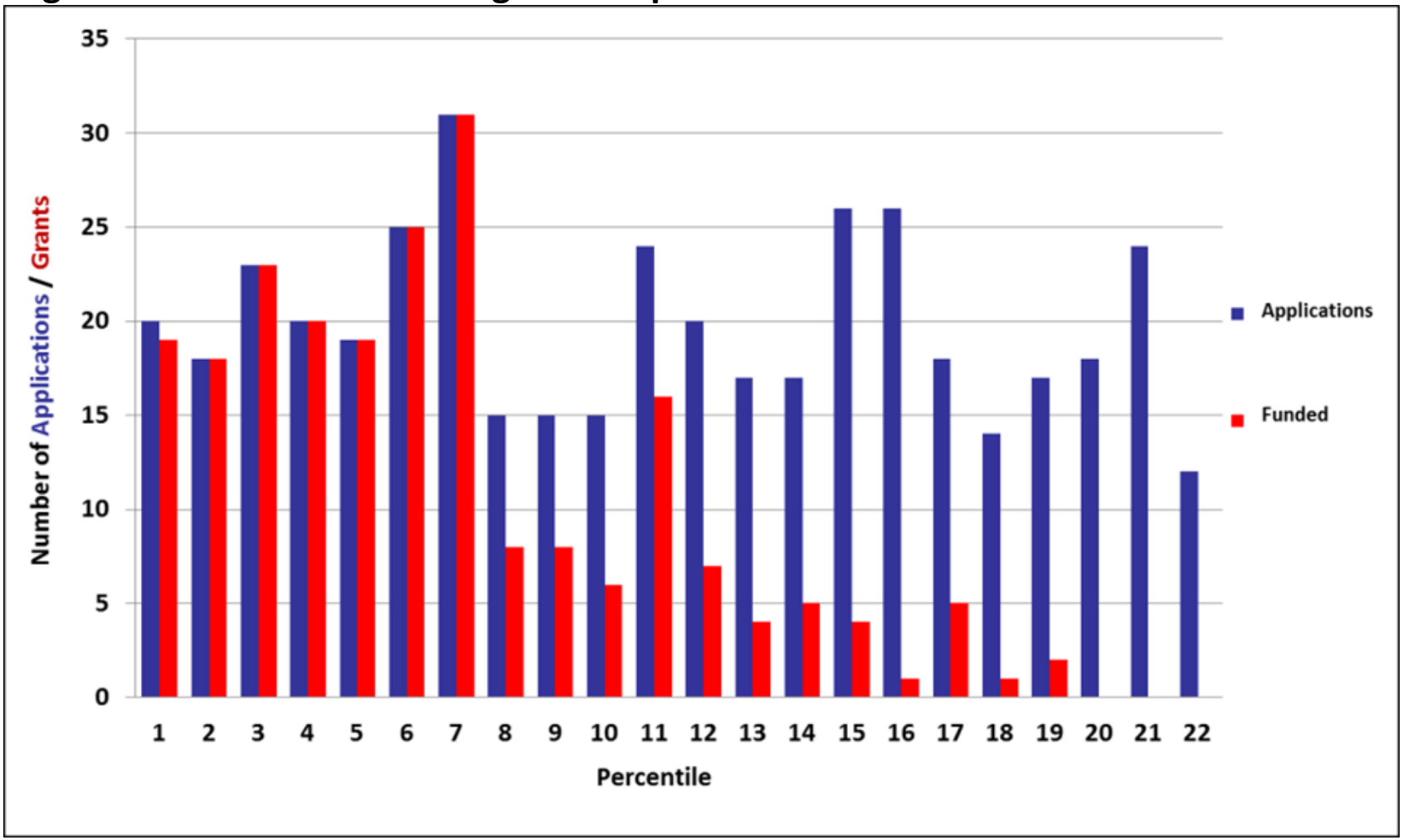
Figure 4: Early Stage Investigators



Figures 1-4: Excludes applications that did not receive a percentile ranking. When an amended application is considered in the same fiscal year as the original, only the one with the better ranking is counted.

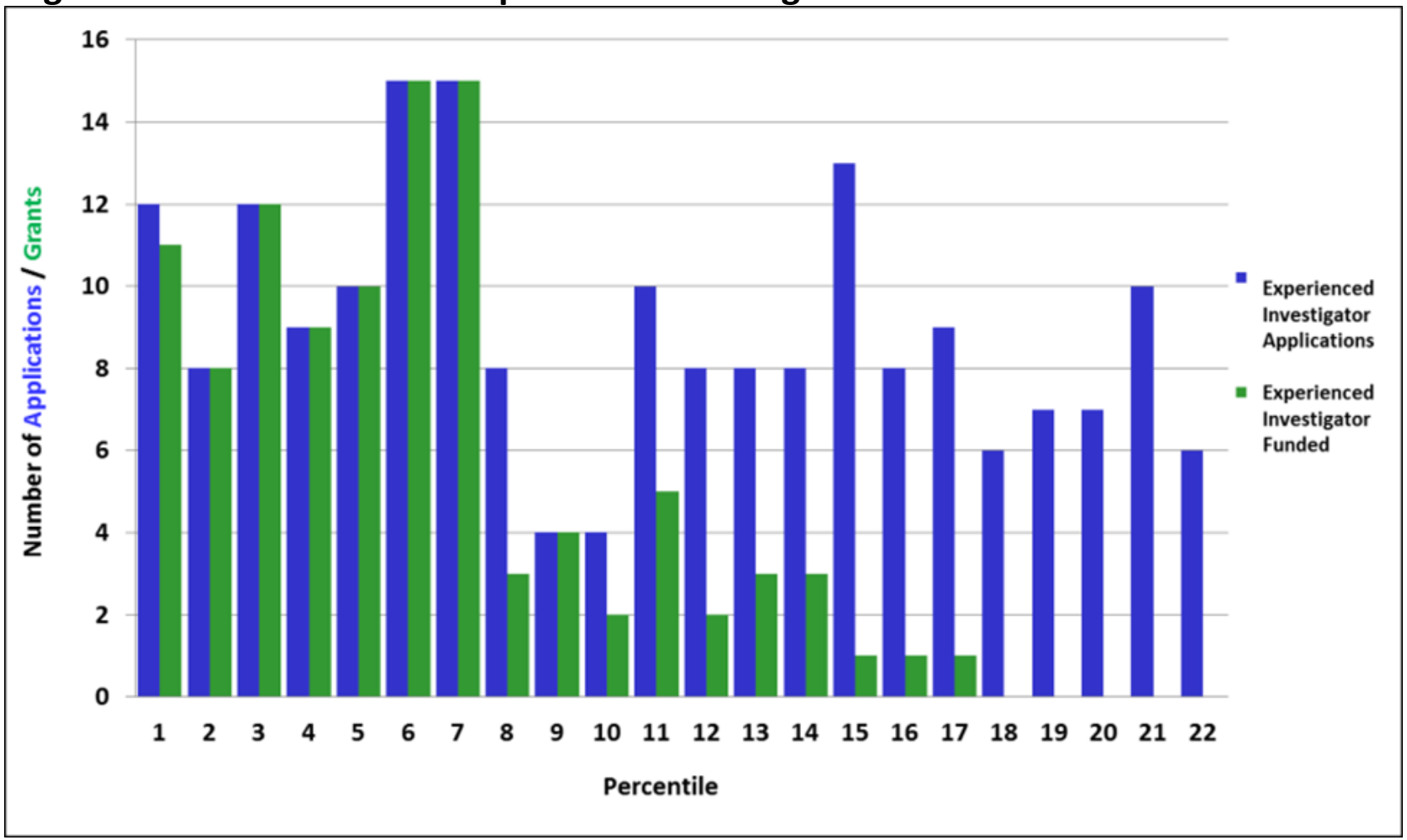
NCI FY2011 Competing R21 Applications and Awards

Figure 5: All Investigators: Experienced and New



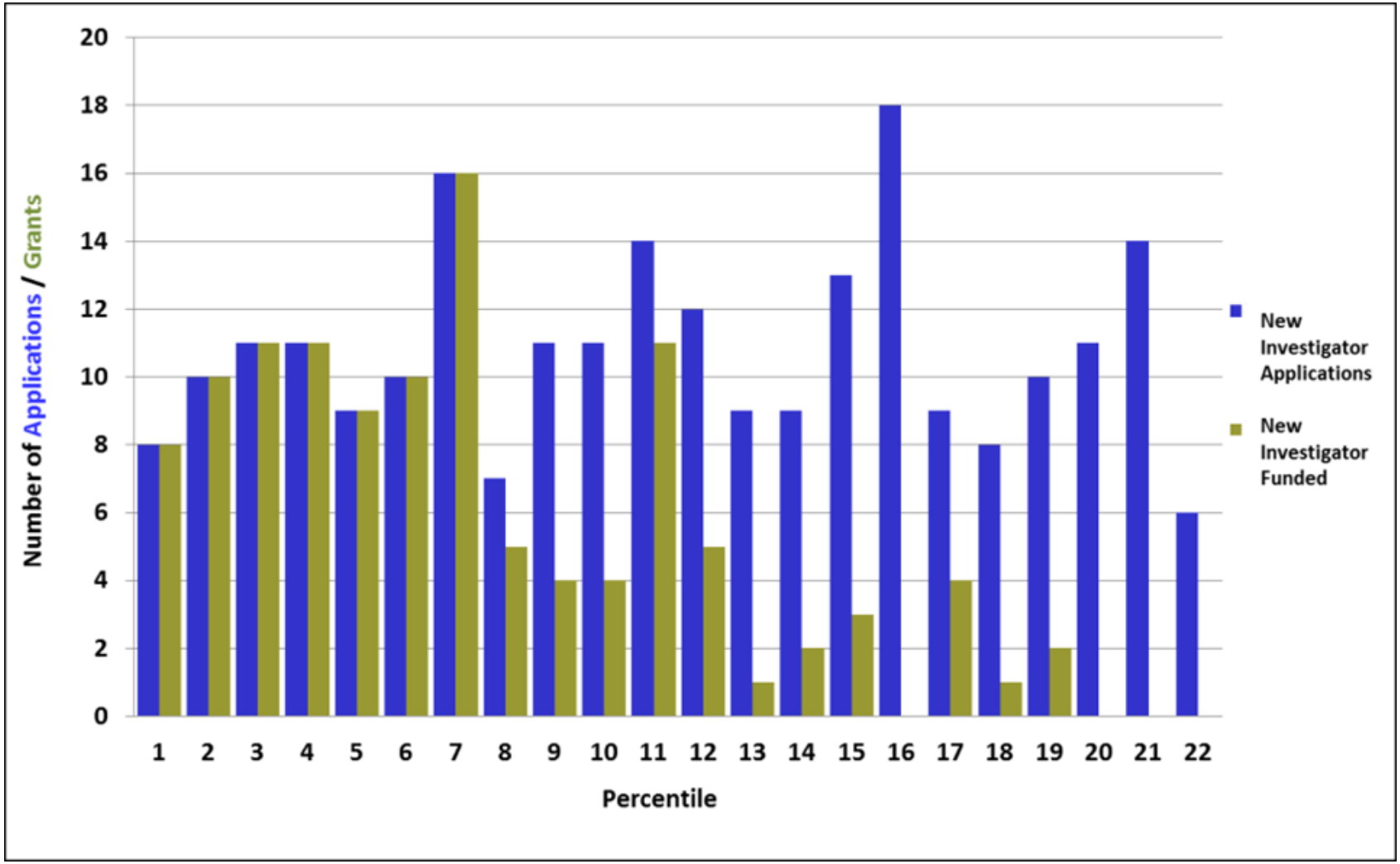
NCI FY2011 Competing R21 Applications and Awards

Figure 6: Experienced Investigators



NCI FY2011 Competing R21 Applications and Awards

Figure 7: New Investigators



Figures 5-7: Excludes applications that did not receive a percentile ranking. When an amended application is considered in the same fiscal year as the original, only the one with the better ranking is counted.

Beginning in 2011, NCI adopted a new approach to the selection of grant applications for funding that sets a zone within which nearly all applications are selected for funding. In both 2011 and 2012, that zone extended to the 7th percentile[1]. Beyond that point, all applications are considered, resulting in a final success rate[2] of 15% in 2011. The tables below summarize the overall funding patterns for RO1s and R21s in various categories of investigators.

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1 A percentile is a score that ranks competing applications against others in the same study section in the past year. It is intended to allow a comparison of impact scores of applications across all study sections. The impact score is given by scientific reviewers based on the overall impact that the project is likely to have on the research field(s) involved.

2 The success rate is the percentage of applications that are funded. It is calculated by dividing the number of funded grants by the number of applications received. When an amended application is considered in the same fiscal year as the original, only the one with the better score is counted in the number of applications received.

Funding Patterns for RO1 applications

The table in Figure 1 below summarizes the number of RO1 applications received and grants funded at each percentile, among all investigators. As is evident, the number of grants funded decreased in direct proportion to the percentile ranking. Nevertheless, 48% of the grants funded had rankings beyond the 7th percentile.

In striking contrast, if R01 applications only from new investigators (Figure 3) or only from early stage investigators (Figure 4) are considered, there is a much broader spread in the percentile rankings of applications, extending to higher percentiles, that were selected for funding. This distribution, across a wide range of scores, reflects NCI's commitment to ensuring that the overall success rate for new investigators approximates that for established investigators.

Funding patterns for R21 grant applications

The funding patterns for R21 grant applications differ markedly from those of the RO1. This difference is explained by the fact that NCI receives a disproportionate number of applications relative to the number of R21 grants that can be funded (see Table 1). Thus, the cut-off for funding of R21 grant applications is more stringent than that for R01 applications for all investigators (Figure 5-7). Thirty percent of the grants funded had rankings beyond the 7th percentile.

In contrast to the case with the R01 funding patterns, success rates for R21 funding of applications from new and early stage investigators[3] are significantly lower than for established investigators (8% versus 14% success rates, respectively) (Table 1). The difference in success rates for R21 compared to R01 applications from new investigators is striking: 8% compared with 13%. This disparity results from the fact that R01, but not R21 applications, from new investigators are given preferential consideration.

---

3 The NIH does not separate the categories, nor report the r21 grants in terms of experienced or new investigators. The NCI was able to apply the R01 rules to the R21 to extract, and generate the data that distinguishes the 2 groups in these graphs.

President's Cancer Panel

The HPV Vaccine Series

NCAB

June 25, 2012

Topics Today

- **Update: HPV Vaccine Series**
- **Potential future topics**
- **Report for release 8/12**

Mission
President's Cancer Panel

- ***The Panel shall monitor the development and execution of the activities of the National Cancer Program, and shall report directly to the President.***
- ***Any delays or blockages in rapid execution of the Program shall immediately be brought to the attention of the President.***

Accelerating Progress in Cancer Prevention: The HPV Vaccine Example

Approach

- **Encourage interaction and discussion among participants using workshop model.**
- **Examine multiple issues that influence uptake of HPV vaccines and their effectiveness in reducing population cancer risks.**
- **Identify provocative questions for workshop discussions.**
- **Bring individuals from key organizations to table.**

2012 Series

Accelerating Progress in Cancer Prevention:
The HPV Vaccine Example

Workshop Goals

- **From each workshop, develop a finite set of priority recommendations to increase uptake of HPV vaccines in U.S.**
- **Identify lessons learned from HPV vaccination that may be applied to future cancer prevention vaccines.**
- **Identify topics and issues for which there are knowledge gaps and require further study.**
- **Identify practice/application issues that require attention.**

2012 Series

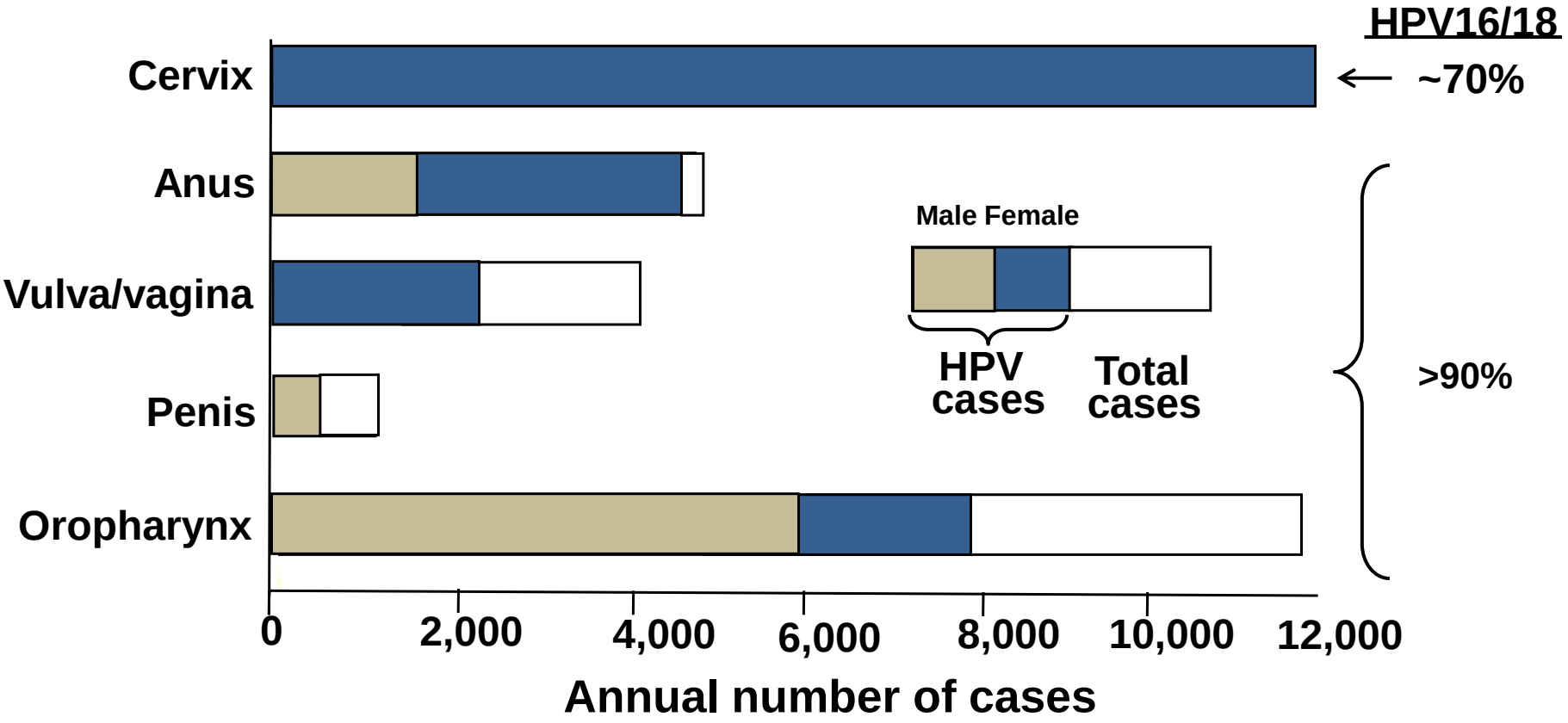
Accelerating Progress in Cancer Prevention:
The HPV Vaccine Example

Four Workshops

- **HPV Vaccination as a Model for Cancer Prevention**
- **Achieving Widespread HPV Vaccine Uptake**
- **Clinical Practices, Standards, and Economic Implications**
- **Challenges of Global HPV Vaccination**

United States: Annual Incidence of Cancers Attributable to HPV

2004-2008

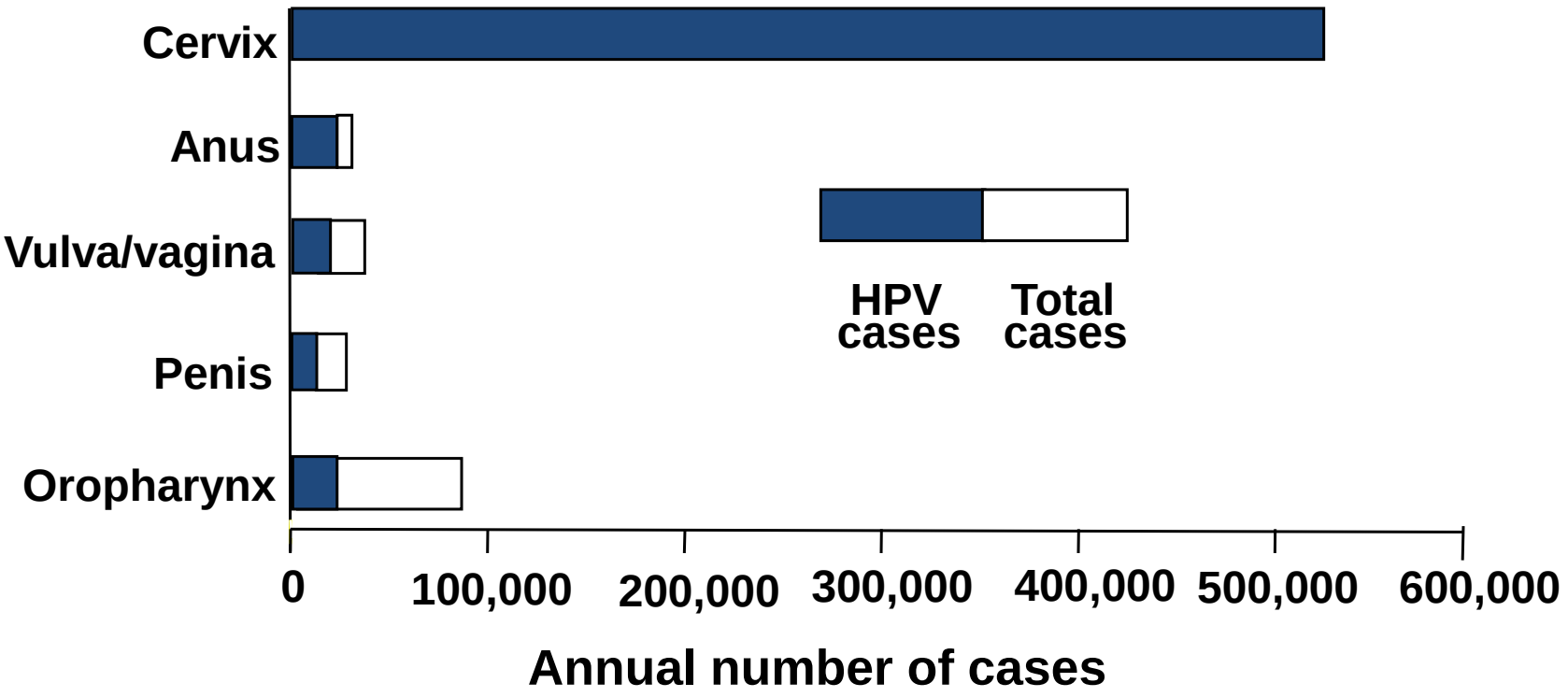


- **Pap screening has reduced the incidence of cervical cancer by ~ 80%**
- **Incidence of HPV-positive oropharynx cancer 1988-2004 increased >3-fold**

MMWR, 2012; Chaturvedi et al, J Clin Oncology, 2011; Gillison, Chaturvedi, and Lowy., 2008

MMWR Weekly 61:253-80, 2012

Worldwide Incidence and Distribution of Cancers Attributable to HPV



- **Cervical cancer represents ~10% of all female cancers worldwide.**
- **>85% of global cervical cancers occur in developing world.**
- **In developing world, >90% of HPV-associated cancers are cervical cancers.**

Adapted from de Martel et al, Lancet Oncology 13: 607-15, 2012

Workshop 1:
HPV Vaccination as a Model for Cancer Prevention

July 24, 2012
San Francisco, CA

Topics

- **Background to vaccine development and FDA approvals**
- **Vaccine safety, efficacy, and duration of protection**
- **Candidate second-generation vaccines**
- **Potential population-wide impact of current vaccines and second-generation vaccines**

HPV Vaccination as a Model for Cancer Prevention

Illustrative Questions

- **Fewer than 3 doses sufficient?**
- **Eventual need for a booster dose?**
- **Reduce age of vaccination *(childhood vaccination)?***
- **Potential impact on cervical cancer screening?**
- **Research gaps or other barriers to progress?**

HPV Vaccination as a Model for Cancer Prevention

Modeling & Monitoring Vaccine Impact

- **Are systems in place sufficient?**
- **Are more vaccine registries needed?**
- **Importance of monitoring intermediate end points *(e.g., HPV infection, pre-cancer)***
- **Is refinement of vaccination impact models needed?**

Co-Chairs and Confirmed Participants

Kevin J. Cullen, MD, University of Maryland School of Med.
Gary Dubin, MD, GlaxoSmithKline Biologicals
Denise Galloway, PhD, Fred Hutchinson Cancer Res. Ctr
Maura L. Gillison, MD, PhD, Ohio State University
Richard M. Haupt, MD, MPH, Merck Research Laboratories
Allan Hildesheim, PhD, NCI
Doug Lowy, MD, NCI: **Co-Chair**
Lauri Markowitz, MD, CDC
Joel M. Palefsky, MD, University of California San Francisco
Jeff Roberts, MD, FDA
Mark Schiffman, MD, MPH, NCI
Jennifer S. Smith, PhD, MPH, UNC Gillings School of Global Public Health
Claudia Vellozzi, MD, MPH, CDC
Cosette Wheeler, PhD, University of New Mexico**: Co-Chair**

HPV Vaccination as a Model for Cancer Prevention

A prelude to workshops 2, 3 and 4 and formulation of recommendations by the President's Cancer Panel

Workshop 2:

Achieving Widespread Vaccine Uptake

September 13, 2012
Washington, DC

- **HPV vaccination rates in U.S. should be increased to achieve optimal benefit in population impact.**
- **Participants will discuss and identify the most important barriers to increased vaccine uptake *(e.g., knowledge and communication gaps, policy and program limitations, cost).***
- **Discuss effective programs in U.S. and elsewhere.**

Workshop 2:

Achieving Widespread Vaccine Uptake

Co-Chairs

- **Robert T. Croyle, PhD**, **Director, Division of Cancer Control and Population Sciences, NCI**
- **Noel T. Brewer, PhD, MS**, **Associate Professor, UNC Gillings School of Global Public Health; Director, Cervical Cancer-Free NC**

Workshop 3:
Clinical Practices, Standards, and Economic Implications

November 16, 2012

Chicago, IL

- **Impact of HPV vaccination on cervical and other cancer rates still is not fully characterized.**
- **Participants will examine current clinical practice standards for cervical cancer screening.**
- **Discuss clinical and economic implications of widespread vaccination on other cancers and conditions.**

Workshop 3:
Clinical Practices, Standards, and Economic Implications

- **Assess changes in risk evaluation and clinical practice standards that could be necessary as HPV vaccinations increase.**
- **Consider other providers** *(e.g., dentists, pharmacists)* **who could deliver counseling about and administer HPV vaccines as well as expanded venues** *(e.g., pharmacies)* **in which vaccines could be provided.**

Workshop 4:
Challenges of Global HPV Vaccination

Spring, 2013

- **Examine global distribution of HPV-related cancers.**
- **Discuss programs in countries and regions where vaccination rates are exemplary.**
- **Recommend a U.S. strategy regarding global HPV vaccination.**

Potential Future PCP Topics

- **Communicating more effectively about cancer—changing the paradigm**
- **Accelerating clinical trials through new discovery pathways and agents, trial designs, statistical methodologies, trial processes and policies: in-depth focus on a limited set of issues**
- **Global network of cancer registries—foundation for global health efforts**
- **Accelerating progress for cancers with mortality rates that have changed little**

Release August 2012

The Future of Cancer Research: Accelerating Scientific Innovation

Frederick National Laboratory for Cancer Research Update

For the Joint Meeting of the

Board of Scientific Advisors &

National Cancer Advisory Board

Jennifer A. Pietenpol, Ph.D.

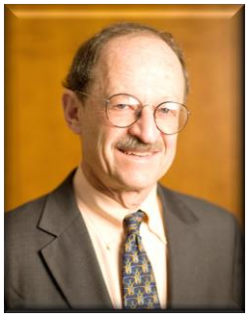
June 25th, 2012

Frederick National Laboratory for Cancer Research

NCI-Frederick

- **Established in 1972, designated as a Federally Funded Research and Development Center (FFRDC) in 1975 – minimized barriers to non-federal partners; government-owned and contractor-operated**
- **Mission: Pursue innovative basic, applied and translational research leveraging technical expertise, physical infrastructure, and FFRDC status**
- **Majority of focus is cancer research (NCI) with some usage by NIAID (~16%) for research on infectious disease**
- **Main research areas currently: clinical trials support, drug development, vaccine development and genomics**

Frederick National Laboratory for Cancer Research (FNLCR)



Under Dr. Varmus' leadership:

- NCI participation in SAIC search and recruitment of David Heimbrook, Ph.D. as CEO of SAIC-Frederick in June 2011
- Established first external advisory board to review state of research on Frederick campus, as per recommendation of NCAB special report in 2010 - to give greater attention to activities at NCI-Frederick
- Designated facility as Frederick National Laboratory for Cancer Research

NCI-Frederick Advisory Committee (NFAC)

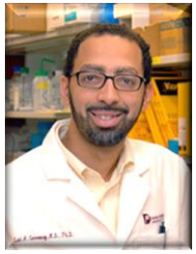
- **NFAC charge - review the state of research at FNLCR and make recommendations for the best use of its capabilities and infrastructure**
- **15 member committee**

Zachary Hall, Ph.D.
Former Director, NINDS
Former President; Institute of Regenerative Medicine, UCSF
Emeritus Professor, UCSF

Chair

C. Barrett

D. Botstein



L. Garraway

J. Gray

B. Hahn

M. Justice

T. Look

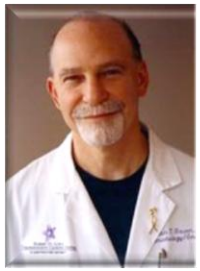
L. Marnett

J. Mesirov

G. Nolan

K. Olden

J. Pietenpol



S. Rosen

C. Willman

NCI-Frederick Advisory Committee (NFAC)

Organization meeting, August 31st, 2012

First meeting, January 21st, 2012

- Develop a process for approval, prioritization and scientific oversight of contactor-CRADA projects
- Update on website development
- Establish program(s) to allow extramural investigators to learn about and use FNLCR advanced technologies and capabilities
- Develop a strategic plan to guide direction & activities

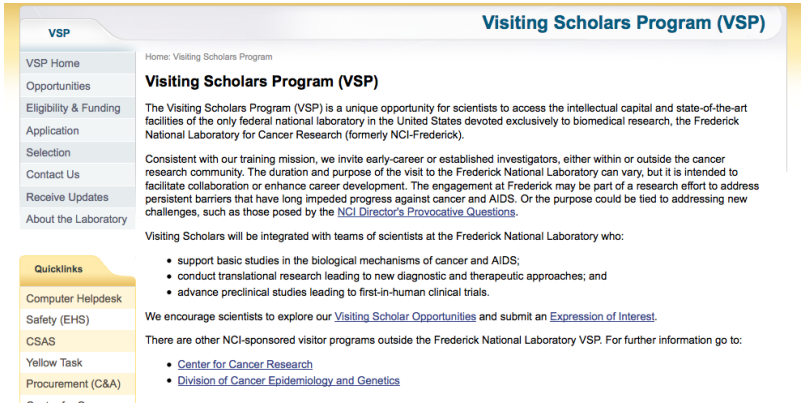
NCI-Frederick Advisory Committee (NFAC)

Second meeting, May 30th, 2012

- Opening of the Advanced Technology Research Facility (ATRF)

- Update on partnership efforts with Contractor-CRADA process at FNLCR

  Request to examine process for scientific review/prioritization



- FNLCR Visiting Scholars Program (VSP) developed

- Beginning of Strategic Discussions

Strategic Directions

Expanding the Discussion

Working Sub-Groups recommendations (part I)

- **Optimize the use of FNLCR by NCI Divisions, Offices and Centers** - ***Carl Barrett*, Rick Borchelt, John Czajkowski, Jim Doroshow, Ed Harlow, Jeff Strathern, Bob Wiltrout***

- **Expand use of the FNLCR by other ICs, agencies, external investigators; build capabilities to do things things that are not done elsewhere** - ***Rick Borchelt, John Czajkowski, Jim Doroshow, Levi Garraway*, Ed Harlow, Bob Wiltrout***

- **Expand interactions between NCI and industry through ATRF and contract mechanisms** - ***Carl Barrett*, Sara Courtneidge, John Czajkowski, Jim Doroshow, Bob Wiltrout, Bob Wittes***

****NFAC Committee Member***

Strategic Directions

Expanding the Discussion

Working Sub-Groups recommendations (part II)

- **Structural changes: identify critical improvement to remove hazards; campus upgrades and redesigns when affordable** - ***Rick Borchelt, John Czajkowski, Kevin Cullin, Jeff Strathern, Bob Wiltrout***

- **Enhance Communications with NIH, DHHS, and extramural researchers who can benefit from FNLCR** - ***Rick Borchelt, John Czajkowski, Doug Lowy, Anne Lubenow, Bob Wittes***

- **Expand and coordinate education and training programs** - ***Rick Borchelt, John Czajkowski, Kevin Cullin, Jim Doroshow, Doug Lowy, Jeff Strathern, Jonathan Wiest, Bob Wiltrout***

- **Opportunity to rapidly advance new initiatives** – **NFAC suggested pursuit of "big idea(s)" – would have significant impact on cancer control**

Frederick National Laboratory for Cancer Research

Summary of Discussions

Defining Characteristics of FNLCR

- **Unique combination of scientific expertise;** breadth of operational capacity to serve all aspects of applied biology – from basic to FDA regulatory environment
- **Agile;** adapt rapidly to changes in NCI priorities
- **Special relationships;** integrate government agencies, extramural, and industry partners
- **Gateway to government assistance;** access to technologies, contractor expertise, project management

Frederick National Laboratory for Cancer Research

Frederick National Laboratory for Cancer Research

Summary of Discussions

Operational pillars at FNLCR

- Integrated resources
- Support for Product/Project Development
- Training and Education
- Partnership facilitation

Examples

Visiting Scholars Program (VSP)

Frederick National Laboratory for Cancer Research

Conclusions

- **Designation as a National Laboratory**
- **Opportunity to be strategic in future directions and activities in order to meet the demands of the national cancer program**
- **A facility to enable technology and resource development and deployment to cancer research community; amplifying effect on science in the intramural, extramural and private sector communities through creative ventures**
- **Site for external community participation – educational programs leveraging top-notch research programs**
- **Opportunity to rapidly advance new bold initiatives – NFAC suggested pursuit of "big idea(s)" - lead to significant advances in cancer prevention, treatment or control**

Discussion

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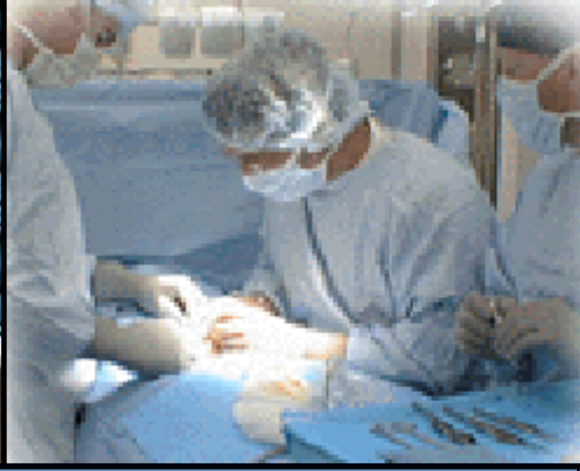

Improving Efficiency in NCI/DCTD-Sponsored Clinical Trials: Timelines, Central IRB and Unified Data Collection

Joint BSA/NCAB Meeting

June 25, 2012

Jeffrey Abrams, MD

Acting Director for Clinical Research

Division of Cancer Treatment and Diagnosis

National Cancer Institute

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Three Initiatives to Improve Efficiency in NCI/CTEP-Sponsored Clinical Trials

- **OEWG Timelines: Rapid initiation of clinical trials**
- **NCI Central Institutional Review Board (CIRB)**
- **Electronic data capture and management system**

OEWG - Background

- In March 2010, the OEWG provided recommendations to the NCI on strategies to decrease the time required to activate NCI-sponsored clinical trials

- A major component of the recommendations was the creation of target timelines and absolute deadlines for studies to go from Concept/LOI submission to activation (activation defined as study open to patient enrollment)

  - ➢ Phase 1 and 2 Studies:
    - Target Timeline – 210 days
    - Absolute Deadline – ~~540 days~~ **Now 450 days**

  - ➢ Phase 3 Studies:
    - Target Timeline – 300 days
    - Absolute Deadline – ~~730 days~~ **Now 540 days**

NCI/DCTD/CTEP Response

- Project Managers were hired to closely track study timelines
- Secure website developed to allow investigators, operations staff, and NCI staff to monitor timelines
- Routine conference calls between NCI reviewers and external investigators instituted at key points in the review process to quickly resolve issues and decrease the need for multiple document revisions
- Medical Editors were hired with responsibilities including compiling and editing Consensus Reviews and inserting applicable revisions directly into an unofficial copy of the Protocol using Track Changes®, thus saving investigators valuable time
- At Cancer Centers and Cooperative Groups, similar staff, process and IT changes were instituted

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OEWG Conference Call Process

- Calls between study team & NCI to clarify/discuss Consensus Review to prevent review iterations that may slow the approval process
- Conference calls occur at several key points:
  - LOI's: on-hold, approved pending drug company review, or approved
  - Concepts: pending response to Steering Cmte evaluation or approved
  - Protocols: pending response to Consensus Review
  - Ad Hoc: as special issues arise during study development process
- **Approximately 480** conference calls between April 2010 – May 2012:
  - 189 calls for LOI's
  - 99 calls for Concepts
  - 174 calls for Protocols

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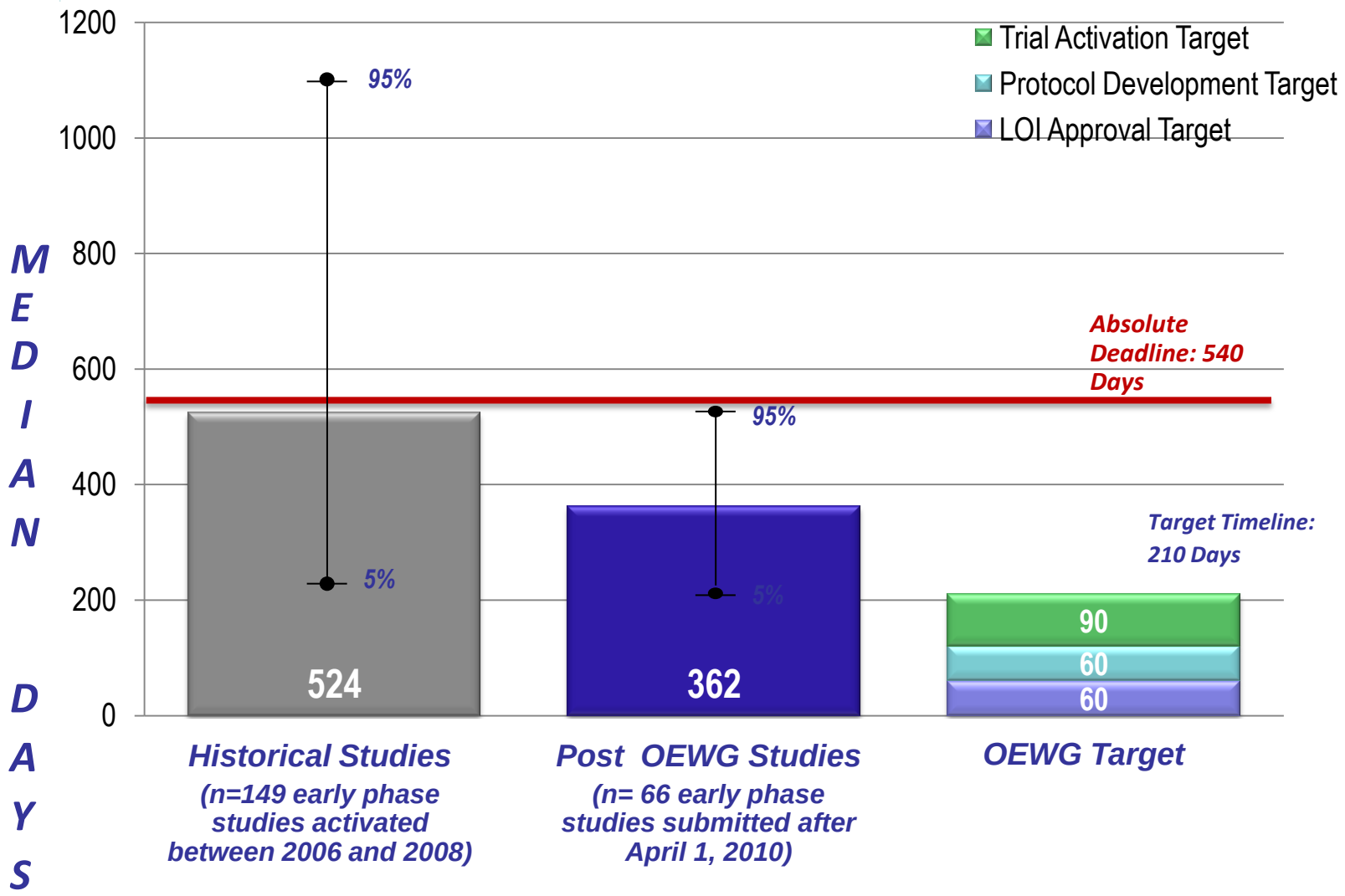
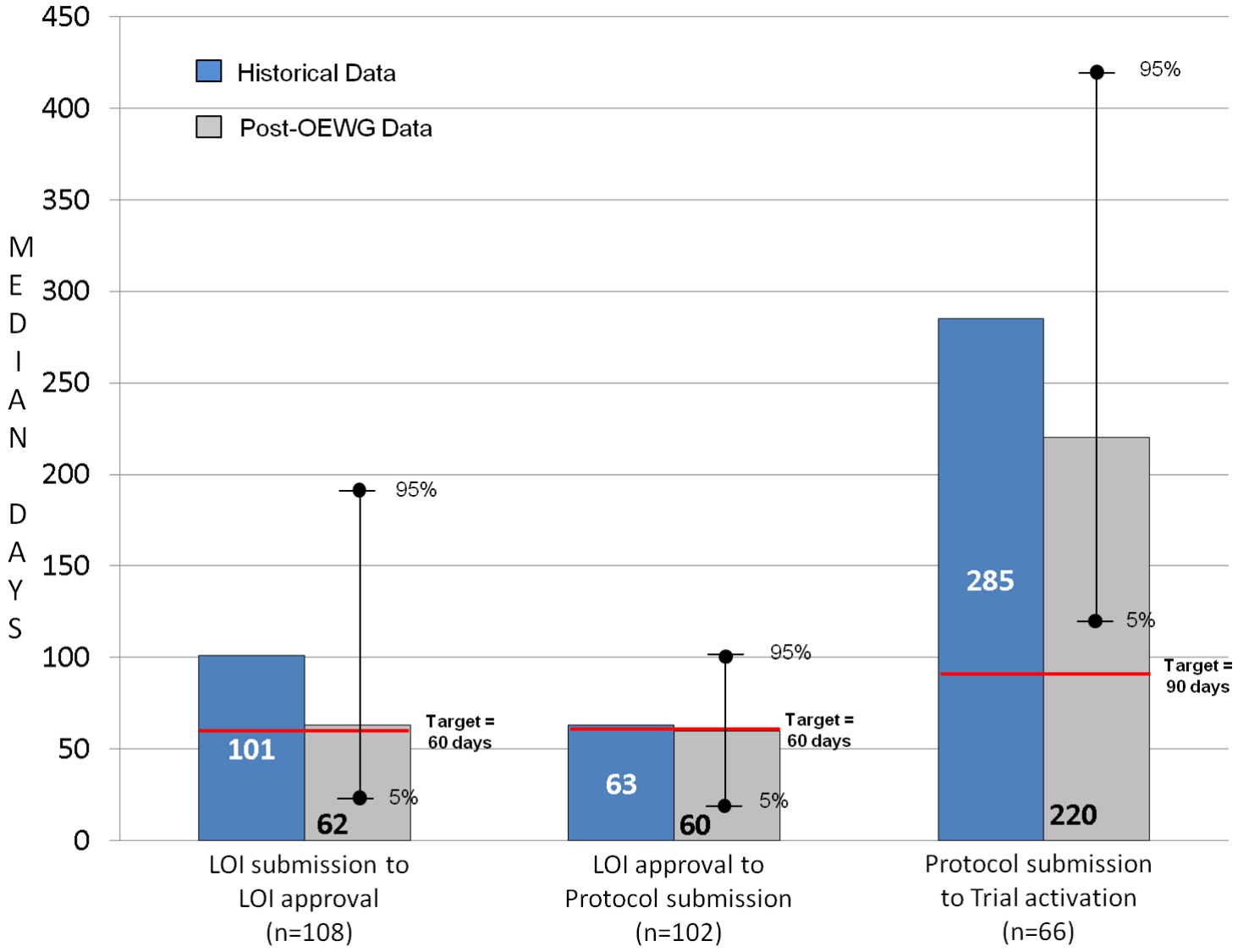
Timeline Comparison of Study Activation for Early Phase Trials: Historical vs. Post-OEWG (Apr 2010 – May 2012)



Breakdown of the study development stages
Early Phase Studies



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National Institutes of Health

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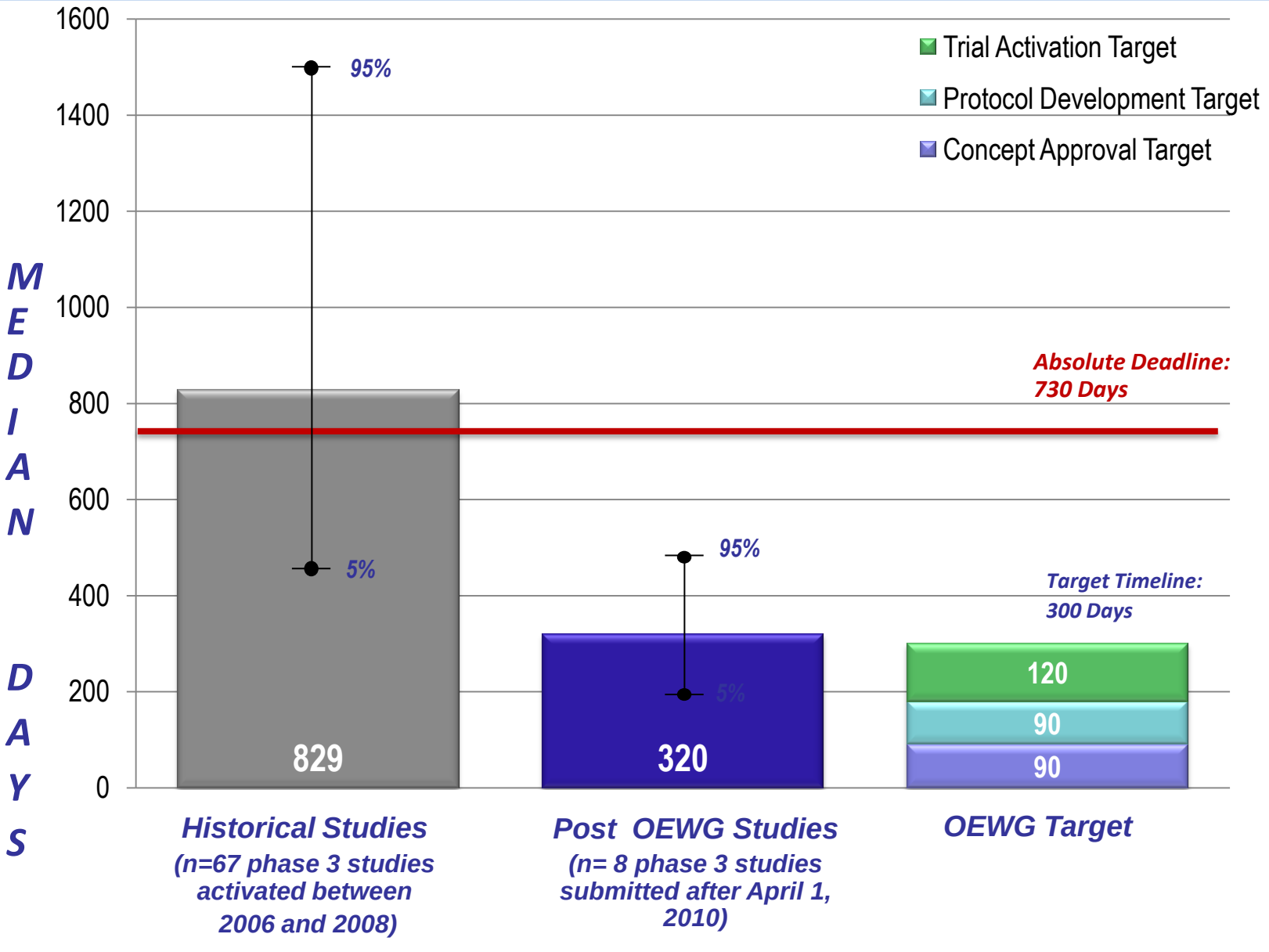
Timeline Comparison of Study Activation for Phase III Trials: Historical vs. Post-OEWG (Apr 2010 – May 2012)



Background – NCI Chooses an IRB Model

- **OHRP IRB model choices**
  - ***Independent/Stand-Alone IRB model***
    - **Appropriate where no local IRB exists**
    - **Understanding of local context obtained via worksheets, site visits, audits, teleconferences**
  - ***Shared responsibilities model***
    - **More appropriate where local IRB already present**
    - **Can utilize LIRB for understanding of local context**
    - **No need for site visits, etc.**
- **In consultation with OHRP, NCI designed a shared responsibilities model that is compliant with Federal Regulations regarding Cooperative Research (45 CFR 46.114)**
  - ***CIRB's primary function is initial and continuing review of studies, including amendments***
  - ***The local institution's primary function is consideration of local context, oversight of local performance***

How it Works: CIRB Review to Study Activation

- **CIRB receives new study, ICD, completed CIRB Application and any other review material from the Cooperative Group Study Chair (national PI).**
- **CIRB conducts review**
  - ***Any back and forth/request for changes is between Study Chair and CIRB until CIRB approves trial.***
- **Cooperative Group activates study and CIRB posts documents**
- **Enrolled IRB may then conduct Facilitated Review instead of full board local IRB review.**
  - ***"Facilitated Review" – the review during which the local IRB reviews the CIRB-approved study for local context considerations***

CIRB Profile - Enrollment

- **Enrollment is open to IRBs reviewing Cooperative Group Studies**
- **Number of Signatory Institutions Enrolled** **330**
  - *Number of Institutions using Adult CIRB only* *183*
  - *Number of Institutions using Pediatric CIRB only* *42*
  - *Number of Institutions using both Adult & Pediatric CIRB* *105*
- **Total Number of Enrolled Signatory Institutions, Affiliates, and Components** **1,023**
- **Number of NCI Designated Cancer Centers** **43**
- **Number of CCOPs** **35**
- **Number of MBCCOPs** **10**

Current as of 04/30/2012

CIRB Profile - Utilization

- **Number of Facilitated Reviews Reported 14,987**
- **One Facilitated Review indicates one IRB has used the CIRB's review to open one study thus saving one full board review.**
  - ***14,987 FRs reported indicates enrolled IRBs have used the CIRB's reviews and saved the time and effort associated with conducting 14,987 full board reviews.***
- **Number of Studies Available for Facilitated Review 292**
  - ***Adult 183***
  - ***Pediatric 109***

Current as of 04/30/2012

Study Assessing CIRB Costs

- **Costs and Benefits of the NCI CIRB (Todd Wagner, PhD, economist, VA Palo Alto and Stanford University, Journal of Clinical Oncology Feb. 2010)**
  - ***Surveyed local researchers and IRB staff at affiliated and non-affiliated sites to understand effort, time and cost***
  - ***For initial reviews, CIRB affiliation was associated with***
    - **6.1 hours research staff effort saved**
    - **2.3 hours less effort for IRB staff**
    - **34 days faster from the date the research staff started the paperwork until IRB approval**
    - **$717 saved per review**

Top Ten Institutions (by Facilitated Reviews Reported for Adult Studies)

• West Michigan Cancer Center	132
• University Medical Center of Southern Nevada	117
• Gundersen Clinic, Ltd	115
• Saint Joseph Mercy Health System	108
• Aultman Health Foundation	105
• Georgetown University	101
• St. Vincent Hospital	100
• Advocate Health Care Network	98
• Mission Health Systems	96
• Thomas Jefferson University	93

Current as of 04/30/2012

Top Ten Institutions (by Facilitated Reviews Reported for Pediatric Studies)

• University of California San Francisco	97
• All Children's Health System, Inc.	93
• The Children's Hospital of Philadelphia	89
• Hackensack University Medical Center	87
• Children's Hospital Central California	84
• Children's Hospital of Wisconsin	84
• Washington University St. In St. Louis	83
• Children's National Medical Center	82
• Children's Memorial Hospital	81
• University of New Mexico Health Sciences Center	80
• Nationwide Children's Hospital	80

Current as of 04/30/2012

Typical CIRB Composition

- ***One Chair and 14 Voting Members (15 Total)***

Patient Advocates	*4 (25%)*
Physicians	*8 (50%)*
Other Professionals	*4 (25%)*
Nurses	*1*
Pharmacist	*1*
Statistician	*1*
Ethicist	*1*

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Key Features of Possible Model Change

- **NCI is considering a change to an "Independent Model"**
  - ***CIRB reviews local context for IRBs (*No more 'facilitated review')**
    - CIRB informed of local context considerations via Worksheets completed by each institution and every investigator who opens a study
  - ***CIRB would be IRB of Record for a study at an institution***
- **Rationale**
  - ***Should increase CIRB enrollment and utilization***
    - NCI wants to improve clinical trial efficiency
    - Greater societal benefit
      - ***Faster IRB approval for investigators***
      - ***Faster accrual and trial completion***
  - ***Positions the CIRB well for AAHRPP accreditation***
- **Pilot Study**
  - ***Inform NCI re impact on local institutions, feasibility, best practices***
  - ***Population – about 25 institutions (enrolled using Adult CIRB, Pediatric CIRB, or both CIRBs; currently not enrolled)***
  - ***Study Duration***
    - July 2011 through September 2012

Key Features of Possible Model Change

- **Profile of Pilot Study**
  - *24 Institutions participating*
    - 14 previously using the "facilitated review" model
      - 9 using Adult CIRB only
      - 9 using PedCIRB only
      - 6 using both Adult and PedCIRB
    - 2 not previously enrolled and using the CIRB for the first time
- **Number of Studies Opened in Pilot as of 6/6**
  - *1,218 "facilitated reviews" transferred into new model*
  - *127 studies opened in new model*
- **Feedback from helpdesk**
  - *Enthusiasm of participants high*
- **Contractor assumed additional tasks to recruit pilot sites, transfer their studies into new model, provide support to sites and track pilot metrics**

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Evaluation Activities

- **Evaluation by NCI's Office of Market Research and Evaluation**
  - *Surveys gathered from institutional representatives at three timepoints – prior to study, mid-study, end of study*
  - *Respondents include IRB Chairs, Investigators, IRB staff*
  - *Results report due end of third quarter 2012*
- **Sampling of Metrics tracked by CIRB Operations Office**
  - *Study-specific data*
    - Number of 'facilitated reviews' transferred into new model (1,218)
    - Number of new studies opened using independent model as of 6/6 (127)
  - *'Length of review' milestones*
    - Both internal Operations Office pre-review as well as CIRB reviews
  - *Frequency of special reviews*
    - "Unanticipated problems"
    - Locally-developed recruitment materials
- **Final decision on CIRB model to be used going forward - Late 2012**

Expansion of CIRB Menu

- CIRB to review studies opened in new Early Trials Clinical Trials Network
- Institutions to participate via contract mechanism
  - *U01 contracts for early clinical trials: Phase 0, 1, and early 2*
  - *N01 contracts for Phase 2 trials*
- CIRB requested to review to ensure trials opened within 4 weeks
- Involves about 50 new studies/year
- Necessitates another CIRB dedicated to review of these early trials
  - *Will require recruitment of qualified members and operations staff*
- RFA to be released end of 2012/early 2013; awarded early 2014; trial review begins mid-2014

Advantages of using the NCI CIRB (regardless of model or menu)

- ***Benefits patients and research participants***
  - *Oncology-specific, multidisciplinary Boards*
  - *Dedicated review for study participant protections*
  - *Opens trials faster*
  - *Easier to open trials for rare diseases*
- ***Benefits for Investigators and research staff***
  - *Eliminates back-and-forth with IRB to gain study approval*
  - *Eliminates frequent subsequent submissions for amendments, continuing reviews, adverse events, etc.*
  - *Eliminates or reduces*
    - *Completing IRB application*
    - *Compiling and duplicating IRB submissions*
- ***Benefits for IRB members***
  - *Saves IRB members' time and effort*
    - *Eliminates full board review of Cooperative Group trials*
- ***CIRB Website URL: www.ncicirb.org***

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What is a Clinical Data Management System (CDMS)?

- Tool(s) or processes that support:
  - Data collection
    - Remote Data Capture (RDC)
  - Data coding
    - Standard libraries - Common Toxicity Criteria (CTCAE)
  - Data management
    - Discrepancy, delinquency, communication, correction
  - Preparation of data for analysis

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A CDMS directly/indirectly effects the entire research organization

Areas effected:

- Science
- Safety
- Regulatory
- Administration
- Operations
- Financial management

Individuals effected:

- Group Chair
- Statistical office
- Operations office
- Study principal investigator (PI)
- Participating sites/research staff
  - Physicians, nurses, CRAs
- Patient

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Effect of multiple CDMS's on NCI mult-center trial system

- Increased training costs
- Increased risk of data delinquency and/or discrepancy
- Increased time/effort to correct/complete data
- Delays in obtaining Science and Safety results

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The Need

- IOM report states: More resources for the rapid implementation and adoption of a common electronic registration and data capture system would increase consistency across trials, conserve resources by:
  - Reducing the workload associated with patient enrollment and follow-up
  - Allow for more timely review of the data from a trial
  - Enhance the knowledge gained from a trial
  - Standardized case report forms would ease the burden of regulatory oversight and lead to better compliance*

*A National Cancer Clinical Trials System for the 21st Century: Reinvigorating the NCI Cooperative Group Program: Sharyl J. Nass, Harold L. Moses, and John Mendelsohn, *Editors*; Committee on Cancer Clinical Trials and the NCI Cooperative Group Program; Institute of Medicine; Copyright © 2010

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Opportunity

- A strong foundation for CDMS uniformity across the Groups
  - Investigators/sites are often members of multiple Groups
  - All Group site/investigators can enroll patients on selected clinical trials through the CTSU
- Added emphasis
  - Federal funding constraints make it essential for sites to perform clinical trial functions with optimal efficiency
  - Transformation/consolidation of Groups
    - Further promotion of network collaboration
    - Merged Groups must select a common CDMS

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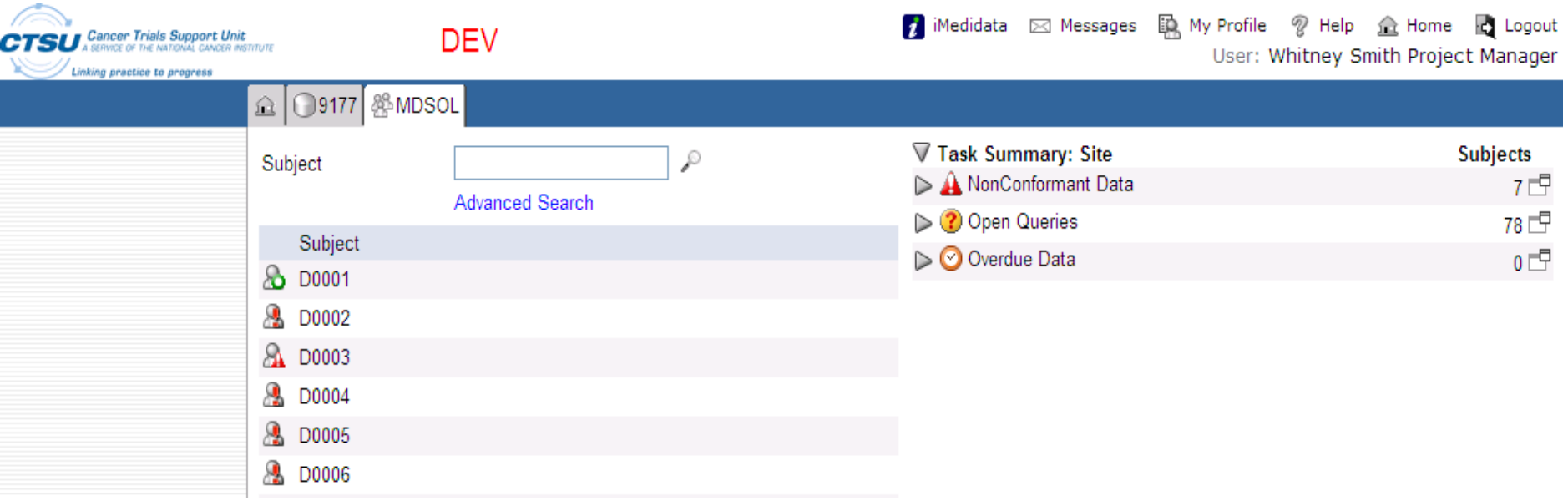
The Vision for a Common CDMS

Re-enforce focus on <u>Science and the Patient</u>

NOT data management

- Promote efficient and accurate data entry using a common intuitive/user-friendly interface
- Scalable for use for all Group Trials
  - Treatment (drug, surgery, radiation); Prevention; Cancer Control; Diagnostic
- Minimize training and implementation cost across Groups through shared training and experience
- Reduce data management burden/costs for multi-center coordinating center as well as participating sites

Rave Subject Page



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Requirements to deploy a common CDMS to the Groups

Standard approach to:

- Application (Medidata Rave):
- Core Configuration:
- Business practices:
  - Data delinquency rules
- Integration with 'Global' applications:
  - Pt enrollment, NCI accrual and adverse event reporting, **User-name/password/Role (single sign-on)**
- Case Report Forms:
  - Cancer Data Standards Registry and Repository (caDSR)

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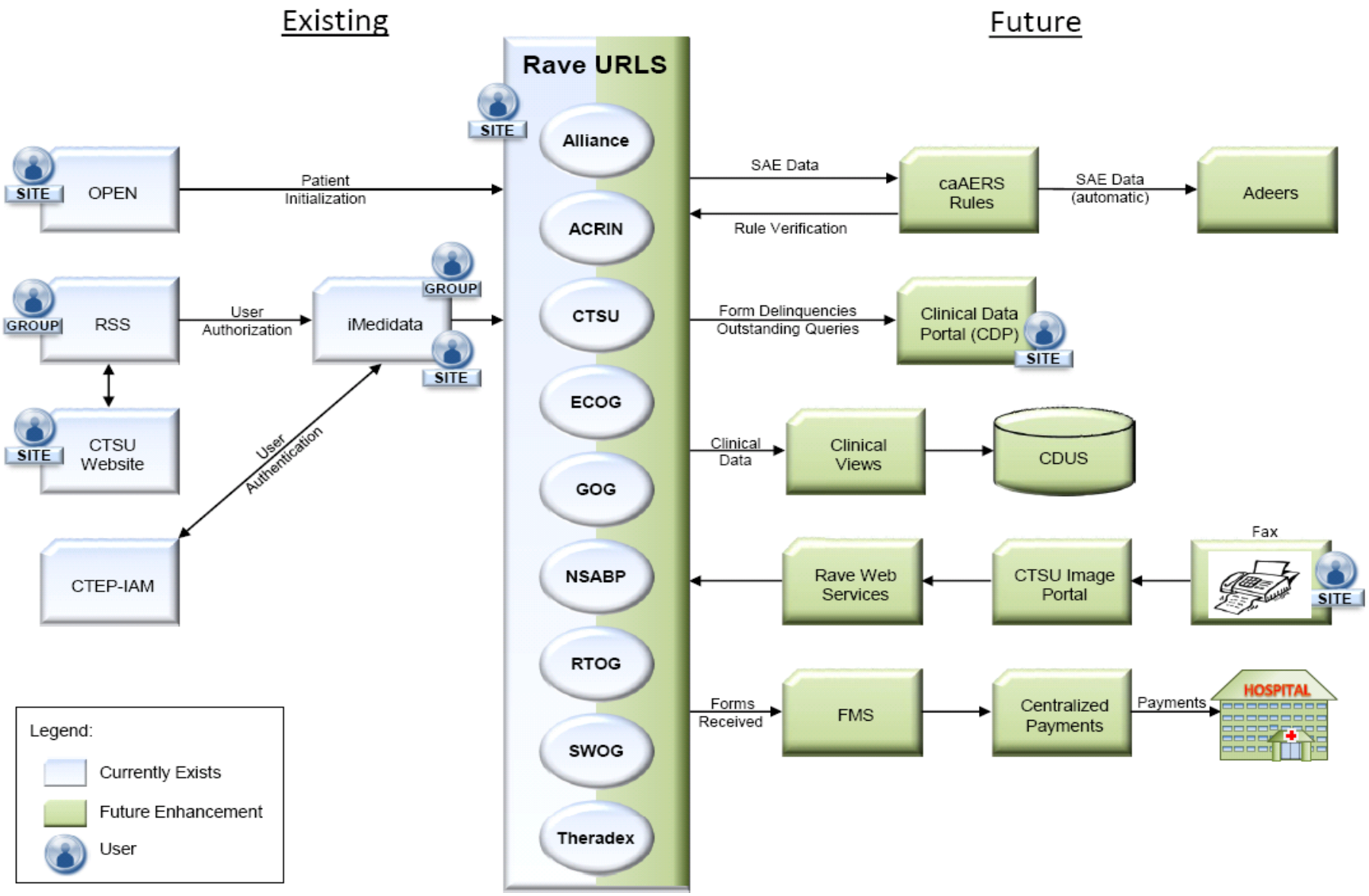
Key Concepts for Successful Deployment

- Leverage experience
  - Medidata
  - Groups
    - General CDMS knowledge
    - Rave Specific: Alliance (2yr) and NCIC (5+yr)
- Strive for common look/feel of outward/community facing features
  - Single sign-on
  - Remote data capture (RDC)
- Standard interfaces require a standard approach

Existing and Future Integrations



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Organizations Adopting Common CDMS

- Who:
  - All NCI Cooperative Groups
  - COG Phase 1 Consortium
  - Adult Brain Tumor Consortium (ABTC)
  - Theradex (early phase 1)
  - Cancer Trials Support Unit (CTSU)
- Role:
  - Modify business, operational and technical infrastructure to implement Rave
  - Participate in standards development/adoption activities
  - Integrate local applications with Rave
  - “Local” knowledge acquisition

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NCI

- Who
  - CTEP, DCP, CCCT, RRP, CIP, BRB, CBIIT
- Role
  - Project oversight
  - Establish overall direction and expectations
  - Promote standardization NOT standards
  - Resource allocation:
    - License
    - Hosting
    - Training
    - Maintenance
    - Contractor support

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Deployment Plan (start 4/1/11)

Stage 1
0 to 90 days

- Start Apr 1, 2011
- First 3 sites (**Alpha**) begin deployment (start of stage)
  - Allow 1yr to implement

Stage 2
91 to 180 days

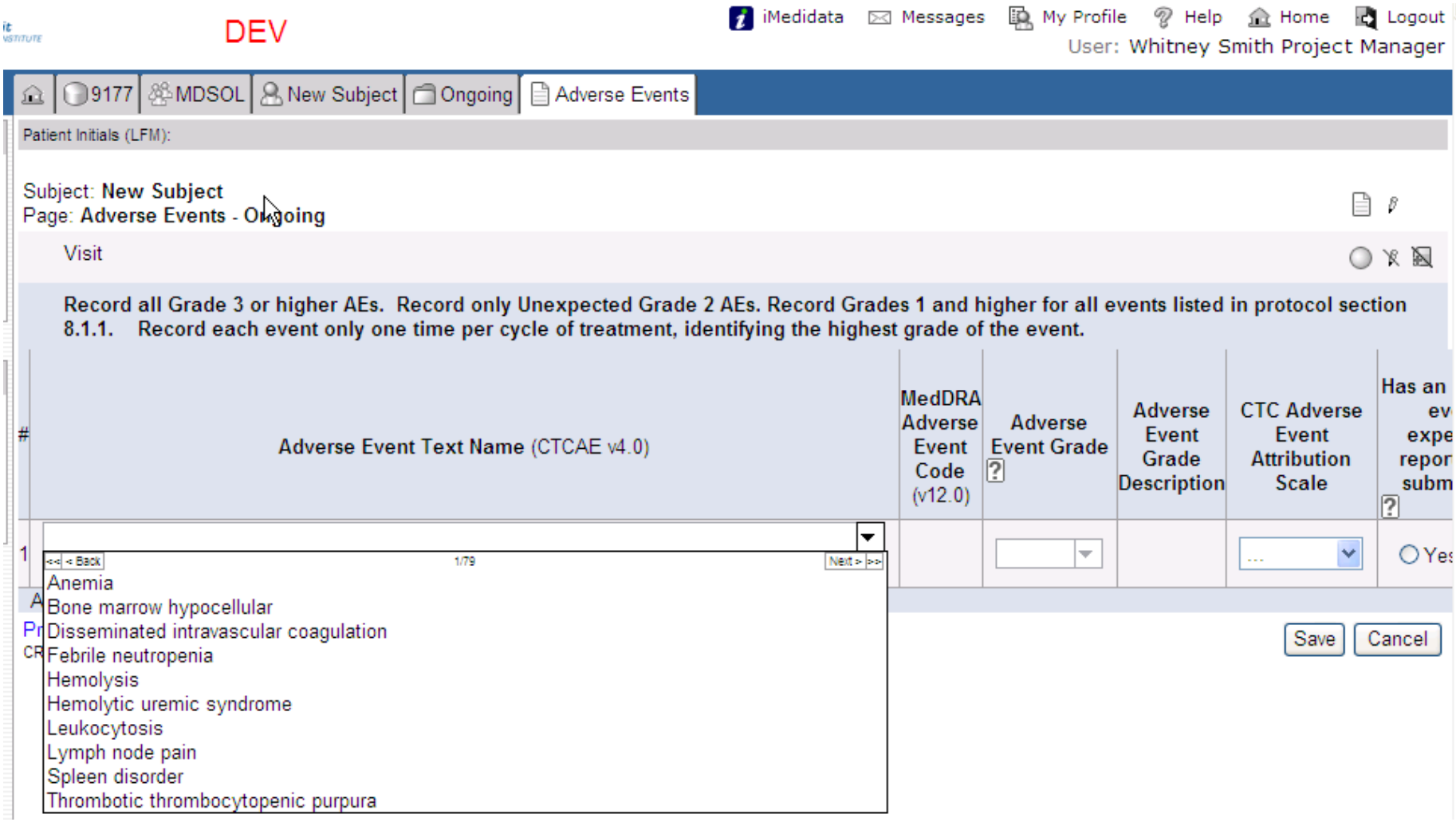
- Start Jul 1, 2011
- Second 3 sites (**Bravo**) begin deployment (start of stage)
  - 9-months to implement
- Alpha sites continue deployment activities

Stage 3
181 to 270 days

- Start Oct 1, 2011
- Third 3 sites (**Charlie**) begin deployment (start of stage)
  - 9-months to implement
- Bravo sites continue deployment activities
- Alpha sites complete deployment (end of stage)

Implementation Alpha/Bravo 4/1/12
Charlie 7/1/12

Toxicity (Adverse Event) Page



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Severe Adverse Event (SAE) Reporting for Cooperative Groups

- Problem: Currently there is a dis-connect between 'Routine' Adverse Event (RAE) and Severe Adverse Event (SAE) reporting
  - RAE and SAE data captured in separate systems
  - Double data entry
  - Promotes under/over reporting
  - Discrepancy Reconciliation

- Solution: Single source for reporting both RAE and SAE reporting (i.e. Rave)
  - Enter AE one time (reduce/eliminate discrepancies)
  - 'Smart' CRFs identify AEs that require additional information (SAEs)
  - Reduce training requirements for site MD, RN, CRAs

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Conclusion - Modernized/Standardized Group CDMS will:

- Support/complement transformation of Groups into a 'Network'
- Meets FDA and other Federal requirements for electronic data capture, security and transfer
- Reduce effort/cost of data management
- Improve trial management/decision-making
- Promote data sharing
- Sets the stage for potential further infrastructure improvements
  - SAE reporting; Remote auditing; electronic filing for FDA reports

Three Initiatives to Improve Efficiency in NCI/CTEP-Sponsored Clinical Trials

- **OEWG Timelines: Rapid initiation of clinical trials**
- **NCI Central Institutional Review Board (CIRB)**
- **Electronic data capture and management system**

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Office of HIV and AIDS Malignancy (OHAM) Re-issuance Request

ACSR

AIDS and Cancer Specimen Resource

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

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Establishment of the ACSR and Objectives

- The ACSR was established by the NCI in 1994 in response to a BSA Subcommittee assessment of researcher needs in the HIV-associated malignancy field.

- Primary Objective: Meet the specimen needs of clinician and basic researchers in HIV-associated malignancies by ***acquiring, storing and equitably distributing tumor tissues and biological fluids from patients with HIV-associated malignancies.***

ACSR Funds

- A portion of NCI's appropriated funds are restricted for use in HIV-related research. The ACSR is funded using these "AIDS-directed" dollars.
- The NIH Office of AIDS Research (OAR) coordinates the NIH AIDS research program and provides additional oversight and guidance for the use of AIDS restricted funds.
- OAR considers the ACSR a "high priority" project for funding.

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Comments on Acquisitions, Curation and Distribution

- HIV-related malignancies encompass a number of rare diseases
- Specimens reflect a wide variety of cancer types
  - Over 20 different diagnosis codes
- Multiple tissue specimen processing types:
  - FFPE, frozen, bloods (PBMC, Plasma, Serum), other bodily fluids (saliva, CVL, urine, CSF), PAP smears
- Multiple time points collected per patient
- Multiple aliquots
- Specimens must be considered in the context of a variety of immunologic and infectious disease states (HIV, KSHV, EBV, HPV). Fortuitous cohort collections with blood specimens that pre-date cancer diagnosis are extremely valuable.
- Tools developed (TMAs, WGA-DNA) to preserve specimen base

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ACSR Activity

- Since 2006, 76 different investigators from 50 institutions have received specimens from the ACSR
- 125 publications representing 43 institutions (excluding NCI and ACSR institutions); 11 foreign institutions

	Inquiries	LOIs	Approvals	Disbursement
2008-2011	242	133	119	12,459
2004-2007	123	82	68	4,183

- ACSR has created 24 Tissue Microarrays
  - Disbursed 14,751 TMA cores
- African Collections
  - Acquired: 108,672 samples from 2,245 individuals
  - Disbursed: 5,827 samples

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Selected High Impact Research Supported by ACSR

- **Kaposi sarcoma**
  - Confirmation of KSHV as the causative agent of KS; Biology of KSHV and its role in tumorigenesis

    Ex: AIDS (1997); *Journal of Virology* (1997)
  - Development of the BCBL-1 primary effusion lymphoma (PEL) cell line. Invaluable research tool with >160 citations in Pubmed.

    Nature Medicine (1996)
  - Multi-detection algorithm for seroprevalence of KSHV

    Journal of Clinical Microbiology (2006)
  - KSHV in HIV-suppressed and non-suppressed individuals

    mBio (Am. Soc. for Micro. on line journal- 2011)

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Selected High Impact Research Supported by ACSR

- **Lymphoma**
  - Novel treatment for Burkitt lymphoma

    Blood (2005)
  - Impact of HAART on HIV-associated lymphoma incidence and subtypes in South Africa

    Transfusion and Apheresis Science (2011)
- **HIV**
  - HIV-1 spread in tissues of HIV+ individuals

    Ex: Blood (2005); *PLoS One* (2011); *Infection, Genetics, and Evolution* (2011)
- **San Francisco Young Men's Health Study**
  - "Rescuing" specimens from this study led to advances in KS and KSHV research

    Ex: New England Journal of Medicine (1998); *AIDS* (2004)

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Additional Roles of the ACSR and Support of Current and Future Projects

- Serving as AMC Biorepository
- Plays a major role in the HIV+ Tumor Molecular Characterization Project (HTMCP)
- Incoming grant applications for HIV-lymphomas, KS and HPV-related tumors rely on ACSR
- ACSR has written 10 letters of support for investigators submitting grant applications
- A number of funded NCI grants are dependent on the ACSR to achieve research objectives
- At least two, independent, NCI funded clinical trials are relying on the ACSR for curation services for trial specimens

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Future High Impact Studies

- A proposed, large clinical trial (over 10,000 screened patients) is planning to use the ACSR as the biorepository for clinical material
- Activities in Sub-Saharan Africa
  - Capacity building
  - Regional Biospecimen Repository
- NCI's Provocative Question #12: Cancers caused by novel infectious agents and mechanisms of tumor induction.
  - ACSR specimens may be a very useful source of material to look for novel infectious agents involved in tumorigenesis

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Global HIV-Associated Cancer Burden

- 34 million HIV+ or AIDS pts.
- 70% in resource-limited Sub-Saharan Africa
- High prevalence of oncoviruses that cause HIV-associated malignancies: KSHV, EBV, HPV
- HIV-associated cancers now among the most common tumors in Sub-Saharan Africa
- Lack of adequate pathology; much unknown about types of tumors and epidemiology
- President's Emergency Plan for AIDS Relief (PEPFAR) rollout
- In future, will become more like the US, with less AIDS-defining but more non-AIDS-defining cancers

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ACSR and NCI's Global Efforts

- OHAM efforts in Sub-Saharan Africa
  - ACSR
  - AIDS Malignancy Clinical Trials Consortium (AMC)
  - D43 Grants: Developing Research Capacity in Africa for Studies on HIV-Associated Malignancies
- The three initiatives were designed to compliment each other
- ACSR PIs assisting with training and capacity building in pathology and in specimen and data curation, and developing expertise in the challenges regarding obtaining and transporting specimens
- Proposed ACSR repository in Africa

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Rationale for Continuing to Acquire New Specimens

- HIV epidemic, and the associated malignancies are ever changing within the USA and globally.
  - Increasing incidence of non-AIDS defining tumors, yet each still a rare disease. Inadequate specimens in repository to meet research needs.
- Fresh frozen specimens needed with matching non-tumor germline samples for comprehensive molecular and genomic analysis
- New specimens needed from the developing world, especially Sub-Saharan Africa. Historical specimens non-existent or of little value.
- New samples needed from patients who have been on long term HAART

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Proposed Changes to Enhance ACSR

- Restructuring to enhance cooperation and coordination. Single U01, single PI, broadened membership of the Executive Committee.
- Greater central oversight of collection initiatives, participating sites, collaborations, international activities.
- Flexibility to ensure a more rapid response to exceptional opportunities or poor investments.
- Broader expertise to make more effective scientific decisions.
- Facilitate NCI/OHAM Staff's ability to monitor, and provide guidance and oversight to the ACSR.

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Questions?

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National Cancer Informatics Program (NCIP) Briefing to the 1st Joint NCAB/BSA Meeting

George A. Komatsoulis, Ph.D.
Director (interim)

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health

NCIP and the NCI Center for Biomedical Informatics and Information Technology (CBIIT)

- Activities encompassed within NCIP
  - Interoperability and data access technology to support advanced biomedical research/care
  - Biomedical informatics research and development
  - *In silico* research
  - Informatics education and training

- Other activities of CBIIT
  - Operational support for biomedical informatics
  - Full life-cycle support for business operations at the NCI
  - Provision of standard commoditized IT support
  - Coordination of NCI IT investments

Launch Meeting of NCIP

- Launch meeting took place at the Natcher Conference Center on 31 May 2012
- 49 invitees on site that represented a broad range of expertise in genomics, clinical and translational research and informatics
- Between 250 and 300 people on the phone at most times
- NCI Director Harold Varmus charged us to come to a consensus on the IT needs of the NCI supported cancer research community
- Meeting materials posted at: http://ncip.nci.nih.gov

Structure of Meeting

- Session 1: Genomics
  - Andrea Califano – Columbia
  - Chris Sander – Memorial Sloan-Kettering
  - Barbara Wold – Caltech/NCI
  - Kevin White – University of Chicago

- Session 2: Clinical and Translational Sciences
  - Amy Abernethy – Duke
  - William Dalton – Moffitt
  - Mia Levy – Vanderbilt
  - Joel Saltz – Emory

- Session 3: Standards
  - Rebecca Kush – CDISC
  - Stan Huff – Intermountain Health Care
  - Philip Payne – Ohio State University
  - Chris Chute – Mayo Clinic

Key Drivers of a National Cancer Informatics Program

- Aligned with the mission and vision of the NCI and driven by needs of the cancer research and care community
- Embedded in all key programs and activities of the NCI
- Just enough governance
- Open and transparent
- Accountable
- Integrated with other informatics initiatives
- Sustainable

Implementing Activities in NCIP

- NCIP projects will begin as direct support for scientific initiatives
- Where successful and needed, pilot projects may be hardened/generalized for wider distribution
- NCIP informatics projects will be integrated into the scientific projects that they support
- Success of NCIP projects will be determined by success of the scientific initiative

Moving forward with NCIP

- Working groups will be constituted to continue the discussion of needs and possible projects

- Initial focus areas identified during discussions
  - Access and computing on large scale genomics data
  - Support for precision medicine pilots
  - Integration of informatics into core programs

- Still need to provide core biomedical informatics capabilities to ongoing NCI research initiatives

The Broader Informatics Landscape

Standards Bodies
CDISC
HL7
IHTSDO

NIH Informatics Initiatives
BTRIS
CRIS
NCBI/NLM
Trusted Partners Program

Regulatory Agencies
FDA
ONC
NIST

Commercial Entities
CDMS Vendors
EHR/PHR Vendors
Research Systems
Pharmaceutical Industry

NCIP

Other NIH Institutes
CTSAs
BIRN
CVRG
NCBCs

Government IT Oversight
OMB
OSTP
HHS CIO
NIH CIO

NCI Sponsored Programs
Cancer Centers
NCCCPs
SPOREs
Cooperative Groups

Regulations
FISMA
HIPAA
Common Rule
21 CFR 11

Discussion/Feedback