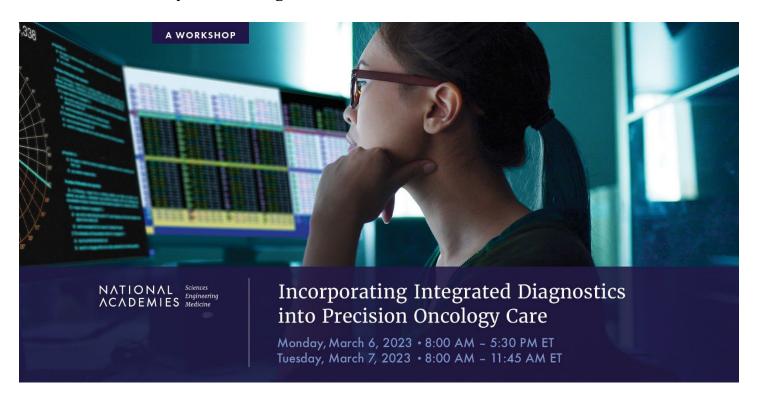


# Incorporating Integrated Diagnostics into Precision Oncology Care: A Workshop

National Cancer Policy Forum Computer Science and Telecommunications Board Board on Human Systems-Integration



Keck Center – Room 100
National Academies of Sciences, Engineering, and Medicine
500 Fifth Street, N.W.
Washington, DC, 20001

# Link to view live webcast:

 $\frac{https://www.nationalacademies.org/event/o3-o6-2023/incorporating-integrated-diagnostics-into-precision-oncology-care-a-workshop}{}$ 





March 6, 2023

# Dear Colleagues,

Welcome to the National Academies of Sciences, Engineering, and Medicine workshop on *Incorporating Integrated Diagnostics into Precision Oncology Care*. This workshop is being convened by the National Cancer Policy Forum, in collaboration with the National Academies' Computer Science and Telecommunications Board, and the Board on Human-Systems Integration. This workshop is an opportunity for the cancer community to discuss the current state of the field of integrated diagnostics, including better defining the purpose, goals, and components of integrated diagnostics. Workshop speakers are also encouraged to share their input on the opportunities to promote health equity and improve patient access to integrated diagnostics, to ensure integrated diagnostics are well-designed for patient care and clinical workflow, to discuss best practices for oversight and evidence generation, and to share their vision for the future of integrated diagnostics.

We welcome your involvement in the workshop. Please use the microphones in the room or the chat box on our website (<a href="https://www.nationalacademies.org/event/03-06-2023/incorporating-integrated-diagnostics-into-precision-oncology-care-a-workshop">https://www.nationalacademies.org/event/03-06-2023/incorporating-integrated-diagnostics-into-precision-oncology-care-a-workshop</a>) to ask questions, and please mention your name and affiliation. The proceedings of the workshop will be published by the National Academies Press and may incorporate your comments and ideas. Archived presentations and videos from the workshop will also be available on the website.

We look forward to this important workshop.

Sincerely,

Hedvig Hricak, MD, PhD
Carroll and Milton Petrie Chair
Department of Radiology
Memorial Sloan Kettering Cancer Center
Professor of Radiology
Weill Medical College of Cornell University
Professor, Gerstner Sloan-Kettering Graduate
School of Biomedical Sciences

Kojo Elenitoba-Johnson, MD
Inaugural Chair, Department of Pathology and
Laboratory Medicine
James Ewing Alumni Chair of Pathology
Professor, Gerstner Sloan Kettering Graduate
School of Biomedical Sciences
Member, Human Oncology and Pathogenesis
Program
Memorial Sloan Kettering Cancer Center

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# Incorporating Integrated Diagnostics into Precision Oncology Care: A Workshop March 6-7, 2023

Collaborative workshop convened by:
National Cancer Policy Forum
Computer Science and Telecommunications Board
Board on Human-Systems Integration



Keck Center-Room 100 500 Fifth St., N.W. Washington, D.C. 20001

# **Agenda**

	MARCH 6, 2023	
EASTERN TIME ZONE		
7:30 am	Breakfast and Registration	
8:00 am	Session 1: Vision and State of the Science for Integrated Diagnostics in Cancer Care  Planning Committee Co-Chairs:  Kojo S.J. Elenitoba-Johnson, Memorial Sloan Kettering Cancer Center  Hedvig Hricak, Memorial Sloan Kettering Cancer Center  An Overview of the Current State and Vision for Integrated  Diagnostics in Cancer Care  • Kojo S.J. Elenitoba-Johnson, Memorial Sloan Kettering Cancer Center	
	<ul> <li>Hedvig Hricak, Memorial Sloan Kettering Cancer Center</li> <li>Ensuring Integrated Diagnostics Facilitate Oncology Care</li> </ul>	
	Travis Osterman, Vanderbilt University	
	Panel Discussion	
9:15 am	Break	
9:30 am	Session 2: Examples of Efforts to Develop, Implement, and Use Integrated Diagnostics Co-Moderators: Nancy Davidson, Fred Hutchinson Cancer Center (participating virtually) Kojo S.J. Elenitoba-Johnson, Memorial Sloan Kettering Cancer Center	
	PANEL 1: ACADEMIC CENTER PERSPECTIVES 9:30 – 10:40 am Presentations	

**Workshop Website and Briefing Materials:** 

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	DANIEL - INDUGEDIA DED CIDECENTATE
	PANEL 2: INDUSTRY PERSPECTIVES 10:40 - 11:25 am
	Presentations
	Dorin Comaniciu, Siemens Healthineers
	Torbjörn Kronander, Sectra AB
	Nick Trentadue, Epic
	Panel Discussion
	PANEL 3: LESSONS LEARNED FROM OTHER CONTEXTS OF CARE 11:25 am – 12:00 pm
	Presentations
	Gil Alterovitz, VA Health System
	Atul Butte, University of California, San Francisco
	Panel Discussion
12:00 pm	Lunch Break
12:45 pm	Session 3: Improving Evidence Generation for Integrated
101	Diagnostics
	Moderator:
	Mia Levy, Foundation Medicine/Rush University
	Vision for Improving Evidence Generation for Integrated
	Diagnostics and Precision Oncology
	Mia Levy, Foundation Medicine/Rush University
	Clinical Evidence Generation and Integrated Diagnostics
	Bradford Hirsch, Verily/Alphabet
	Opportunities to Leverage Electronic Health Records in Clinical
	Evidence Generation
	Neal Meropol, Flatiron Health
	Lessons Learned from AACR Project GENIE to Inform Evidence Generation
	Charles Sawyers, AACR Project GENIE and Memorial Sloan Kettering
	Cancer Center
	Panel Discussion
2:10 pm	Break
2:25 pm	Session 4: Oversight and Coverage of Integrated Diagnostics
	Moderator:
	Roy Jensen, The University of Kansas Cancer Center
	Ethical AI by Design
	My T. Thai, University of Florida
	Integrative Diagnostics: What is it and Who Does it
	Michael Laposata, University of Texas, Galveston

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	Regulatory Considerations	
	Reena Philip, FDA Oncology Center of Excellence	
	Coverage Considerations  • Jennifer Malin, Optum Health Solutions	
	Panel Discussion	
3:45 pm	Break	
4:00 pm	Session 5: Patient, Clinician, and Workflow Considerations Co-moderators: Jason Slagle, Vanderbilt University Aanand Naik, UTHealth Houston	
	<ul> <li>Toward Multimodal Data Integration</li> <li>Sohrab Shah, Memorial Sloan Kettering Cancer Center</li> </ul>	
	Implementing Integrated Diagnostics Into Precision Oncology Care  • David Dorr, Oregon Health and Science University	
	<ul><li>EHR Vision: Now and Next</li><li>CJ Robison, Oracle Health</li></ul>	
	Trust in Artificial Intelligence and Factors Affecting its Acceptance  • Avishek Choudhury, West Virginia University	
	Tools and Processes to Support Decisions and Enhance Risk Communication  • Mary Politi, Washington University School of Medicine in St. Louis	
	Panel Discussion	
5:30 pm	Adjourn Day 1	
5:35 pm	RECEPTION	
	MARCH 7, 2023 EASTERN TIME ZONE	
7:30 am	Breakfast and Registration	
8:00 am	Welcome, Plans for the Day Kojo S.J. Elenitoba-Johnson, Memorial Sloan Kettering Cancer Center Hedvig Hricak, Memorial Sloan Kettering Cancer Center Planning Committee Co-Chairs	
	I .	

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8:05 am	Keynote Session: Advancing Progress and Ensuring Health Equity in Integrated Diagnostics
	Moderator: Hedvig Hricak, Memorial Sloan Kettering Cancer Center
	<ul> <li>Lyndsay Harris, National Cancer Institute, Cancer Diagnosis Program (participating virtually)</li> <li>Susan Coller Monarez, Advanced Research Projects Agency for Health</li> </ul>
	Panel Discussion
8:50 am	Session 6: Ensuring Patient Access and Health Equity Co-moderators: Wendy Nilsen, National Science Foundation Beth Karlan, University of California, Los Angeles
	<ul> <li>Equity and Algorithm Development</li> <li>Regina Barzilay, Massachusetts Institute of Technology</li> </ul>
	<ul> <li>Community-Based Settings of Care</li> <li>Randall Oyer, Association of Community Cancer Centers and Penn Medicine Lancaster General Health</li> </ul>
	Challenges and Opportunities for Promoting Patient Access in Health Equity in Integrated Diagnostics  • Otis Brawley, Johns Hopkins University
	Panel Discussion
9:45 am	Break
10:00 am	Session 7: Opportunities to Advance Integrated Diagnostics in Cancer Care  Moderator:  Kojo S.J. Elenitoba-Johnson, Memorial Sloan Kettering Cancer Center
	Panelists: Session 1: Kojo S.J. Elenitoba-Johnson and Hedvig Hricak Session 2: Nancy Davidson ( <i>virtually</i> ) and Kojo S.J. Elenitoba-Johnson Session 3: Mia Levy Session 4: Roy Jensen Session 5: Jason Slagle and Aanand Naik Session 6: Wendy Nilsen and Beth Karlan
11:30 am	Closing Remarks Planning Committee Co-Chairs: Kojo S.J. Elenitoba-Johnson, Memorial Sloan Kettering Cancer Center Hedvig Hricak, Memorial Sloan Kettering Cancer Center
11:45 am	Adjourn



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# INCORPORATING INTEGRATED DIAGNOSTICS INTO PRECISION ONCOLOGY CARE: A WORKSHOP

# **Planning Committee Roster**

# Kojo S.J. Elenitoba-Johnson, MD (Co-Chair)

Inaugural Chair, Department of Pathology and Laboratory Medicine, Memorial Hospital James Ewing Alumni Chair of Pathology Professor, Gerstner Sloan-Kettering Graduate School of Biomedical Sciences Member, Human Oncology Pathogenesis Program Memorial Sloan Kettering Cancer Center

# Hedvig Hricak, MD, PhD, Dr.h.c<sup>m</sup> (Co-Chair)

Carroll and Milton Petrie Chair
Department of Radiology
Memorial Sloan Kettering Cancer Center
Professor of Radiology
Weill Medical College of Cornell University
Professor, Gerstner Sloan Kettering Graduate School of
Biomedical Sciences

# Christina Chapman, MD

Assistant Professor of Radiation Oncology Investigator, Houston VA and Baylor Department of Internal Medicine Center for Innovations in Quality, Effectiveness, and Safety Baylor College of Medicine

# Nancy E. Davidson, MD

Executive Vice President for Clinical Affairs Senior Vice President and Professor Clinical Research Division Fred Hutchinson Cancer Center Professor and Head Division of Medical Oncology Department of Medicine Raisbeck Endowed Chair for Collaborative Cancer Research University of Washington

# Roy A. Jensen, MD

Vice Chancellor and Director
The University of Kansas Cancer Center
William R. Jewell, M.D. Distinguished
Kansas Masonic Professor of Cancer Research
Director
Kansas Masonic Cancer Research Institute
Professor of Pathology and Laboratory Medicine, Cancer
Biology, Anatomy and Cell
Biology
University of Kansas Medical Center
Past President
Association of American Cancer Institutes

# Beth Y. Karlan, MD

Nancy Marks Endowed Chair in Women's Health Research Vice Chair and Professor Department of Obstetrics and Gynecology Director, Cancer Population Genetics Jonsson Comprehensive Cancer Center University of California, Los Angeles

# Mia Levy, MD, PhD

Chief Medical Officer Foundation Medicine, Inc.

# Aanand D. Naik, MD

Professor and Nancy & Vincent Guinee Chair UTHealth School of Public Health UTHealth Consortium on Aging

# Wendy Nilsen, PhD

Acting Deputy Division Director Industrial Innovation and Partnerships Division National Science Foundation

# Jason M. Slagle, PhD

Research Associate Professor Department of Anesthesiology Vanderbilt University Medical Center



# INCORPORATING INTEGRATED DIAGNOSTICS INTO PRECISION ONCOLOGY CARE

# **Speaker and Moderator Roster**

# Gil Alterovitz, PhD. FACMI, FAMIA

Director

National Artificial Intelligence Institute Department of Veterans Affairs

# Regina Barzilay, PhD

School of Engineering Distinguished
Professor for AI and Health
Department of Electrical Engineering and
Computer Science
AI Faculty Lead, Jameel Clinic
MacArthur Fellow
MIT Computer Science & Artificial
Intelligence Laboratory
Massachusetts Institute of Technology

# Otis W. Brawley, MD, MACP, FRCP(L), FASCO, FACE

Bloomberg Distinguished Professor of Oncology and Epidemiology Bloomberg School of Public Health Associate Director Community Outreach and Engagement Sidney Kimmel Comprehensive Cancer Center Johns Hopkins University

# Atul Butte, MD, PhD

Priscilla Chan and Mark Zuckerberg
Distinguished Professor
Director, Bakar Computational Health Sciences Institute
Chief Data Scientist
University of California Health
University of California, San Francisco

# Christina Chapman, MD

Assistant Professor of Radiation Oncology Investigator, Houston VA and Baylor Department of Internal Medicine Center for Innovations in Quality, Effectiveness, and Safety Baylor College of Medicine

# Avishek Choudhury, PhD

Assistant Professor Industrial and Management Systems Engineering Benjamin M. Statler College of Engineering and Mineral Resources West Virginia University

# Dorin Comaniciu, PhD

Senior Vice President Artificial Intelligence and Digital Innovation Siemens Healthineers

# Nancy E. Davidson, MD

Executive Vice President for Clinical Affairs Senior Vice President and Professor Clinical Research Division Fred Hutchinson Cancer Center Professor and Head, Division of Medical Oncology Department of Medicine Raisbeck Endowed Chair for Collaborative Cancer Research University of Washington

# David Dorr, MD, MS, FACMI, FIMIA

Chief Research Information Officer
Professor of Medical Informatics and
Clinical Epidemiology
Professor of Medicine
Division of General Internal Medicine and Geriatrics
Vice Chair
Medical Informatics and Clinical Epidemiology
Biomedical Informatics Graduate Program
School of Medicine
Oregon Health and Science University

# Kojo S. J. Elenitoba-Johnson, MD

Inaugural Chair, Department of Pathology and Laboratory Medicine James Ewing Alumni Chair of Pathology Professor, Gerstner Sloan-Kettering Graduate School of Biomedical Sciences Member, Human Oncology Pathogenesis Program Memorial Sloan Kettering Cancer Center

# Garry E. Gold, MD

Stanford Medicine Professor of Radiology and Biomedical Imaging Professor (by courtesy) Bioengineering and Orthopaedic Surgery Chair, Department of Radiology Stanford University School of Medicine

# Lyndsay N. Harris, MD, FRCP(C)

Associate Director, Cancer Diagnosis Program Division of Cancer Treatment and Diagnosis National Cancer Institute



# **Bradford Hirsch, MD**

Head of Product and Implementation Verily/Alphabet

# Hedvig Hricak, MD, PhD, Dr.h.cm

Carroll and Milton Petrie Chair
Department of Radiology
Memorial Sloan Kettering Cancer Center
Professor of Radiology
Weill Medical College of Cornell University
Professor, Gerstner Sloan Kettering Graduate
School of Biomedical Sciences

# Roy A. Jensen, MD

Vice Chancellor and Director
The University of Kansas Cancer Center
William R. Jewell, M.D. Distinguished
Kansas Masonic Professor of Cancer Research
Director, Kansas Masonic Cancer Research Institute
Professor, Pathology and Laboratory Medicine, Cancer
Biology, Anatomy and Cell Biology
University of Kansas Medical Center
Past President
Association of American Cancer Institutes

# Beth Y. Karlan, MD

Nancy Marks Endowed Chair in Women's Health Research Vice Chair and Professor Department of Obstetrics and Gynecology Director, Cancer Population Genetics Jonsson Comprehensive Cancer Center University of California, Los Angeles

# Gabriel P. Krestin, MD, PhD, FACR, FRCR

Emeritus Professor of Radiology Erasmus MC, University Medical Center Rotterdam, the Netherlands

### Torbjörn Kronander, PhD, MBA

President and Chief Executive Officer Sectra AB

# Michael Laposata, MD, PhD

Professor and Chair Department of Pathology University of Texas Medical Branch

# Jochen K. Lennerz, MD, PhD

Medical Director Center for Integrated Diagnostics Associate Chief of Pathology Massachusetts General Hospital Associate Professor in Pathology Harvard Medical School

# Mia Levy, MD, PhD

Chief Medical Officer Foundation Medicine, Inc.

# Jennifer Malin, MD, PhD

Senior Vice President and Chief Medical Officer Optum Health Solutions

# Neal J. Meropol, MD

Vice President, Research Oncology Flatiron Health Chair, NCI Director's Clinical Trials and Translational Research Advisory Committee

# Susan Coller Monarez, PhD

Deputy Director Advanced Research Projects Agency for Health (ARPA-H)

# Aanand D. Naik, MD

Professor and Nancy & Vincent Guinee Chair UTHealth School of Public Health UTHealth Consortium on Aging

# Wendy Nilsen, PhD

Acting Deputy Division Director Industrial Innovation and Partnerships Division National Science Foundation

# Travis J. Osterman, DO, MS, FAMIA

Assistant Professor Department of Biomedical Informatics Assistant Professor Division of Hematology and Oncology Director, Cancer Clinical Informatics Vanderbilt-Ingram Cancer Center Vanderbilt University Medical Center

# Randall A. Oyer, MD, FACC

Clinical Professor of Medicine
Perelman School of Medicine
Executive Medical Director
Ann B. Barshinger Cancer Institute and Cancer Services
Penn Medicine Lancaster General Health
Past President
Association of Community Cancer Centers

# Reena Philip, PhD

Associate Director Biomarkers & Precision Oncology Oncology Center of Excellence Food and Drug Administration



# Mary C. Politi, PhD

Professor, Division of Public Health Sciences Department of Surgery Washington University School of Medicine Director, Center for Collaborative Care Decisions

# CJ Robison, BSN, RN

Health Innovation Scientist Health Innovation and Strategic Engineering Oracle Health Global Business Unit Oracle Health

# Manuel Salto-Tellez, MD-LMS, FRCPath, FRCPI

Director RMH/ICR Integrated Pathology Unit Professor, Integrated Pathology Division of Molecular Pathology The Institute of Cancer Research The Royal Marsden Hospital

# Charles L. Sawyers, MD

Investigator Howard Hughes Medical Institute Marie-Josée and Henry R. Kravis Chair in Human Oncology and Pathogenesis Program Memorial Sloan Kettering Cancer Center AACR Project GENIE

# Mitchell Schnall, MD, PhD, FACR

Chair, Department of Radiology Eugene P. Pendergrass Professor of Radiology Perelman School of Medicine University of Pennsylvania

# Sohrab Shah, PhD

Chief of Computational Oncology Department of Epidemiology and Biostatistics Professor Weill Cornell Medical College Nicholls-Biondi Chair Memorial Sloan Kettering Cancer Center

# Jason M. Slagle, PhD

Research Associate Professor Department of Anesthesiology Vanderbilt University Medical Center

# My T. Thai, PhD, FIEEE

UF Research Foundation Professor Associate Director UF Nelms Institute for the Connected World Professor Computer & Informational Science and Engineering Department University of Florida

# **Nick Trentadue**

Director of Laboratory and Diagnostics Informatics Epic



# SPEAKERS, MODERATORS, AND PLANNING COMMITTEE BIOSKETCHES Incorporating Integrated Diagnostics into Precision Oncology Care: A Workshop



**Gil Alterovitz, PhD, FACMI, FAMIA** U.S. Department of Veterans Affairs

Dr. Gil Alterovitz is the inaugural Director of the National Artificial Intelligence Institute (NAII). He has a PhD in electrical and biomedical engineering from MIT. Throughout his career at the U.S. Department of Veterans Affairs (VA), Dr. Alterovitz has led national and international collaborative initiatives for developing novel informatics methods and approaches for integrating clinical, pharmaceutical, and genomic information, from research to point-of-care.

As the NAII director, Dr. Alterovitz focuses on helping VA develop AI R&D capacity to help Veterans in the Office of Research and Development. The NAII also brought together 20+ offices to develop the VA AI Strategy. Dr. Alterovitz is also one of the core authors of The National AI R&D Strategic Plan produced by the White House Office of Science Technology. In addition, he is on the faculty at Harvard Medical School. He has produced over 80 peer-reviewed publications and three books in

his research field. He has been an international Fulbright awardee twice- once to Canada and a second time to the UK as a Fulbright Scholar.



**Regina Barzilay, PhD**Massachusetts Institute of Technology

Regina Barzilay is a School of Engineering Distinguished Professor for AI and Health in the Department of Electrical Engineering and Computer Science and a member of the Computer Science and Artificial Intelligence Laboratory at the Massachusetts Institute of Technology. She is an AI faculty lead for Jameel Clinic, an MIT center for Machine Learning in Health. Her research interests are in natural language processing and applications of deep learning to chemistry and oncology. She is a recipient of various awards including the NSF Career Award, the MIT Technology Review TR-35 Award, Microsoft Faculty Fellowship and several Best Paper Awards at NAACL and ACL. In 2017, she received a MacArthur

fellowship, an ACL fellowship and an AAAI fellowship. In 2021, she was awarded the AAAI Squirrel AI Award for Artificial Intelligence for the Benefit of Humanity, the AACC Wallace H. Coulter Lectureship Award, and the UNESCO/Netexplo Award. She received her PhD in Computer Science from Columbia University and spent a year as a postdoc at Cornell University. Prof. Barzilay received her undergraduate degree from Ben-Gurion University of the Negev, Israel.





Otis W. Brawley, MD, MACP, FRCP(L), FASCO, FACE Johns Hopkins University

Otis W. Brawley, MD, is the Bloomberg Distinguished Professor of Oncology and Epidemiology at Johns Hopkins University. He is an authority on cancer screening and prevention and leads a broad interdisciplinary research effort focused on cancer health disparities at the Johns Hopkins School of Medicine, the Bloomberg School of Public Health, and the Sidney Kimmel Comprehensive Cancer Center. Brawley is a Fellow of the Royal College of Physicians (London), a Fellow of the American Society of Clinical Oncology, a Fellow of the American College of Epidemiology and one of the few physicians to be named a Master of the American College of Physicians. He is an elected member of the National Academy of Medicine.

Dr. Brawley is a graduate of University of Chicago Pritzker School of Medicine. He completed an internal medicine residency at Case-Western Reserve

University and a fellowship in medical oncology at the National Cancer Institute. He is board certified in Internal medicine and medical oncology.

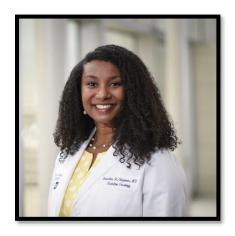


**Atul Butte, MD, PhD** University of California, San Francisco

Atul Butte, MD, PhD is the Priscilla Chan and Mark Zuckerberg Distinguished Professor and inaugural Director of the Bakar Computational Health Sciences Institute (bchsi.ucsf.edu) at the University of California, San Francisco (UCSF). Dr. Butte is also the Chief Data Scientist for the entire University of California Health System (health.universityofcalifornia.edu), the tenth largest by revenue in the United States, with 20 health professional schools, 6 medical schools, 6 academic health centers, 10 hospitals, and over 1000 care delivery sites. Dr. Butte has been continually funded by NIH for 20 years, is an inventor on 24 patents, and has authored over 300 publications, with research repeatedly featured in the New York Times, Wall Street Journal, and Wired Magazine. Dr. Butte was elected into the National Academy of Medicine in 2015, and in 2013, he was recognized by the Obama Administration as a White House Champion of Change in Open Science for promoting science through publicly available data. Dr. Butte is also a co-founder of three investor-backed data-driven companies: Personalis (IPO,

2019), providing medical genome sequencing services, Carmenta (acquired by Progenity, 2015), discovering diagnostics for pregnancy complications, and NuMedii, finding new uses for drugs through open molecular data. Dr. Butte trained in Computer Science at Brown University, worked as a software engineer at Apple and Microsoft, received his MD at Brown University, trained in Pediatrics and Pediatric Endocrinology at Children's Hospital Boston, then received his PhD from Harvard Medical School and MIT.





**Christina Chapman, MD**Baylor College of Medicine

Dr. Chapman obtained her BA in Biomedical Engineering from the Johns Hopkins University, her MD from the University of Pennsylvania Perelman School of Medicine, and her MS in Heath and Healthcare Research from the University of Michigan, where she also completed her residency training in Radiation Oncology. She worked for 3.5 years at the VA Ann Arbor Healthcare System primarily treating patients with head and neck and lung cancers. She is currently an Assistant Professor of Radiation Oncology at Baylor College of Medicine, where she sees patients in the Harris Health county system, and is also an investigator at the Baylor/Houston VA Center for Innovations in Quality, Effectiveness, and Safety. She is a health equity researcher who focuses on diversity, equity, and inclusion in the physician

workforce, the use of simulation modeling to investigate strategies to achieve cancer equity for Black women with breast cancer, and the use of other advanced health services research methods to improve cancer equity for underserved and excluded populations.



**Avishek Choudhury, PhD** West Virginia University

Avishek Choudhury is an assistant professor of human factors in the department of Industrial and Systems Engineering at West Virginia University. He is a recipient of the Paul Kaplan Award, the Fabrycky-Blanchard Award, and the Excellence Doctoral Fellowship for excellence in research and promise in the study and practice of systems engineering. His research focuses on patient safety, trust in artificial intelligence (AI), cognitive human factors, cancer communication, and technology-mediated clinical decision-making.



**Dorin Comaniciu, PhD** Siemens Healthineers

Dorin Comaniciu, PhD, serves as Senior Vice President for Artificial Intelligence and Digital Innovation at Siemens Healthineers. His scientific contributions to machine intelligence and computational imaging have translated to multiple clinical products focused on improving the quality of care, specifically in the fields of diagnostic imaging, image-guided therapy, and precision medicine.

Dr. Comaniciu is a member of the National Academy of Medicine and a Top Innovator of Siemens. He is a Fellow of the IEEE, ACM, MICCAI Society, and AIMBE, and a recipient of the IEEE Longuet-Higgins Prize for fundamental contributions to computer vision. He has co-authored more than 500 granted patents on healthcare technology and 350 peer-reviewed publications in the

areas of machine intelligence, medical imaging and precision medicine, which have received 58,000 citations, with an H-index of 91. Comaniciu is an advocate for technological innovations that save and enhance lives, addressing critical issues in global health.





Nancy E. Davidson, MD Fred Hutchinson Cancer Center

Dr. Davidson is a world-renowned breast cancer researcher who serves as the executive vice president and executive director for clinical affairs and director of the Clinical Research Division at Fred Hutch. She holds the Raisbeck Endowed Chair for Collaborative Research. She also heads the Division of Medical Oncology at the University of Washington School of Medicine and served as president and executive director of Seattle Cancer Care Alliance. She was president of American Society of Clinical Oncology (ASCO) from 2007-2008 and of American Association of Cancer Research (AACR) from 2016-2017.

Dr. Davidson completed her MD from Harvard Medical School, internship at the University of Pennsylvania, residency at Johns Hopkins, and medical oncology

fellowship at NIH's National Cancer Institute. She served as a faculty member in the Department of Oncology at Johns Hopkins University School of Medicine from 1986-2009 and held the Breast Cancer Research Chair of Oncology from 1995-2009. From 2009-2016 she served as Hillman Professor of Oncology, Associate Vice Chancellor for Cancer Research and Director of the Cancer Institute at the University of Pittsburgh. She is a member of the National Academy of Medicine and the American Academy of Arts and Sciences.



**David Dorr, MD, MS, FACMI, FAMIA**Oregon Health and Science University

Dr. David Dorr earned his BA in Economics (with minors in Mathematics and Psychology) and his MD from Washington University in St. Louis. He then completed Internal Medicine residency at Oregon Health & Science University, and earned a Master's in Medical Informatics and Health Services Administration from the University of Utah. Broadly, Dr. Dorr's interests lie in complex care management, especially for older adults and other at-risk populations, coordination of care, collaborative care, chronic disease management, quality, and the requirements of clinical information systems to support these areas. From these interests, he has broadened into clinical information needs, Electronic Health Record (EHR) deployment and Health Information Exchange as a way to expand systems-based approaches to all of health care. Finally, Dr. Dorr performs evaluations of care management and informatics initiatives using a variety of

methodologies. In his spare time, he is an avid bicyclist and completed Cycle Oregon 2016, riding over 450 miles across the southern coast.





Kojo S.J. Elenitoba-Johnson, MD Memorial Sloan Kettering Cancer Center

Dr. Elenitoba-Johnson is an international leader in the fields of hematopathology and molecular genomic pathology, as well as translational research utilizing genomics and mass spectrometry-driven proteomics. Dr. Elenitoba-Johnson is the inaugural Chair of the Department of Pathology and Laboratory Medicine at MSKCC, and the James Ewing Alumni Chair of Pathology. Prior to his appointment at MSKCC, he served as the inaugural Director for the Center of Personalized Diagnostics and the Division of Precision and Computational Diagnostics within the Department of Pathology and Laboratory Medicine.

Dr. Elenitoba-Johnson completed his undergraduate and medical education at the University of Lagos, Nigeria. He completed a residency in Anatomic and Clinical Pathology at Brown University and a Hematopathology fellowship at the National Cancer Institute. He is certified in Combined Anatomic and Clinical Pathology, as well as Hematopathology and Molecular Genetic Pathology by the American Board of Pathology. In 1997 he was appointed as an Assistant Professor at the University of Utah Health Sciences Center. In 2006 he was named the Director of the Division of Translational Pathology at the University of Michigan.

A renowned physician-scientist, Dr. Elenitoba-Johnson's research focus is on the pathogenesis of hematolymphoid neoplasms. He is noted for developing unique approaches to the interrogation of whole genomes and proteomes for discovery of pathogenetic mechanisms. His work using whole genome sequencing revealed recurrent structural alterations in poorly understood lymphomas, including *NOTCH2* in splenic marginal zone lymphoma, *JAK/STAT5B* in T-cell prolymphocytic leukemia, and the first comprehensive proteogenomic signaling network in ALK+ anaplastic large cell lymphoma. Dr. Elenitoba-Johnson's research to discover novel biologic functions of E3 ubiquitin ligases and their substrates represents an opportunity for translational applications for novel biomarkers and therapeutics.



**Garry E. Gold, MD** Stanford University

Garry E. Gold, MD, is the Stanford Medicine Professor of Radiology and Biomedical Imaging and Chair of the Department of Radiology at Stanford University. He is also Professor (by courtesy) in Bioengineering and Orthopedic Surgery. He received BS, MS (Electrical Engineering), and MD degrees from Stanford University, finishing in 1992. Dr. Gold did his residency training in Radiology at Stanford University from 1992-1998, including a postdoctoral research fellowship with Drs. Albert Macvoski and John Pauly in Electrical Engineering. He also did a clinical musculoskeletal radiology fellowship at UCSD with Dr. Donald Resnick. Dr. Gold joined the faculty at Stanford in 1999.

Dr. Gold's research focuses on developing new methods for MRI that improves diagnosis and treatment of musculoskeletal disease. His many contributions to the field include some of the earliest initial application of uTE imaging in musculoskeletal disease. His group has developed advanced methods for morphologic and physiologic imaging of articular cartilage, improved methods for imaging around metal, new approaches for dynamic MRI in muscle and joint motion, and application of MR-guided focused ultrasound in musculoskeletal



disease. Dr. Gold is a Fellow and Past President for the International Society for Magnetic Resonance in Medicine, and Fellow and Past President of the Society for Advanced Body Imaging (SABI). Dr. Gold became a Fellow of the American Institute for Medical and Biological Engineering in 2016. Dr. Gold is principal investigator on grants from NIAMS, NIBIB, and GE Healthcare. In addition to his research, Dr. Gold has won multiple awards for his teaching and mentoring. He has worked with and trained many leaders in the field in the use of novel MRI methods in clinical, biomechanical, and translational applications.

Dr. Gold served as a faculty member of the Precision Health and Integrated Diagnostics Center (PHIND) at Stanford from its founding until 2020. With the passing on Sam Gambhir in 2020, Dr. Gold became the Center Director of PHIND. He has continued to promote the mission of the PHIND center in the community and at Stanford in this role, and has also served as the Co-director of the Wu-Tsai Human Performance Alliance at Stanford.



Lyndsay N. Harris, MD, FRCP(C) National Institutes of Health

Dr. Lyndsay Harris is a medical oncologist who joined the National Cancer Institute in 2016 after a 30 year career in breast cancer research and translational science. She has over 170 peer-reviewed publications and has led Breast Cancer programs at Yale University and Case Western Reserve University where her lab studied the genomics of resistance to HER2 positive breast cancer and disparities in triple negative breast cancer. As Associate Director of the Cancer Diagnosis Program her role is to support the development of robust prognostic and therapeutic biomarkers through the study of biospecimen science, technology and innovation, pathology evaluation and genomics. The Cancer Diagnosis Program works closely with the Cancer Therapy Evaluation Program (CTEP) to implement biomarkers into several Precision Medicine trials including the NCI-MATCH (Molecular Analysis for Therapy Choice) trial and ComboMATCH. In addition, Dr.

Harris manages the MDNet assay network that has been set up to provide molecular assays services on three new Precision Medicine trials: iMATCH, ComboMATCH, and MyeloMATCH.



**Bradford Hirsch, MD** Verily/Alphabet

Bradford Hirsch, M.D., leads product development and implementation at Verily, an Alphabet precision health company. In this role he oversees the development and delivery of solutions to accelerate clinical research and improve care.

Brad joined Verily through its acquisition of SignalPath, a clinical trials technology solution, where he served as Co-Founder and CEO. Research sites and sponsors use SignalPath to run more efficient and effective clinical research studies, and under Brad's leadership it has been widely adopted by leading health systems.

Prior to SignalPath, Brad served as Senior Medical Director at Flatiron Health and was on the faculty at Duke University. He is a medical oncologist and has been a



principal investigator, ensuring that his approach to reimagining clinical research and care delivery is driven by deep knowledge and experience.

Brad sits on the board of directors for Galvani Bioelectronics, a company developing therapies to treat chronic diseases through implant-based modulation of neural signals, and serves on multiple non-profit boards such as the National Outdoor Leadership School and the Parkland Hospital Foundation. Brad received his BA from the University of Pennsylvania, his MD from UT Southwestern and his MBA from Duke University.



Hedvig Hricak, MD, PhD, Dr.h.c<sup>m</sup> Memorial Sloan Kettering Cancer Center

Hedvig Hricak, MD, PhD, Drhc<sup>m</sup>, is a diagnostic radiologist and holds the Carroll and Milton Petrie Chair of Radiology at Memorial Sloan Kettering Cancer Center, New York, NY. She is also a member of the Molecular Pharmacology and Chemistry Program, Sloan Kettering Institute, Professor, Gerstner Sloan Kettering Graduate School of Biomedical Sciences, and Professor of Radiology, Weill Cornell College of Medicine, New York, NY. The hallmark of her research career has been the development, validation, and dissemination of new diagnostic imaging techniques, particularly for oncology; she is actively engaged in developing evidence-based imaging guidelines and introducing the concept of integrated diagnostics for oncology. For her research accomplishments and her efforts to promote national and international education and collaboration in oncologic imaging, she has won numerous awards, including the David Rall Medal, for

Distinguished Leadership, from the National Academy of Medicine; five gold medals; and honorary fellowships or memberships in twenty-two international radiological societies. She holds honorary doctorates from the Ludwig Maximilian University, Munich and the University of Toulouse III, Paul Sabatier, Toulouse, France. Hricak is a member of the National Academy of Medicine (formerly the Institute of Medicine) and a "foreign" member of both the Russian Academy of Sciences and the Croatian Academy of Sciences and Arts. She has served on several national advisory boards and councils, including the National Institutes of Health Board of Scientific Counselors, the Scientific Advisory Board of the National Cancer Institute, the Advisory Council of the National Institute of Biomedical Imaging and Bioengineering, and the Nuclear and Radiation Studies Board, National Academy of Sciences. She has also served as chair, co-chair, or member of several Institute of Medicine/National Academy of Medicine and National Academy of Sciences studies.



**Roy A. Jensen, MD**The University of Kansas Cancer Center

Roy Jensen, MD was appointed director of The University of Kansas Cancer Center in 2004. Since that time, he has recruited a world-class leadership team. With his guidance and a broad-based university, community and regional effort, The University of Kansas Cancer Center achieved National Cancer Institute comprehensive designation in July 2022. It is the NCI's most elite level of designation. The cancer center is currently 1 of 53 NCI-designated comprehensive cancer centers across the country.

Dr. Jensen is currently Professor of Pathology and Laboratory Medicine, Professor of Anatomy and Cell Biology, Professor of Cancer Biology, and the William R. Jewell, M.D. Distinguished Kansas Masonic Professor, at the

University of Kansas Medical Center. Prior to his appointment at Kansas, Jensen was a member of the



Vanderbilt-Ingram Cancer Center and a faculty member in Pathology, Cell Biology, and Cancer Biology for 13 years.

Dr. Jensen graduated from Vanderbilt University School of Medicine in 1984 and remained there to complete a residency in Anatomic Pathology and a Surgical Pathology fellowship with Dr. David Page. Following his clinical training he accepted a postdoctoral fellowship at the National Cancer Institute in the laboratory of Dr. Stuart Aaronson. After joining the faculty at Vanderbilt University, Dr. Jensen's research interests focused on understanding the function of BRCA1 and BRCA2 and their role in breast neoplasia; and in the characterization of premalignant breast disease at both the morphologic and molecular levels. He currently has over 150 scientific publications and has lectured widely on the clinical and molecular aspects of breast cancer pathology.

Dr. Jensen has served on numerous grant review panels, study sections, and site visit teams for the NIH, the Department of Defense-Breast Cancer Research Program, the Medical Research Council of Canada, the California Breast Cancer Research Program, the Susan G. Komen Breast Cancer Foundation and the Federation of American Societies for Experimental Biology. Jensen serves on the Science Policy and Governmental Affairs Committees for the American Association for Cancer Research (AACR) and is a member of the AACR Pathology Task Force, AACR Publications Committee and the AACR Nominating Committee. He served as a member of the Science Policy Working Group of the American Society for Investigative Pathology and co-chaired the research committee for C-Change. In 2013, he was elected to the Board of Directors for the Association of American Cancer Institutes (AACI) and served as the president of AACI from 2018-2020. Jensen was chair of NCI's Subcommittee A from 2018-2020 and also served on the Director's Working Group for the Board of Scientific Advisors to the National Cancer Institute. Finally, he is the Chair of the University of Oklahoma Stephenson Cancer Center External Advisory Board.



**Beth Y. Karlan, MD** University of California, Los Angeles, Jonsson Comprehensive Cancer Center

Beth Y. Karlan, MD, is Professor and Vice Chair of Women's Health Research in the Department of Obstetrics and Gynecology at the David Geffen School of Medicine, University of California Los Angeles (UCLA). She is also Director of Cancer Population Genetics at the UCLA-Jonsson Comprehensive Cancer Center. Dr. Karlan's research focuses on ovarian and other women's cancers as well as inherited cancer susceptibility. She has authored over 400 peer-reviewed research publications and for over ten years served as Editor-in-Chief of the scientific journals Gynecologic Oncology and Gynecologic Oncology Reports. She is an American Cancer Society Clinical Research Professor, has served in many national leadership roles including president of the Society of Gynecologic Oncology and has helped train a generation of physicians and scientists. In 2012, Dr. Karlan was appointed by the Obama White House to serve on the National Cancer Advisory Board and in 2015 she was elected to membership in the National Academy of Medicine. Dr. Karlan

is a Fellow of the American Society of Clinical Oncology and a member of the National Cancer Policy Forum. Her contributions have been recognized by her peers with multiple awards including a Lifetime Achievement Award from the International Society of Gynecologic Cancer.





**Gabriel P. Krestin, MD, PhD, FACR, FRCR** Erasmus MC, University Medical Center Rotterdam

Gabriel P. Krestin is emeritus professor of radiology at Erasmus MC, University Medical Center Rotterdam. He graduated from the Faculty of Medicine at the University of Cologne in 1981 and completed a residency in radiology at the same institution in 1988 and his PhD thesis in 1989. Dr. Krestin moved to the Department of Radiology at the University Hospital in Zürich in 1990 where he was the acting chair of the department between 1995 and 1997 before he moved to Erasmus MC in Rotterdam, the Netherlands in 1997 where he was full professor and chairman of the Department of Radiology & Nuclear Medicine for 25 years until his retirement end of 2021.

Dr. Krestin is the Past President of ESMRMB, Past President of ESR, and Past President of IS3R. He is a honorary fellow of the ACR and of the RCR and member of the National Academy of Medicine (US). He is author of over 450 original articles of over 70 book chapters, and editor of 7 books. His main areas of research are imaging of abdominal organs and cardio-vascular diseases, molecular imaging and population imaging.

Dr. Krestin is presently the Scientific Director of EIBIR and member of the Board of Directors of 3 startup companies and advisor to a number of companies in the field of medical technology.



**Torbjörn Kronander, Ph.D, MBA** Sectra AB

Torbjörn Kronander has a Master of Science in Biomedical Engineering, a PhD in Information Theory, and an Honorary Doctorate of Medicine all from Linköping University in Sweden. Additionally, he has an MBA from the Stockholm School of Economics and is a Reservist Officer in the Swedish Navy. He is the founder of the medical division of the international IT and cybersecurity company, Sectra AB, today 90% of Sectra's business. Torbjörn is also the largest shareholder, President and CEO of Sectra. He has 8 children and is a pilot of most things that fly.



Michael Laposata, MD, PhD University of Texas Medical Branch

Dr. Michael Laposata is the Professor and Chair of the Department of Pathology at the University of Texas Medical Branch-Galveston and Director of the MD PhD Program at the university. He received his MD and PhD from Johns Hopkins University School of Medicine and completed a postdoctoral research fellowship and residency in Laboratory Medicine (Clinical Pathology) at Washington University School of Medicine in St. Louis. He took his first faculty position at the University of Pennsylvania School of Medicine in Philadelphia in 1985, where he was an Assistant Professor and Director of the hospital's Coagulation Laboratory. In 1989, he became Director of Clinical Laboratories at the Massachusetts General Hospital and was appointed to the faculty in the



Department of Pathology at Harvard Medical School, where he became a tenured full Professor of Pathology. Dr. Laposata joined Vanderbilt University School of Medicine in 2008 where he was the Edward and Nancy Fody Professor of Pathology and Medicine. Additionally, he was Pathologist-in-Chief at Vanderbilt University Hospital and Director of Clinical Laboratories.

He has authored more than 170 peer-reviewed publications in basic and clinical research. His work on diagnostic errors earned him an appointment to the 21 member panel of the National Academy of Medicine which issued the 2015 report on *Improving Diagnosis in Healthcare*. Dr. Laposata is the recipient of 14 major teaching prizes at Harvard, the Massachusetts General Hospital, and the University of Pennsylvania School of Medicine. His textbook, in its third edition, *Laposata's Laboratory Medicine*, has been translated into multiple languages. It is used globally by those learning laboratory medicine and those using the clinical laboratory. In a peer nominated survey performed by *The Pathologist*, a journal reporting on the practice of pathology, the November 2015 issue identified Dr. Laposata as the most influential pathologist in the United States, and the third most influential pathologist in the world.



# Jochen K. Lennerz, MD, PhD

Massachusetts General Hospital and Harvard Medical School

Dr. Joe Lennerz is the Associate Chief of Pathology and the Medical Director of the Center for Integrated Diagnostics (CID) at Massachusetts General Hospital (MGH). He oversees all aspects of personalized diagnostics at MGH. The main aim of the CID is technology assessment and optimizing care delivery through rapid clinical integration of innovative technologies. Dr. Lennerz is board certified by the American Board of Pathology and the American Board of Medical Genetics. completed his residency training in pathology in 2008, and a fellowship in molecular genetic

pathology in 2009 at Washington University in St. Louis, MO. He was the principal investigator of the first FDA instrument precision study for the first whole slide scanning system and his interests are tissue-based biomarkers, and financial sustainability of molecular genetic diagnostics. He is a founder of the Pathology Innovation Collaborative Community, a regulatory science initiative with FDA participation (<a href="https://pathologyinnovationcc.org/">https://pathologyinnovationcc.org/</a>). He is the president elect of the *Association of Directors of Anatomic and Surgical Pathology* (<a href="https://www.adasp.org/">https://www.adasp.org/</a>). Dr. Lennerz is an Advisory Panel Members on Clinical Diagnostic Laboratory Tests for the Center for Medicare and Medicaid Services (<a href="https://www.cms.gov/files/document/panel-roster.pdf">https://www.cms.gov/files/document/panel-roster.pdf</a>).





Mia Levy, MD, PhD
Foundation Medicine, Inc./Rush University

Mia Levy, MD, PhD is Chief Medical Officer at Foundation Medicine. She is a practicing medical oncologist specializing in the treatment of breast cancer and a nationally recognized leader in biomedical informatics. She joined Foundation Medicine following an accomplished tenure as director of the Cancer Center at Rush University Medical Center and the System Vice President for Cancer Services at Rush System for Health.

Dr. Levy has devoted her career to developing systems to support data-driven decision-making in cancer care and research. She has contributed to more than 90 publications on cancer and led the development of My Cancer

Genome, an international knowledge resource for precision medicine that provides accessible information to patients and physicians around cancer-driving mutations, clinical trials, and therapies.

She previously served as Associate Professor of Cancer Research, Biomedical Informatics and Medicine, at Vanderbilt University, and as the Director of Cancer Clinical Informatics for the Vanderbilt-Ingram Cancer Center. She is a member of the National Cancer Policy Forum of the National Academies of Sciences, Engineering, and Medicine, and a member of the National Cancer Institute Clinical Trials and Translational Research Advisory Committee.



**Jennifer Malin, MD, PhD**Optum Health Solutions

Jennifer Malin, MD, PhD, is the Chief Medical Officer of Optum Health Solutions. In this role, she provides the leadership for clinical programs that deliver improved health outcomes and value, focused on individuals with complex specialty conditions and rare diseases.

After graduating from Harvard University, Dr. Malin received her medical degree and doctorate in public health from UCLA. She is board certified in internal medicine and medical oncology. She is the author of more than 100 peer-reviewed articles and is widely recognized for her research on the quality of care. She was a Clinical Professor of Medicine at the UCLA David Geffen School of Medicine and has served on a number of advisory boards and national committees, including National Quality Forum's Cancer Steering Committee, the Health Care Payment Learning and Action Network Clinical Episodes Payment Workgroup, and the National Academy of Medicine Roundtable on Quality Care for People with Serious

Illness. Prior to joining Optum, she was responsible for UnitedHealthcare's value-based care programs in oncology and genetics.





Neal J. Meropol, MD Flatiron Health

Neal J. Meropol, MD is a medical oncologist, clinical investigator and outcomes researcher who serves as Vice President of Research Oncology at Flatiron Health. In this role, he provides scientific and clinical leadership in leveraging Flatiron's technology platforms to close the gap between research and clinical care. Dr. Meropol is currently chair of the NCI Director's Clinical Trials and Translational Research Advisory Committee (CTAC), and previously served as chair of the National Cancer Institute Gastrointestinal Cancer Steering Committee. Dr. Meropol completed a four-year term as an elected member of the American Society of Clinical Oncology (ASCO) Board of Directors, and currently serves on the ASCO Research Committee. A committed educator, Dr. Meropol served as faculty and chair of the AACR/ASCO Methods in Cancer Clinical Research Vail Workshop, and ASCO Leadership Development Program.

Dr. Meropol's research contributions span drug development and health services research, including evaluation of new agents, predictors of response and outcome, development of tools to overcome barriers to clinical trial participation, and assessment of the economic impact of care. His current focus is developing technologic innovations and integrated evidence solutions that enable clinical research to take place wherever care is delivered. He has authored more than 300 manuscripts, book chapters, and editorials related to cancer prevention, treatment, decision making and health economics. Prior to joining Flatiron, Dr. Meropol served as Professor and Chief of the Division of Hematology and Oncology at University Hospitals Cleveland Medical Center and Case Western Reserve University, and Associate Director for Clinical Research at the Case Comprehensive Cancer Center.



**Susan Coller Monarez, PhD** Advanced Research Projects Agency for Health (ARPA-H)

Dr. Susan Coller Monarez is a globally recognized leader with over twenty years of experience in health innovation. She currently serves as the Deputy Director at the Advanced Research Projects Agency for Health (ARPA-H). ARPA-H supports the development of high-impact research to drive biomedical and health breakthroughs to deliver transformative, sustainable, and equitable health solutions for everyone.

Prior to this position, Dr. Monarez founded the Center for Innovation at the Health Resources and Services Administration, the largest funder of safety-net health programs in the Department of Health and Human Services. Dr.

Monarez has also served at the White House as the Assistant Director for National Health Security and International Affairs in the Office of Science and Technology Policy (OSTP) and as the Director of Medical Preparedness Policy on the National Security Council (NSC). In both White House roles, she led multiple efforts to enhance the nation's biomedical innovation capabilities. Dr. Monarez has led the development of several Presidential-level national strategies, action plans, and policy directives related to domestic and global health. Prior to the White House, Dr. Monarez served in leadership positions at the Homeland Security Advanced Research Projects Agency (HSARPA) within the Department of Homeland Security and the Biomedical Advanced Research Projects Agency (BARDA) within the Department of Health and Human Services (HHS). In addition to leadership roles within the Federal government, Dr. Monarez has been called upon to serve on numerous advisory panels to include at the National Academies of Science, the National Science Advisory Board for Biosecurity, and the Federal Experts Science Advisory Panel. Dr. Monarez has also served as the U.S.



representative on several international cooperative initiatives including with the European Union, Canada, France, the Netherlands, and the United Kingdom in bilateral and multilateral engagements. Dr. Monarez was an American Association for the Advancement of Science (AAAS) Science and Technology Policy fellow and a research scientist in microbiology and immunology at the University of Wisconsin and at the Stanford University School of Medicine.



**Aanand D. Naik, MD**University of Texas Health Science Center at Houston

Aanand Naik, MD, is Professor and chair of the Department of Management, Policy and Community Health, and associate dean for Learning Health Systems at UTHealth School of Public Health. He is also the Nancy P. and Vincent F. Guinee, MD Distinguished Chair and executive director of the UTHealth Houston Consortium on Aging. Dr. Naik maintains a senior investigator role at the Health Services Research Center of Innovations at the Houston Veterans Affairs Medical Center. Integrating these roles, his research program uses population health systems interventions to improve the healthcare decisions and outcomes of older adults with complex and multimorbid conditions. In

particular, he is a co-developer of a national collaboration for Patient Priorities Care, an innovative model of multimorbid care: www.patientprioritiescare.org. His research program includes randomized clinical trials, implementation science studies, and primary data collection with continuous research funding since 2006. These studies have produced >200 peer-reviewed manuscripts and book chapters.



**Wendy Nilsen, PhD**National Science Foundation

Wendy Nilsen is the Deputy Division Director for the Division of Information and Intelligent Systems. Between November 2020 and June 2022, she was the acting Deputy Division Director for the division. She previously served as Acting Deputy Division Director for the Division of Industrial Innovations and Partnerships and as Acting Deputy Division Director for the Division of Engineering and Education Centers in the Directorate for Engineering. She has been at NSF since 2015. Prior to joining NSF, she was a Health Scientist Administrator in the Office of the Director at the National Institutes of Health. Prior to that she was faculty at the University

of Rochester School of Medicine. Wendy has been widely recognized across the Federal government as a leader in health technology research. She has long led the Smart Health program, a coalition involving five NSF directorates, as well as twenty-three NIH Institutes and Centers. She has continuously evolved that program to seize new intellectual opportunities, while addressing important societal considerations. She has also long led what is now called the Digital Health Research and Development Interagency Working Group, and in that role led the drafting of the Federal Health Information Technology Research and Development Strategic Framework. Wendy received her Ph.D. from Purdue University.





**Travis Osterman, DO, MS, FAMIA** Vanderbilt University Medical Center

Dr. Osterman is a practicing medical oncologist, informatician, Clinical Director in the Office of the Chief Health Information Officer at Vanderbilt University Medical Center (VUMC), and Director of Cancer Clinical Informatics in the Vanderbilt-Ingram Cancer Center. He is board certified in internal medicine, medical oncology, and clinical informatics and completed a Master of Science in biomedical informatics at Vanderbilt University. He has dual faculty appointments at VUMC in the Department of Biomedical Informatics and the Department of Medicine in the Division of Hematology and Oncology.

Dr. Osterman's clinical interest within oncology is lung cancer. He leads the Clinical Cancer Informatics Innovation (C2I2) group whose research focuses on

applying clinical informatics methods across the cancer care continuum. Current projects include identifying patients for lung cancer screening, automated clinical trial matching, and using predictive analytics to anticipate toxicity to immunotherapy. As part of this work their team develops tools used for both research and to directly support patient care.

Nationally, Dr. Osterman is involved several national efforts to improve the availability of oncology-specific EHR data to support quality improvement across oncology practices. Dr. Osterman serves on the National Comprehensive Cancer Network (NCCN) Electronic Health Record (EHR) workgroup and Patient Reported Outcomes (PRO) workgroup. The focus of these workgroups includes leveraging the EHR to promote innovation and to standardize best practices across cancer centers. He serves on the American Society of Clinical Oncology (ASCO) CancerLinQ Physician Advisory Board, the Minimum Common Oncology Data Elements (mCODE) workgroup, and the Member and Meeting Publications Editorial Board. Dr. Osterman also represents VUMC as a founding member on the Oncology Clinical Trial Information Commons (OCTIC) project which focuses on standardizing how data describing clinical trials are stored. He also serves on the Epic Adult Oncology Steering Board and chairs Epic's Beacon Community Operations Group.



Randall A. Oyer, MD, FACC

Association of Community Cancer Centers and Penn Medicine Lancaster General Health

Randall A. Oyer, MD, FACC, is a practicing medical oncologist at the Ann B. Barshinger Cancer Institute at Penn Medicine Lancaster General Health in Lancaster, Pennsylvania. Dr. Oyer serves a Clinical Professor of Medicine at the Perelman School of Medicine, the Medical Director of the Cancer Institute, Medical Director of Oncology, Chairman of Cancer Committee, Chair of the Oncology Physicians Advisory Council, and Medical Director of the Cancer Risk Evaluation Program at Penn Medicine Lancaster General.

Dr. Oyer is a member of the Cancer Service Line Executive Committee and the Cancer Service Line Quality Committee at the Abramson Cancer Center-University of Pennsylvania, Philadelphia. Dr. Oyer is also a Immediate Past President of the Association of Community Cancer Centers, Rockville,

Maryland. Dr. Oyer is an ex-officio Commissioner of the American College of Surgeons Commission on Cancer, representing the Association of Community Cancer Centers. He also is a member of the National Cancer Policy Forum at the National Academies of Science, Engineering, and Medicine.





**Reena Philip, PhD**Oncology Center of Excellence, Food and Drug Administration

Reena Philip, PhD, currently holds the position of Associate Director, Biomarkers and Precision Oncology in Oncology Center of Excellence (OCE), FDA. Prior to this, Dr. Philip was the Director of the Division of Molecular Genetics and Pathology, at Center for Devices and Radiologic Health at the FDA for almost 9 years. At the FDA, she leads OCE's efforts surrounding cancer biomarkers and diagnostics both internally and for external outreach and collaboration. She works on policy and guidance on tumor biomarkers and diagnostics, providing advice, consultation, and assistance on precision oncology matters to the other Centers in the Agency. Prior to joining the FDA, Dr. Philip's experience included 3 years in the US biotechnology industry. Dr. Philip received her PhD from University of Illinois at Urbana-Champaign.



Mary C. Politi, PhD Washington University School of Medicine

Dr. Politi is a health psychologist and behavioral scientist whose primary research interests focus on health communication and shared decision-making. Her work helps patients and the public understand health information, explore what is important to them when making health decisions, and collaborate to make evidence-informed decisions that meet their needs. She also trains health care professionals, public health advocates, and members of the public interested in shared decision-making and patient engagement. Dr. Politi's research includes a focus on reducing health disparities by engaging communities with unmet health needs and including them in both research and dissemination efforts. She works extensively with stakeholders to ensure her research is relevant to end users in clinical and community settings.



**CJ Robison, BSN, RN**Oracle Health

Propelled by the belief that data, research, and innovation have the power to transform patient care, CJ Robison has developed a diverse portfolio of expertise in the medical field. As a registered nurse, CJ began her career on a medical-surgical floor that specialized in geriatric oncology. Following her time in direct patient care, she served as the Magnet Program Director and Manager of Professional Practice, where she was instrumental in improving electronic workflows, running workload-acuity models and quantifying resources required to deliver care. Following this effort, CJ went on to design and manage an array of process improvement initiatives across a twelve-hospital system. She currently works as an Innovation Scientist on Oracle Health's Innovation Team, where she partners closely with clinical and academic partners to develop targeted solutions to some of the biggest problems in health.

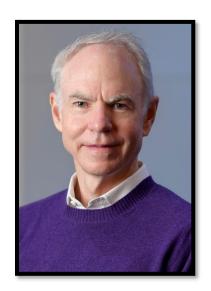




Manuel Salto-Tellez, MD-LMS, FRCPath, FRCPI Institute for Cancer Research and Royal Marsden Hospital

Professor Manuel Salto-Tellez (MD-LMS, FRCPath, FRCPI) is the Professor on Integrative Pathology at the Institute for Cancer Research in London (ICR), and the lead of the Royal Marsden Hospital / ICR Integrated Pathology Unit. He is also the Chair of Molecular Pathology at Queen's University Belfast (QUB), a clinical consultant pathologist and the Lead of QUB's Precision Medicine Centre of Excellence. Dr. Salto-Tellez studied Medicine in Spain (Oviedo), Germany (Aachen) and The Netherlands (Leiden). He specialized in Histopathology in the UK (Edinburgh and London) and in Molecular Pathology in USA (Philadelphia). For more than 10 years he worked at the National University of Singapore and its National University Hospital, where he was associate professor, senior consultant, director of the Diagnostic Molecular Oncology Centre, Vice-dean for Research and senior scientist at the Cancer Research Institute. Prof. Salto-Tellez is author or co-author of more than 300 internationally peer-reviewed articles in translational science, molecular pathology and diagnostics, has published a

similar number of abstracts in international conferences, and is editor or contributor to some of the key textbooks of pathology and oncology. He holds more than £21M in competitive grant funding. He is scientific advisor to 2 companies in the digital pathology and artificial intelligence space.



**Charles L. Sawyers, MD**Memorial Sloan Kettering Cancer Center and AACR Project GENIE

Charles L. Sawyers received a BA from Princeton University in 1981 and an MD from Johns Hopkins University School of Medicine in 1985, followed by internal medicine residency at UCSF. He became a Howard Hughes Medical Institute Investigator in 2002 while at UCLA, and then moved to Memorial Sloan Kettering Cancer Center in 2006 where he currently serves as the Chair of the Human Oncology and Pathogenesis Program. Sawyers studies mechanisms of cancer drug resistance with an eye toward developing novel therapies. He co-discovered the antiandrogen drug enzalutamide that was approved by the FDA in 2012 for treatment of advanced prostate cancer. He shared the 2009 Lasker~DeBakey Clinical Medical Research Award for the development of the ABL kinase inhibitor imatinib for patients with chronic myeloid leukemia and the second generation ABL inhibitor dasatinib to overcome imatinib resistance.

He has been recognized with other honors including the 2013 Breakthrough Prize in Life Sciences, 2013 Taubman Prize for Excellence in Translational Medical Science, 2015 BBVA Knowledge Award in Biomedicine, 2019 STAT Biomedical Innovation Award, and 2020 Alfred G. Knudson Award in Cancer Genetics. Sawyers is a member of the National Academy of Sciences, the National Academy of Medicine and the American Academy of Arts and Sciences. He is past President of the American Association for Cancer Research (AACR) and the American Society of Clinical Investigation (ASCI), was appointed to the National Cancer Advisory Board by President Obama and has served on the Board of Directors of Novartis since 2013. He co-founded AACR Project GENIE, an international consortium of cancer centers who share genomic and clinical data from patients treated at their respective clinical sites, for which he received the 2021 AACR Distinguished Public Service Award.





Mitchell Schnall, MD, PhD, FACR University of Pennsylvania

Dr. Schnall is the Eugene P Pendergrass of Radiology, and the Chair of the Radiology Department at the Perelman School of Medicine at the University of Pennsylvania. He received his undergraduate degree, medical degree, and Ph.D. from the University of Pennsylvania. He has been on the faculty of the radiology department at the University of Pennsylvania since 1991 and full professor since 2002. Dr. Schnall is an international leader in translational biomedical imaging research. Through his career he has worked across the interface between basic imaging science and clinical medicine. His work has led to fundamental changes in the imaging approaches to breast and prostate cancer. In addition, he has had a significant influence on emerging technologies such as optical imaging. Dr. Schnall

has played a critical role in efforts to organize cancer clinical and translational imaging research in the US. He has been the principal investigator of numerous team science initiatives. He served ACRIN Deputy Chair from 1999-2007. In 2008 he assumed the role of ACRIN Chair. Among the important trials ACRIN completed under his leadership is the landmark National Lung Cancer Screening trial that demonstrated the ability of low done lung cancer screening to reduce lung cancer mortality by 20% in high risk patients. Dr. Schnall was one of the architects of the merger of ECOG and ACRIN to form the new ECOG-ACRIN Cancer Research Group, which he now co-Chairs. Dr. Schnall has been elected as a member of the American Society for Clinical Investigation, the Association of American Physicians and the Institute of Medicine of the National Academy of Sciences (now the National Academy of Medicine).



**Sohrab Shah, PhD** Memorial Sloan Kettering Cancer Center

Dr. Shah is the Chief of Computational Oncology in the Department of Epidemiology and Biostatistics. He holds the Nicholls-Biondi Endowed Chair in Computational Oncology at MSK and is a Susan G. Komen Scholar. Dr. Shah received a PhD in computer science from the University of British Columbia in 2008 and completed postdoctoral training at BC Cancer in Vancouver, Canada. He oversees the research activity of the Computational Oncology program which includes 7 tenure-track principal investigators and 3 laboratory track members. The main topics of the program include

population level analysis of clinical cancer genomics, multimodal data integration, metabolomics, machine learning, cancer evolution and immuno-oncology. Dr. Shah's research focuses on understanding the principles and processes of cancer evolution. To this end, his laboratory develops and applies computational approaches encompassing advanced machine learning and Bayesian statistical methods. This work is coupled with measuring genomic, transcriptomic, and proteomic states of individual cells from patients and in timeseries in model systems with genetic and therapeutic perturbation. In addition, Dr. Shah has initiated a new program of research in multimodal data integration to capitalize on the vast clinical and diagnostic data resources at the institution, including genomics, radiologic imaging, digital histology, treatment response and high-resolution single-cell genomics. Dr. Shah is also a principal investigator in several national and international collaborative research programs including Breakthrough Cancer, the NIH funded Center of Excellence in Genomic Sciences program called the Center for Integrated Cellular Analysis and the CRUK Grand Challenge program entitled IMAXT: Imaging and Molecular Annotation of Xenografts and Tumors. Finally, he is committed to mentoring and currently advises 2 clinical fellows, 5 postdoctoral fellows, and 4 graduate students in his laboratory.





**Jason M. Slagle, PhD** Vanderbilt University

Jason Slagle, PhD, is a Research Associate Professor at Vanderbilt's Center for Research and Innovation in Systems Safety (CRISS). He has over 15 years of experience in the areas of cognitive and behavioral task analysis, decision-making, evaluation & assessment, including user interface design & evaluation, measures of clinician performance, workflow & task distribution, workload measurement, vigilance, clinician expertise, automation, use error, clinical decision support, adverse event detection and analysis, and the effects of various performance-shaping factors. He has been heavily involved in multiple research projects involving cancer patients, their family members & personal caregivers, and their clinicians, including as a Co-PI in a previous PCORI pilot project. Dr. Slagle has been actively involved in multiple projects involving the human-centered design

and evaluation of health information technology (HIT), especially clinical decision support tools (e.g., risk prediction tools) in multiple projects assessing the practices and needs of clinicians, patients, and caregivers, when using various forms of technology.



**My T. Thai, PhD, FIEEE** University of Florida

Dr. My T. Thai is currently a University of Florida (UF) Research Foundation Professor of Computer & Information Sciences & Engineering and Associate Director of UF Nelms Institute for the Connected World. Dr. Thai has extensive expertise in billion-scale data mining, machine learning, and optimization, especially for complex graph data with applications to healthcare, social media, blockchain, and cybersecurity. She has been working on various interdisciplinary topics, focusing on the underlying mathematical models, coupled with fast approximation algorithmic designs and scalable machine learning for dynamic, interdependent, and uncertainty systems. Her recent work has focused on differential privacy and explainable machine learning for fairness and trustworthy

AI. The results of her work have led to 7 books and 250+ publications in highly ranked international journals and conferences, including several best paper awards. Dr. Thai has received many research awards, notable ones are DTRA Young Investigator Award, 2009; the NSF CAREER Award. She is an IEEE Fellow.



Nick Trentadue Epic

Nick Trentadue helps lead the strategy and vision for Epic's specialty diagnostics platform and for laboratory informatics. For 15 years at Epic, he has worked to develop executive client relationships with health systems and laboratories across the US and abroad from academics like Yale to specialty diagnostics like Exact Sciences. His work is built on teamwork; making sure the right people are in the room to identify and tackle large challenges, staying ahead of clinicians' needs. He enjoys spending time and watching his identical twin boys play sports – especially soccer and hockey, and is an avid Wisconsin Badgers athletics fan.



# ABOUT THE FORUM









The National Cancer Policy Forum serves as a trusted venue in which experts can identify emerging high-priority policy issues in cancer research and cancer care and work collaboratively to examine those issues through convening activities focused on opportunities for action. The Forum provides a continual focus within the National Academies on cancer, addressing issues in science, clinical medicine, public health, and public policy that are relevant to the goal of reducing the cancer burden, through prevention and by improving the care and outcomes for those diagnosed with cancer. Forum activities inform the cancer community and the public about critical policy issues through workshops and published reports. The Forum has members with a broad range of expertise in cancer, including patient advocates, clinicians, and basic, translational, and clinical scientists. Members represent patients, federal agencies, academia, professional organizations, nonprofits, and industry.

The Forum has addressed a wide array of topics, including:

- enhancing collaborations to accelerate research and development;
- improving the quality and value of care for patients who have been diagnosed with or are at risk for cancer;
- developing tools and technologies to enhance cancer research and care; and
- examining factors that influence cancer incidence, mortality, and disparities.

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# **Upcoming Workshops**

# **Optimizing Public-Private Partnerships for Clinical Cancer Research**

# Collaborative workshop convened by:

National Cancer Policy Forum Forum on Drug Discovery, Development, and Translation

# October 17-18, 2023

Clinical cancer research has changed dramatically in recent years. Innovations in technology, improved understanding of disease biology, and an increasing number of potential therapeutics in the oncology pipeline has increased trial complexity. At the same time, there is continued pressure to conduct these trials in a timely and cost-effective manner. Public-private partnerships have the potential to more effectively leverage public funding and resources, increase the breadth and depth of research, and effect a more rapid translation from basic discoveries to public health applications. Industry, government, and nonprofit organizations could each make important and unique contributions to this endeavor. This workshop will examine opportunities to enhance and foster public-private partnerships for clinical cancer research and consider lessons learned from examples of public-private collaborations in oncology or other fields that have helped to advance clinical research and improve patient outcomes.

Workshop website in development

# Assessing and Advancing Progress in the Delivery of High-Quality Cancer Care

# Collaborative workshop co-sponsored by:

National Cancer Policy Forum American Society of Clinical Oncology

# October 5-6, 2023

This year marks the 10-year anniversary of the Institute of Medicine (IOM) report, *Delivering High-Quality Cancer Care:* Charting a New Course for a System in Crisis, and the ability of the cancer care delivery system to provide high-quality cancer care to all patients remains elusive. This workshop—co-sponsored by the National Cancer Policy Forum and the American Society of Clinical Oncology—is an opportunity for the cancer care community to discuss persistent barriers to achieving excellent and equitable cancer care for all, and additional actions that could be taken to implement the 2013 recommendations. Workshop presentations and discussions may also identify aspects of cancer care that have changed over the past decade and where new strategies are needed to improve the quality of care.

Workshop website in development

# Developing a Multidisciplinary and Multispecialty Workforce for Patients with Cancer, from Diagnosis to Survivorship

# Collaborative workshop convened by:

National Cancer Policy Forum
Global Forum on Innovation in Health Professional Education

# July 17-18, 2023

Patients living with and beyond cancer often require care from a wide range of clinicians as they navigate cancer diagnosis, treatment, and survivorship care. A multispecialty and multidisciplinary workforce is critical to ensuring that all patients with cancer receive high-quality care.

This workshop will examine opportunities to improve equitable access to multispecialty, multidisciplinary care for patients living with and beyond cancer. Workshop presentations and discussions will focus on strategies to expand and strengthen the multispecialty and multidisciplinary workforce, particularly in underserved areas; approaches for enhancing health professional education across the spectrum of non-oncology clinicians to include best practices for the care of patients with cancer; opportunities for collaboration and information-sharing among members of a patient's health care team across specialties and disciplines; payment and care delivery models to facilitate coordination and collaboration; and opportunities to strengthen the evidence base about the array of adverse effects of cancer and cancer treatment on patient outcomes, as well as interventions aimed at mitigating these effects.

# Workshop website

# The Potential Contribution of Cancer Genomics Information to Community Investigations of Unusual Patterns of Cancer

# Collaborative workshop convened by:

National Cancer Policy Forum
Roundtable on Genomics and Precision Health

### April 13, 2023

This workshop will examine the state of the science regarding the identification of genomic and epigenomic biomarkers of environmental exposures associated with cancers, with emphasis on pediatric cancers. The workshop is sponsored by the Division of Environmental Health Science and Practice in the National Center for Environmental Health at the Centers for Disease Control and Prevention and will provide background information to assist the CDC in revising their Cancer Cluster Guidelines.

Workshop website

# **Upcoming and Recent Workshops**

# **Incorporating Integrated Diagnostics into Precision Oncology Care**

# Collaborative workshop convened by:

National Cancer Policy Forum Computer Science and Telecommunications Board Board on Human-Systems Integration

# March 6-7, 2023

Innovations in the diagnostic specialties have the potential to reshape cancer diagnosis and enable precision therapy. Spurred by advances in informatics, there are opportunities to combine information from imaging, pathology, and molecular testing. Multidisciplinary collaboration among pathologists, radiologists, and oncologists supplemented by machine-learning based tools could facilitate a more precise understanding of a patient's diagnosis, and what treatment strategies may be most effective to improve outcomes. Integrated diagnostics may also improve patient access to subspecialty expertise, particularly in community-based settings of cancer care. This workshop could help the cancer community better define the purpose, goals, and components of integrated diagnostics and an opportunity to discuss policy, research, technical, and workforce considerations to help realize the potential of integrated diagnostics.

Workshop website

# Addressing Resistance in the Development of Cancer Immune Modulator Therapeutics

# Collaborative workshop convened by:

National Cancer Policy Forum
Forum on Drug Discovery, Development, and Translation

# November 14-15, 2022

Many patients who initially respond to immunotherapy treatment may develop resistance to treatment over time. The reasons for the development of resistance are not fully understood, and resistance continues to pose a major threat to further advances in the field of immunotherapy for cancer treatment. This workshop gave participants in the cancer research and cancer care an opportunity to examine the current challenges related to resistance to immunotherapies and to discuss potential policy options that could help overcome these challenges.

Workshop videos and presentations

# Advancing Progress in Cancer Prevention and Risk Reduction

# June 27-28, 2022

This workshop considered the current state of knowledge on risk factors for cancer and best practices for cancer prevention and risk reduction. Workshop sessions focused on strategies to implement population-based and clinic-based prevention, with exemplar programs in both settings. Participants also examined opportunities to spur progress in cancer prevention and risk reduction.

Workshop videos and presentations

# Family Caregiving for People With Cancer and Other Serious Illnesses

# Collaborative workshop convened by:

National Cancer Policy Forum Roundtable on Quality Care for People with Serious Illness Forum on Aging, Disability, and Independence

# May 16-17, 2022

This workshop used cancer as a lens to examine issues that affect family caregivers for people with serious illnesses. Presentations and discussions included: strategies to better capture, understand, and act on family caregiver input and experience to improve patient care and to support family caregivers; research and policy opportunities to better support family caregiving; and strategies to better embed a health equity focus in family caregiving research, policy and practice.

Workshop videos and presentations <u>Proceedings</u>

# Innovation in Electronic Health Records for Oncology Care, Research, and Surveillance

# Collaborative workshop convened by:

National Cancer Policy Forum Computer Science and Telecommunications Board

# February 28-March 1, 2022

Electronic Health Records (EHRs) are used across a wide variety of activities in cancer care and cancer research, including communication among health care team members and patients, clinical documentation and treatment planning, patient safety and quality improvement, scheduling and billing, as well as clinical research and disease surveillance activities. This workshop examined opportunities to improve patient care and outcomes through collabo¬rations to enhance innovation in the development, implementation, and use of EHRs in oncology care, research, and surveillance.

Workshop videos and presentations

**Proceedings** 

## FORUM SPONSORS

- Centers for Disease Control and Prevention
- National Institutes of Health/National Cancer Institute
- American Association for Cancer Research
- American Cancer Society
- American College of Radiology
- American Society of Clinical Oncology
- Association of American Cancer Institutes
- Association of Community Cancer Centers
- Bristol-Myers Squibb
- Cancer Support Community

- Flatiron Health
- Merck
- National Comprehensive Cancer Network
- National Patient Advocate Foundation
- **Novartis Oncology**
- **Oncology Nursing** Society
- Partners in Health
- Pfizer Inc
- Sanofi
- Society for Immunotherapy of Cancer

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Arzoo Tayyeb, M.B.A. Finance Business Partner



# **WORKSHOP PROCEEDINGS RELATED PUBLICATIONS**







# WORKSHOP PROCEEDINGS

# 2023

Addressing Resistance in the Development of Cancer Immune Modulator Therapeutics (In Process) Advancing Progress in Cancer Prevention and Risk Reduction (In Process)

### 2022

Family Caregiving for People with Cancer and Other Serious Illnesses: A Workshop Innovation in Electronic Health Records for Cancer Care, Research, and Surveillance: A Workshop Promoting Health Equity in Cancer Care: Proceedings of a Workshop

The Role of Companion Animals as Sentinels for Predicting Environmental Exposure Effects on Aging and Cancer Susceptibility in Humans: Proceedings of a Workshop

Innovation in Cancer Care and Cancer Research in the Context of the COVID-19 Pandemic: Proceedings of a Workshop

Impact of the Affordable Care Act on Cancer Prevention and Cancer Care: Proceedings of a Workshop

### 2021

Addressing the Adverse Consequences of Cancer Treatment: Proceedings of a Workshop Opportunities and Challenges for Using Digital Health Applications in Oncology: Proceedings of a Workshop Improving the Evidence Base for Treatment Decision Making for Older Adults with Cancer:

Proceedings of a Workshop— in Brief

Advancing Progress in the Development and Implementation of Effective, High-Quality Cancer Screening: Proceedings of a Workshop

Drug Research and Development for Adults Across the Older Age Span: Proceedings of a Workshop

#### 2020

Reflections on Sharing Clinical Trial Data: Challenges and a Way Forward: Proceedings of a Workshop Applying Big Data to Address the Social Determinants of Health in Oncology: Proceedings of a Workshop Health Literacy and Communication Strategies in Oncology: Proceedings of a Workshop Enhancing Scientific Reproducibility in Biomedical Research Through Transparent Reporting:

# 2019

Developing and Sustaining an Effective and Resilient Oncology Careforce: Proceedings of a Workshop Advancing Progress in the Development of Combination Cancer Therapies with Immune Checkpoint Inhibitors: Proceedings of a Workshop

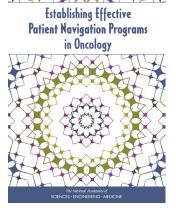
Improving Cancer Diagnosis and Care: Clinical Application of Computational Methods in Precision Oncology: Proceedings of a Workshop

To receive updates on the National Cancer Policy Forum, visit:

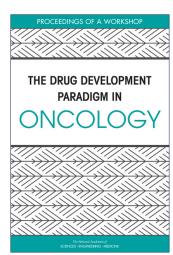
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# **WORKSHOP PROCEEDINGS**

### 2018

Improving Cancer Diagnosis and Care: Patient Access to Oncologic Imaging and Pathology Expertise and Technologies: Proceedings of a Workshop

Establishing Effective Patient Navigation Programs in Oncology: Proceedings of a Workshop Long-Term Survivorship Care After Cancer Treatment: Proceedings of a Workshop

#### 2017

The Drug Development Paradigm in Oncology: Proceedings of a Workshop

Cancer Care in Low-Resource Areas: Cancer Treatment, Palliative Care, and Survivorship Care:

Proceedings of a Workshop

Implementation of Lung Cancer Screening: Proceedings of a Workshop

Incorporating Weight Management and Physical Activity Throughout the Cancer Care Continuum:

Proceedings of a Workshop

### 2016

Policy Issues in the Clinical Development and Use of Immunotherapy for Cancer Treatment: Proceedings of a Workshop

Cancer Care in Low-Resource Areas: Cancer Prevention and Early Detection: Workshop Summary
Appropriate Use of Advanced Technologies for Radiation Therapy and Surgery in Oncology: Workshop Summary

### 2015

Comprehensive Cancer Care for Children and Their Families: Summary of a Joint Workshop by the Institute of Medicine and the American Cancer Society

Policy Issues in the Development and Adoption of Biomarkers for Molecularly Targeted Cancer Therapies: Workshop Summary

Assessing and Improving the Interpretation of Breast Images: Workshop Summary Role of Clinical Studies for Pets with Naturally Occurring Tumors in Translational Cancer Research:

Workshop Summary

## 2014

Ensuring Patient Access to Affordable Cancer Drugs: Workshop Summary Contemporary Issues for Protecting Patients in Cancer Research: Workshop Summary

# 2013

Identifying and Addressing the Needs of Adolescents and Young Adults with Cancer: Workshop Summary Implementing a National Cancer Clinical Trials System for the 21st Century: Second Workshop Summary Sharing Clinical Research Data: Workshop Summary

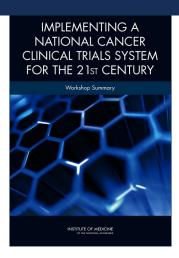
Delivering Affordable Cancer Care in the 21st Century: Workshop Summary Reducing Tobacco-Related Cancer Incidence and Mortality: Workshop Summary

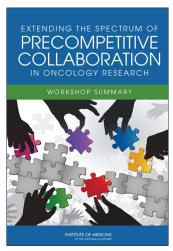
## 2012

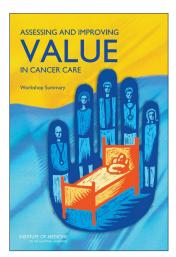
The Role of Obesity in Cancer Survival and Recurrence: Workshop Summary
Informatics Needs and Challenges in Cancer Research: Workshop Summary
Facilitating Collaborations to Develop Combination Investigational Cancer Therapies: Workshop Summary

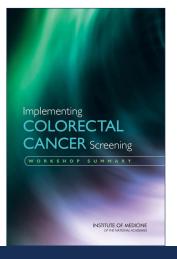
#### 2011

Implementing a National Cancer Clinical Trials System for the 21st Century: Workshop Summary Patient-Centered Cancer Treatment Planning: Improving the Quality of Oncology Care: Workshop Summary The National Cancer Policy Summit: Opportunities and Challenges in Cancer Research and Care Nanotechnology and Oncology: Workshop Summary









# WORKSHOP PROCEEDINGS

# 2010

Direct-to-Consumer Genetic Testing (with the National Research Council): Summary of a Workshop Extending the Spectrum of Precompetitive Collaboration in Oncology Research: Workshop Summary A Foundation for Evidence-Driven Practice: A Rapid Learning System for Cancer Care: Workshop Summary Policy Issues in the Development of Personalized Medicine in Oncology: Workshop Summary

# 2009

Assessing and Improving Value in Cancer Care: Workshop Summary
Ensuring Quality Cancer Care Through the Oncology Workforce: Sustaining Care in the 21st Century:
Workshop Summary

Multi-Center Phase III Clinical Trials and the NCI Cooperative Group Program: Workshop Summary

### 2008

Implementing Colorectal Cancer Screening: Workshop Summary Improving the Quality of Cancer Clinical Trials: Workshop Summary

### 2007

Cancer-Related Genetic Testing and Counseling: Workshop Proceedings Cancer in Elderly People: Workshop Proceedings Implementing Cancer Survivorship Care Planning: Workshop Summary

### 2006

Effect of the HIPAA Privacy Rule on Health Research: Proceedings of a Workshop Developing Biomarker-Based Tools for Cancer Screening, Diagnosis, and Treatment: Workshop Summary

# **RELATED WORK**

# CONSENSUS STUDY REPORTS BUILDING ON NCPF WORK

Childhood Cancer and Functional Impacts Across the Care Continuum (2021)

Report: nap.edu/catalog/25944

Diagnosing and Treating Adult Cancers and Associated Impairments (2021)

Report: nap.edu/catalog/25956

**Guiding Cancer Control:** A Path to Transformation (2019)

Report: nap.edu/catalog/25438

Making Medicines Affordable: A National Imperative (2017)

Report: nap.edu/catalog/24946

Biomarker Tests for Molecularly Targeted Therapies: Key to Unlocking Precision Medicine (2016)

Report: nap.edu/catalog/21860

Ovarian Cancers: Evolving Paradigms in Research

and Care (2016)

Report: nap.edu/catalog/21841

Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis (2013)

Report: nap.edu/catalog/18359

**Evolution of Translational Omics: Lessons Learned** and the Path Forward (2012)

Report: nap.edu/catalog/13297

A National Cancer Clinical Trials System for the 21st Century: Reinvigorating the NCI Cooperative Group Program (2010)

Report: nap.edu/catalog/12879

**Evaluation of Biomarkers and Surrogate** Endpoints in Chronic Disease (2010)

Report: nap.edu/catalog/12869

Beyond the HIPAA Privacy Rule: Enhancing Privacy, Improving Health Through Research (2009)

Report: nap.edu/catalog/12458

Cancer Biomarkers: The Promises and Challenges of Improving Detection and Treatment (2007)

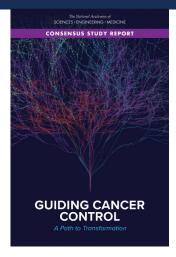
Report: nap.edu/read/11892

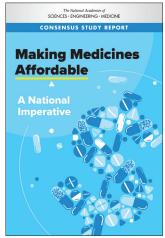


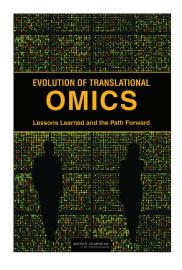
Independent, individually authored articles arising from NCPF workshops—and consensus studies building on NCPF work-include:

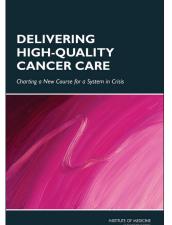
# 2022

- Bono, K. and N. L. Keating. 2022. Addressing social determinants of health: Now is the time. Journal of the National Cancer Institute. https://academic.oup.com/jnci/advance-article/doi/10.1093/jnci/djac137/6705076?searchresult=1.
- Bradley, C. J., S. Kitchen, S., Bhatia, J. Bynum, G. Darien, J. L. Lichtenfeld, R. Oyer, L. N. Shulman, and L. Kennedy Sheldon. 2022. Policies and practices to address cancer's long-term adverse consequences. Journal of the National Cancer Institute. 114(8):1065-1071. https://academic.oup.com/jnci/article-abstract/114/8/1065/6570605?redirectedFrom=fulltext.
- Davidson, N. E., K. E. Knudsen, S. Fuld Nasso, R. Oyer, S. Pergam, L. Strawbridge, and L. Shulman. 2022. Cancer care at the beginning of the COVID-19 pandemic: Effects on patients and early interventions to mitigate stresses on care. Cancer Journal 28(2):107-110. https://journals.lww.com/journalppo/Abstract/2022/03000/Cancer\_Care\_at\_the\_Beginning\_of\_the\_ COVID 19.5.aspx.
- Fan, Q, D. Keene, M. Banegas, S. Gehlert, L. M. Gottlieb, K. R. Yabroff, C. E. Pollack. 2022. Housing insecurity among patients with cancer. Journal of the National Cancer Institute.. https://academic.oup.com/jnci/advance-article/doi/10.1093/jnci/ djac136/6705075?searchresult=1.
- Graboyes, E. M., K. H. Chaiyachati, J.S. Gall, W. Johnson, J. S. Krishnan, S. S. McManus, L. Thompson, L. N. Shulman, K. R. Yabroff. 2022. Addressing transportation insecurity among patients with cancer. Journal of the National Cancer Institute. https://academic.oup.com/jnci/advance-article/doi/10.1093/jnci/djac134/6705073?searchresult=1.
- Hughes-Halbert, C. 2022. Social determinants of health and cancer care. Journal of the National Cancer Institute.. https://academic.oup.com/jnci/advance-article/doi/10.1093/jnci/djac175/6694052?searchresult=1.
- Hyer, R. N. 2022. Insights for oncology trials garnered from the rapid development of an mRNA COVID-19 vaccine. Cancer Journal 28(2):146-150. https://journals.lww.com/journalppo/Fulltext/2022/03000/Insights\_for\_Oncology\_Trials\_Garnered\_ From\_the.12.aspx.
- Karzai, F., and W. L. Dahut. 2022. Lessons from the impact of the COVID-19 pandemic at the national cancer institute: Cancer research and care. Cancer Journal 28(2):118-120. https://journals.lww.com/journalppo/Abstract/2022/03000/Lessons\_From\_ the\_Impact\_of\_the\_COVID\_19\_Pandemic.7.aspx.
- Nekhlyudov, L., L. A. Fleisher, and P. B. Jacobsen. 2022. Telemedicine across the cancer care continuum: Evidence and opportunities for clinical care, research, and policy. Cancer Journal 28(2):121-124. https://journals.lww.com/journalppo/Ab $stract/2022/03000/Telemedicine\_Across\_the\_Cancer\_Care\_Continuum\_.8. aspx.$
- Nekhlyudov L., G. B. Campbell., K. H. Schmitz, G.A. Brooks, A.J. Kumar, P.A. Ganz, and D. Von Ah 2022. Cancer-related impairments and functional limitations among long-term cancer survivors: Gaps and opportunities for clinical practice. Cancer 128(2): 222-229. https://pubmed.ncbi.nlm.nih.gov/34529268/.









# 2022, continued

- Oyer, R. A., L. Pierce, C. Lathan, and B. Sagar. 2022. Maintaining and advancing quality cancer care during a global pandemic. *Cancer Journal* 28(2):134-137. https://journals.lww.com/journalppo/Abstract/2022/03000/Maintaining\_and\_Advancing\_Quality\_Cancer\_Care.10.aspx.
- Parikh, R. B., K. M. Basen-Engquist, C. Bradley, D. Estrin, M. Levy, J. L. Lichtenfeld, B. Malin, D. McGraw, N. J. Meropol, R. Oyer, L. Kennedy Sheldon, and L. N. Shulman. 2022. Digital health applications in oncology: An opportunity to seize. 2022. *Journal of the National Cancer Institute.*. https://academic.oup.com/jnci/advance-article-abstract/doi/10.1093/jnci/djac108/6596055?redirectedFrom=fulltext#no-access-message.
- Prindiville, S. A., G. A. Sarosy, D. Loose, H. Ciolino, and J. H. Doroshow. 2022. Patterns of enrollment in cancer treatment trials during the COVID-19 pandemic at national cancer institute-designated cancer centers. *Cancer Journal* 28(2):111-117. https://journals.lww.com/journalppo/Abstract/2022/03000/Patterns\_of\_Enrollment\_in\_Cancer\_Treatment\_Trials.6.aspx.
- Raber, M., A. Jackson, K. Basen-Engquist, C. Bradley, S. Chambers, F. N. Gany, C. Hughes-Halbert, S. T. Lindau, R. Perez-Escamilla, and H. Seligman. 2022. Food insecurity among people with cancer: Nutritional needs as an essential component of care. *Journal of the National Cancer Institute*. https://academic.oup.com/jnci/advance-article/doi/10.1093/jnci/djac135/6705074?searchresult=1...
- Rivera, D. R., P. G. Kluetz, K. Abdallah, S. Agrawal, D. C. Angus, R. M. Califf, E. Garrett-Mayer, R. Hyer, D. R. Lowy, and S. N. Khleif. 2022. Clinical evidence generation during a pandemic: Lessons learned for sustaining progress. *Cancer Journal* 28(2):151-156. https://journals.lww.com/journalppo/Abstract/2022/03000/Clinical\_Evidence\_Generation\_During\_a\_Pandemic\_.13.aspx.
- Roberts, T. J., and I. T. Lennes. 2022. Lessons for oncology from the COVID-19 pandemic: Operationalizing and scaling virtual cancer care in health systems.
   Cancer Journal 28(2):125-133. https://journals.lww.com/journalppo/Abstract/2022/03000/Lessons\_for\_Oncology\_From\_the\_COVID\_19\_Pandemic\_.9.aspx.
- Schilsky, R. L. 2022. Beyond the COVID-19 pandemic: Sustaining and improving equitable cancer care and research. *Cancer Journal* 28(2):105-106. https://journals.lww.com/journalppo/Citation/2022/03000/Beyond\_the\_COVID\_19\_Pandemic\_\_Sustaining\_and.4.aspx.
- Winkfield, K. M., and R. A. Winn. 2022. Improving equity in cacer care in the face of a publice health emergency. Cancer Journal 28(2):128-145. https://journals.lww.com/journalppo/Abstract/2022/03000/Improving\_Equity\_in\_Cancer\_Care\_in\_the\_Face\_of\_a.11.aspx

### 2021

- Bertagnolli, M. M. and H. Singh. 2021. Treatment of older adults with cancer Addressing gaps in evidence. *New England Journal of Medicine* 385:1062-1065. https://www.nejm.org/doi/full/10.1056/NEJMp2106089.
- Housten, A. J., C. M. Gunn, M. K. Paasche-Orlow, and K. M. Basen-Engquist. 2021. Health literacy interventions in cancer: A systematic review. *Journal of Cancer Education* 36(2):240-252. https://pubmed.ncbi.nlm.nih.gov/33155097/.

# 2020

- Schilsky, R.L., S. Nass, M.M. Le Beau, and E. J. Benz, Jr. 2020. Progress in cancer research, prevention, and care. New England Journal of Medicine 383(10):897-990. https://www.nejm.org/doi/full/10.1056/NEJMp2007839..
- Shulman, L. N., L. Kennedy Sheldon, and E. J. Benz. 2020. The future of cancer care in the United States—Overcoming workforce capacity limitations. *JAMA Oncology* 6(3):327-328. https://jamanetwork.com/journals/jamaoncology/article-abstract/2758839..
- Panagiotou, O. A., L. Hoffman-Högg, H. Hricak, S. N. Khleif, M. A. Levy, D. Magnus, M. J. Murphy, B. Patel, R. A. Winn, S. J. Nass, C. Gatsonis, and C. R. Cogle. 2020.
   Clinical application of computational methods in precision oncology: A review. JAMA Oncology 6(8):1282:1286. https://jamanetwork.com/journals/jamaon-cology/article-abstract/2765757..

### 2019

- Balogh, E. P., A. B. Bindman, S. G. Eckhardt, S. Halabi, R. D. Harvey, I. Jaiyesimi, R. Miksad, H. L. Moses, S. J. Nass, R. L. Schilsky, S. Sun, J. M. Torrente, and K. E. Warren. 2019. Challenges and opportunities to updating prescribing information for longstanding oncology drugs. *The Oncologist* 24:1-7. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7066705/.
- Takvorian, S. U., E. Balogh, S. Nass, V. L. Valentin, L. Hoffman-Högg, R. A. Oyer, R. W. Carlson, N. J. Meropol, L. Kennedy Sheldon, and L. N. Shulman. 2019. Developing and sustaining an effective and resilient oncology careforce: Opportunities for action, *Journal of the National Cancer Institute* 112(7):663-670. https://doi.org/10.1093/jnci/djz239.
- Kline, R. M., G. B. Rocque, E. A. Rohan, K. A. Blackley, C. A. Cantril, M. L. Pratt-Chapman, H. A. Burris, and L.N Shulman. 2019. Patient navigation in cancer: The business case to support clinical needs. Journal of Oncology Practice 15(11):585-590. https://www.ncbi.nlm.nih.gov/pubmed/31509483. .
- Lubejko, B. G., C. Cantril, L. H. Hogg, and L. Kennedy Sheldon. 2019. Novice oncology nurse navigator: Core elements in establishing training needs and building on competencies. Clinical Journal of Oncology Nursing 23(4):387-394. https://www.ncbi.nlm.nih.gov/pubmed/31322621...
- Nass, S. J., M.B. Cohen, R. Nayar, M.M. Zutter, E. P. Balogh, R. L. Schilsky, H. Hricak, and K.S.J. Elenitoba-Johnson. 2019. Improving cancer diagnosis and care: Patient access to high-quality oncologic pathology. *The Oncologist* 24(10):1287-1290. https://www.ncbi.nlm.nih.gov/pubmed/31366725.
- Lopez, D., M. L. Pratt-Chapman, E. A. Rohan, L. Kennedy Sheldon, K. Basen-Engquist, R. Kline, L. N. Shulman, and E. J. Flores. 2019. Establishing effective patient navigation programs in oncology. *Supportive Care in Cancer* 27(6):1985-1996. https://www.ncbi.nlm.nih.gov/pubmed/30887125.
- Nass, S. J., C. R. Cogle, J. A. Brink, C. P. Langlotz, E. P. Balogh, A. Muellner, D. Siegal, R. L. Schilsky, and H. Hricak. 2019. Improving cancer diagnosis and care: Patient access to oncologic imaging expertise. Journal of Clinical Oncology 37(20):1690-1694. https://www.ncbi.nlm.nih.gov/pubmed/31050908.

# 2018

- Kline, R. M., N. K. Arora, C. J. Bradley, E. R. Brauer, D. L. Graves, N. Buchanan Lunsford, M. S. McCabe, S. F. Nasso, L. Nekhlyudov, J. H. Rowland, R. M. Schear, and P. A. Ganz. Long-term survivorship care after cancer treatment—summary of a 2017 National Cancer Policy Forum workshop. *Journal of the National Cancer Institute* 110(12):1300-1310. https://www.ncbi.nlm.nih.gov/pubmed/30496448.
- Nass, S. J., M. Rothenberg, R. Pentz, H. Hricak, A. Abernethy, K. Anderson, A. W. Gee, R.D. Harvey, S. Piantadosi, M. M. Bertagnolli, D. Schrag, and R. L. Schilsky. Accelerating anticancer drug development—opportunities and trade-offs. *Nature Reviews Clinical Oncology* 15(12):777-786. https://www.ncbi.nlm.nih.gov/pubmed/30275514..

### 2018, continued

Demark-Wahnefried, W., K. H. Schmitz, C. M. Alfano, J. R. Bail, P. J. Goodwin, C. A. Thomson, D. W. Bradley, K. S. Courneya, C. A. Befort, C. S. Denlinger, J. A. Ligibel, W. H. Dietz, M. R. Stolley, M. L. Irwin, M. M. Bamman, C. M. Apovian, B. M. Pinto, K. Y. Wolin, R. M. Ballard, A. J. Dannenberg, E. G. Eakin, M. M. Longjohn, S. D. Raffa, L. L. Adams-Campbell, J. S. Buzaglo, S. J. Nass, G. M. Massetti, E. P. Balogh, E. S. Kraft, A. K. Parekh, D. M. Sanghavi, G. S. Morris, and K. Basen-Engquist. 2018. Weight management and physical activity throughout the cancer care continuum. CA: A Cancer Journal for Clinicians 68(1):64-89. https://www.ncbi. nlm.nih.gov/pubmed/29165798..

#### 2017

- Basen-Engquist, K., C. M. Alfano, M. Maitin-Shepard, C. A. Thomson, K. H. Schmitz, B. M. Pinto, K. Stein, D. S. Zucker, K. L. Syrjala, E. Fallon, C. Doyle, and W. Demark-Wahnefried. 2017. Agenda for translating physical activity, nutrition, and weight management interventions for cancer survivors into clinical and community practice. Obesity (Silver Spring) 25(Suppl 2):S9-S22. https://www.ncbi.nlm.nih.gov/pubmed/29086526...
- Smith, G. L., P. A. Ganz, J. E. Bekelman, S. J. Chmura, J. J. Dignam, J. A. Efstathiou, R. Jagsi, P. A. Johnstone, M. L. Steinberg, S. B. Williams, J. B. Yu, A. L. Zietman, R. R. Weichselbaum, and Y.-C. Shih. 2017. Promoting the appropriate use of advanced radiation technologies in oncology: Summary of a National Cancer Policy Forum workshop. International Journal of Radiation Oncology • Biology • Physics 97(3):450-461. https://www.ncbi.nlm.nih.gov/pubmed/28011046..

#### 2016

Kirch, R., G. Reaman, C. Feudtner, L. Wiener, L. A. Schwartz, L. Sung, and J. Wolfe. 2016. Advancing a comprehensive cancer care agenda for children and their families: Institute of Medicine workshop highlights and next steps. CA: A Cancer Journal for Clinicians 66(5):398-407. https://www.ncbi.nlm.nih.gov/ pubmed/27145249..

#### 2015

Nass, S. J., L. K. Beaupin, W. Demark-Wahnefried, K. Fasciano, P. A. Ganz, B. Hayes-Lattin, M. M. Hudson, B. Nevidjon, K. C. Oeffinger, R. Rechis, L. C. Richardson, N. L. Seibel, and A. W. Smith. 2015. Identifying and addressing the needs of adolescents and young adults with cancer: Summary of an Institute of Medicine workshop. Oncologist 20(2):186-195. https://www.ncbi.nlm.nih.gov/pubmed/25568146. .

#### 2014

- Bertagnolli, M. M., R. Canetta, and S. J. Nass. 2014. Expanding public-private collaborations to enhance cancer drug development: A Report of the Institute of Medicine's workshop series, "Implementing a National Cancer Clinical Trials System for the 21st Century." Oncologist 19(11):1179-1185. https://www.ncbi.nlm. nih.gov/pubmed/25326161.
- Balogh, E. P., C. Dresler, M. E. Fleury, E. R. Gritz, T. J. Kean, M. L. Myers, S. J. Nass, B. Nevidjon, B. A. Toll, G. W. Warren, and R. S. Herbst. 2014. Reducing tobacco-related cancer incidence and mortality: Summary of an Institute of Medicine workshop. Oncologist 19(1):21-31. https://www.ncbi.nlm.nih.gov/pubmed/24304712...
- Ferrell, B. R., T. J. Smith, L. Levit, and E. Balogh. 2014. Improving the quality of cancer care: Implications for palliative care. Journal of Palliative Medicine 17(4):393-399. https://www.ncbi.nlm.nih.gov/pubmed/24548217..

# 2013

- Ramsey, S. D., P. A. Ganz, V. Shankaran, J. Peppercorn, and E. Emanuel. 2013. Addressing the American health-care cost crisis: Role of the oncology community. Journal of the National Cancer Institute 105(23):1777-1781. https://www.ncbi.nlm.nih.gov/pubmed/24226096. .
- Balogh, E. P., P. B. Bach, P. D. Eisenberg, P. A. Ganz, R. J. Green, J. C. Gruman, S. J. Nass, L. N. Newcomer, S. D. Ramsey, J. E. Schottinger, and Y. T. Shih. 2013. Practice-changing strategies to deliver affordable, high-quality cancer care: Summary of an Institute of Medicine workshop. Journal of Oncology Practice 9(6s):54s-59s. https://www.ncbi.nlm.nih.gov/pubmed/29431037..

#### 2012

- Demark-Wahnefried, W., E. A. Platz, J. A. Ligibel, C. K. Blair, K. S. Courneya, J. A. Meyerhardt, P. A. Ganz, C. L. Rock, K. H. Schmitz, T. Wadden, E. J. Philip, B. Wolfe, S. M. Gapstur, R. Ballard-Barbash, A. McTiernan, L. Minasian, L. Nebeling, and P. J. Goodwin. 2012. The role of obesity in cancer survival and recurrence. Cancer Epidemiology, Biomarkers & Prevention 21(8):1244-1259. https://www.ncbi.nlm.nih.gov/ pubmed/22695735...
- LoRusso, P. M., R. Canetta, J. A. Wagner, E. P. Balogh, S. J. Nass, S. A. Boerner, and J. Hohneker. 2012. Accelerating cancer therapy development: The importance of combination strategies and collaboration. Summary of an Institute of Medicine workshop. Clinical Cancer Research 18(22):6101-6109. https://www. ncbi.nlm.nih.gov/pubmed/23065428..

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# Board on Human-Systems Integration (BOHSI)

# **Division of Behavioral and Social Sciences and Education**

Fueled by a guiding commitment to employing a human-systems framework with diverse inputs, BOHSI provides new scientific perspectives concerning the relationship of individuals and organizations to technology and the environment. The board identifies critical issues in the analysis of capability needs and solution approaches, requirements, testing, evaluation, communication, and use of new human-centered technologies. In addition, the board provides expert guidance on the research needed to expand the scientific and technical bases for designing technology that supports critical users' needs. Established in 1980, BOHSI has a long history of accomplishment in providing the U.S. government and other stakeholders with objective state-of-the-art policy advice based on human factors, human-systems integration, and other scientific approaches relevant to the design of technical systems for human use. BOHSI members work together to apply their deep expertise in exploring human capabilities, limitations, and performance across complex systems. These systems involve policy/doctrine, organizations/teams, people, processes, technology, and environments, with the ultimate goal of achieving robustness through resilience and human-system adaptation.

The expertise of BOHSI spans domains of science, engineering, and industry (e.g., human-systems integration, human factors and ergonomics, industrial-organizational psychology, cognitive engineering and psychology, and systems engineering). Substantive topics include human-computer interaction, naturalistic decision-making, personnel selection, training and development, teamwork, human reliability and resilience engineering as they apply to real-world problems (e.g., artificial intelligence, team coordination, safety culture, employee burnout). These real-world problems are studied in a range of settings, including federal agencies, military organizations, aviation, and healthcare systems.

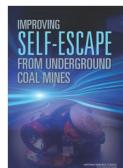
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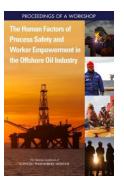


















- **RECENT AREAS OF STUDY**
- · human-systems integration, including methods, tools, and data
- human factors and ergonomics
- · human-computer interaction, user-centered design, user experience
- industrial and organizational psychology
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- workforce development, training, and education
- · recruitment, selection, and assignment

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A creative body, CSTB initiates a large fraction of its work. It draws on its members' insights into key trends and issues facing the computing and communications industries, the academic research community, and related professions and organizations to identify issues where it can have impact.

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# The Potential Contribution of Cancer Genomics Information to Community Investigations of Unusual Patterns of Cancer: A Virtual Workshop

April 13, 2023

### **Collaborators:**

National Cancer Policy Forum Roundtable on Genomics and Precision Health

This workshop is sponsored by the Division of Environmental Health Science and Practice in the National Center for Environmental Health at the Centers for Disease Control and Prevention.

### **Statement of Task:**

A planning committee of the National Academies of Sciences, Engineering, and Medicine will plan and host a 1-day public workshop to explore the state of the science with regard to the identification of genomic and epigenomic biomarkers of environmental exposures associated with cancers, with emphasis on pediatric cancers. The workshop would provide background information to assist the Centers for Disease Control and Prevention in revising their Cancer Cluster Guidelines. The workshop will feature invited presentations and panel discussion on topics that may include:

- Technologies and methodologies for the identification and validation of genomic and epigenomic biomarkers of environmental exposures and tumorigenesis;
- Statistical, epidemiological, and geospatial methodologies to assess the association of these biomarkers with unusual cancer clusters;
- The potential use of these biomarkers to identify groupings of pediatric cancers with common genetic aberrations due to environmental exposures, in addition to the index cancer identified in a cluster:
- Strategies for communication about environmental exposures and cancer risk;
- Research gaps in the genomics and epigenomics of cancers and environmental exposures and how they could be addressed.

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The planning committee will develop the agenda for the workshop sessions, select and invite speakers and discussants, and moderate the discussions. A proceedings of the presentations and discussions at the workshop will be prepared by a designated rapporteur in accordance with institutional guidelines.

# **Planning Committee:**

Roberta Ness (*Chair*), The University of Texas, School of Public Health Wei-Ting Hwang, Perelman School of Medicine, University of Pennsylvania Carmen J. Marsit, Emory University Kim E. Nichols, St. Jude Children's Research Hospital Sharon E. Plon, Texas Children's Hospital and Baylor College of Medicine Mark P. Purdue, Division of Cancer Epidemiology and Genetics, National Institutes of Health E. Alejandro Sweet-Cordero, University of California, San Francisco

### **Project Staff:**

Jennifer Flaubert, Program Officer Lori Brenig, Research Associate Chidinma Chukwurah, Senior Program Assistant Marc Meisnere, Senior Program Officer Sharyl Nass, Co-Director, National Cancer Policy Forum; Senior Director, Board on Health Care Services

Project webpage here





# Developing a Multidisciplinary and Multispecialty Workforce to Care for Patients with Cancer, from Diagnosis to Survivorship: A Workshop

July 17-18, 2023

# **Collaborators:**

National Cancer Policy Forum Global Forum on Innovation in Health Professional Education

# **Workshop Overview:**

Patients living with and beyond cancer often require care from a wide range of clinicians as they navigate cancer diagnosis, treatment, and survivorship care. A multispecialty and multidisciplinary workforce is critical to ensuring that all patients with cancer receive high-quality care.

This National Academies workshop, convened by the National Cancer Policy Forum in collaboration with the Global Forum on Innovation in Health Professional Education, will examine opportunities to improve equitable access to multispecialty, multidisciplinary care for patients living with and beyond cancer. Workshop presentations and discussions will focus on strategies to expand and strengthen the multispecialty and multidisciplinary workforce, particularly in underserved areas; approaches for enhancing health professional education across the spectrum of non-oncology clinicians to include best practices for the care of patients with cancer; opportunities for collaboration and information-sharing among members of a patient's health care team across specialties and disciplines; payment and care delivery models to facilitate coordination and collaboration; and opportunities to strengthen the evidence base about the array of adverse effects of cancer and cancer treatment on patient outcomes, as well as interventions aimed at mitigating these effects.

# **Planning Committee:**

Larissa Nekhlyudov (*Co-chair*), Brigham and Women's Hospital and Dana-Farber Cancer Institute Lawrence Shulman (*Co-chair*), Abramson Cancer Center, University of Pennsylvania Karen Basen-Engquist, The University of Texas MD Anderson Cancer Center

Smita Bhatia, Institute for Cancer Outcomes and Survivorship, The University of Alabama, Birmingham

Robert Carlson, National Comprehensive Cancer Network

Gwen Darien, National Patient Advocate Foundation

Anita Gupta, Johns Hopkins Medicine

Chanita Hughes-Halbert, Norris Comprehensive Cancer Center, University of Southern California

Randy Jones, Emily Couric Clinical Cancer Center, University of Virginia

Randall Oyer, Penn Medicine Lancaster General Health and Association of Community Cancer Centers

Susan Schneider, Duke University School of Nursing

Robert Winn, Massey Cancer Center, Virginia Commonwealth University

Robin Yabroff, American Cancer Center

### **Project Staff:**

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Arzoo Tayyeb, Finance Business Partner
Erin Balogh, Senior Program Officer; Co-Director, National Cancer Policy Forum
Sharyl Nass, Senior Director, Board on Health Care Services; Co-Director, National Cancer Policy Forum

Project webpage here







# Assessing and Advancing Progress in the Delivery of High-Quality Cancer Care: A Workshop

October 5-6, 2023

# **Co-Hosts:**

National Cancer Policy Forum American Society of Clinical Oncology

# **Statement of Task:**

An ad hoc planning committee of the National Academies of Sciences, Engineering, and Medicine will organize and host a 1.5-day public workshop to discuss progress made to date and additional actions needed to implement the recommendations put forth in the Institute of Medicine (IOM) consensus report Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis (2013). It will also explore changes to cancer care that have occurred over the last decade since the report was released and consider potential new strategies to improve the quality of care. The workshop will feature invited presentations and panel discussions organized around the six components of the 2013 report's conceptual framework for a high-quality cancer care delivery system:

- Engaging patients to make informed medical decisions consistent with their needs, values, and preferences.
- Establishing an adequately staffed, trained, and coordinated workforce that works through interprofessional cancer care teams and is coordinated with family caregivers.
- Providing evidence-based care that is informed by clinical trials and other types of clinical research.
- Using information technology to advance the quality and delivery of cancer care, research, and quality measurement.
- Translating evidence into clinical practice guidelines, quality measurement, and performance improvement initiatives.
- Ensuring that high-quality cancer care is accessible and affordable to all patients with cancer.

The planning committee will develop the agenda for the workshop sessions, select and invite speakers and discussants, and moderate the discussions. A proceedings of the presentations and discussions at the workshop will be prepared by a designated rapporteur in accordance with institutional guidelines.

**Planning Committee Pending** 

**Project Webpage Pending** 







# Optimizing Public-Private Partnerships for Clinical Cancer Research: A Workshop

October 17-18, 2023

### **Collaborators:**

National Cancer Policy Forum Forum on Drug Discovery, Development, and Translation

### **Statement of Task:**

A National Academies of Sciences, Engineering, and Medicine planning committee will organize and host a 1.5-day public workshop that will examine opportunities to improve the care and outcomes for patients with cancer through public-private partnerships for clinical cancer research. The workshop will feature invited presentations and panel discussions on topics that may include:

- The potential for innovative public-private partnerships to expand and enhance clinical cancer research, including a greater emphasis on health equity.
- Strategies to further utilize the unique features of the National Cancer Clinical Trials Network (NCTN), the NCI Community Oncology Research Program (NCORP), the Experimental Therapeutics Clinical Trials Network (ETCTN), the Cancer Screening Research Network (CSRN), and other relevant networks in these partnerships.
- The unique roles of potential participants in these partnerships, including the NCTN, NCORP, ETCTN, CSRN, and the Advanced Research Projects Agency for Health (ARPA-H), FNIH and other foundations, health insurers, professional societies, disease-focused groups, and small biotech and biopharmaceutical companies.
- The patient-centered research questions or types of studies that would be most suited for public-private partnerships, such as prevention trials, adjuvant trials, comparative effectiveness trials, and pragmatic post-market trials to enable evidence generation across the lifecycle of a drug.
- Opportunities to leverage public-private collaborations to enhance the integration of cancer research within health
  care delivery and to utilize data that are collected during routine care to answer important questions in cancer
  research.
- Potential challenges to conducting efficient clinical cancer research through public-private partnerships, and potential policies and strategies to overcome those challenges.
- Characteristics and principles of effective public-private collaborations in clinical research.
- Examples of past and ongoing public-private collaborations in oncology or other biomedical fields.
- Appropriate metrics to assess the effectiveness of public-private partnerships.

The planning committee will develop the agenda for the workshop sessions, select and invite speakers and discussants, and moderate the discussions. A proceedings of the presentations and discussions at the workshop will be prepared by a designated rapporteur in accordance with institutional guidelines.

# **Planning Committee Pending**

**Project Webpage in Development** 

