# Appendix F

# Committee Member and
# Staff Biographies

## COMMITTEE BIOGRAPHIES

**Gail L. Warden, M.H.A., FACHE** (*Chair*), president emeritus of Detroit-based Henry Ford Health System, served as its president and chief executive officer from April 1988 to 2003. Prior to this role, Mr. Warden served as president and chief executive officer of Group Health Cooperative of Puget Sound as well as executive vice president of the American Hospital Association. He serves as a director of Picker Institute Inc. He has been a director of National Research Corp. since January 2005. He served as a director of Comerica Inc. from July 2000 to December 31, 2006. Mr. Warden serves in numerous leadership positions, as chairman to several national health care committees and as board member to many other health care–related committees and institutions. In addition, he is a professor of health management and policy for the University of Michigan School of Public Health. He serves the Detroit, Michigan, community through various memberships on local governing committees and groups. Mr. Warden received an honorary doctorate in public administration from Central Michigan University and an honorary doctorate of humane letters from Rosalind Franklin University of Medicine and Science, a master of hospital administration from the University of Michigan, and a bachelor of arts from Dartmouth College.

**James P. Bagian, M.D.,** is the director of the Center for Healthcare Engineering and Patient Safety and is a professor in the Medical School and the College of Engineering at the University of Michigan. Previously, he served as the first director of the Department of Veterans Affairs (VA) National Center for Patient Safety (NCPS) and the first chief Patient Safety Officer for the VA from 1999 to 2010, where he developed numerous patient safety–related tools and programs that have been adopted nationally and internationally. Dr. Bagian served as a NASA astronaut and is a veteran of two Space Shuttle missions including as the lead mission specialist for the first dedicated Life Sciences Spacelab mission. His primary interest and expertise involves the

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development and implementation of multidisciplinary programs and projects that involve the integration of engineering, medical and life sciences, and human factor disciplines. Presently, he is applying the majority of his attention to the application of systems engineering approaches to the analysis of medical adverse events and the development and implementation of suitable corrective actions that will enhance patient safety primarily through preventive means. He received his B.S. in mechanical engineering from Drexel University and his M.D. from Jefferson Medical College at Thomas Jefferson University. Dr. Bagian was elected to both the National Academy of Engineering and the Institute of Medicine (IOM) and has served on or chaired numerous National Research Council (NRC) and IOM committees.

**David W. Bates, M.D., M.Sc.,** is the director of the Center for Patient Safety Research and Practice at Brigham and Women's Hospital, where he is the chief of the Division of General Medicine. He is also the medical director of clinical and quality analysis, IS. He is a professor in medicine at Harvard Medical School and has a joint appointment at the Harvard School of Public Health in the Department of Health Policy and Management. He serves as one of the directors of the clinical effectiveness program. He is also external program lead for research for the World Alliance for Patient Safety of the World Health Organization. Dr. Bates received his bachelor of science degree in chemistry from Stanford University, his M.D. from Johns Hopkins School of Medicine, and his M.Sc. in health policy and management from the Harvard School of Public Health. Dr. Bates's primary informatics interest has been the use of computer systems to improve patient care, especially with respect to clinical decision support. He has done extensive work on evaluating the incidence and prevention of adverse drug events. Another area of focus has been on improving efficiency and quality using information systems with regards to diagnostic testing. He also has done a series of studies focusing on health information technology policy.

**Dedra Cantrell, R.N., B.S.N., M.S., C.P.,** is the chief information officer of Emory Healthcare, Inc., in Atlanta, Georgia. Emory Healthcare is an integrated academic health care system committed to caring for patients and their families, educating health care professionals for the future, pursuing discovery research and clinical innovation, and serving its community. The clinical arm of the Woodruff Health Sciences Center of Emory University, Emory Healthcare is the largest, most comprehensive health system in the state of Georgia. Ms. Cantrell earned her bachelor's degree in nursing from Brenau University and worked as a registered nurse in multiple capacities before becoming involved in health care information technology. She came to Emory in 1994 as director of Patient Services Information Systems for the Emory University Hospital and then moved the following year to become a senior business analyst in the Emory Healthcare Information Services Department. Ms. Cantrell was promoted to director of client and application services in 1996, named executive director of Emory Healthcare Information Services in 1998, and was promoted to chief information officer in 2000. Ms. Cantrell recently earned her master's degree in organizational management from Capella University.

**David C. Classen, M.D., M.S.,** is an associate professor of medicine at the University of Utah and an active consultant in infectious diseases at the University of Utah School of Medicine in Salt Lake City and he is also a senior partner at CSC. He served as chief medical resident at the University of Connecticut. He is board certified in internal medicine and infectious diseases. He was the chair of Intermountain Healthcare's clinical quality committee for drug use and evalua-

tion and was the initial developer of patient safety research and patient safety programs at Intermountain Healthcare. In addition he developed, implemented, and evaluated a computerized physician order entry program at LDS Hospital that significantly improved the safety of medication use. He was a member of the IOM committee that developed the National Healthcare Quality Report and was also a member of the IOM committee on patient safety data standards. He chaired the QUIC (federal safety taskforce)/Institute for Healthcare Improvement (IHI) collaborative on improving safety in high-hazard areas. Dr. Classen was co-chair of the IHI's collaborative on perioperative safety and the surgical safety collaborative. He was also a faculty member of the IHI/National Health Foundation Safer Patients Initiative in the United Kingdom. In addition, Dr. Classen is a developer of the "Trigger Tool Methodology" at IHI, used for the improved detection of adverse events, which is currently being used by more than 500 different health care organizations throughout the United States and Europe. Dr. Classen also leads the development and publication of the new compendium of strategies for the prevention of health care–associated infections jointly released by the Infectious Disease Society of America, the Society of Healthcare Epidemiology, The Joint Commission, the American Hospital Association, and the Association of Practitioners of Infection Control. He currently co-chairs the National Quality Forum's (NQF's) patient safety common formats committee and is an advisor to the Leapfrog Group and has developed and implemented the CPOE/EHR flight simulator for the Leapfrog Group and NQF. This EHR flight simulator has been used to evaluate hundreds of inpatient and ambulatory EHR systems after implementation across the United States and the United Kingdom. He received his medical degree from the University of Virginia School of Medicine and a master of science degree in medical informatics from the University of Utah School of Medicine.

**Richard I. Cook, M.D.,** is a physician, educator, and researcher at the University of Chicago. His current research interests include the study of human error, the role of technology in human expert performance, and patient safety. He worked in the computer industry in supercomputer system design and engineering applications and later received his M.D. from the University of Cincinnati. Since November 1994, he has been faculty in the Department of Anesthesia and Intensive Care of the University of Chicago. Dr. Cook has investigated a variety of safety issues in such diverse areas as urban mass transportation, semiconductor manufacturing, and military software systems. He is often a consultant for not-for-profit organizations, government agencies, and academic groups. His noteworthy publications include "Gaps in the continuity of patient care and progress in patient safety," "Operating at the sharp end: The complexity of human error," "Adapting to new technology in the operating room," and the monograph "A tale of two stories: Contrasting views of patient safety."

**Don E. Detmer, M.D., M.A.,** is medical director of advocacy and health policy of the American College of Surgeons, professor emeritus and professor of medical education in the Department of Public Health Sciences at the University of Virginia, and visiting professor at CHIME, University College of London. Dr. Detmer is a member of the IOM as well as a lifetime associate of the National Academies, a fellow of the American Association for the Advancement of Science as well as the American Colleges of Medical Informatics, Sports Medicine, and Surgeons. Dr. Detmer is immediate past president of AMIA, past chairman of the Board on Health Care Services

and the membership committee of the IOM, the National Committee on Vital and Health Statistics, and the board of regents of the National Library of Medicine (NLM). He was a member on the national Commission on Systemic Interoperability. He chaired the 1991 IOM study "The Computer-based Patient Record" and co-edited the 1997 version of the same report. He was a member of the committee that developed the IOM reports *To Err Is Human* and *Crossing the Quality Chasm*. His education includes a medical degree from the University of Kansas and an M.A. from the University of Cambridge. Dr. Detmer's research interests include national health information policy, quality improvement, compartment syndromes, and management of academic health centers. He has written and edited a number of research articles, books, book chapters, and monographs on these topics.

**Meghan Dierks, M.D.,** is assistant professor of medicine, Harvard Medical School, in the Division of Clinical Informatics at Beth Israel Deaconess Medical Center in Boston, Massachusetts. She also holds a position of director of clinical systems analysis at Beth Israel Deaconess Medical Center. In these roles, Dr. Dierks conducts a broad range of both operational and research activities in the areas of clinical systems analysis, risk analysis, decision analysis, and human factors engineering (emphasis on cognitive engineering and macroergonomics). Dr. Dierks is a board-certified general surgeon who trained at Washington University, St. Louis, Missouri, and the Lahey Clinic, Burlington, Massachusetts. She completed the Harvard-MIT Program in biomedical informatics supported by an NLM training grant and was the Douglas Porter Fellow in Informatics at the Beth Israel Deaconess Medical Center. She has a baccalaureate degree from Brown University and an M.D. from the University of Texas Health Science Center–Houston. In addition to her academic position at Harvard Medical School, she has been a visiting scholar and research affiliate at MIT and is an adjunct faculty at the University of Maryland Division of Reliability Engineering. She is a former executive medical director for GE Healthcare IT, where she provided clinical input to design controls and was responsible for risk analysis. In her role as executive medical director, Dr. Dierks also held a leadership role in clinical research operations across all of GE Healthcare. Dr. Dierks spent 3 years with the Food and Drug Administration's (FDA's) Center for Devices and Radiological Health working on a range of cross-departmental projects under the deputy director that focused on risk analysis, mitigation, and strategic planning around medical devices shortages.

**Terhilda Garrido, M.P.H.,** is vice president, health information technology transformation and analytics, within the national quality and care delivery organization at Kaiser Permanente. Her team is responsible for realizing the strategic value and maximizing opportunities for Kaiser Permanente's electronic health record. She also currently co-leads Kaiser Permanente's efforts to qualify for "meaningful use." Her areas of focus include evaluation of new electronic health record (EHR)-based innovations, strategic impact of personal health records (PHRs)/EHRs, the business case for Kaiser Permanente's investment, leveraging HIT to improve quality, patient safety, efficiency, and equity. She has published on these topics and lends her expertise to various organizations within the health care industry. Prior to joining Kaiser, she did economic modeling and consulting for the European Economic Community and others. Ms. Garrido holds an operations research degree in engineering from Princeton University and a master's degree in public health in biostatistics from University of California at Berkeley. She completed graduate work at the Colegio de Mexico, Mexico City.

**Ashish Jha, M.D., M.P.H.,** is an associate professor of health policy and management at the Harvard School of Public Health and an associate professor of medicine at Harvard Medical School. He is also an associate physician at Boston's Brigham and Women's Hospital and VA Boston Healthcare System. Over the past 3 years, he has served as special advisor for quality and safety to the VA. Dr. Jha received his M.D. from Harvard Medical School in 1997 and trained in internal medicine at the University of California, San Francisco, where he also served as chief medical resident. He completed his general medicine fellowship from Brigham and Women's Hospital and Harvard Medical School and received his M.P.H. in clinical effectiveness from the Harvard School of Public Health in 2004. He joined the faculty in July 2004. Dr. Jha is a practicing general internist with a clinical focus on hospital care. The major themes of his research include (1) quality of care provided by health care systems with a focus on safety, efficiency, and effectiveness; (2) health information technology as a tool to reduce disparities and improve the quality, efficiency, and safety of care; (3) disparities in care, with a focus on the quality of care provided by minority-serving providers; and (4) hospital governance and its impact on quality of care.

**Michael Lesk, Ph.D.,** is professor of library and information science at Rutgers University and past department chair (2005-2008). After receiving a Ph.D. in chemical physics, Dr. Lesk joined the computer science research group at Bell Laboratories, and from 1984 to 1995 managed computer science research at Bellcore. He was then head of the division of information and intelligent systems at the National Science Foundation (1998-2002), and then joined Rutgers. He is best known for work in electronic libraries, and his book *Practical Digital Libraries* was published in 1997 by Morgan Kaufmann and the revision *Understanding Digital Libraries* appeared in 2004. His research has included the CORE project for chemical information, and he wrote some Unix system utilities including those for table printing (tbl), lexical analyzers (lex), and intersystem mail (uucp). His other technical interests include document production and retrieval software, computer networks, computer languages, and human–computer interfaces. He is a fellow of the Association for Computing Machinery, received the Flame award from the Usenix association, and in 2005 was elected to the National Academy of Engineering. He chairs the NRC board on research data and information

**Arthur Aaron Levin, M.P.H.,** is co-founder and the director of the Center for Medical Consumers, a New York City–based nonprofit organization committed to informed consumer and patient health care decision making, patient safety, evidence-based, high-quality medicine, and health care system transparency. Mr. Levin was a member of the IOM committee on the quality of health care that published the *To Err is Human* and *Crossing the Quality Chasm* reports. Mr. Levin also was a member of the committee that issued an IOM letter report in October 2007, *Opportunities for Coordination and Clarity to Advance the National Health Information Agenda*, and served on the committee that wrote *Knowing What Works in Health Care: A Roadmap for the Nation* published in fall 2008. He is a former member of the IOM's Board for Health Care Services. He is currently serving as chair of the NQF Consensus Standards Approval Committee and is co-chair of the National Committee for Quality Assurance (NCQA) Committee on Per-

formance Measures. Levin ended 4 years of service on the FDA's Drug Safety and Risk Management Advisory Committee (DSaRM) in May 2007 and continues to serve on select FDA advisory committees as a consultant expert in drug safety and risk management representing consumers. He also serves on the boards of the Foundation for Informed Medical Decision Making and the Citizens Advocacy Center in Washington. Mr. Levin is a member of the board of directors and the executive committee of the New York eHealth Collaborative (NYeC) a not-for-profit, multistakeholder organization. NYeC was created to provide and support a governance process that provides policy direction to New York State's HEAL investment of more than $200 million dedicated to advancing HIT and HIE. NYeC is also the recipient (on behalf of the state) of over $50 million in HIE and REC grants from the Office of the National Coordinator. Mr. Levin earned his master of public health degree in health policy from Columbia University School of Public Health and a bachelor of arts degree in philosophy from Reed College.

**John R. Lumpkin, M.D., M.P.H.,** is the senior vice president and the director of the Robert Wood Johnson's health care group, where he is responsible for the overall planning, budgeting, staffing, management, and evaluation of all program and administrative activities. Before joining the Foundation in April 2003, Lumpkin served as director of the Illinois Department of Public Health for 12 years. During his more than 17 years with the department, he served as acting director and prior to that as associate director. Dr. Lumpkin is a member of the IOM of the National Academies and a fellow of the American College of Emergency Physicians and the American College of Medical Informatics. He has been chairman of the National Committee on Vital and Health Statistics, and served on the Council on Maternal, Infant and Fetal Nutrition, the Advisory Committee to the Director of the U.S. Centers for Disease Control and Prevention, and the IOM Committee on Assuring the Health of the Public in the 21st Century. He has served on the boards of directors for the Public Health Foundation and the NQF, as president of the Illinois College of Emergency Physicians and the Society of Teachers of Emergency Medicine, and as speaker and board of directors member of the American College of Emergency Physicians. He has received the Arthur McCormack Excellence and Dedication in Public Health Award from the Association of State and Territorial Health Officials, the Jonas Salk Health Leadership Award, and the Leadership in Public Health Award from the Illinois Public Health Association. Lumpkin also has been the recipient of the Bill B. Smiley Award, the Alan Donaldson Award, the African American History Maker, and Public Health Worker of the Year of the Illinois Public Health Association. He is the author of numerous journal articles and book chapters.

**Vimla L. Patel, Ph.D., D.Sc., FRSC,** is a senior research scientist at the New York Academy of Medicine and an adjunct professor of biomedical informatics (BMI) at Columbia University in New York. Previously she was a professor of BMI and co-director at the Center for Cognitive Informatics and Decision Making in the School of Biomedical Informatics at the University of Texas Health Science Center in Houston. From 2007-2009, she served as interim chair and vice chair of BMI department in the Ira A. Fulton School of Engineering at Arizona State University, moving from Columbia University in New York. She has also served on the faculty at McGill University as a professor in the Department of Medicine, and as the director of the Centre for Medical Education, as well as the director of the Cognitive Science Center. She was an elected fellow of the Royal Society of Canada (Academy of Social Sciences), the American College of Medical Informatics, and the New York Academy of Medicine. She was a recipient of the annual

Swedish "Woman of Science" award in 1999. She received an Honorary Doctor of Science degree from the University of Victoria in 1998, in recognition of her contributions through cognitive studies in the domain of health informatics. She is an associate editor of the *Journal of Biomedical Informatics* and sits on the editorial boards of *Artificial Intelligence in Medicine* and *Advances in Health Science Education.* She is a past assistant editor of *AI in Medicine* and has served on the editorial boards of *Medical Decision Making,* the *Journal of Experimental Psychology,* and *Computers in Biology and Medicine.* She has served as vice-chair of AMIA's 2009 Scientific Program Committee, vice-chair (membership) of the International Medical Informatics Association, and chair of the editorial committee for *MedInfo* 2001. As a leader in adapting methods/theories from cognitive science and in innovating new approaches that provide scientific foundation for medical education, her research includes the role of cognition in designing a safer clinical workplace. Her studies focus on complexity of the distributed cognitive system that underlies critical care decisions, generation of medical errors, and on the impact of technology on human cognition for competent performance. After moving to the United States in 2000, she became the principal investigator on two R01 awards (from the National Library of Medicine and the National Institute of Mental Health) and on additional awards from the National Library of Medicine and the National Cancer Institute. Currently, she directs a major 5-year James S. McDonnell Foundation research project on Complexity and Error in Health Care with a focus on patient safety. She is a prolific writer with over 250 scholarly publications spanning biomedical informatics, education, clinical, and cognitive science journals.

**Philip Schneider, M.S., FASHP,** is clinical professor and associate dean for academic and professional affairs for the University of Arizona, College of Pharmacy at the Phoenix Biomedical Campus. His prior 33 years at Ohio State University included directing the Latiolais Leadership Program at the Ohio State University, an interprofessional program to advance leadership in pharmacy and improve the medication use system to reduce adverse drug events. Mr. Schneider was selected as the recipient of the 2008 Harvey A. K. Whitney Award, known as health-system pharmacy's highest honor, for his outstanding contributions to the practice of pharmacy in health systems. In 2006, he was presented with the Donald E. Francke Medal for significant international contributions to health-system pharmacy. He is a past president of the American Society of Health-System Pharmacists, and past president of the American Society for Parenteral and Enteral Nutrition, having served for 10 years as the first editor-in-chief of *Nutrition in Clinical Practice*, one of its official publications. Active in international pharmacy, he is currently vice president and co-chairman of the Centennial Programme Committee of the Board of Pharmaceutical Practice of the International Pharmaceutical Federation (FIP). Mr. Schneider received a B.S. in pharmacy from the University of Wisconsin, an M.S. in clinical hospital pharmacy from the Ohio State University, and a certificate of residency from the Ohio State University Hospitals. During his 40 years of professional and academic service, he has published more than 170 articles and abstracts in professional and scientific journals, 38 book chapters, edited 7 books, and given more than 500 contributed or invited presentations in 22 countries and the United States.

**Christine A. Sinsky, M.D., FACP,** is a general internist at Medical Associates Clinic and Health Plans in Dubuque, Iowa. She is a director on the American Board of Internal Medicine, serves on the physician advisory panel for the NCQA physician recognition programs, is a member of the Society of General Internal Medicine's patient centered medical home (PCMH) working group, and is a consultant for the John D. Stoeckle Center for Primary Care Innovation at the Massachusetts General Hospital. Dr. Sinsky is a frequent invited lecturer on practice innovation, redesign, and the PCMH including for the American College of Physicians, IHI, the Patient Centered Primary Care Collaborative, as well as private and academic medical centers. Dr. Sinsky received her B.S. and M.D. degrees from the University of Wisconsin, Madison, and completed her postgraduate residency and was chief resident at Gundersen Medical Foundation/La Crosse Lutheran Hospital in LaCrosse, Wisconsin.

**Paul C. Tang, M.D., M.S.,** is an internist and vice president, chief innovation and technology officer at the Palo Alto Medical Foundation, and is consulting associate professor of medicine (biomedical informatics) at Stanford University. Dr. Tang is vice chair of the federal Health Information Technology Policy Committee and chair of its Meaningful Use Work Group. Established under the 2009 American Recovery and Reinvestment Act, the group advises the U.S. Department of Health and Human Services on policies related to health information technology. An elected member of the IOM, Dr. Tang chaired an IOM patient safety committee, which published reports in 2003 and 2004: *Patient Safety: A New Standard for Care*, and *Key Capabilities of an Electronic Health Record System*. He is also a member of the IOM Board on Health Care Services. Dr. Tang chairs the NQF's Health Information Technology Advisory Committee and is a member of the NQF Consensus Standards Approval Committee. Dr. Tang is a past chair of the board for the American Medical Informatics Association. He is a member of the National Committee on Vital and Health Statistics (NCVHS), and co-chair of the NCVHS quality subcommittee. Dr. Tang co-chairs the measurement implementation strategy work group of the Quality Alliance Steering Committee and chairs the Robert Wood Johnson Foundation's National Advisory Council for ProjectHealth Design. He has published numerous papers in medical informatics, especially related to EHRs, PHRs, and quality, and has delivered over 280 invited presentations to national and international organizations and associations. Dr. Tang is a fellow of the American College of Medical Informatics, the American College of Physicians, the College of Healthcare Information Management Executives, and the Healthcare Information and Management Systems Society.

## STAFF BIOGRAPHIES

**Samantha M. Chao, M.P.H.,** is a senior program officer and study director at the IOM, where she has primarily worked on issues related to health care quality and patient safety. She has directed studies resulting in the reports *Redesigning Continuing Education in the Health Professions* and *HIV and Disability: Updating the Social Security Listings*. Previously, she directed the Forum on the Science of Health Care Quality Improvement and Implementation, which brought together leaders in the field to discuss methods to improve the quality and value of health care through the strengthening of research. She previously staffed the Pathways to Quality Health Care Series, which reviewed performance measures to analyze health care delivery, evaluated Medicare's Quality Improvement Organization Program, and assessed pay for performance and

its potential role in Medicare. Prior to joining the IOM, she completed an M.P.H. in health policy with a concentration in management at the University of Michigan School of Public Health. As part of her studies, she interned with the American Heart Association.

**Pamela Cipriano, Ph.D.,** is the 2010-2011 Distinguished Nurse Scholar-in-Residence at the IOM. As an accomplished hospital and nursing executive, she has led multiple patient care departments at academic medical centers for the past 20 years. She served as chief nursing officer and chief clinical officer of the University of Virginia Health System from 2000 to 2009 and currently holds a faculty appointment as research associate professor at the University of Virginia School of Nursing. She is also editor-in-chief of *American Nurse Today*, the official journal of the American Nurses Association. Dr. Cipriano chaired the American Academy of Nursing's Workforce Commission, studying technology solutions to improve the work environment to make patient care safer and more efficient. Throughout her career, she has been a leader in national nursing organizations addressing issues of policy, administration, quality, technology, and clinical practice. She currently serves on the Joint Commission's National Nursing Advisory Council and the National eHealth Collaborative Board.

**Roger C. Herdman, M.D.,** was born in Boston, Massachusetts. He graduated Phillips Exeter Academy in 1951; earned a B.S. from Yale University, magna cum laude, Phi Beta Kappa, in 1955; and his M.D. from Yale University School of Medicine in 1958. He interned at the University of Minnesota, and was a medical officer with the U.S. Navy from 1959 to 1961. Thereafter, he completed a residency in pediatrics and continued with a medical fellowship in immunology/nephrology at Minnesota. He held positions of assistant professor and professor of pediatrics at the University of Minnesota and the Albany Medical College between 1966 and 1979. In 1969, he was appointed director of the New York State Kidney Disease Institute in Albany. During 1969-1977, he served as deputy commissioner of the New York State Department of Health and was responsible for research, departmental health care facilities, and the Medicaid program at various times. In 1977, he was named director of New York State's Department of Public Health. From 1979 until joining the U.S. Congress's Office of Technology Assessment (OTA), Dr. Herdman was a vice president of the Memorial Sloan-Kettering Cancer Center in New York City. In 1983, he was named assistant director of OTA and then acting director and director from January 1993 to February 1996. After the closure of OTA, he joined the IOM as a senior scholar, and subsequently served as director of the National Cancer Policy Board and the National Cancer Policy Forum. He is now the director of the Board on Health Care Services.

**Herbert S. Lin, Ph.D.,** is chief scientist at the computer science and telecommunications board, NRC of the National Academies, where he has been study director of major projects on public policy and information technology. These studies include a 1996 study on national cryptography policy (*Cryptography's Role in Securing the Information Society*), a 1991 study on the future of computer science (*Computing the Future*), a 1999 study of Defense Department systems for command, control, communications, computing, and intelligence (*Realizing the Potential of C4I: Fundamental Challenges*), a 2000 study on workforce issues in high technology (*Building a Workforce for the Information Economy*), a 2002 study on protecting kids from Internet porno-

graphy and sexual exploitation (*Youth, Pornography, and the Internet*), a 2004 study on aspects of the FBI's information technology modernization program (*A Review of the FBI's Trilogy IT Modernization Program*), a 2005 study on electronic voting (*Asking the Right Questions About Electronic Voting*), a 2005 study on computational biology (*Catalyzing Inquiry at the Interface of Computing and Biology*), a 2007 study on privacy and information technology (*Engaging Privacy and Information Technology in a Digital Age*), a 2007 study on cybersecurity research (*Toward a Safer and More Secure Cyberspace*), a 2009 study on health care informatics (*Computational Technology for Effective Health Care: Immediate Steps and Strategic Directions*), a 2009 study on offensive information warfare (*Technology, Policy, Law, and Ethics Regarding U.S. Acquisition and Use of Cyberattack Capabilities*), and a 2010 study on cyber deterrence (Proceedings of a Workshop on Deterring Cyberattacks: Informing Strategies and Developing Options for U.S. Policy). Prior to his NRC service, he was a professional staff member and staff scientist for the House Armed Services Committee (1986-1990), where his portfolio included defense policy and arms control issues. He received his doctorate in physics from MIT.

**Jensen N. Jose, J.D.,** is a research associate for the Board on Health Care Services at the IOM. Prior to joining the IOM, Mr. Jose held the position of legal intern at the FDA, Office of the Ombudsman, where he assisted in handling complaints and issues against the FDA. Mr. Jose received his B.S. in biology and B.A. in political science from the University of Washington in 2007 and received his J.D. from the University of Maryland in 2010.

**Joi D. Washington,** is a research assistant for the IOM Board on Health Care Services. Prior to joining the IOM in May 2008, Ms. Washington held the position of registrar at the National Minority AIDS Council in which she oversaw the registration process for two large national conferences. Ms. Washington received her B.S. in public and community health from the University of Maryland, College Park, in 2007 and is currently pursuing a dual master's degree in health care administration and business administration from the University of Maryland, University College.