



**6th Annual AMIA Invitational Health Policy
Meeting
December 6-7, 2011**

**The Future State of Clinical Data Capture and
Documentation**

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The Future State of Clinical Data Capture and Documentation

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Agenda

Tuesday, December 6, 2011

- | | |
|------------------|---|
| 7:00 AM | Registration and Continental Breakfast (provided) |
| 8:00 AM | Welcome and Opening Remarks: Gil Kuperman, AMIA BOD Chair Elect, and Ted Shortliffe, AMIA President and CEO |
| 8:10 – 9:10 AM | Opening General Session: Caitlin Cusack, Steering Committee Chair, and George Hripcsak, Steering Committee Vice Chair <ul style="list-style-type: none">• Setting the Stage, Meeting Logistics• Framing the Meeting• Overview and Goals for Breakout Session 1 |
| 9:10 – 9:30 AM | Participants travel to Breakout Session 1 |
| 9:30 – 11:30 AM | Facilitated Discussions/Breakout 1: Proposed Guiding Principles and Information Attributes |
| 11:30 – 12:30 PM | Lunch (provided) |
| 12:30 – 1:30 PM | Plenary Session: Jon White, Director HIT portfolio, AHRQ |
| 1:30 – 2:30 PM | Reports on Breakout Session 1
Overview and Goals for Breakout Session 2 |
| 2:30 – 3 PM | Break and participants travel to Breakout Session 2 |
| 3:00 – 5:00 PM | Facilitated Discussions/Breakout Session 2: Challenges and Gaps |
| 5:00 PM | Closing Plenary Remarks: Farzad Mostashari, National Coordinator for Health Information Technology, ONC |
| 6:00 PM | Adjourn (participants have dinner on their own) |



Wednesday, December 7, 2011

7:00 AM	Continental Breakfast (provided)
8:00 – 9:00 AM	Panel Discussion: The Future is Here <ul style="list-style-type: none">• Caitlin Cusack, Moderator• Jim Cimino, Chief of the Laboratory for Informatics Development and a Investigator at the NIH Clinical Center and the National Library of Medicine• Bethany Daily, Administrative Director, Perioperative Strategic/Business Initiatives, Massachusetts General Hospital• Hal Wolf, Senior Vice President and Chief Operating Officer, The Permanente Federation, Kaiser Permanente.
9:00 – 10:00 AM	Reports on Breakout Session 2 from Day 1; Overview and Goals for Breakout Session 3
10:00 – 10:15 AM	Participants travel to Breakout Session 3
10:15- 11:30 AM	Facilitated Discussions/Breakout Session 3: Recommendations and Actions Items
11:30 - 1:00 PM	Reports from Breakout Session 3; Large Group Summary Discussion: identify common themes and potential levers to advance the discussions and formulate key messages for policymakers
1:00 PM	Adjourn



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Meeting Overview

Every year, AMIA convenes an Invitational Health Policy Meeting to look at cutting edge issues in health care and health IT policy. AMIA's 2011 Annual Health Policy Meeting will consider the *future* of clinical data capture, content and documentation with its challenges and opportunities. Because of the importance of high quality clinical documentation and data in supporting patient care, and given current initiatives encouraging the adoption of electronic health records (EHRs), it is crucial to understand how documentation and data capture processes and policies may be affected by "going electronic." Meeting participants will articulate a vision for the "ideal" state of technology-enabled data capture and documentation, explored from the points of view of "outputs" and "inputs." Discussions will be initiated by review of a set of proposed principles, developed by the Meeting Steering Committee, to guide the future evolution of high quality data capture and documentation.

With respect to "outputs," meeting discussions will take, as a starting point, the premise that while there are many legitimate uses of clinical data and documentation, **priority** needs to be given to capturing data and maintaining documentation that support patient care and enhance its safety, quality, effectiveness, and efficiency. From the "input" perspective, participants will discuss the shortcomings of current approaches that impede efficient data capture and presentation; that fall short of accurately representing clinicians' thinking; and that fail to accommodate clinical workflow.

Participants will explore how the multiple roles of data and documentation present constraints that may compete with their primary purpose of supporting clinical work; how the different purposes are evolving over time in the face of advancing technology; and the role of policy in driving innovative change in the medical record that will yield improvements in both the data input and output spheres. They will formulate potential recommendations to government, industry, academia and other stakeholders to help enable the realization of the ideal state of clinical documentation and data capture.



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Meeting Goals

- Articulate a vision of the future ideal state of clinical data capture and documentation.
- Consider the strengths and weaknesses of current approaches to clinical documentation and data capture from multiple stakeholder perspectives and identify knowledge gaps and research priorities.
- Identify guiding principles to help achieve the future ideal state of clinical documentation and data capture, and strategies to promote widespread dissemination and application of the principles.
- Formulate recommendations to government, industry, academia, and other stakeholders to enable the realization of the ideal state of clinical documentation and data capture.
- Synthesize and disseminate the meeting deliberations, findings, and outcomes to inform the policymaking process in this domain.

Meeting Assumptions

- Given the growing complexity of care delivery and rapidly advancing technology, there is a need to transform the way we capture and document clinical care data.
- There are many competing priorities and legitimate uses and users of clinical data and documentation. Priority needs to be directed at capturing data and documentation involved in the provision of and in support of patient care.
- New technological and technical advances will continue to emerge to support and enable new methods and approaches to clinical data capture and documentation.
- New and diverse data sources, health technologies and devices for data collection and reporting, treatment support, and information dissemination are emerging and being adopted with increasing regularity. The line is blurring between devices and applications intended primarily for use by clinicians and other providers, and those intended for patients, consumers and their care givers.
- Other environmental factors, trends and issues impacting clinical data capture and documentation include increasing achievements in personalized medicine; growing pressure for consumer engagement in healthcare decisions; new forms and models of care delivery and payment; adoption of EHRs, personal health records (PHRs) and health information exchanges (HIEs); and ongoing healthcare workforce shortage and training issues.



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Proposed Guiding Principles

To address the gaps and challenges noted with existing approaches to clinical data capture and documentation, the AMIA Meeting Steering Committee has prepared the following principles to guide the future evolution of high quality documentation and data capture.

Clinical documentation and data capture should:

1. Be clinically driven and patient-centric – reflecting an individual’s longitudinal and lifetime health status
2. Be efficient – enhancing overall provider efficiency, effectiveness and productivity
3. Be accurate, reliable, valid and complete -- enabling high quality care
4. Support multiple uses – including quality and performance measurement and improvement, population health, policymaking, research, education, and payment
5. Enable team collaboration and clinical decision making – including the patient as a member of the team
6. Reflect input from multiple sources as appropriate, including nuanced medical discourse, structured items and data captured in other systems and devices



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Proposed Attributes of High Quality Clinical Information

The main purpose of data capture and documentation is to support and enhance patient care by facilitating clinical reasoning and decision-making of individual clinicians, as well as by supporting communication and coordination in clinical teams. From this perspective, the most important properties of high quality clinical information include the following:

- **High sensitivity:** all of the information needed by the patient's care team is created and recorded;
- **High specificity:** information that is not needed by the care team is not displayed;
- **Cogency:** the information is created and recorded in ways that make it easy to read, process and act on by humans and computers; and
- **Actionable:** the information helps guide the patient's team in executing effective, safe, efficient, and satisfying interventions. Being actionable includes being computable, e.g., in clinical-prediction rules, when appropriate to the patient's needs.



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Definitions and Descriptions of Selected Terms

Clinical documentation [and data capture] refers to findings, observations, assessments, and care plans that are recorded in an individual's health record. It may include data entered using various methods, such as computer entry, document scanning, voice dictation, and automated acquisition from devices.

An **individual's health record** is the repository of clinical information recorded about that person. The record has many functions, including:

- providing a clinical and legal record of the patient's health history (sickness and wellness), including diagnoses, observations, measurements, and plans of care;
- supporting clinical communication among the various healthcare practitioners involved in the patient's care;
- supporting financial and administrative functions of a practitioner or healthcare organization, such as substantiating the care provided for payment/reimbursement and capturing data used for reporting quality measures;
- serving as a source of data for multiple legitimate purposes, such as biomedical and health services research, patient-centered outcomes research, and public health; and
- serving as the legal business record for healthcare delivery organizations and providers for purposes such as decision making, accreditation, and licensure.



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Overarching Meeting Discussion Questions

- What are the shortcomings of current approaches to clinical documentation and data capture and how can they be addressed?
- What are the challenges [financial, technological, workflow, operational and clinical] related to the current state of clinical data capture and documentation?
- What opportunities exist for addressing existing and anticipated shortcomings and challenges in clinical data capture and documentation?
- What are the ramifications of increasing expectations that the electronic health record will be the repository for “all data” needed for multiple and diverse purposes including clinical trials, research, population and public health, bio-surveillance, patient care, and performance and quality measurement?
- To what extent will current U.S. efforts regarding health IT deployment and adoption and the related focus on “meaningful use” alter the short and long term nature and extent of clinical data capture and documentation [in electronic health records]?
- How might the transformation to patient-centered care affect documentation and data capture?
- To what extent and how will providers’ transitions to Accountable Care Organizations (ACOs), medical homes and other patient-centered care models, impact data capture, documentation and content?
- How might impending payment and reimbursement models, proposed bundled payments and enhanced quality expectations impact the future state of clinical data capture, content and documentation?
- What should the future electronic health record look like? What data should it contain? How should it be defined? Against what criteria should it be assessed? What regulations might apply?



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Breakout Session Discussion Questions

Facilitated Breakout Session 1 – Themes: Review the proposed Guiding Principles of Clinical Data Capture and Documentation and proposed Attributes of High Quality Clinical Information

- What are the strengths and weaknesses of the proposed Clinical Documentation and Data Capture Principles?
- What revisions and/or improvements would you suggest?
- What are the strengths and weaknesses of the proposed Attributes of High Quality Clinical Information? What revisions and/or improvements would you suggest?
- To what extent do you believe that these are the characteristics of the ideal future state of documentation and data capture?

Facilitated Breakout Session 2 – Themes: What are the gaps between the current state and the ideal future state of clinical data capture and documentation? What are the challenges in closing the gaps?

- To what extent do we expect that patient-entered data will be incorporated into EHRs on a large scale? To what extent should EHRs have the ability to identify and display the "source" of information (e.g., "entered by patient")?
- To what extent and how can data and documentation methods/approaches be improved to assure optimal communication among care team members?
- To what extent are approaches such as copy-paste appropriate? How can we encourage "proper" use of copy-paste (and other time-saving documentation support tools) and prevent the problems such as input error?
- How might social media technologies such as blogs, wikis, and RSS feeds be leveraged to create "next-generation" clinical documentation approaches? To what extent could the



concept of multidisciplinary, real-time editing of a "patient care wiki" replace traditional progress notes in acute care settings? What are the implications (legal/billing/compliance) of a shared documentation model?

- With respect to automatic data collection from medical devices such as monitors, IV pumps, and ventilators, why hasn't automated data acquisition technology been more broadly adopted?
 - To what extent are automatically-acquired data more timely, accurate, and reliable than manually-charted data?
 - As we look into the future, how can physiological measurements go into the record to be used for clinical care, and decision support without "human validation"?
 - What are the ramifications of increasing expectations that clinical documentation and data will be able to serve multiple and diverse purposes including research, population and public health, bio-surveillance, clinical trials recruitment, and quality measurement?

Facilitated Breakout Session 3 – Themes: What actions are needed to help realize the future state of clinical data capture and documentation? Strategic and national public policy efforts? Research? Training and education?

- Informed by the discussions from Breakout Sessions 1 and 2, how can we attain the ideal future state of clinical documentation and data capture?
- What are specific action items and policy pursuits that we can identify to achieve the future state of clinical data capture and documentation?
- What are the responsibilities of various stakeholders with respect to realizing the future state of clinical data capture and documentation? Federal agencies (AHRQ, CDC, CMS, FDA, ONC, NIST); researchers; health IT developers and implementers; practitioners and clinicians; policymakers; payers; and patients and consumers?
- What are the ramifications for data capture and documentation as various data sources (such as patient-recorded data, device-generated data, telehealth data, registries) are connected to/integrated with electronic health records?



- To what extent should current requirements for data and documentation (such as those for meaningful use, medical necessity, and accreditation; Medicare Conditions of Participation; reimbursement and payment; public health surveillance, tracking and reporting) be harmonized to reduce burdens on clinicians and other allied health practitioners and maximize efficiency and effectiveness of care delivery?
- How can current research efforts (such as the CMS Center for Innovation and AHRQ's Comparative Effectiveness Research) be leveraged to assure ongoing and appropriate research and evaluation about clinical care data capture and documentation processes?
- To what extent can the future clinical documentation and data capture paradigm be based on new or newly-applied technologies and techniques (such as speech recognition and clinical language [natural] processing)?
- What research and development is needed now to help develop and assure the future state of data capture and documentation?
 - Are there new technologies that can enable automated capture of billable services without requiring clinicians to explicitly document them?
 - Are there approaches to the design of EHRs that can streamline billing that should be a required component of all EHR systems?



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Steering Committee and Speaker Biographies

David Westfall Bates, MD, MS, AMIA Public Policy Committee Chair, is the Medical Director of Clinical and Quality Analysis, Information Systems at Partners HealthCare System, Inc. Dr. Bates is Senior Vice President for Quality and Safety and Chief Quality Officer for both Brigham and Women's Hospital and the Brigham and Women's Physicians Organization, and Chief of the Division of General Internal Medicine and Primary Care. He is a Professor of Medicine at Harvard Medical School and Professor of Health Policy and Management at the Harvard School of Public Health, where he is the Co-Director of the Program in Clinical Effectiveness. He is a member of the Institute of Medicine of the National Academies, and External Program Leader, Patient Safety Research, WHO World Health Alliance for Patient Safety, World Health Organization, Geneva, Switzerland. Dr. Bates is the Executive Director of the Brigham and Women's Center for Patient Safety Research and Practice that focuses on improving medication safety across the continuum of care and patient groups. He is the recipient of the first John M. Eisenberg Award for Excellence in Patient Safety Research from the Joint Commission and the National Quality Forum, and the Award of Honor from the Association of Health-Systems Pharmacists. Dr. Bates received a Doctorate of Medicine from Johns Hopkins School of Medicine, and a Masters of Science in Health Policy and Management from the Harvard School of Public Health. After his residency training in Internal Medicine at Oregon Health & Science University (OHSU) in Portland, he completed a postdoctoral research fellowship in medicine at the Harvard Medical School in Boston, MA. In 1987, Dr. Bates held a faculty position at OHSU and then joined the Brigham and Women's Hospital in 1988.

Meryl Bloomrosen, MBA, is AMIA's Vice President for Public Policy and Government Relations. In addition to overseeing and providing lead staff support for AMIA's Invitational Health Policy Meeting and Hill Day activities, Ms. Bloomrosen oversees contracts and grants, and provides support for AMIA's ongoing efforts on informatics workforce development. Prior to her position with AMIA, Ms. Bloomrosen was a Vice President at the eHealth Initiative (eHI) and the Program Manager of the Connecting Communities for Better Health Program, a HRSA-funded, multi-million dollar cooperative agreement about health information exchange. Earlier in her career, she was a senior policy analyst at the Prospective Payment Assessment Commission (ProPAC-now MEDPAC) where she researched topics such as DRGs, severity and risk adjustments and quality of care. She has a graduate certificate in health information management from the U.S. Public Health Service, an MBA in information Systems from George Washington University and a graduate Certificate in Biomedical Informatics from the Oregon



Health & Science University. She has completed the Medical Informatics MBL/NLM Course Fellowship program at the Marine Biological Laboratory, Woods Hole, MA.

James Cimino, MD, is a board certified internist who completed a National Library of Medicine informatics fellowship at the Massachusetts General Hospital and Harvard University and then went on to an academic position at Columbia University College of Physicians and Surgeons and the Presbyterian Hospital in New York. He spent 20 years at Columbia, carrying out clinical informatics research, building clinical information systems, teaching medical informatics and medicine, and caring for patients, rising to the rank of full professor in both Biomedical Informatics and Medicine. In 2008, he moved to the National Institutes of Health (NIH), where he is the Chief of the Laboratory for Informatics Development and a Tenured Investigator at the NIH Clinical Center and the National Library of Medicine (NLM). His principal project involves the development of the Biomedical Translational Research Information System (BTRIS), an NIH-wide clinical research data resource. In addition, he conducts clinical research informatics research, directs the NLM's postdoctoral training program in clinical informatics, participates in the Clinical Center's Internal Medicine Consult Service, and teaches at Columbia University as an Adjunct Professor of Biomedical Informatics. He is a Fellow (and currently President) of the American College of Medical Informatics, the American College of Physicians, the American Clinical and Climatological Association, and the New York Academy of Medicine.

Carolyn Clancy, MD, is the Director of the Agency for Healthcare Research and Quality (AHRQ); she was appointed to this position on February 5, 2003, and reappointed on October 9, 2009. Prior to her appointment, Dr. Clancy was Director of AHRQ's Center for Outcomes and Effectiveness Research. Dr. Clancy, a general internist and health services researcher, is a graduate of Boston College and the University of Massachusetts Medical School. Following clinical training in internal medicine, Dr. Clancy was a Henry J. Kaiser Family Foundation Fellow at the University of Pennsylvania. Before joining AHRQ in 1990, she was also an assistant professor in the Department of Internal Medicine at the Medical College of Virginia. Dr. Clancy holds an academic appointment at the George Washington University School of Medicine (Clinical Associate Professor, Department of Medicine) and serves as Senior Associate Editor for the journal *Health Services Research*. She serves on multiple editorial boards, including *Annals of Internal Medicine*, *Annals of Family Medicine*, *American Journal of Medical Quality*, and *Medical Care Research and Review*. Dr. Clancy is a member of the Institute of Medicine and was elected a Master of the American College of Physicians in 2004. In 2009, she was awarded the William B. Graham Prize for Health Services Research. Dr. Clancy's major research interests include improving health care quality and patient safety, and reducing disparities in care associated with patients' race, ethnicity, gender, income, and education. As Director of AHRQ, she launched the first annual report to Congress on health care disparities and health care quality.



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Caitlin M. Cusack, MD, MPH, Principal at Insight Informatics, is a board certified and licensed Obstetrician Gynecologist with 8 years of direct clinical practice. She has broad experience in health IT including as a user, researcher, project manager, and consultant. While practicing medicine, she used EpicCare systems extensively to document ambulatory care for her patients, and was trained on other health care systems. Following completion of her Master's at the Harvard School of Public Health, she became a physician executive at a major health IT vendor where she participated in the development of a women's health module for their EHR. While a Senior Analyst at the Center for IT Leadership (CITL) at Partners HealthCare in Boston, MA, she was the project manager for a number of projects. She has provided health care consulting services at Booz Allen Hamilton, CITL, and the National Opinion Research Center (NORC) at the University of Chicago where she managed federal contracts, including for the AHRQ National Resource Center for Health IT (NRC). Currently she serves as a Physician Informaticist for the Veteran's Health Administration Enterprise Systems Management Office, and Project Director for work involving the NRC.

Bethany Daily, MHA, is the Administrative Director, Perioperative Strategic/Business Initiatives at Massachusetts General Hospital (MGH). She is responsible for the strategic direction and implementation of the software applications in use for Pre-Admission Testing, the Operating Rooms, and the PACU. A member of the Executive Perioperative Services team, her other administrative responsibilities include statistical reporting, financial analysis and budgeting, quality and process improvement, and facilities/technology planning. Ms. Daily has been extensively involved in the OR of the Future at MGH and the hospital's newest building, which includes 28 new highest-technology operating rooms.

George Hripcsak, MD, MS, is Vivian Beaumont Allen Professor, and Chair of Columbia University's Department of Biomedical Informatics and Director of Medical Informatics Services for New York-Presbyterian Hospital. Dr. Hripcsak is a board certified internist with degrees in chemistry, medicine, and biostatistics. He led the effort to create the Arden Syntax, a language for representing health knowledge that has become a national standard. Dr. Hripcsak's current research focus is on the clinical information stored in electronic health records. Using data mining techniques such as machine learning and natural language processing, he is developing the methods necessary to support clinical research and patient safety initiatives. As Director of Medical Informatics Services, he oversees a 7000-user, 2.5-million-patient clinical information system and data repository. He is currently co-chair of the Meaningful Use Workgroup of the Department of Health and Human Services (DHSS) Office of the National Coordinator of Health Information Technology; the Workgroup defines the criteria by which health care providers collect incentives for using electronic health records. Dr. Hripcsak was elected fellow of the American College of Medical Informatics in 1995 and served on the Board of Directors of the American Medical Informatics Association (AMIA). As chair of the AMIA Standards Committee, he coordinated the medical informatics community response to the DHHS for the health



informatics standards rules under the Health Insurance Portability and Accountability Act of 1996. Dr. Hripcsak chaired the National Library of Medicine's Biomedical Library and Informatics Review Committee, and he is a fellow of the American College of Medical Informatics and the New York Academy of Medicine. He has published over 200 papers.

Gil Kuperman, MD, PhD, AMIA Board of Directors Chair Elect, is the Board Chair and Executive Director of NYCLIX, a RHIO serving Manhattan and other parts of New York City. NYCLIX includes 10 academic medical centers, two large ambulatory care organizations, and the nation's largest home care organization. Dr. Kuperman co-chaired the Core Content Specification Workgroup for the Nationwide Health Information Network Trial Implementation that demonstrated the interoperability of twenty operational health information organizations across the country. Dr. Kuperman also is the Director for Interoperability Informatics at NewYork-Presbyterian Hospital. His role there is to help the hospital realize the benefits of interoperability internally, with its business partners and through participating in regional data interchange efforts. Dr. Kuperman is on the faculty of Biomedical Informatics at Columbia University Medical School. He has been an author on 65 articles related to medical informatics. He will be the AMIA Board Chair starting January 1, 2012, and is on the Editorial Board of the *Journal of the American Medical Informatics Association*. Dr. Kuperman has an extensive research record measuring the impact of health information technology, especially clinical decision support, on the quality and efficiency of medical care.

Nancy Lorenzi, PhD, MS, MA, AMIA Board of Directors Chair (2010-2011), is a Professor of Biomedical Informatics at the Vanderbilt University School of Medicine and Clinical Professor of Nursing at the Vanderbilt University School of Nursing. Dr. Lorenzi is the Assistant Vice Chancellor for Health Affairs with a major focus on informatics, quality, strategy and transformation. She was President of the International Medical Informatics Association (2004-2007), and is on the Board of Scientific Counselors for the Centers for Disease Control and Prevention's National Center for Public Health Informatics. Within the Department of Biomedical Informatics at Vanderbilt, Dr. Lorenzi is the Director of the Implementation Sciences Laboratory. The Implementation Sciences Laboratory is a community of scholars interested in achieving implementation goals for information-based systems to support operations, research, and education in complex healthcare organizations. This incorporates information-based systems for clinical practice and research into strategies and methodologies for higher adoption of translational research in clinical practice. Dr. Lorenzi is known nationally and internationally for her work in transformation and managing technological change in healthcare organizations.

Lena Mamykina, PhD, MS, MA, is Assistant Professor of Biomedical Informatics in the Department of Biomedical Informatics at Columbia University. Dr. Mamykina's research focuses on the design of interactive technologies that support clinical work and patient health management. Specifically, she investigates approaches to integrate documentation with other



aspects of clinical sensemaking. Dr. Mamykina holds a PhD in Human-Centered Computing and an MS in Human-Computer Interaction, both from the Georgia Institute of Technology, Atlanta, GA; an MA in Biomedical Informatics from Columbia University; and a BS in Computer Science from the Ukrainian State Maritime Technical University, Nikolayev, Ukraine. She completed a National Library of Medicine post-doctoral fellowship at Columbia University

Farzad Mostashari, MD, ScM serves as National Coordinator for Health Information Technology within the Office of the National Coordinator for Health Information Technology at the U.S. Department of Health and Human Services. Farzad joined ONC in July 2009. Previously, he served at the New York City Department of Health and Mental Hygiene as Assistant Commissioner for the Primary Care Information Project, where he facilitated the adoption of prevention-oriented health information technology by over 1,500 providers in underserved communities. Dr. Mostashari also led the Centers for Disease Control and Prevention (CDC) funded NYC Center of Excellence in Public Health Informatics and an Agency for Healthcare Research and Quality funded project focused on quality measurement at the point of care. Prior to this he established the Bureau of Epidemiology Services at the NYC Department of Health, charged with providing epidemiologic and statistical expertise and data for decision making to the health department. He did his graduate training at the Harvard School of Public Health and Yale Medical School, internal medicine residency at Massachusetts General Hospital, and completed the CDC's Epidemic Intelligence Service. He was one of the lead investigators in the outbreaks of West Nile Virus and anthrax in New York City, and among the first developers of real-time electronic disease surveillance systems nationwide.

Douglas Peddicord, PhD, is President of the Washington Health Strategies Group and provides lobbying and government relations services to a variety of health-related organizations. Following a career as a clinical psychologist, he came to Capitol Hill as an American Association for the Advancement of Science (AAAS) Congressional Fellow in 1994. Having been involved with health information policy issues – from privacy, interoperability and HIT implementation to EHRs, PHRs and the evolution of a national health information infrastructure – ever since, Dr. Peddicord has represented AMIA in Washington since 1997.

Trent Rosenbloom, MD, MPH, is an Associate Professor of Biomedical Informatics with secondary appointments in Medicine, Pediatrics and the School of Nursing at Vanderbilt University. He is a board certified Internist and Pediatrician who earned his MD, completed a residency in Internal Medicine and Pediatrics and a fellowship in Biomedical Informatics, and earned an MPH, all at Vanderbilt. Since joining the faculty in 2002, Dr. Rosenbloom has become a nationally recognized investigator in the field of health information technology evaluation. His work has focused on studying how healthcare providers interact with health information technologies when documenting patient care and when making clinical decisions. Dr. Rosenbloom has successfully competed for extramural funding from the National Library of



Medicine and from the Agency for Healthcare Research and Quality in the role of principal investigator. Dr. Rosenbloom's work has resulted in lead and collaborating authorship on 50 peer-reviewed manuscripts and he has authored and coauthored 5 book chapters and numerous posters, white papers and invited papers. He has been a committed member of the American Medical Informatics Association (AMIA), serving AMIA in leadership roles, including participating in a Scientific Program Committee, the *Journal of the American Medical Informatics Association (JAMIA)* Editorial Board, a national Health Policy Meeting Committee, the *JAMIA* Editor in Chief search committee, and a Working Group on Unintended Consequences. As a result of his research success and service to AMIA, Dr. Rosenbloom was the recipient of the annual competitive AMIA New Investigator Award in 2009. Dr. Rosenbloom has participated in study sections for NLM and AHRQ and as a member of the HL7 Pediatric Data Special Interest Group and the American Academy of Pediatrics' Council on Clinical Information Technology.

Edward H. Shortliffe, MD, PhD, is President and CEO of the American Medical Informatics Association (AMIA) (2009-present). He is also Professor, Biomedical Informatics, at the School of Health Information Sciences, UTHealth, in Houston, TX. Previously he served as founding dean of the University of Arizona's medical campus in Phoenix (2007-2008), Professor of Biomedical Informatics at Arizona State University (2007-2009), Professor and Chair of the Department of Biomedical Informatics at Columbia's College of Physicians and Surgeons (2000-2007), and Professor of Medicine and of Computer Science at Stanford University (1979-2000). He received an AB in Applied Mathematics from Harvard College in 1970, followed by a PhD in Medical Information Sciences in 1975 and an MD in 1976 (both at Stanford). During the early 1970s, he was principal developer of the medical expert system known as MYCIN. Dr. Shortliffe is an elected member of the Institute of Medicine (IOM), the American Society for Clinical Investigation (ASCI), and the Association of American Physicians (AAP). He has also been elected to fellowship in the American College of Medical Informatics (ACMI) and the Association for the Advancement of Artificial Intelligence (AAAI). He is a Master of the American College of Physicians (ACP) and is Editor-in-Chief of the *Journal of Biomedical Informatics*. In addition, he received the Grace Murray Hopper Award of the ACM (1976), the Morris F. Collen Award from ACMI (2006), and was a Henry J. Kaiser Family Foundation Faculty Scholar in General Internal Medicine (1984-1989).

Freda Temple, MLS, has served as a consultant to AMIA since 2006, assisting AMIA staff in editing manuscripts for publication, and in planning and implementing meetings sponsored by the organization. Ms. Temple has over 30 years of professional experience in the fields of health education, information management and communication. As a senior manager at Aspen Systems Corporation, she managed large, multi-faceted AIDS and cancer education programs for the Centers for Disease Control and Prevention, the National Institutes of Health, and the World Health Organization. She is an experienced technical writer with expertise in translating



technical information into reader-friendly language for print and web products. Her publications include reports, articles, white papers, manuals, meeting materials, briefing books, strategic plans, proposals and marketing materials. She received a Masters in Library Science from the University of Michigan.

David Vawdrey, PhD, is Assistant Professor of Clinical Biomedical Informatics in the Department of Biomedical Informatics at Columbia University. He holds a PhD in Biomedical Informatics from the University of Utah, where his research involved acquisition of medical device data in the intensive care unit. His research interests include clinical decision support, using information technology to support team-based care, electronic medication management, and electronic documentation. In addition to his research projects, he assists with the clinical IT operations of New York-Presbyterian Hospital, specifically in guiding custom application development within the institution's commercial electronic health record system.

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