

Optimizing Patient Care through Clinical Decision Support: Identification of Opportunities and Call to Action by the National Academy of Medicine

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Abstract

With support from the U.S. Office of the National Coordinator for Health IT (ONC), the National Academy of Medicine (NAM) convened a collaborative effort with health care leaders to identify untapped opportunities and practical strategies for improving clinical decision support (CDS) practice and adoption. Through a series of NAM-facilitated working meetings and work groups focused on four key CDS areas (content authoring, platform integration, operations, and dissemination), expert authorities reviewed current and emerging CDS practices and identified collaborative opportunities to accelerate national progress in the real-time application and use of CDS to improve health and health care decision making. In this panel, leaders of this NAM effort will summarize the key findings identified by this multi-stakeholder collaboration of clinicians, academics/researchers, industry, patient advocates, and the government. The panelists will also present cross-cutting Priorities for Action developed at the conclusion of this work and engage the audience in an interactive discussion on how we can work together to pursue these priorities with the goal of optimizing health and health care at scale.

Description

The panel will be organized as follows:

Time	Speaker	Topic
5 min	Tcheng	Need for bridging the gap between the promise and reality of CDS Overview of NAM effort to advance CDS-enabled care improvement
10 min	Kawamoto	CDS content authoring – current state, challenges and opportunities
10 min	Weingarten	CDS platform integration – current state, challenges and opportunities
10 min	Teich	CDS operations – current state, challenges and opportunities
10 min	Middleton	CDS dissemination – current state, challenges and opportunities
10 min	Tcheng	Cross-cutting Priorities for Action
30 min	All	Call to action and interactive discussion with audience

Dr. Tcheng, who oversaw the NAM's efforts as the Chair of the Planning Committee, will serve as the moderator and provide an overview of the motivation for the NAM effort and how the effort was carried out. Then, the leaders of each of the convened Work Groups will describe the current state, challenges, and opportunities identified in the areas of CDS content authoring (Kawamoto), platform integration (Weingarten), operations (Teich), and dissemination (Middleton). Dr. Tcheng will then present the cross-cutting Priorities for Action identified by the effort. Finally, Dr. Tcheng will moderate an interactive discussion with the audience on how the informatics community can work together with each other and their cross-disciplinary colleagues to pursue the action priorities and achieve the full promise of CDS-enabled care optimization.

Tcheng: Dr. Tcheng is a practicing interventional cardiologist and Professor of Medicine and Community and Family Medicine (Informatics) at the Duke University School of Medicine. He chairs the Informatics and Health IT

Task Force of the American College of Cardiology, in which role he seeks to advance evidence-based cardiac care at a national scale. He served as the Chair of the Planning Committee for this NAM initiative to advance CDS. In opening the panel discussion, Dr. Tchong will provide brief overview of the motivation for the NAM CDS effort and how the effort was carried out.

Motivation for Effort: The foundational problem that motivated the NAM CDS effort is the large gap between the immense promise and current reality of CDS. In the last decade, electronic health record (EHR) adoption rates have skyrocketed; nearly every provider and hospital in the United States uses some form of an EHR, paving the way for increased use of CDS tools that leverage EHR data to provide decision support to clinicians and patients. These tools are directed toward reduction of errors and adverse events, promotion of best practices for quality and safety, cost profile improvement and more. Many government and payor programs, such as the Merit-Based Incentive Payment System (MIPS), the Protecting Access to Medicare Act (PAMA) and Accountable Care Organization (ACO) programs, include specific or implied requirements for the use of CDS.

At the same time, consumers are increasingly generating and collecting data via wearable devices and mobile health apps that supplement the information individuals provide about their preferences, lifestyle factors and goals of care. New models of care delivery and payment that aim to reward quality and value of care rather than volume of services cannot succeed without active engagement of patients and family caregivers. CDS interventions that leverage multiple data types, bring the most current and relevant evidence to bear on clinical decisions, produce actionable recommendations from the mounds of data, and account for conflicting influences and values affecting decision making are necessary to care for patients with multiple chronic illnesses or comorbidities.

For a variety of reasons, however, CDS implementation and actualization remain nascent. To realize the potential of these tools to improve the quality, safety and efficiency of healthcare we must identify key priorities for action needed to realize the full potential of CDS within real-world environments.

Approach Taken: With support from the ONC, the NAM (formerly the Institute of Medicine) convened a collaborative effort with health care leaders to better understand potential opportunities and practical strategies for improving CDS practices and adoption. Expert authorities first met in-person (March 16, 2016) to describe current and emerging CDS practices, identify collaborative opportunities to accelerate progress in the real-time application and use of CDS to inform health and health care decision making, and provide guidance on implementation challenges and strategies at a national scale. The second meeting in the series (October 27, 2016) provided an opportunity to review, discuss, and refine actionable next steps to address CDS content, technical implementation, operations, and distribution. In a final meeting (February 10, 2017), key public and private stakeholders were engaged to discuss implementation and next steps for continued collaboration. The project was guided by an external planning committee and was not a product of the ONC.

In addition to the meeting series, the NAM CDS Planning Committee initiated small work-groups to address: content (CDS authoring), platform integration (technical implementation), clinical functionality and measurement (operations), and dissemination and assessment (distribution). Each small work-group met virtually to help develop action plans on their designated topics, which were consolidated into cross-cutting Priorities for Action by the work group members and the larger community of stakeholders convened through this effort.

Kensaku Kawamoto: Dr. Kawamoto is Associate Chief Medical Information Officer, Assistant Professor of Biomedical Informatics, Director of Knowledge Management and Mobilization, and Chair of the CDS Committee at the University of Utah. Dr. Kawamoto is also co-chair of the HL7 CDS Work Group and co-Initiative Coordinator for the ONC/CMS-supported Clinical Quality Framework (CQF) initiative to develop and validate a harmonized set of interoperability standards for CDS and electronic clinical quality measurement. Dr. Kawamoto led the NAM CDS work group on CDS content authoring and will present on the current state, challenges, and opportunities associated with the creation, management, and curation of computable, effective CDS.

Scott Weingarten: Dr. Weingarten is senior vice president and chief clinical transformation officer at Cedars-Sinai. He is a professor of Medicine at Cedars-Sinai and a clinical professor of Medicine at the David Geffen School of Medicine at UCLA. Dr. Weingarten was the co-founder, president and chief executive officer of Zynx Health, which is the leader for order sets and care plans for EHRs, and he is the co-founder and Chairman of the Board at Stanson Health, a leading CDS solutions provider. Dr. Weingarten led the NAM CDS work group on CDS platform integration and will present on the current state, challenges, and opportunities associated with standards-based integration of CDS into EHR platforms.

Jonathan Teich: Dr. Teich is assistant professor of medicine and emergency medicine, and a board-certified attending physician at Harvard Medical School. He has served as Chief Medical Informatics Officer for Elsevier, a leading CDS content and solutions provider, and serves as Clinical Architecture Lead for Bahmni and for OpenMRS, which provides critical open-source health IT solutions to over 50 low- and middle-income countries. Dr. Teich was the founder and first director of the Clinical Informatics Research and Development department at Partners Healthcare System and has authored or co-authored over 100 papers, books, and other publications in the field of medical informatics and healthcare information systems, with a particular concentration in CDS. He co-directed the HHS Roadmap for National Action on CDS, and has served as the CDS subject matter expert for ONC. Dr. Teich led the NAM CDS work group on CDS operations and will present on the current state, challenges, and opportunities related to CDS functionality, usability, implementation, and impact evaluation.

Blackford Middleton: Dr. Middleton is Chief Informatics & Innovation Officer at Apervita, Inc., the provider of the largest marketplace for the creation, exchange, and use of data and analytics in healthcare. He is immediate Past-Chair of the Board of Directors of the American Medical Informatics Association (AMIA), and Instructor in the Harvard TH Chan School of Public Health in the Departments of Health Policy and Management, and Policy Translation and Leadership Development. Previously, he was a Professor of Biomedical Informatics, and/or of Medicine, at Stanford, Harvard, and Vanderbilt Universities, and he held executive leadership roles at MedicaLogic/Medscape, Partners Healthcare System, and at Vanderbilt. Dr. Middleton's work is focused on clinical informatics – the applied science surrounding strategy, design, implementation, and evaluation of clinical information systems in complex environments. Dr. Middleton led the NAM CDS work group on CDS dissemination and assessment in the marketplace, and will present on the current state, challenges, and opportunities related to widely disseminating effective CDS, including discussions of the CDS marketplace, the role of public and private knowledge sources, business rules in ensuring a vibrant and successful marketplace, constructs for feedback loops to inform value, and the financial business case for CDS.

James Tcheng: Following the presentation on findings from the four NAM CDS work groups, Dr. Tcheng will share the 13 cross-cutting Priorities for Action defined across 3 key areas: (i) developing, testing, establishing, validating and applying standards; (ii) encouraging adoption, use, and assessment at the delivery system level; and (iii) establishing a national CDS infrastructure. Dr. Tcheng will then moderate an interactive discussion with the audience on how we as an informatics community can work together to move forward on these priorities and realize the full promise of CDS-enabled health care improvement.

Significance of panel topic and anticipated audience

The anticipated audience is biomedical informatics professionals from diverse backgrounds seeking to improve the quality, safety, and/or value of health care. This panel topic is important because CDS represents one of the most promising informatics-enabled strategies available for improving health and health care, and this panel provides a comprehensive analysis of the CDS landscape as well as a concrete guide for priority actions that the informatics community can take to finally realize the promise of CDS-enabled care optimization.

Discussion questions

How can you or your organization contribute to the Priorities for Action?

What can ONC, NAM, and others do to accelerate progress?

What barriers do you see, and how do you think we should overcome them?

Participation statement

All proposed panelists have agreed to participate in the panel if the proposal is accepted.