

# The Learning Health System and its Innovation Collaboratives

Update Report



**INSTITUTE OF MEDICINE**  
*OF THE NATIONAL ACADEMIES*

**Advising the nation • Improving health**

## IOM ROUNDTABLE ON VALUE & SCIENCE-DRIVEN HEALTH CARE

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Mayo Clinic (formerly)

**Mark B. McClellan, MD, PhD** (2011-present)  
The Brookings Institution

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Blue Shield of California

**David R. Brennan**  
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Dossia

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Brigham and Women's Hospital

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**Susan Shurin, MD**

*Office of the National Coordinator for Health IT*  
David Blumenthal, MD, MPP (until 2011)

**Farzad Mostashari, MD, ScM** (2011-present)

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## THE ROUNDTABLE ON VALUE & SCIENCE-DRIVEN HEALTH CARE

‘By the year 2020, ninety percent of clinical decisions will be supported by accurate, timely, and up-to-date clinical information, and will reflect the best available evidence.’

### Charter

#### IOM Roundtable on Value & Science-Driven Health Care

The Institute of Medicine’s Roundtable on Value & Science-Driven Health Care was established in 2006 (originally named the Roundtable on Evidence-Based Medicine) in the face of growing awareness that care that is important is often not delivered, and care that is delivered is often not important, with significant health and economic consequences for Americans. Comprised of leadership from key sectors—patients, health providers, payers, employers, manufacturers, health information technology, researchers, and policy makers—Roundtable members are united in their commitment to work together to foster effective, innovative health care that consistently adds value to patients and the system. Its work has been both conceptual, developing and characterizing the vision of a continuously improving and innovating Learning Health System, and action-focused, through the creation of multistakeholders Innovation Collaboratives.

For more information on the Roundtable and its activities, visit [www.iom.ed/vsrt](http://www.iom.ed/vsrt)

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## NOTES

Authored by Institute of Medicine staff, this update summarizes work and discussions under the auspices of the IOM Roundtable-hosted meetings, workshops, and projects. It contains no consensus recommendations, and has been assembled from the following workshop summary reports, all published by the National Academies Press:

*The Learning Healthcare System*

*Evidence-Based Medicine and the Changing Nature of Healthcare*

*Redesigning the Clinical Effectiveness Research Paradigm:  
Innovation and Practice-Based Approaches*

*Clinical Data as the Basic Staple of Health Learning: Creating and  
Protecting a Public Good*

*Learning What Works: Infrastructure Required for Comparative  
Effectiveness Research*

*Digital Infrastructure for the Learning Health System: The Foundation  
for Continuous Improvement in Health and Health Care*

*Engineering a Learning Healthcare System: A Look at the Future*

*Patients Charting the Course: Citizen Engagement in the  
Learning Health System*

*The Healthcare Imperative: Lowering Costs and Improving Outcomes*

*Value in Health Care: Accounting for Cost, Quality, Safety,  
Outcomes, and Innovation*

*Leadership Commitments to Improve Value in Healthcare:  
Finding Common Ground*

### **Information resources and contacts**

This booklet, source material and related background material may be accessed at the Roundtable's website: <http://www.iom.edu/vsrt>

Like the dynamic nature of evidence itself, the issues, concepts, and priorities noted in this update will continue to evolve, improve, and be revised as indicated.

# Introduction

Health care in the United States now faces the opportunity, the challenge, and the urgency for broad transformation. Opportunity stems from new scientific insights and technology that can accelerate progress; challenge from widely recognized inefficiency, waste, and occasionally harm from prevailing practices; and urgency from unsustainable growth in expenditures—now approaching \$3 trillion. To address these compelling issues, in 2006 the Institute of Medicine created the Roundtable on Value & Science-Driven Health Care (initially the Roundtable on Evidence-Based Medicine) to provide common ground for collective and transformative leadership. Guided by leaders from key stakeholder sectors, the Roundtable’s agenda has engaged three broad priorities: 1) accelerating the production and use of needed evidence on what works best in health care; 2) characterizing and exploring the nature, potential, and elements of a learning health system that yields continuous improvement in outcomes while reducing the costs of health and health care; and 3) marshaling multi-stakeholder collaborative action to help catalyze its development. In the relatively brief period since its establishment, Roundtable work has played an important role in several potentially path-breaking developments:

**Research.** Appreciation of the need for better evidence on which to base care decisions has increased substantially. Congress invested \$1.1 billion in stimulus funds for comparative effectiveness research at AHRQ, NIH, and HHS and, through the ACA, established the independent Patient-Centered Outcomes Research Institute (PCORI). Additionally, the Roundtable’s Digital Learning Collaborative has stewarded the creation of PEDSNet to expand cooperative, digitally-based pediatric clinical research, and is working with ONC to expedite the evolution of a digital learning utility with the promise of breakthrough approaches to research.

**Costs.** With the support of the Peterson Foundation, a series of Roundtable meetings explored in detail the issue of waste and inefficiency in health care. The result of the analyses and discussions, published in 2011, is the most comprehensive assessment to date of excess health costs, and employs a unique analytic framework to identify—both qualitatively and quantitatively—drivers of the problem as well as possible solutions.

**Culture.** As genetic insights and technologic advances intersect to increase the complexity of medical care choices and decisions, it is essential that the culture of care change from one in which often very little information is exchanged between patients and clinicians, to one in which decisions are fully informed and shared. Through the combined work of the Roundtable’s Evidence Communication and Best Practices Innovation Collaboratives, a statement of Principles and Expectations for Patient-Clinician Communication has been completed, with numerous professional societies, patient groups, and care delivery organizations pledging support.

The Roundtable has contributed substantially to defining a field of opportunity and action through the systematic characterization of the **learning health system**. From 15 public workshops bringing together the nation’s leading experts on various aspects of health and health care—researchers, clinicians, patients, economists, statisticians, computer scientists, manufacturers, insurers, policy officials—the National Academies Press has now published, or has in production, eleven volumes in the *Learning Health System Series*, which present the vision and strategies for transformational change in the fundamental elements of health and health care. Moreover, through its five Innovation Collaboratives, the Roundtable is providing the venue for nearly a dozen joint projects necessary to realizing this vision. These publications, projects, and related activities are described here in this update.



**Denis Cortese, M.D.**  
Chair 2006–2011



**Mark McClellan, M.D., Ph.D.**  
Chair 2011–Present



## About this update

**Section I** presents graphics drawn from Roundtable workshops and discussions that illustrate sharply both the challenges and opportunities for a learning health system.

**Section II** provides a summary overview of each of the eleven *Learning Health System Series* publications, which include roughly 500 papers authored by more than 250 experts, and present the scientific underpinnings for the promise of a learning health system, as well as important policy implications. Each of the reports summarizes the common themes and proposed follow-up activities from workshop discussions.

**Section III** summarizes the approach, participation, and initial program of activities of the five Innovation Collaboratives, formed for cooperative action to accelerate progress on best clinician practices, innovative effectiveness research, digital learning, evidence communication, and value incentives. Each of these Collaboratives is populated by organizations with activities, resources, and interests appropriate to the focus.

**As you leaf through the pages of this report and begin to see the intersections between these topics and your own work, please give thought to ways you and your own organization can foster and lead progress on these critical issues in health.**

We in the IOM look forward to your suggestions for our agenda. As a collaborative enterprise, the Roundtable is only as strong as its participants—from public, private, and independent sectors alike—and the important progress made to date is the result of hundreds of leading stakeholders working with us on value and science-driven health care (see pp. 42-43). For those of you already involved, we look forward to continued collaboration. For those new to our work, we are excited by the prospects of new perspectives and a greater capacity to build a continuously learning health system.

# The Learning Health System

<b>Culture</b>	Participatory, team-based, transparent, improving
<b>Design and processes</b>	Patient-anchored and tested
<b>Patients and the public</b>	Fully and actively engaged
<b>Decisions</b>	Informed, facilitated, shared, and coordinated
<b>Care</b>	Starting with best practice, every time
<b>Outcomes and costs</b>	Transparent and constantly assessed
<b>Knowledge</b>	Ongoing, seamless product of services and research
<b>Health information</b>	A reliable, secure, and reusable resource
<b>The Data utility</b>	Data stewarded and used for the common good
<b>Digital technology</b>	The engine for continuous improvement
<b>Trust fabric</b>	Strong, protected, and actively nurtured
<b>Leadership</b>	Multi-focal, networked, and dynamic

PART I

# The Learning Health System: Graphic Context

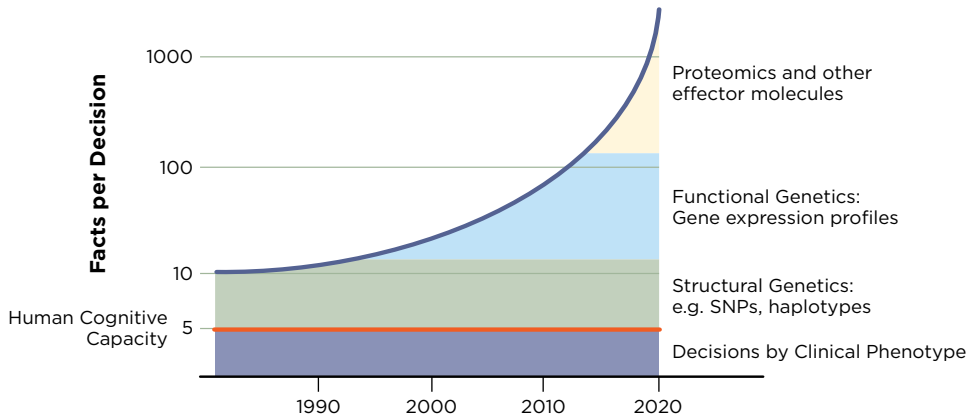
THE CASE

THE OPPORTUNITY



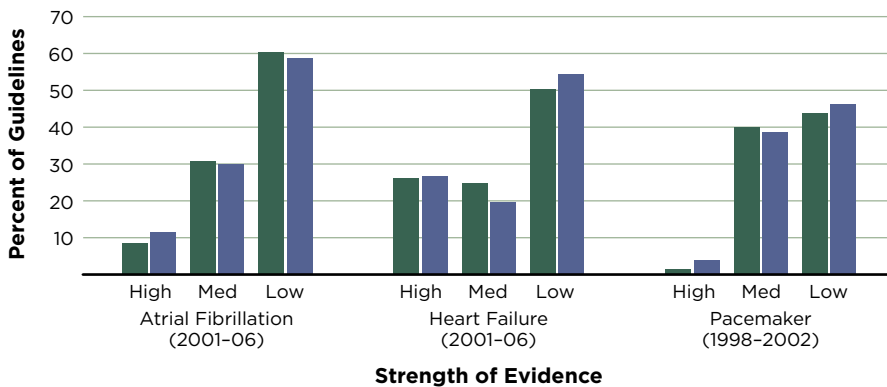
# The Learning Health System

## Medical decisions becoming more complex



**William Stead, IOM Meeting, 8 October 2007.** Growth in facts affecting provider decisions versus human cognitive capacity.

## Inadequate evidence to guide care



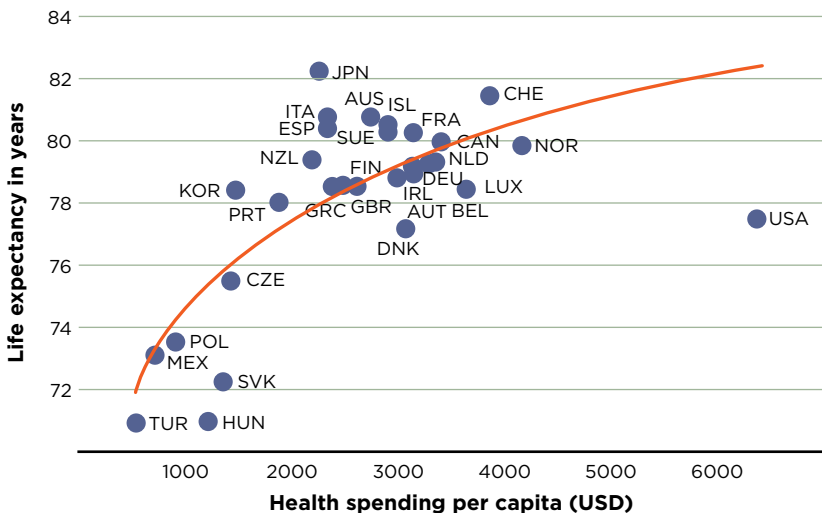
**Robert Califf, IOM Meeting, 12 December 2007.** Less than 20% of AHA/ACC heart disease management guidelines are based on a high level of evidence and over 40% are based on the lowest level of evidence. Furthermore, the proportion of guidelines with high evidence levels has not increased over time (green vs. blue).

### Systemic waste across the board

Excess Cost Estimates	
Unnecessary Services	\$210 B
Inefficiently Delivered Services	\$130 B
Excess Administrative Costs	\$190 B
Prices That Are Too High	\$105 B
Missed Prevention Opportunities	\$55 B
Fraud	\$75 B
<b>Total Excess Costs:</b>	<b>\$765 B</b>

**The Healthcare Imperative, 2010.** Lower bound totals of various estimates of excess healthcare expenditures, adjusted to 2009 total expenditure levels.

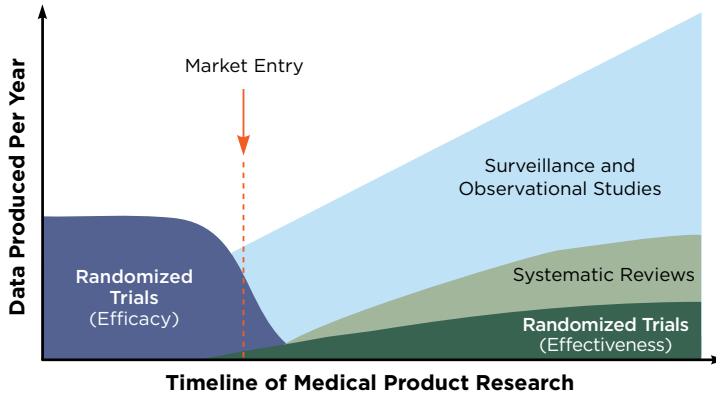
### Poor health despite high spending



**OECD Health Data, 2009.** Life expectancy at birth in different countries versus per capita expenditures on health care in dollar terms, adjusted for purchasing power. The United States is a clear outlier on the curve, spending far more than any other country yet achieving less.

# The Learning Health System

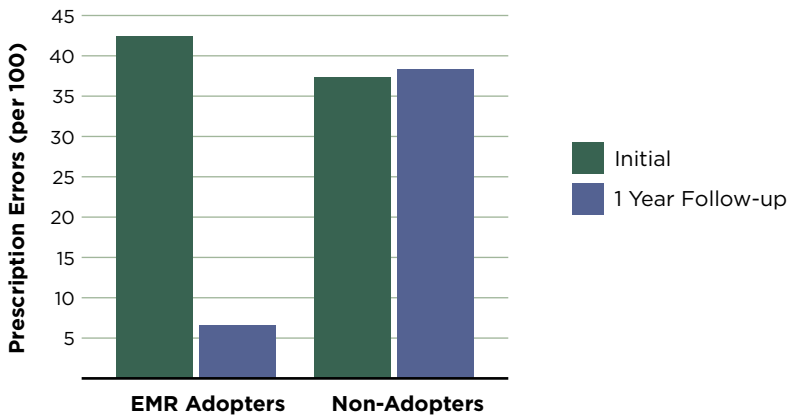
## Expanded capacity for new knowledge



## Redesigning the Clinical Effectiveness Research Paradigm, 2010.

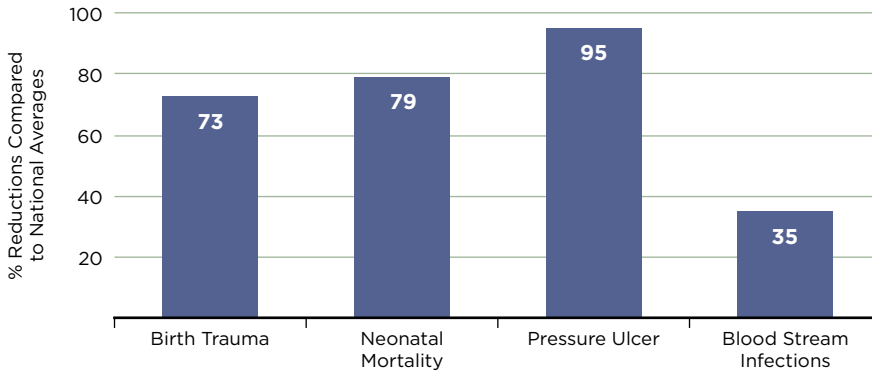
Evidence development in the learning health system.

## Driving improvement with health IT



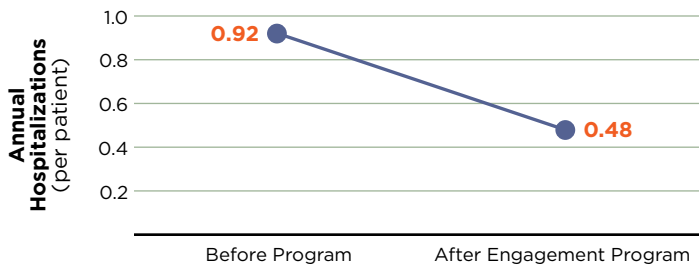
**Kaushal, et al., 2009.** Effect of electronic medical record (EMR) systems on medication safety in community-based office practices. Practices that adopted EMR systems experienced a seven-fold decrease in prescription errors compared to non-adopters.

### Engineering systems for continuous improvement



**David Pryor, IOM Meeting 29 April 2008.** Effect of Ascension Health’s Call to Action—a systems engineering approach to quality improvement—on medical errors in Ascension Health hospitals.

### Patient engagement for better outcomes



**Joseph Kvedar, IOM Meeting 1 April 2010.** Effect of enrollment in Partners HealthCare’s Connected Cardiac Care Program (CCCP) program on heart failure hospitalization. Enrollment in the CCCP program, with health IT-facilitated self-monitoring and patient-clinician communication, reduced the rate of hospitalization for heart failure.





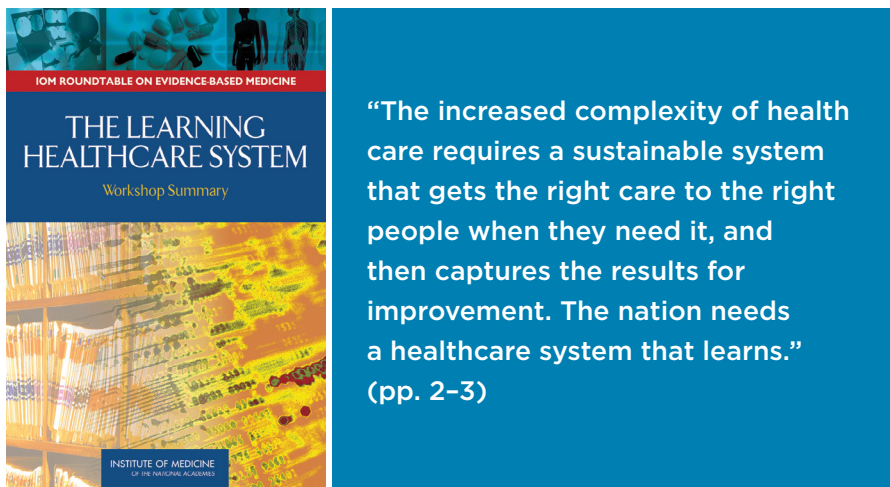
## PART II

# The Learning Health System Series

To facilitate progress toward the development of a learning health system—in which science, informatics, incentives, and culture are aligned for continuous improvement and innovation, with best practices seamlessly embedded in the delivery process and new knowledge captured as an integral by-product of the delivery experience—the Roundtable on Value & Science-Driven Health Care has marshaled the insights of the nation’s leading experts to explore in detail the prospects—and the necessity—for transformational change in health and health care. Their assessments are reported in the 11 volumes of the IOM *Learning Health System Series*, published by the National Academies Press.

# 1. Vision

## *The Learning Healthcare System*



### Compelling context

**Status:** Unjustified variation in intensity of services, failure to deliver recommended services; delay in uptake of care innovations; up to 1/3 of medical expenditures are excessive.

**Trends:** U.S. health spending that is twice that of Europe; core care quality measures improving by only 1-2% each year; health system performance down to #41 in the world.

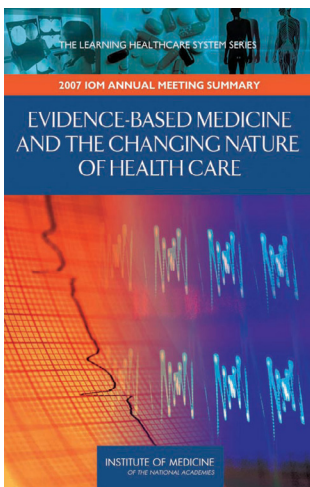
**Opportunities:** Delivery system changes that lower costs and improve outcomes; electronic health records reduce medical errors, draw together personal and population health data, and improve results.

### ISSUES FOR FURTHER ATTENTION

- Adapting to the nature and pace of changing care
- Incentives for practice-based research
- Using clinical data for continuous improvement
- Culture of shared responsibility

## 2. Care Complexity

### *Evidence-Based Medicine and the Changing Nature of Health Care*



“To orient our existing expertise and emerging resources to improved development and application of evidence, recognition is needed of the changing nature of health care and related implications for capacity and cultural change.” (pp. 2-3)

#### **Compelling context**

**Status:** Chronic diseases account for 80% healthcare costs; one quarter of Americans have multiple chronic diseases; available evidence falls far short of need.

**Trends:** Ten-fold increase in approved biotechnology products; MRI use tripled; genetic tests for 1200 diseases; diagnostic factors exceeding clinician cognitive capacity.

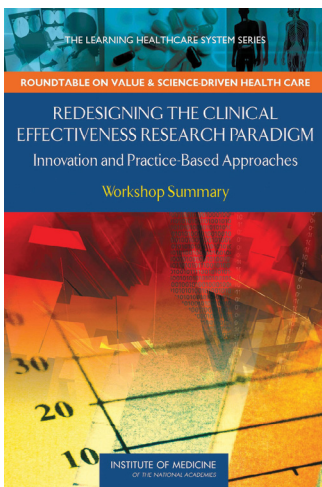
**Opportunities:** New research approaches, the development of research-ready electronic health records, and the ability to pool clinical data offer prospects for real-time evidence generation, and population-wide strategies for reducing risk.

#### **ISSUES FOR FURTHER ATTENTION**

- Strategies to accelerate evidence development
- Unjustified discrepancies in care patterns
- Patient-provider shared medical decisions
- HIT utility for evidence development and use

### 3. Effectiveness Research

#### *Redesigning the Clinical Effectiveness Research Paradigm: Innovation and Practice-Based Approaches*



“Given the growing capacity of information technology to capture, store, and use vastly larger amounts of clinically rich data, the advantages become even clearer for identifying and advancing methods and strategies that draw research closer to practice.” (p. 2)

#### **Compelling context**

**Status:** Research can be costly, untimely, and limited; evidence uncertainty is costly, sometimes dangerous; < 0.5% health spending devoted to understanding effectiveness.

**Trends:** Growth in electronic databases; innovative study design development; distributed research partnerships; persistent duplication; inconsistent clinical guidance.

**Opportunities:** ARRA and ACA increases in CER funding, institutional capacity, enhanced data availability, and a growing digital infrastructure can boost real-time knowledge generation.

#### **ISSUES FOR FURTHER ATTENTION**

Effectiveness research as a routine part of practice

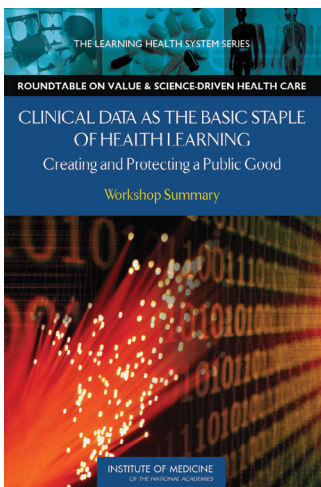
New methods for real-time studies

Learning through phased introduction of interventions

Privacy and security barriers to evidence development

## 4. The Data Utility

### *Clinical Data as the Basic Staple of Health Learning: Creating and Protecting a Public Good*



“Because of their potential to enable the development of new knowledge and to guide the development of best practices from the growing sum of individual clinical experiences, clinical data represent the resource most central to healthcare progress.” (p. 1)

#### Compelling context

**Status:** Administrative and clinical data are plentiful, but limited due to poor structure, compatibility, consistency, accessibility, reliability, and utility; HIPAA constraints.

**Trends:** Larger care organizations improving internal capacities for reliable clinical data; consortia developing for distributed data utilities; investments in data mining tools.

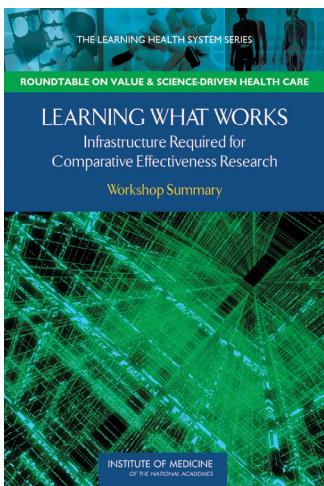
**Opportunities:** ACA provisions encouraging data for new knowledge; technical capacity developing rapidly; patient portals foster care improvement.

#### ISSUES FOR FURTHER ATTENTION

- Incentives for real-time data use in evidence development
- Semantic strategies to facilitate data interoperability and use
- Distributed networks for collaborative data mining
- Transparency strategies and policies on costs and outcomes

## 5. Evidence

### *Learning What Works: Infrastructure Required for Comparative Effectiveness Research*



“Developing and using information on which treatments work best for whom is imperative to achieving better value from healthcare expenditures. Yet of the more than \$2 trillion spent in 2009 on health care, less than 0.1% was devoted to such research.” (p. 58)

#### **Compelling context**

**Status:** Fragmented and limited evidence development capacity; widening knowledge gap as conditions and treatment become more complex; inconsistencies in communicating guidelines to patients.

**Trends:** Comparative studies on clinical effectiveness increasing, but still with limited time horizons and generalizability; guideline harmonization capacity limited.

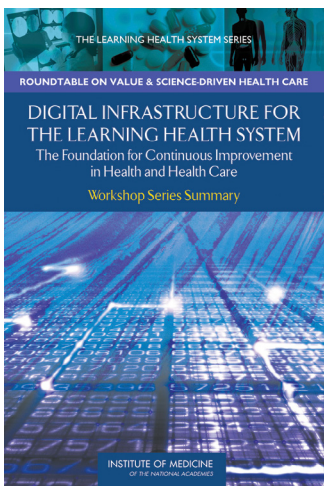
**Opportunities:** ARRA and ACA provisions expand investment in CER, including prospects to move from head-to-head trials to a system of continuous learning and consistent guidance; better tools for evidence-based decisions by policy makers.

#### **ISSUES FOR FURTHER ATTENTION**

- Research-ready EHRs and real-time learning
- Analytic tools to mine clinical records
- Capacity for evidence translation/uptake
- Workforce for evidence stewardship/guidance

## 6. Digital Platform

### *Digital Infrastructure for the Learning Health System: The Foundation for Continuous Improvement in Health*



“Innovations in technology and research have made it possible to foresee the emergence of a learning health system which enables both the seamless and efficient delivery of best care practices and the real-time generation and application of new knowledge.” (p. 1)

#### **Compelling context**

**Status:** Only about 10% of physicians using fully functional EHR systems.

**Trends:** ARRA legislation and HITECH accelerating progress and, by 2020, 90% of physicians expected to use EHRs; two-thirds of patients use the web for health information.

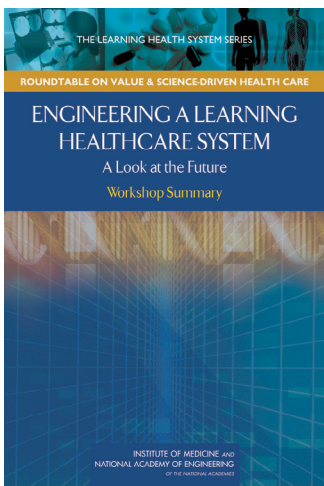
**Opportunities:** EHR systems show several-fold reduction in medical errors; sentinel systems for early problem identification; remote-site diagnosis and treatment prospects at hand.

#### **ISSUES FOR FURTHER ATTENTION**

- Interoperability, specifications parsimony and flexibility
- Core standards—care, quality, public health, and research
- Assessing and underscoring health and economic returns
- Governing principles, priorities, and cooperative strategies

## 7. Systems Engineering

### *Engineering a Learning Healthcare System: A Look at the Future*



“The notion of continuous improvement in effectiveness, efficiency, safety, and quality— is rooted in principles shared with engineering. Improvement depends on the ability to design systems in which the dynamics at the component interfaces are much more efficient.” (p. 1)

#### Compelling context

**Status:** Systemic shortfalls such as medical errors and duplicated services, wide unjustified variation in patterns of care; health outcomes under expectations.

**Trends:** Institution-specific mapping processes; care prompt strategies, cross-checks, and continuous feedback loops demonstrating striking improvement potential.

**Opportunities:** Reform initiatives to reduce care fragmentation, and foster innovative delivery approaches; incentives for high-value services; stronger accountability; greater internal and external transparency in performance.

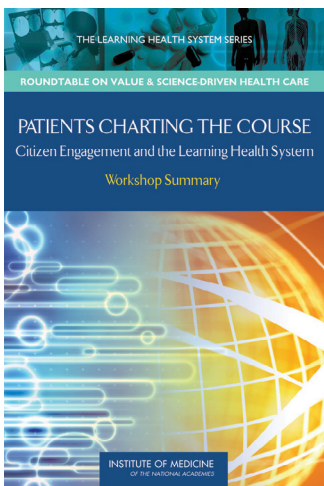
#### ISSUES FOR FURTHER ATTENTION

- Incentives aligned for continuous improvement
- Promoting teamwork and checks vs. command and control
- Performance-transparency loop as engine for improvement
- Health professions training redesign



## 8. Patients and the Public

### *Patients Charting the Course: Citizen Engagement and the Learning Health System*



“Citizens—each one a past, current, or future patient—should represent both the healthcare system’s unwavering focus, and its fully engaged agents for change.” (p. 1)

#### **Compelling context**

**Status:** Care incentives and patterns focused substantially around individual providers are often episodic and poorly coordinated; communication often toward, not with, the patient.

**Trends:** Eroding confidence in provider community; increasing reliance on the web—66% of patients getting evidence online vs. 15% from their physicians.

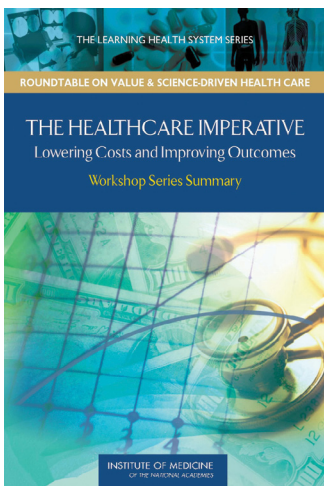
**Opportunities:** Interest and capacity developing for shared decision-making; growth in patient use of electronic portals; stronger focus on team-based networked care.

#### **ISSUES FOR FURTHER ATTENTION**

- Evidence and risk communication strategies
- Digitally-empowered patients for better care management
- Transparency on outcomes, cost, and value
- Patients as stakeholders in better use of data for new insights

## 9. Cost and Outcomes

### *The Healthcare Imperative: Lowering Costs and Improving Outcomes*



“Recent assessments of institutional and regional variations in costs and volume of treatment services indicate that, in many cases, case profiles that are 60% more expensive have no quality advantage.” (p. 1-3)

#### **Compelling context**

**Status:** Health care costs nearing \$3 trillion (one fifth of the nation’s economy); as much as 30% may be waste.

**Trends:** Health costs increasing at double GDP rates; major consequences for household budgets and economic competitiveness; Medicaid (25% state budgets) squeezing out other priorities such as education.

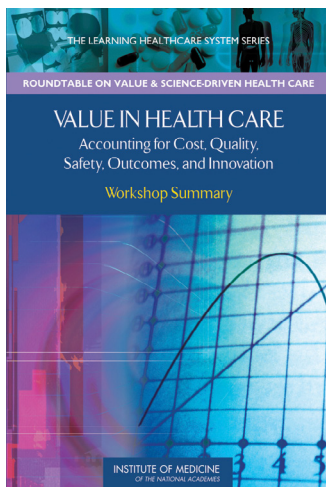
**Opportunities:** Increased focus on care continuity; transparency in costs and outcomes; levers for accountability; information on high value services; patient-clinician communication.

#### **ISSUES FOR FURTHER ATTENTION**

- Transparency on costs, quality, outcomes, and value
- Priorities and incentives aligned for quality and value
- Networked interfaces among clinical care decision points
- Targeted strategies for managing high cost conditions

## 10. Value

### *Value in Health Care: Accounting for Costs, Quality, Safety, Outcomes and Innovation*



“Improving value requires reliable information, sound decision principles, and appropriate incentives. Sound decision principles center on the patient, evidence, context, transparency, and learning.” (p. 4)

#### **Compelling context**

**Status:** Decisions on health services often made with insufficient evidence on effectiveness or efficiency; variations in utilization and cost are often inverse to outcomes.

**Trends:** Value diminishing—costs increasing without concomitant increases in outcomes; little focus on understanding patient preferences.

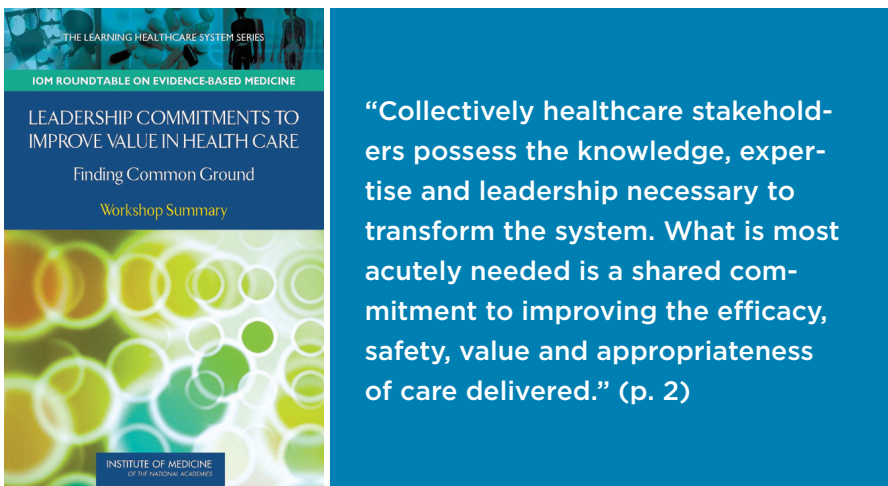
**Opportunities:** Stronger patient communication and awareness, greater information on costs and outcomes, increasing individual and system-wide incentives for value.

#### **ISSUES FOR FURTHER ATTENTION**

- Comparative reference points on costs and outcomes
- Factoring innovation into value assessments
- Concepts and identification of high-value services
- Incentives for effective triage and coordination functions

# 11. Leadership

## *Leadership Commitments to Improve Value in Health Care: Finding Common Ground*



### **Compelling context**

**Status:** Multiple healthcare stakeholders; fragmented incentives and decisions; limited cross-sector communication; yet shared commitments on better value.

**Trends:** Incentives for volume, changes in disease patterns, practice economics, and organization changes all work counter to coordinated leadership.

**Opportunities:** Potential for networked information, communication, decision-making, and accountability, with an emphasis for building on shared commitments.

### **ISSUES FOR FURTHER ATTENTION**

- Public perspectives on evidence and value
- Mechanisms for cooperative data sharing/analysis
- Building trust through collaboration
- Cooperative work on shared decision making tools

# Health Care Reform Context

## *ACA Provisions that Support Transformation to a Learning Health System*

Provisions in the Patient Protection and Affordable Care Act (ACA) and the HITECH statute of the American Recovery and Reinvestment Act (ARRA) are fundamentally linked to the tenets of a learning health system. Highlighted below are certain elements from the legislation relevant to, and informed by, the discussions and priorities of the IOM Roundtable. Provisions are grouped according to the 11 publications in the *Learning Health System* series.

### **Vision**

- Requires the HHS Secretary to develop a *National Strategy to Improve Health Care Quality*
- Establishes the *National Prevention, Health Promotion and Public Health Council*

### **Care Complexity**

- Establishes the *Community-Based Care Transitions Program* and the *Community-Based Collaborative Care Network Program*
- Creates the *Federal Coordinated Health Care Office* for Medicare and Medicaid dual eligibles
- Awards grants to states for incentive programs for Medicaid beneficiary participation in programs to help prevent or manage chronic diseases

### **Effectiveness Research**

- Establishes the *Patient-Centered Outcomes Research Institute* (PCORI)
- Directs the HHS Secretary to make extracts of Medicare claims data available, and establishes the *Medicaid Quality Measurement Program*

### **The Data Utility**

- Promotes transparency and directs the HHS Secretary to make extracts of Medicare claims data available
- Extends the *Physician Quality Reporting Initiative* and establishes the *Medicaid Quality Measurement Program*

## Evidence

- Establishes the *Patient-Centered Outcomes Research Institute*
- Creates a *National Congenital Heart Disease Surveillance System*, a *National Diabetes Report Card*, and *Centers of Excellence for Depression*

## Digital Platform

- Provides financial incentives under Medicare and Medicaid to encourage hospitals, physicians, and health professionals to become meaningful users of health IT
- Authorizes grants to assist state and local governments and healthcare providers in adopting and using health IT

## Systems Engineering

- Creates the *Center for Medicare and Medicaid Innovation (CMMI)*
- Increases the nurse workforce through training programs, loan repayment, and retention grants
- Redistributes unused Graduate Medical Education training positions toward primary care, general surgery, and medically underserved geographic areas
- Supports development of training programs focused on prevention, public health, primary care, medical homes, team care, and integration of mental and physical health services
- Reduces payment for hospital-acquired conditions and preventable readmissions

## Patients and the Public

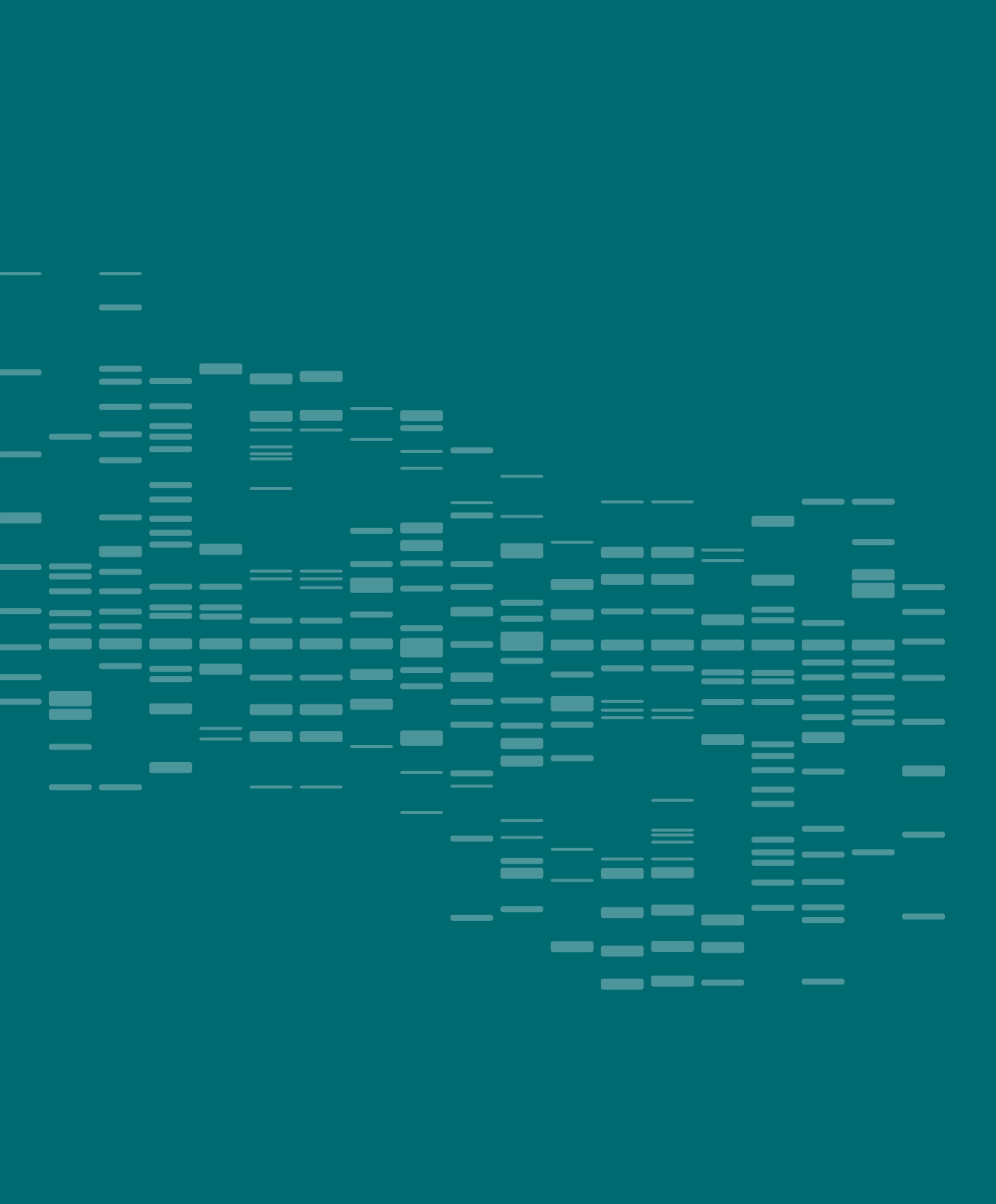
- Promotes the use of shared decision-making tools
- Creates *Physician Compare*, a web-accessible database of performance, effectiveness, safety, and other assessments of providers
- Establishes the *Patient-Centered Outcomes Research Institute (PCORI)*

## Costs, Outcomes, and Value

- Requires disclosure of financial relationships between healthcare providers and industry
- Creates the *Center for Medicare and Medicaid Innovation* (CMMI)
- Establishes a national pilot program to bundle payments for episodes of care
- Extends the *Medicare Hospital Gainsharing Demonstration*
- Modifies the Medicare physician fee schedule to incorporate quality of care-based payments.
- Establishes an *Independent Payment Advisory Board* to advise congress how to lower costs while preserving quality of care.
- Allows *Accountable Care Organizations* (ACOs) to share in cost savings
- Establishes a *Prevention and Public Health Fund* to invest in prevention and public health programs
- Eliminates cost-sharing in Medicare and Medicaid for many preventive services, and provides access to annual wellness visits, risk assessments, and prevention plans

## Leadership

- Creates an *Interagency Working Group on Health Care Quality* to coordinate quality activities across 23 federal departments
- Establishes an *Office of Women's Health* and an *Office of Minority Health*





## PART III

# Innovation Collaboratives

The Roundtable's Innovation Collaboratives engage key stakeholders with similar interests and field responsibilities in cooperative activities to advance science and value in health and health care. These *ad hoc* convening activities amplify the Roundtable's aim to foster sector information sharing and cooperation in accelerating the evolution of a continuously learning health system, and progress on findings highlighted in prior IOM reports of mutual priority. Innovation Collaboratives currently support activities in five overlapping and complementary areas:



# Best Practices

## *Innovation Collaborative*

The Best Practices Innovation Collaborative (BPIC) brings together **health professions societies** and organizations through their common interests in fostering evidence-based best practices, including team care and shared decision making.

Projects completed, under way, or under consideration:

- Formulation of a set of foundational principles and basic expectations for effective patient-clinician communication throughout the care process (with ECIC)
- Development of common, cross-society understandings and expectations with respect to the coordinated and team-based care necessary when treating patients multiple chronic conditions
- Characterizing basic principles underlying high performing inter-professional teams and care models

### Co-chairs



**Mary D. Naylor, Ph.D., RN**  
Professor  
UPenn School of Nursing



**Michael M.E. Johns, M.D.**  
Chancellor  
Emory University

### Staff Contact

Isabelle Von Kohorn, M.D., Ph.D, Program Officer  
202-334-1665 / [ivonkohorn@nas.edu](mailto:ivonkohorn@nas.edu)

# Clinical Effectiveness Research

## *Innovation Collaborative*

The Clinical Effectiveness Research Innovation Collaborative (CERIC) brings together **innovative research scientists**—public, private and academic—working to improve research methods, identify priorities, and stimulate innovation.

Projects completed, under way, or under consideration:

- Identifying the major institutional, organizational, and regulatory challenges and opportunities for expediting clinical effectiveness research
- Engaging health system leadership on issues and opportunities to transform how evidence is generated and used to improve health care
- Exploring opportunities to reduce health disparities through outcomes research

### Co-chairs



**Cato T. Laurencin, M.D., Ph.D.**

Chair, Orthopaedic Surgery  
University of Connecticut



**Richard Platt, M.D., M.S.**

Chair, Population Medicine  
Harvard University

### Staff Contact

Claudia Grossmann, Ph.D. Program Officer  
202-334-3867 / [cgrossmann@nas.edu](mailto:cgrossmann@nas.edu)

# Digital Learning

## *Collaborative*

The Digital Learning Collaborative (DLC) brings together **care delivery and health information technology organizations** using health IT to accelerate the effectiveness and efficiency of care, and the real-time development of new knowledge.

Projects, completed, under way, or under consideration:

- PEDSNet: a consortium of 15 leading pediatric care institutions, working together to clinical data from electronic health records for use in accelerating clinical research in pediatrics
- Working with ONC and related government agencies to explore strategic opportunities to accelerate learning from healthcare delivery
- Reviewing existing approaches to the use of electronic patient record systems in the selection, application and improvement of clinical guidelines in care processes

### Chairs



**Jonathan B. Perlin, M.D., Ph.D.**

President, Clinical &  
Physician Services Group  
HCA, Inc.



**Reed Tuckson, M.D.**

Executive Vice President  
Chief of Medical Affairs  
UnitedHealth Group

### Staff Contact

Claudia Grossmann, Ph.D, Program Officer  
202-334-3867 / [cgrossmann@nas.edu](mailto:cgrossmann@nas.edu)

# Evidence Communication

## *Innovation Collaborative*

The Evidence Communication Innovation Collaborative (ECIC) brings together **marketing experts and decision scientists** working to improve the consistency and effectiveness of communications on the collaborative use by clinicians and patients of evidence on benefits and risks in care decisions.

Projects completed, under way, or under consideration:

- Development of a set of foundational principles and basic expectations for effective patient-clinician communication throughout the care process (with BPIC)
- Environmental scan of existing efforts on evidence communication
- Formulation of a messaging guidebook which provides key message elements that can be tailored to the needs of sponsoring organizations

### Co-chairs



**James A. Guest, J.D.**  
(through May 2011)  
President and CEO  
Consumers Union



**George Halvorson, M.B.A.**  
(from May 2011)  
Chairman and CEO  
Kaiser Permanente



**William D. Novelli, M.A.**  
Former CEO, AARP  
Professor, Georgetown

### Staff Contact

Isabelle Von Kohorn, M.D., Ph.D, Program Officer  
202-334-1665 / [ivonkohorn@nas.edu](mailto:ivonkohorn@nas.edu)

# Value Incentives

## *Learning Collaborative*

The Value Incentives Learning Collaborative (VILC) brings together **health financing and healthcare organizations** working to design, develop, test, and evaluate innovative approaches to emphasize healthcare payment that rewards value.

Projects completed, under way, or under consideration by VILC:

- Identifying prominent examples of the ways economic incentives in health care might be misaligned and exploring alternative approaches.
- Developing a taxonomy and inventory of value-focused innovation initiatives
- Engaging patients and the public to build appreciation and support of the personal and societal importance of value in health care.

### Co-chairs



**Sheri S. McCoy, M.Sc.**  
Vice Chairman  
Johnson & Johnson



**John W. Rowe, M.D.**  
Former CEO, Aetna  
Professor, Columbia



**Elizabeth G. Nabel, M.D.**  
President  
Brigham and Women's

### Staff Contact

Robert Saunders, Ph.D, Program Officer  
202-334-2747 / [rsaunders@nas.edu](mailto:rsaunders@nas.edu)

## ROUNDTABLE CHARTER

The Institute of Medicine's (IOM's) Roundtable on Value & Science-Driven Health Care has been convened to help transform the way evidence on clinical effectiveness is generated and used to improve health and health care. **We seek the development of a learning health system which generates and applies the best evidence for the collaborative health care choices of each patient and provider; drives the process of discovery as a natural outgrowth of patient care; and ensures innovation, quality, safety, and value in health care.**

**Vision:** Our vision is for a health system that draws on the best evidence to provide the care most appropriate to each patient, emphasizes prevention and health promotion, delivers the most value, adds to learning throughout the delivery of care, and leads to improvements in the nation's health.

**Goal:** By the year 2020, ninety percent of clinical decisions will be supported by accurate, timely, and up-to-date clinical information, and will reflect the best available evidence. We feel that this presents a tangible focus for progress toward our vision, that Americans ought to expect at least this level of performance, that it should be feasible with existing resources and emerging tools, and that measures can be developed to track and stimulate progress.

**Context:** As unprecedented developments in the diagnosis, treatment, and longterm management of disease bring Americans closer than ever to the promise of personalized health care, we are faced with similarly unprecedented challenges to identify and deliver the care most appropriate for individual needs and conditions. Care that is important is often not delivered. Care that is delivered is often not important. In part, this is due to our failure to apply the evidence we have about the medical care that is most effective—a failure related to shortfalls in provider knowledge and accountability, inadequate care coordination and support, lack of insurance, poorly aligned payment incentives, and misplaced patient expectations. Increasingly, it is also a result of our limited capacity for timely generation of evidence on the relative effectiveness, efficiency, and safety

of available and emerging interventions. Improving the value of the return on our healthcare investment is a vital imperative that will require much greater capacity to evaluate high priority clinical interventions, stronger links between clinical research and practice, and reorientation of the incentives to apply new insights. We must quicken our efforts to position evidence development and application as natural outgrowths of clinical care—to foster health care that learns.

**Approach:** The IOM Roundtable on Value & Science-Driven Health Care serves as a forum to facilitate the collaborative assessment and action around issues central to achieving the vision and goal stated. The challenges are myriad and include issues that must be addressed to improve evidence development, evidence application, and the capacity to advance progress on both dimensions. To address these challenges, as leaders in their fields, Roundtable members will work with their colleagues to identify the issues not being adequately addressed, the nature of the barriers and possible solutions, and the priorities for action, and will marshal the resources of the sectors represented on the Roundtable to work for sustained public-private cooperation for change. Activities include collaborative exploration of new and expedited approaches to assessing the effectiveness of diagnostic and treatment interventions, better use of the patient care experience to generate evidence on effectiveness, identification of assessment priorities, and communication strategies to enhance provider and patient understanding and support for interventions proven to work best and deliver value in health care.

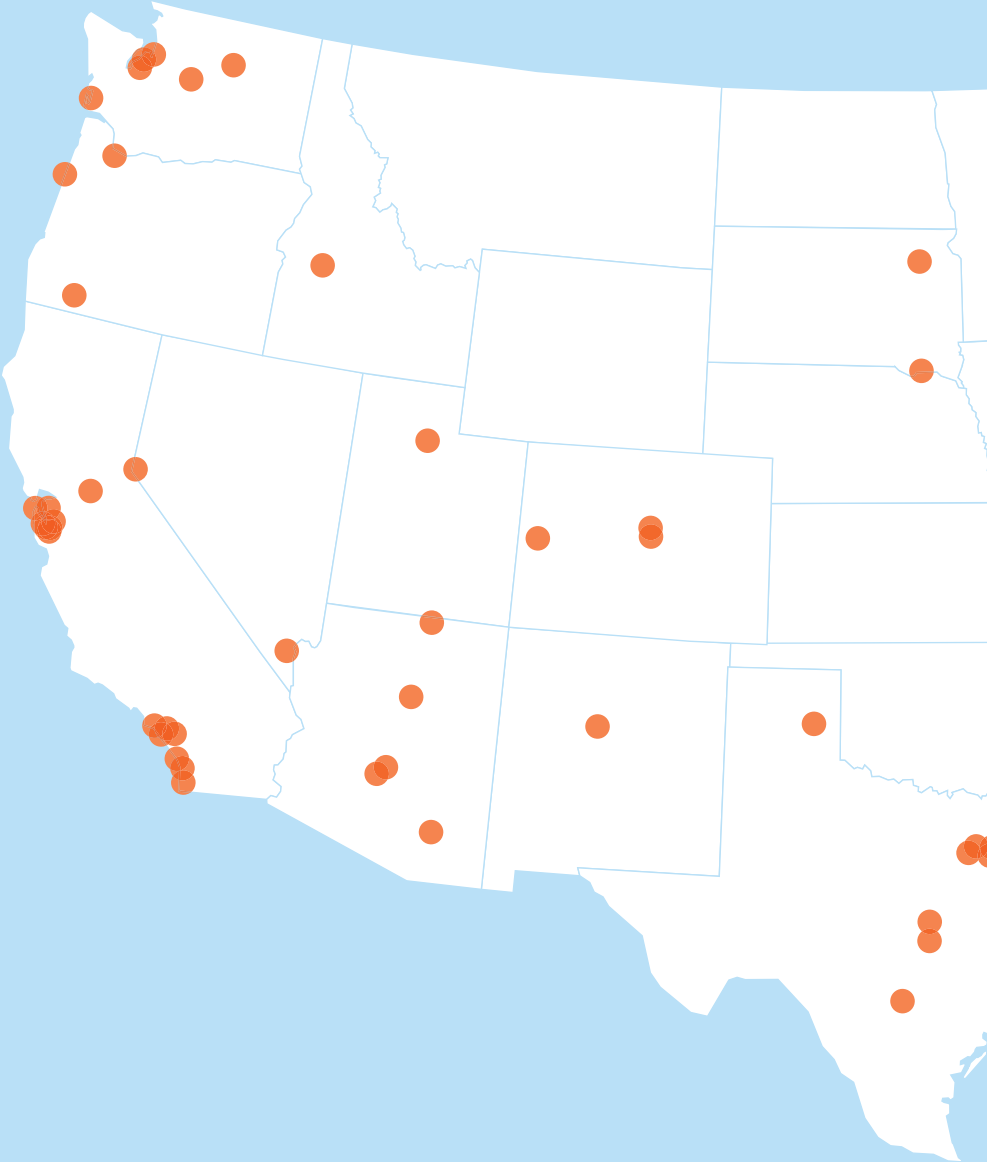


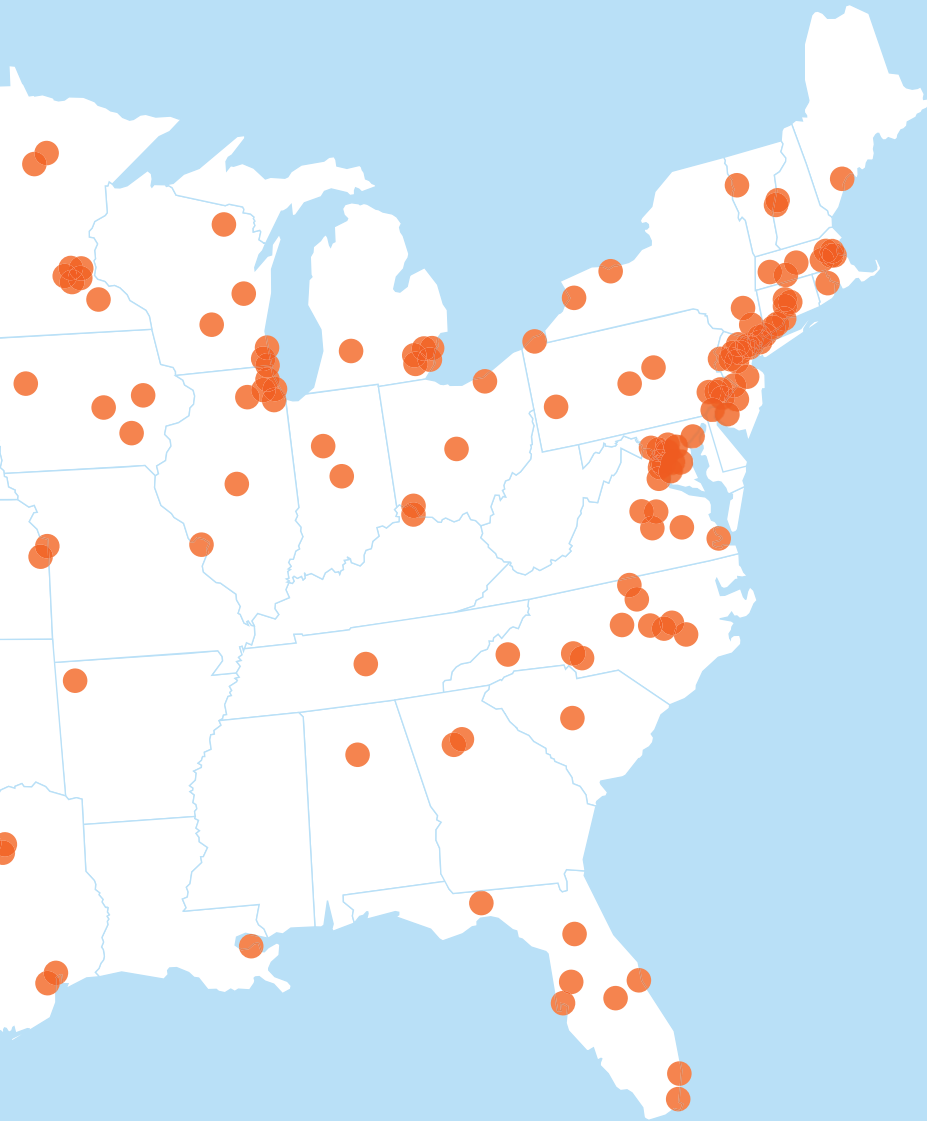
**Core concepts and principles:** For the purpose of the Roundtable activities, **we define science-driven health care broadly to mean that, to the greatest extent possible, the decisions that shape the health and health care of Americans— by patients, providers, payers and policy makers alike—will be grounded on a reliable evidence base, will account appropriately for individual variation in patient needs, and will support the generation of new insights on clinical effectiveness.** Evidence is generally considered to be information from clinical experience that has met some established test of validity, and the appropriate standard is determined according to the requirements of the intervention and clinical circumstance. Processes that involve the development and use of evidence should be accessible and transparent to all stakeholders.

A common commitment to certain principles and priorities guides the activities of the Roundtable and its members, including the commitment to: the right health care for each person; putting the best evidence into practice; establishing the effectiveness, efficiency and safety of medical care delivered; building constant measurement into our healthcare investments; the establishment of healthcare data as a public good; shared responsibility distributed equitably across stakeholders, both public and private; collaborative stakeholder involvement in priority setting; transparency in the execution of activities and reporting of results; and subjugation of individual political or stakeholder perspectives in favor of the common good.

## ROUNDTABLE CONTRIBUTORS

Since its founding in 2006, the Roundtable has drawn on the leading experts (both national and international) from all sectors of health and health care. Roughly depicted below are the institutional sites of the more than 1,300 individuals who have served as members, sponsors, advisors, planning committee members, authors, presenters, formal respondents, reviewers, or participants in Roundtable activities referenced in this update. We thank them for their valuable contributions.





## ROUNDTABLE SPONSORS

### Public

Agency for Healthcare Research and Quality  
Centers for Disease Control and Prevention\*  
Centers for Medicare & Medicaid Services  
Department of Veterans Affairs\*  
Food and Drug Administration\*  
National Institutes of Health\*  
Office of the National Coordinator for Health IT\*

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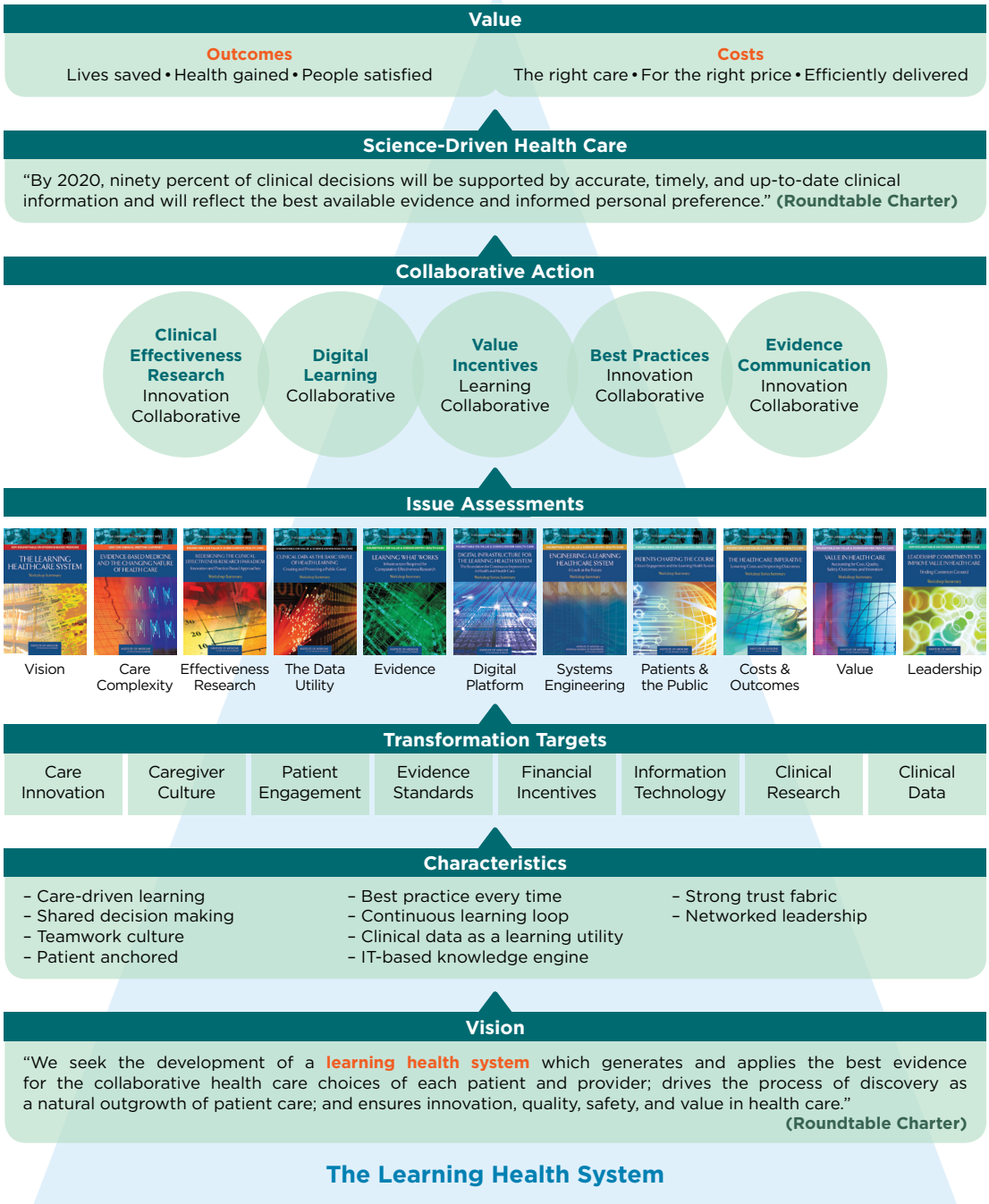
## ROUNDTABLE STAFF

**J. Michael McGinnis, MD, MPP**, Senior Scholar & Executive Director  
**Claudia Grossmann, PhD**, Program Officer  
**Robert Saunders, PhD**, Program Officer  
**Isabelle Von Kohorn, MD, PhD**, Program Officer  
**Leigh Stuckhardt, JD**, Program Associate  
**Brian Powers**, Senior Program Assistant  
**Valerie Rohrbach**, Program Assistant  
**Julia Sanders**, Program Assistant

### Contact Information

Roundtable on Value & Science-Driven Health Care  
Institute of Medicine  
500 5th Street, NW  
Washington, DC 20001  
202.334.3963  
vsrt@nas.edu  
www.iom.edu/vsrt

# IOM ROUNDTABLE ON VALUE & SCIENCE-DRIVEN HEALTH CARE Strategy Map





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*OF THE NATIONAL ACADEMIES*

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