2017 Health Care IT Top Ten
Health Care IT in the Post-Obama Era
IT Leadership at the Advisory Board

World-Class Thought Leadership and Support for IT Leaders

Jim Adams
Executive Director
- Leads the Advisory Board’s health care IT research
- More than 30 years of IT experience, including 20 in health care
- Previously, Executive Director of IBM Center for Health Care Management, focused on global health care thought leadership
- Formerly held executive positions at Healthlink, Gartner, and two integrated delivery networks

Naomi Levinthal
Practice Manager
- Specializes in medical informatics, health IT policy, and telemedicine
- Previously, Certification Manager for the Certification Commission for Health Information Technology

Ernie Hood
Senior Research Director
- Former VP and CIO at Group Health Cooperative
- 20+ years of IT and health care experience
- Successful deployment of EHRs, Patient Portals, CRM, and BI tools
- Former HIMSS Washington Board Member and Chapter President

Peter Kilbridge, MD
Senior Research Director
- Nationally-recognized expert in the use of IT to improve patient safety
- 25 years of experience as a physician executive and informatics researcher
- Most recently served as CMIO at NYU Medical Center
- Prior IT leadership roles at St. Louis Children’s & Duke University Health System

Doug Thompson
Senior Research Director
- Internationally recognized expert in translating health care IT into operational and outcome improvements for hospitals and other providers
- Has consulted on EMR benefits realization with over 300 leading hospitals, including several Davies Award winners
- Has consulted with numerous vendor clients, including Microsoft, Cardinal Health, McKesson, and GE Health Care

Greg Kuhnen
Senior Research Director
- Former CTO of Care Team Connect, Chief Architect for Optum HIE, formerly Axolotl, and several engineering leadership roles for Truven.
- 15+ years in designing, building, and deploying healthcare IT systems for leading provider organizations across the country.
- Areas of expertise include interoperability, HIEs, BI, Cloud Computing, and IT Infrastructure.

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Anantachai (Tony) Panjamapirom, Senior Consultant
- A subject matter expert in the EHR Incentive Programs (i.e., Meaningful Use)
- Expert in Medicare quality reporting programs (e.g., Inpatient Quality Reporting and Physician Quality Reporting System), and their alignment opportunity and strategy
- Research on IT implications in accountable care environment

Allyson Vicars, Consultant
- Areas of focus include cybersecurity, teledicine, mobility, and emerging technologies
- Previously worked at Novant Health as an analyst supporting commercial managed care reimbursement contracting, strategic planning, and strategic pricing initiatives
- MBA in Healthcare Administration from The University of North Carolina at Charlotte, Belk College of Business

Ye Hoffman, Senior Analyst
- Specializes in medical informatics and IT project management
- Experience as an IT Project Manager and Business Data Analyst at the Fred Hutchinson Cancer Research Center
- Areas of expertise include Meaningful Use, project management, clinical trials

Andrew Rebhan, Senior Analyst
- Areas of expertise include enterprise imaging, advanced analytics, revenue cycle management, and consumerism
- Previously worked as an analyst for IHS Markit and IBISWorld covering medical technology and indirect procurement research
- MBA from California State University, Long Beach

Bella Patel, Senior Analyst
- Specializes in public health informatics
- Previously worked at Huron Consulting Group as well as Rush University Medical Center developing best practices in research
- Prior experience as a Business Analyst at the Advisory Board Company within Revenue Cycle Management

Avery Carlson, Senior Analyst
- Areas of focus and expertise include business intelligence, big data, enterprise data warehouses, and EMR strategy
- Previously worked as a Supervisor and Manager of Health Information Management within the Revenue Cycle Organization at Intermountain Healthcare
- Prior experience as a Business Analyst at The Advisory Board Company, Crimson, with work directly in web-based analytics
Health Care IT in the Post-Obama Era

Quality Reporting: The ‘ART’ of Quality Reporting Maturity
Our research will focus on successful practices of organizations that exhibit high levels of quality reporting maturity via multiple programs, such as MACRA and MU.

EMR Optimization: Outcomes Focused
Our research will focus on EMR optimization for specific outcomes such as improved clinical outcomes for common conditions, prevention and amelioration of infections, prevention of adverse drug events, reduction in use and costs of lab tests and pharmaceuticals, etc.

Analytics and Business Intelligence: From Operational to Strategic Advantage
Our research will update our guidance on BI best practices, with particular attention to the growing capabilities of application-tethered analytics, novel data warehouse architectures, and the growing application of advanced analytical techniques.

Interoperability: New Hope for an Old Challenge
Our research will focus on nascent interoperability standards with a focus on case studies and concrete progress towards seamless data exchange.

Population Health Management (PHM): An IT-Enabled Framework
Our research will focus on evolving methods and technologies supporting reductions in care variation, management of bundled payments, engagement of patients as consumers, and the influence of new interoperability developments on analytics for population health management.

Consumer-Focused Health Care: It’s Not Possible without IT!
Our research will focus on how to select, design, build, and implement solutions such as integrated search, price estimation and scheduling solutions; cost accounting systems; real-time patient feedback systems; and other systems and capabilities designed to improve the consumer experience and increase customer loyalty.

Telemedicine: Growth Across the Board
Our research will focus on incorporation into telemedicine use models of structures to reduce care variation across the continuum.

Digital Health Systems: IT-Powered Business Models, Processes, and Services
Our research will include analyzing the potential impacts on organizational strategies and governance, addressing specific issues or opportunities such as for precision medicine and with blockchain, and providing examples of successful uses of exponential technologies.

IT Performance and Risk Management: New IT Demands Call For a New Approach
Our research will help advance your IT performance with tools, surveys, and insights into such opportunities as strategy, governance, staffing, process improvement, cloud technology, blockchain, and intelligent computing.

Information Security: Evolve Your Security Strategy to Prepare for the Worst
Our research will provide the latest insights and tools to advance your cybersecurity activities to more advanced stages of maturity. We will provide reports and presentations to help you engage leaders and provide assistance with audits, staffing, metrics, disaster recovery and business continuity, and the latest technologies and services.

Source: Health Care IT Advisor research and analysis.
Quality Reporting: The “ART” of Quality Reporting Maturity

IT and Process-Driven Principles for MACRA,\(^1\) MU,\(^2\) and More

**Adapt**
Fragmented use of IT, initiative-based governance, penalty avoidance

**Realign**
Streamlined IT functionality, partially-aligned collaboration and governance

**Transform**
Automated, real-time performance tracking with prescriptive analytics, fully-aligned governance, quality-driven strategy

9 Principles of Organizations at the Transform Phase

- Effective governance structure
- Continuous performance improvement
- Aligned across inpatient and ambulatory domains
- Provider compensation tied to quality
- Extensive health IT adoption
- Proactive approach to regulatory requirements
- Strategic initiatives tied to quality
- High “quality” of quality data
- System-wide clinical standardization

Source: Advisory Board research and analysis.

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2) MU = Meaningful Use aka EHR Incentive Programs.
EMR Optimization Is Outcomes Focused

If It Doesn’t Affect Outcomes, It’s “Enhancement,” Not Optimization

Don’t Fly in Circles!

Outcomes data guide an EMR optimization effort to desired benefits like an autopilot guides an airplane to its destination.

Sample “Monthly Operating Report” for Benefits Tracking

<table>
<thead>
<tr>
<th>Benefit Category</th>
<th>Base</th>
<th>Target</th>
<th>Jan 17</th>
<th>Feb 17</th>
<th>Mar 17</th>
<th>Apr 17</th>
<th>May 17</th>
<th>Jun 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>% fall interventions charted</td>
<td>76.5</td>
<td>95%</td>
<td>79</td>
<td>81</td>
<td>80</td>
<td>84</td>
<td>87</td>
<td>85</td>
</tr>
<tr>
<td>Pt(^1) falls per 1000 pt days</td>
<td>3.6</td>
<td>2</td>
<td>3.5</td>
<td>3.5</td>
<td>3.1</td>
<td>2.9</td>
<td>2.7</td>
<td>2.9</td>
</tr>
<tr>
<td>ADE(^2) incidence rate (%)</td>
<td>26.5</td>
<td>20</td>
<td>27</td>
<td>25</td>
<td>29</td>
<td>23</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td># of top 10 OS(^3) implemented</td>
<td>5</td>
<td>10</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>% top 10 order sets used</td>
<td>35.9</td>
<td>75</td>
<td>37</td>
<td>43</td>
<td>50</td>
<td>56</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>Cost/case, top 10 DRGs(^4)</td>
<td>$4,500</td>
<td>$3,700</td>
<td>$4,460</td>
<td>$4,250</td>
<td>$4,100</td>
<td>$4,043</td>
<td>$3,987</td>
<td>$3,924</td>
</tr>
</tbody>
</table>

1) ‘Pt’ = Patient; 2) ‘ADE’ = Adverse drug event; 3) OS = Order sets; 4) DRG = Diagnosis-related group.
Top Surveyed Challenges for Implementing Envisioned BI Environment

- **Cultural Transformation** (49%): Inverse correlation between transformation challenges and the presence of a BI strategic plan.
- **Data Governance** (45%): Institutions with less BI maturity are more likely to have data governance as the #1 challenge.
- **Competing More Urgent Priorities** (37%): Workload prioritization is more often noted as a “top three” challenge.
- **Staff Capabilities and Skill Sets** (37%): Up from 24% in 2013, finding staff with the right skill sets is increasingly becoming a concern.

Source: Health Care IT Advisor research and analysis.
Interoperability: New Hope for an Old Challenge

Strategic Drivers
- Value-based payments demand system-wide optimization
- Cost and quality improvements require cross-continuum data
- Consumers expect seamless transitions across care settings

Interoperability Standards Continue to Evolve

<table>
<thead>
<tr>
<th>Standard</th>
<th>Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HL7 2.2</strong></td>
<td>High – Pervasive workhorse, but…</td>
</tr>
<tr>
<td></td>
<td>• Loose, ambiguous standard with proprietary extensions</td>
</tr>
<tr>
<td></td>
<td>• Brittle and often customized</td>
</tr>
<tr>
<td><strong>HL7 3.x, C-CDA, CCD</strong></td>
<td>Stalled – Mandated by Meaningful Use, but…</td>
</tr>
<tr>
<td></td>
<td>• Over-engineered, modest vendor backing</td>
</tr>
<tr>
<td></td>
<td>• Challenging to implement</td>
</tr>
<tr>
<td><strong>Open APIs, HL7 FHIR</strong></td>
<td>Nascent – Unproven, but widespread enthusiasm…</td>
</tr>
<tr>
<td></td>
<td>• Pragmatic, prioritizes real-world use cases</td>
</tr>
<tr>
<td></td>
<td>• Official publication planned for 2017</td>
</tr>
</tbody>
</table>

1) HIE = Health information exchange; 2) HL7 = Health Level 7; 3) C-CDA = Consolidated Clinical Document Architecture; 4) CCD = Continuity of care document; 5) API = application program interface; 6) FHIR = Fast Healthcare Interoperability Resources.

Source: Health Care IT Advisor research and analysis.
Population Health Management (PHM)

Framework for IT-Enabled Population Health Management

*Four Primary Processes Supported by Two Foundational Elements*

<table>
<thead>
<tr>
<th>Identify Populations</th>
<th>Map and Track Care</th>
<th>Deliver Care</th>
<th>Coordinate Cross-Continuum Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evolution of EMR¹ and analytic vendors in population stratification</td>
<td>Interaction of CDS² and clinical processes in care standardization for disease management</td>
<td>Clinical decision support in the primary care delivery setting</td>
<td>Processes and applications to improve coordination for bundled payments, PAC,³ care management</td>
</tr>
</tbody>
</table>

Engage Patients

Combining consumerism and patient engagement strategies

Administer, Monitor, and Report

Influence of FHIR⁴ on PHM and integrating disparate data sources

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1) EMR = Electronic medical record.
2) CDS = Clinical decision support.
3) PAC = Post-acute care.
4) FHIR = Fast Healthcare Interoperability Resources.

Source: Health Care IT Advisor research and analysis.
Consumer-Focused Health Care: It’s Not Possible Without IT!

Twelve Health IT Capabilities to Meet a New Consumer Standard

1. **Accessibility**
   - **Make It Easy to Buy**
     - Externally-embedded provider search
     - Automated out-of-pocket cost estimates
     - Integrated digital scheduling platform
     - Virtual visits
     - Hospital way-finding

2. **Reliability**
   - **Deliver Quality Consistently**
     - Workflow automation
     - Customer-driven quality reporting

3. **Affordability**
   - **Give the Best Value**
     - Cost accounting systems

4. **Loyalty**
   - **Make It Attractive to Stay, Not Go**
     - Real-time patient feedback systems
     - Integrated patient portals
     - Formal membership programs
     - Simplified billing and payment

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**Example: Integrated provider search, price estimation, and scheduling**

**Search**
- Mobile application guides the consumer to the best provider in your network for them

**Cost Estimate**
- Phone call, chat, or automated routine delivers immediate out-of-pocket cost estimate

**Scheduling**
- Consumer immediately schedules a visit with their chosen provider directly from the app

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Source: Health Care IT Advisor research and analysis.
Telemedicine: Growth Across the Board

The Telemedicine Spectrum

- **Messaging**
  - Text and Email
  - Telephone

- **Data Exchange**
  - Remote Radiology Interpretation
  - Dermatology

- **Telepresence**
  - E-visits
  - Specialist Consults
  - Medication Management

- **Remote Monitoring**
  - Home Monitoring
  - eICU

- **Real-Time Interventions**
  - Telesurgery

**Telehealth Considerations**

- Technical Feasibility
- Implementation Timeline
- Financial Rewards and Costs
- Real Time vs. Asynchronous
- Legal and Regulatory Constraints
- Delivery and Communication Strategy

1) eICU = Electronic intensive care unit.

Source: Health Care IT Advisor research and analysis.
Forces and Advancements Working Together to Elevate IT’s Role

Transformative Forces

- Fee-for-service incentives to value and affordability
- Infectious diseases plus prevention, chronic diseases
- Passive patients to active participants

Converging Exponential Technologies

- Computing power and capacity
- Networks and sensors (IoT)
- Artificial intelligence
- Robotics and drones
- 3-D printing
- Virtual and augmented reality
- Material sciences
- Synthetic biology

Digital health systems take full advantage of digital technologies and IT-related capabilities to redefine business models; improve processes, quality, and their cost structure; and identify and address customer or patient needs.

1) IoT = Internet of Things.

Source: Health Care IT Advisor research and analysis.
Optimize Your IT Investments for New Digital Health System Requirements

Competencies That Need to Evolve for a Digital Health System

**Governance and Planning**

* **Aim**
  - Set business and clinical outcomes
  - Allocate funding for pilots and innovation efforts

* **Quantify**
  - Determine IT capacity limits

* **Opportunities**
  - Hold regular one-on-one meetings with key leaders

**Staffing and Organization**

* **Assess**
  - Current skills and needs
  - Education and training needs

* **Plan**
  - Future needs

* **Opportunities**
  - Skills for cloud computing, virtualization, analytics, integration, mobility, security

**IT Operations**

* **Review & Update**
  - IT service catalogue
  - Application portfolio
  - Project portfolio

* **Measure**
  - Set IT metrics

* **Opportunities**
  - Leverage Lean, Agile, and ITIL for process improvement

**Technical Capabilities**

* **Study**
  - New technologies such as cloud, virtualization, mobility, IoT, Hadoop, and blockchain

* **Prepare**
  - Leverage as needs arise

* **Opportunities**
  - Lower costs, reduce workloads, increase agility

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1) ITIL = information Technology Infrastructure Library.

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Source: Health Care IT Advisor research and analysis.
Evolve Your Security Strategy to Prepare for the Worst

Lowering Total Risk Is Hard and Requires More Than Technology

More Effective Strategies Are Harder to Implement

Adaptive
Focus on making rapid adjustments based on cyber intelligence

Hardened Exterior
Focus on protecting the perimeter with an emphasis on endpoints

Defense in Depth
Emphasis on interior defenses such as segmentation and continuous monitoring for anomalous activities

As Strategy Evolves, All Aspects of Security Must Change Together

Governance and Policy
- Engage the C-Suite and Board
- Standards
- Strategy
- Staffing
- Legal/Contractual Concerns

Process and Education
- Training/Testing
- Incident Response Planning
- Risk Assessments
- Audits

Technology and Services
- Cyber Intelligence
- Dashboards
- Back-up and Disaster Recovery
- New Products and Services

Source: Health Care IT Advisor research and analysis.
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2017 Upcoming National Meeting Dates

Register Today for the Spring IT Executive Summit and Save the Date for Our 2017 Fall Meeting Series

- **Chicago, IL**
  - September 27-28

- **Washington, DC**
  - May 3-4
  - November 14-15

- **Marina del Rey, CA**
  - September 13-14

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