The presentation will begin shortly.
Health IT Adoption and Impacts: Progress and Challenges

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Former Director, Economic Analysis, Office of the National Coordinator for Health IT (ONC)

HPOE Live! Webinar Series 2014
Assessing the Impact of HIT Initiatives in Health Care
September 10, 2014
Today’s Agenda

• Barriers and Impetus for HITECH

• ‘Meaningful Use’ of Electronic Health Records

• Evidence of Health IT Impacts
  ► HSR Special Issue
  ► Updated Systematic Review

• Challenges Ahead
Major Barriers to Physician EHR Adoption

- Lack of capital: 44% (Have an EHR), 67% (Do not have functional EHR)
- Uncertainty of ROI: 29% (Have an EHR), 51% (Do not have functional EHR)
- Finding a system that meets your needs: 36% (Have an EHR), 54% (Do not have functional EHR)
- System becoming obsolete: 24% (Have an EHR), 45% (Do not have functional EHR)
- Capacity to implement: 39% (Have an EHR), 41% (Do not have functional EHR)
- Loss of productivity: 37% (Have an EHR), 41% (Do not have functional EHR)

Major Barriers to Hospital EHR Adoption

Proportion of Hospitals (%)

Inadequate capital for purchase
Unclear ROI
Maintenance cost
Physicians’ resistance
Inadequate IT staff

Barriers

Hospitals with EHR
Hospitals without EHR

The Federal Government’s Response: HITECH Act

- Part of American Recovery and Reinvestment Act of 2009 (ARRA)
- Addresses major barriers to adoption, and much more
  - Money, market reform
  - Technical assistance, support/workforce shortages
  - Health information exchange
  - Privacy and security
Dr. David Blumenthal, previous National Coordinator of HIT, emphasizes

“HIT is the means, but not the end. Getting an EHR up and running in health care is not the main objective behind the incentives provided by the federal government under ARRA. Improving health is. Promoting health care reform is.”

- At the National HIPAA Summit in Washington, D.C. on September 16, 2009
ONC Programs
Tech Assistance and HIE / Interoperability

- **Technical Assistance**
  - ~150,000 providers enrolled with the Regional Extension Centers (8/14)

- **Workforce Training**
  - ~20,000 community college trainees (10/13)
  - ~1,700 post-grad/masters trained (10/13)

- **State Health Information Exchange**
  - 56 states and territories with HIT coordinators and operational plans

- **Interoperability**
  - Over 1,700 certified EHR products on the market conforming to standards
EHR Adoption Among Office-Based Physician Practices, 2009-13

EHR Adoption Among Hospitals, 2008-13

Meaningful Use Registration and Attestation

- Registrations as of July 2014:
  - More than **480,000** providers
  - New registrations ~**6,000** per month in 2014

- Meaningful use attestation became possible mid-May 2011
  - As of July 2014:
    - **$24.8 billion** in payments to **410,000+** unique providers
    - **392,447** are eligible professionals
    - **323,457** of the eligible professionals are physicians

- As of July 2014, **81%** of eligible professionals and **97%** of eligible hospitals have received Medicare or Medicaid incentive payments for adopting or meaningfully using electronic health records

Source: “EHR Incentive Program,” August 2014, CMS.
Adoption of Electronic Health Records Varies by Size, Organization, and Financial Factors

Percent of primary care physicians, 2012

- Shares tech support/resources with other practices:
  - Yes: 83%
  - No: 59%

- Eligible for financial incentives:
  - Yes: 76%
  - No: 65%

- Practice size:
  - 20+: 90%
  - 10 to <20: 80%
  - 2 to <10: 70%
  - Solo: 49%

Eligible Providers Often Exceeded MU Stage 1 Thresholds; But 90% Claimed At Least One Exclusion

Percent of eligible providers

<table>
<thead>
<tr>
<th>Number of Exclusions Claimed</th>
<th>Percent of Eligible Providers</th>
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<tr>
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<td>2</td>
<td>28.4%</td>
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<td>3</td>
<td>13.2%</td>
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<tr>
<td>4</td>
<td>8.4%</td>
</tr>
<tr>
<td>5+</td>
<td>7.0%</td>
</tr>
</tbody>
</table>

Regional Extension Centers Have Made Substantial Progress Assisting PCPs Adopt EHRs

Between January 2010 and June 2013:

- RECs recruited almost 134,000 primary care providers (44% of the US total)
  - 86 percent of these were using an EHR with advanced functionality
  - 48 percent have demonstrated Meaningful Use
- 83% of FQHCs and 78% of Critical Access Hospitals participate with an extension center

Limited Data Sharing Capability Between Local Health Departments and State Health Agencies

Percent of local health department/state health agency dyads able to share information

- Childhood immunizations: 66.0%
- Vital records: 30.2%
- Reportable conditions: 18.9%

Growing Evidence of Clinical and Workflow Benefits of Electronic Health Records

Percent of physicians reporting EHR benefits, 2011

**Physician Workflow**
- Accessed patient chart remotely: 81%
- Alerted to potential medical error: 65%
- Alerted to critical lab value: 62%
- Reminded to provide preventive care: 47%
- Reminded to meet clinical guidelines: 45%
- Identified needed lab test: 33%
- Facilitated direct patient communication: 30%

**Patient-Related Outcomes**
- Enhanced overall patient care: 78%
- Ordered more on-formulary medications: 46%
- Ordered fewer tests: 37%

Integrated EHRs Associated with Better Coordination Among More Cohesive Clinical Teams

**Lower Team Cohesion**

- Agreement on roles and responsibilities
  - Integrated EHR: 48.7%
  - No integrated EHR: 46.7%
- Agreement on treatment goals
  - Integrated EHR: 44.0%
  - No integrated EHR: 45.9%
- Access to complete and timely information
  - Integrated EHR: 31.7%
  - No integrated EHR: 32.6%

**Higher Team Cohesion**

- Agreement on roles and responsibilities
  - Integrated EHR: 63.9%
  - No integrated EHR: 55.2%
- Agreement on treatment goals
  - Integrated EHR: 64.3%
  - No integrated EHR: 50.6%
- Access to complete and timely information
  - Integrated EHR: 53.5%
  - No integrated EHR: 37.6%

Short-Term Declines in Productivity After EHR Implementation in Primary Care Practices

-7.97%*
-5.41%*
-4.03%*
-16.46%*
-11.65%*
-7.91%
-20%
-16%
-12%
-8%
-4%
0%

Period after introducing EHR
1-6 months
7-12 months
>12 months

RVU per physician FTE
Net income per physician FTE

* p-value < 0.05

Health IT evaluation studies, 2010-2013 (n=278). Positive defined as health IT improved key aspects of care but none worse off; Mixed-positive defined as positive effects of health IT outweighed the negative effects; Neutral defined as health IT not associated with change in outcome; Negative defined as negative effects of health IT on outcome.

Evidence Varies by Outcome Type, Weakest on Cost/Efficiency

New Core Objectives

**Health Information Exchange**
- Provide summary of care record for 50 percent of transitions of care or referral, 10 percent electronically
- Provide patients the ability to view online, download and transmit their health information
- Use secure electronic messaging to communicate with patients (professionals only)

**Computerized Decision Support**
- Use five clinical decision support to improve performance on high-priority health conditions (only one required in Stage 1)
- Identify patients to be reminded for preventive/follow-up care (menu objective in Stage 1)

**New Menu Objectives**
- Identify and report cases to a State cancer or specialized registry (professionals only)
- Provide structured electronic lab results to ambulatory providers (hospitals only)
- Generate and transmit discharge prescriptions electronically (new for hospitals)
Health Information Exchange Among Hospitals, 2008-13

Health Information Exchange Among Office-based Physicians, 2013

Hospital Capabilities to Meet Meaningful Use Stage 2 Objectives, 2013

Routine Use of Patient Engagement Tools by Office-based Physicians, 2013

- Providing patients the ability to view online, download, or transmit information from their medical record: 42% with capability, 24% using.
- Exchanging secure messages with patients: 49% with capability, 30% using.
- Identifying educational resources for patients’ specific conditions: 60% with capability, 47% using.
- Providing patients with clinical summaries for each visit: 68% with capability, 57% using.

Challenges Ahead

• Health information exchange
  ► Interoperability
  ► Governance
  ► Privacy and Security
• Alignment of MU and payment/delivery models
• Improving the usability of electronic health records
• Addressing and reducing disparities
A Statewide Assessment of Electronic Health Record Adoption and Health Information Exchange Among NY Nursing Homes

Erika Abramson, MD MS
Assistant Professor of Pediatrics and Healthcare Policy and Research
Weill Cornell Medical College
The EHR Incentive Program

• Unprecedented federal initiatives are promoting adoption of EHRs by physicians and hospitals across the US
• Result has been tremendous increases in adoption in both sectors
• None of the incentives are directed toward the 16,100 nursing homes nationwide
HIT is Critical for Nursing Homes

- Elderly population is 1.5 million and growing
- Patients are medically complex and have high medical costs
- Patients are frequently transferred to hospitals

» Levinson, Dept of HHS, 2010
Challenges to HIT Adoption Faced by Nursing Homes

• High costs of HIT implementation
• Ongoing maintenance costs
• Challenges associated with implementation and training
• Limited evidence for return on investment

Early Adopters Report Significant Benefits

- Improved information access
- Improved documentation accuracy
- Increased adherence to evidence-based guidelines
- Improved employee satisfaction and retention
- Cost reductions

» Cherry, Ford, Peterson. Health Care Manage Review. 2011
Data on Nursing Homes is Lacking

• Nursing homes are believed to lag behind other sectors in HIT adoption
• Reported rates vary widely (18-47%)

Goals for this Study

• To assess rates of EHR adoption and HIE participation by NYS nursing homes
• To identify characteristics associated with higher rates of adoption
  – Particularly important to assess emerging gaps
• Collect baseline data for planned future surveys
Importance of Evaluation

- Provide data to help guide state and federal HIT policy in this healthcare sector
New York State’s HIT Policy

- Prior to EHR Incentive Program, NYS began investing hundreds of millions of dollars to promote HIT adoption
  - Total investment = $840 million
- HEAL Phase 5: focused on advancing interoperability and community-wide EHR adoption
- No direct investments went to nursing homes for implementation of EHRs
Methodology

• Cross sectional survey given to administrators at all nursing homes across NYS
  – November 2011-March 2012

• Evaluation conducted by HITEC
  – NYS designated HEAL evaluation entity
  – Investigators from 4 universities across NYS
Survey Instrument

• Novel survey instrument developed in collaboration with leading NH agencies

• Survey Domains:
  – EHR Implementation
  – Level of automation of key functionalities
    • Administrative, Documentation, Order Entry, Results Viewing, Clinical Tools
  – Participation in HIE
  – Barriers to Implementation
Survey Administration

• Surveyed all 632 nursing homes in NYS
• Electronic survey with paper option
• No incentives offered

*Gathered nursing home characteristics through CMS Nursing Home Compare database
Nursing Home Characteristics

• Location
• Size (<100 beds, 100-159 beds, 160-239 beds, 240+ beds)
• Ownership
  – Private for profit, private not-for-profit, public
• Hospital affiliation
• Chain ownership
• Continuing care retirement community status
Statistical Analysis

• Evaluated level of EHR adoption and participation in HIE
• Evaluated level of automation of clinical functionalities
• Analyzed relationship between adoption and key nursing home characteristics
Results

• Received responses from 375 of 632 nursing homes surveyed (59.3%)

• Higher proportion of respondents were from:
  – Upstate
  – Not associated with a hospital
  – For profit or private not-for-profit
## Available Functionalities

<table>
<thead>
<tr>
<th>Function</th>
<th>EHR</th>
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<tbody>
<tr>
<td>Minimum Data Set Assessment/ Care Area Assessments</td>
<td><strong>Full/Partial EHR</strong></td>
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<tr>
<td>Patient demographics</td>
<td>N = 176</td>
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<tr>
<td>Financial management</td>
<td>%</td>
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<tr>
<td>Allergy list</td>
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<td>Medication order entry</td>
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<td>Medication administration record</td>
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<tr>
<td>Other order entry</td>
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<td>Task list (e.g., CNA workflow)</td>
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<td>Problem list</td>
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<td>Assessments other than Minimum Data Set</td>
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<tr>
<td>Medical history</td>
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<td>Labs</td>
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<td>Summary reports including transfer, discharge, and consults</td>
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<td>Advance directives</td>
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<tr>
<td>Clinical decision support</td>
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### Available Functionalities

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<td>Allergy list</td>
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<td>Patient care planning</td>
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<td>Medication order entry</td>
<td>17.2%</td>
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<td>Clinical notes</td>
<td>4.3%</td>
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<td>Medication administration record</td>
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<td>Treatment administration record</td>
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<tr>
<td>Other order entry</td>
<td>9.7%</td>
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<td>Quality improvement and reporting</td>
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<td>Consults</td>
<td>1.1%</td>
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<tr>
<td>Telemonitoring/Telehealth</td>
<td>2.7%</td>
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</table>
Rates of Participation in HIE

- 54.4% (n = 192) participated in HIE
- Facilities with an EHR were 2.5X more likely to participate in HIE
- Among facilities with an EHR:
  - 59.7% (n = 105) participated in HIE with providers within their system
  - 31.3% (n = 55) participated in HIE with providers outside their system
Exchange Partners for HIE

- Pharmacies: 41.8%, N=153 (29% Both Send and Receive, 7% Send Only, 6% Receive Only)
- Labs: 38.5%, N=141 (20% Both Send and Receive, 16% Send Only, 2% Receive Only)
- Hospitals: 38.5%, N=141 (20% Both Send and Receive, 17% Send Only, 2% Receive Only)
- Primary Care: 23.5%, N=86 (14% Both Send and Receive, 5% Send Only, 5% Receive Only)
- Specialists: 16.9%, N=62 (10% Both Send and Receive, 4% Send Only, 4% Receive Only)
- RHIO: 12.3%, N=45 (5% Both Send and Receive, 4% Send Only, 3% Receive Only)
- Other Nursing Homes: 9.8%, N=36 (6% Both Send and Receive, 2% Send Only, 2% Receive Only)
Barriers to Adoption

- Initial cost of IT investment: 80%
- Lack of fiscal incentives for HIT adoption: 55%
- Lack of interoperability with current systems: 30%
- Competing Priorities: 29%
- Ongoing Costs of Maintaining an EMR: 27%

Implementation has not begun: Red
Implementation completed/In progress: Blue
Limitations

• Survey conducted only in NYS, limiting generalizability
• Assessed availability of computerized functions, rather than usage
• Need repeated studies over time to better compare how nursing homes are progressing relative to hospitals and physicians
Conclusions

• As of 2012, 18% of NYS nursing homes had fully adopted an EHR and another 30% had partially implemented an EHR
• Over 50% of nursing homes were engaging in HIE
• Results suggest that nursing homes may not lag as far behind as hospitals and physicians as previously thought
Conclusions

Nursing homes may be adopting for several reasons:

• Reported benefits
• NYS Initiatives such as the NYS Nursing Home HIT Demonstration Project
• Ability to participate in community HIE
Conclusions

• However, available functionalities largely administrative, rather than clinical
  – Lesser impact on safety and quality of care
• Given that top barriers to EHR adoption reported are financial, gap between nursing homes and the hospital and physician sectors may widen over time
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