Conflicts of Interest

- Adam Wright, PhD has no real or apparent conflicts of interest to report.
Learning Objectives

• Discover current advances and best practices in HIT Safety
• Explore the landscape and emerging issues for HIT Safety
• Surveillance and interoperability
• Learn how computerized provider order entry (CPOE) and clinical decision support (CDS) impact patient safety
What will we discuss?

• Do EHRs make care safer?
• What are the safety challenges associated with EHRs?
• How do we make EHRs as safe as possible?
• Call to action!
An Introduction of How Benefits Were Realized for the Value of Health IT
Do EHRs make care safer?
Digital Health Records’ Risks Emerge as Deaths Blamed on Systems

By Jordan Robertson | 2013-06-25T16:01:38Z | - Comments  Email  Print

When Scot Silverstein’s 84-year-old mother, Betty, starting mixing up her words, he worried she was having a stroke. So he rushed her to Abington Memorial Hospital in Pennsylvania.

After she was admitted, Silverstein, who is a doctor, looked at his mother’s electronic health records, which are designed to make medical care safer by providing more information on patients than paper files do. He saw that Sotalol, which controls rapid heartbeats, was correctly listed as one of her medications.

https://give-a-p
Concern for EHR safety is well-documented

Pediatrics
December 2005, VOLUME 116 / ISSUE 6

Unexpected Increased Mortality After Implementation of a Commercially Sold Computerized Physician Order Entry System

Yong Y. Han, Joseph A. Carcillo, Shekhar T. Venkataraman, Robert S.B. Clark, R. Scott Watson, Trung C. Nguyen, Hülya Bayir, Richard A. Orr
Concern for EHR safety is well-documented

Pediatrics
December 2005, VOLUME 116 / ISSUE 6

Unexpected Increased Mortality After Implementation of a Commercially System

Yong Y. Han, Joseph Scott Watson, Truro

JAMA The Journal of the American Medical Association
Role of Computerized Physician Order Entry Systems in Facilitating Medication Errors

Ross Koppel, PhD; Joshua P. Metlay, MD, PhD; Abigail Cohen, PhD; Brian Abaluck, BS; A. Russell Localio, JD, MPH, MS; Stephen E. Kimmel, MD, MSCE; Brian L. Strom, MD, MPH
Concern for EHR safety is well-documented

Pediatrics
December 2005, VOLUME 116 / ISSUE 6

Unexp Commr Syste
Yong Y. T
Scott Wa

Investigations of Health IT–related Deaths, Serious Injuries or Unsafe Conditions

JAMA The Journal of the American Medical Association
Role of Computerized Physician Order Entry Systems in Facilitating Medication Errors
Ross Koppel, PhD; Joshua P. Metlay, MD, PhD; Abigail Cohen, PhD; Brian Abaluck, BS; A. Russell Localio, JD, MPH, MS; Stephen E. Kimmel, MD, MSCE; Brian L. Strom, MD, MPH
- Non-missed-does medication error rate fell 81%
- Non-intercepted serious medication errors fell 86%

* CPOE seriously decreased rate of errors, further reductions were found when CDS was added
Saving Lives, Saving Money:
The Imperative for Computerized Physician Order Entry in Massachusetts Hospitals

Implementing Computerized Provider Order Entry in Acute Care Hospitals in the United States Could Generate Substantial Savings to Society

Methodological Appendix

Teryl K. Nuckols, Steven M. Asch, Vaspaan Patel, Emmett B. Keeler, Laura Anderson, Melinda Beeuwkes Buntin, Jose J. Escarce

RAND HEALTH

WR-1108
August 2015

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JAMA

Systematic review of trials that evaluated the effect of CDS systems

- 64% of trials had improved practitioner performance

- Effect on patient outcomes wasn’t certain
An association between EHR use and a reduced documentation time with a difference in mean of −22.4%

EHR resulted also associated with a higher guideline adherence with a risk ratio (RR) of 1.33

EHRs can improve healthcare

Campanella, P et al 2015

European Journal of Public Health

The impact of electronic health records on healthcare quality: a systematic review and meta-analysis

Paolo Campanella, Emanuela Lovato, Claudio Marone, Lucia Fallacara, Agostino Mancuso, Walter Ricciardi, Maria Lucia Specchia

DOI: http://dx.doi.org/10.1093/eurpub/ckv122 ckv122 First published online: 1 July 2015
Anticipated, Intended, Foreseen Consequences of Clinical Systems

- 92% of studies on HIT have found positive or mixed-positive results (Buntin 2011).

- Well-designed systems have been shown to:
  - Prevent errors and adverse events
  - Improve quality of care
  - Improve adherence to guidelines
  - Save money

- We all set out to maximize benefit from our information systems, and it’s likely that we will eventually achieve this benefit.
What are some safety challenges associated with EHRs?
Unintended Consequences

More / New Work Issues

- No documented tobacco status. Click to enter status.
- Patient 65 yrs or older, due for Pneumovax.
- Patient is overdue for mammogram (rec: q 1 year). FHx indicates average risk for breast cancer.
- Patient has CAD-equiv on problem list and aspirin is not on the med list. Recommend aspirin.
- Patient with DM overdue for HbA1C (rec: q 5 months).
- Recommend bone densitometry and appropriate treatment for patients at high risk for osteoporosis.
- Pt is overdue for cloboscopy (rec: q 16 years). FanHx indicates average risk for colorectal cancer.

Flowsheets
- Add New

Problems
- Diabetes mellitus
- Renal insufficiency
- Coronary artery disease
- Peptic ulcer disease
- Torn meniscus
- No current problems or disability

Allergies
- Milk
- Penicillins

Sticky Notes
Workflow Issues

1. Physician writes order on patient chart
2. Order scanned to pharmacy via physician order management system
3. Pharmacy reviews order and enters into pharmacy system
4. Order crosses into bridge system—nurse compares to physician order in chart
5. Nurse obtains wireless computer
6. Nurse retrieves medication from system using generated worksheet
7. Nurse scans patient’s identification badge to access bar-code system
8. Nurse scans patient’s wristband to bring up medication profile
9. Nurse scans medication; ensuring five-rights checking with each medication; any deviation from profiled order will alert nurse with visual warning
10. Nurse administers medication to patient
11. Documentation captured on patient chart by physician

If order correct, nurse confirms order and medication becomes active on patient’s profile
If order incorrect, nurse places in clarify state and communication sent to pharmacy
Never Ending Demands
Paper Persistence

“Your hospital will be paperless, the same day my bathroom is…”
Communication Issues
Emotions
New Kinds of Errors
Changes in the Power Structure
Overdependence on Technology
Sources of Error

Figure 3. ECRI Institute PSO Deep Dive Identifies Top Five Safety Issues from Health IT Events

The percentage identified with each event type represents the accumulative total of that event type and any preceding event types as a portion of the 211 safety events.

https://www.healthit.gov/sites/default/files/how_to_identify_and_address_unsafe_conditions_associated_with_health_it_2013.pdf
How do we make EHRs as safe as possible?
8-dimension Socio-Technical Model of Safe & Effective EHR Use

- Organizational Policies, Procedures, & Culture
- Workflow & Communication
- People
- Measurement & Monitoring
- External Rules & Regulations

Content
Hardware & Software
User Interface
Safety Reporting and National Safety Centers
### Proposed Health IT Safety Center Activities

<table>
<thead>
<tr>
<th>Proposed Activity</th>
<th>Convening</th>
<th>Research</th>
<th>Dissemination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support development of targeted solutions to health IT-related safety issues identified through evidence</td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
</tr>
<tr>
<td>Dissemination, pilot testing, adoption, and evaluation of solutions</td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
</tr>
<tr>
<td>Strengthen and augment existing ways to identify and classify health IT-related safety events</td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
</tr>
<tr>
<td>Identify ways to encourage better reporting of health IT-related events</td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
</tr>
<tr>
<td>Identify and share advances in automated safety tools for adverse event detection and health IT-related safety improvements</td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
</tr>
<tr>
<td>Produce reports summarizing current evidence of health IT safety</td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
</tr>
<tr>
<td>Targeted examinations of specific issues and identify approaches to addressing issues</td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
</tr>
<tr>
<td>Serve as a clearinghouse for health IT safety solutions, evidence reports, and best practices</td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
</tr>
<tr>
<td>Develop new educational resources and training materials to build health IT-related competencies</td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
<td><img src="#" alt="Icon" /></td>
</tr>
</tbody>
</table>

National Safety Center Plans

Figure 4. Health IT Safety Center Organization Chart

Safety Enhanced Design
Test Procedure for §170.314(g)(3) Safety-enhanced design

This document describes the test procedure for evaluating conformance of complete EHRs or EHR modules to the certification criteria defined in 45 CFR Part 170 Subpart C of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule. The document is organized by test procedure and derived test requirements with traceability to the normative certification criteria as described in the Overview document located at [available when final]. The test procedures may be updated to reflect on-going feedback received during the certification activities.

The HHS/Office of the National Coordinator for Health Information Technology (ONC) has defined the standards, implementation guides and certification criteria used in this test procedure. Applicability and interpretation of the standards, implementation guides and certification criteria to EHR technology is determined by ONC. Testing of EHR technology in the Permanent Certification Program, henceforth referred to as the ONC HIT Certification Program, is carried out by National Voluntary Laboratory Accreditation Program-Accredited Testing Laboratories (ATLs) as set forth in the final rule establishing the Permanent Certification Program (Establishment of the Permanent Certification Program for Health Information Technology, 45 CFR Part 170, February 7, 2011.)

Questions or concerns regarding the ONC HIT Certification Program should be directed to ONC at ONC.Certification@hhs.gov.

CERTIFICATION CRITERIA

This Certification Criterion is from the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule issued by the Department of Health and Human Services (HHS) on September 4, 2012.

§170.314(g)(3) Safety-enhanced design. User-centered design processes must be applied to each capability an EHR technology includes that is specified in the following certification criteria: §170.314(a)(1); §170.314(a)(2); §170.314(a)(5); §170.314(a)(7); §170.314(a)(8); §170.314(a)(16); §170.314(b)(3); and §170.314(b)(4).

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule, Section 3.3.1.7 User-Centered Design of the will be applied to each capability an EHR technology includes that is specified in the following certification criteria: §170.314(a)(1); §170.314(a)(2); §170.314(a)(5); §170.314(a)(7); §170.314(a)(8); §170.314(a)(16); §170.314(b)(3); and §170.314(b)(4).
SAFER Guides for Safe and Effective EHR Implementation and Use

https://www.healthit.gov/safer/
SAFER: Safety Assurance Factors for EHR Resilience

- Proactively assess safety in EHR-based clinical work system
  - Self assessment tools
  - Three phases
  - Eight guides
  - Provides references and resources
Checklists and Worksheets

Recommended Practices for Phase 1 — Safe Health IT

1. Data and application configurations are backed up and hardware systems are redundant.

2. EHR downtime and reactivation policies and procedures are complete, available, and reviewed regularly.

3. Allergies, problem list entries, and diagnostic test results (including interpretations of those results, such as “normal” and “high”), are entered/stored using standard, coded data elements in the EHR.

4. Evidence-based order sets and charting templates are available for common clinical conditions, procedures, and services.

5. Interactive clinical decision support features and functions (e.g., disruptive warnings, passive suggestions, or info buttons) are available and functioning.

Rationale for Practice or Risk Assessment
Free text data cannot be used by clinical decision support logic to check for data entry errors or notify clinicians about important new information.

Suggested Sources of Input
Clinicians, support staff, and/or clinical administration

Examples of Potentially Useful Practices/Scenarios
- RxNorm is used for coding medications and NDF-RT for medication classes.
- SNOMED-CT is used for coding allergens, reactions, and complications.
References: High Priority Practices

References from the literature are included to support the recommended practices and to provide additional resources.


Leapfrog Assessment Tools

https://leapfroghospitalsurvey.org
What is this tool?

• Safety and quality performance of hospitals based on a survey tool

• Initially released in 2008, tested at 62 hospitals (Metzger et al 2010, Health Aff)
  – Only 53% of fatal test med orders were detected
  – 10%-82% of test orders that would have resulted serious ADEs were detected
Leapfrog Methodology

1. Hospital logs-on (password)
2. Obtain patient criteria (adult or pediatric)
3. Program test patient profiles (e.g., allergies diagnoses)
4. Download test orders
5. Enter orders into CPOE application and record results
6. Hospital self-reports results on website
7. Score generated against weighted
8. Report generate
9. Aggregate score to leapfrog
10. Category scores viewed by hospital

Kilbridge, P. M et al.
Sample of Survey
What kinds of errors are examined in CPOE tool?

<table>
<thead>
<tr>
<th>Order Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic duplication</td>
</tr>
<tr>
<td>Single and cumulative dose limits</td>
</tr>
<tr>
<td>Allergies</td>
</tr>
<tr>
<td>Contraindicated route of administration</td>
</tr>
<tr>
<td>Drug-drug interaction</td>
</tr>
<tr>
<td>Contraindications based on patient diagnosis</td>
</tr>
<tr>
<td>Contraindications based on age and weight</td>
</tr>
<tr>
<td>Contraindications based on laboratory studies</td>
</tr>
<tr>
<td>Corollary</td>
</tr>
<tr>
<td>Cost of care</td>
</tr>
</tbody>
</table>
HIT Assessment Tool

https://isrisk.partners.org/
Tool to Assess Information Systems’ Ability to Mitigate Risk

- Based on the review of 7 years’ closed malpractice cases from Partners HealthCare System that identified 126 claims amenable to a variety of types of HIT interventions.

- For each claim a clinical scenario (“vignette”) was written in the form of a question to capture actions to be taken in an electronic system.

- The vignette shows the action a test taker would perform on a test patient in their clinical site’s information system.

- Each question is associated with a Pass/Fail score.

- The final report summarizes pass/fail scores and associated indemnity $ with each occurrence.

- This allows an evaluation of the riskiness of a system and an estimate of potential dollars saved through modification of the system.

The Brigham and Women's Hospital IS Risk Assessment tool provides a standard method of assessing how well your clinical information system can prevent malpractice risk. The system delivers vignettes, in sequence, and asks about the results. The system compares actual results to expected, and generates a prioritized list of interventions and final score according to the scoring system. The vignettes and scoring system are based on the malpractice experience of eight Partners hospitals. The system tests a variety of clinical information system capabilities, including:

- Electronic health record systems
- Computerized order entry
- Electronic medication administration
- Preoperative documentation
- Results review
- Physician and nurse documentation
- Imaging
IS Risk Assessment

Abnormal troponin

Clinical scenario

TestPatient02 is a 65-year-old man with a history of coronary artery disease who presents by ambulance to the ED with 3 hours of intermittent chest pain. EKG at the time of presentation does not show ischemia and the patient is thought to have angina. Plans are made to admit him to a medical floor to rule out MI, routine labs are drawn in the ED, including troponin levels, and the medical housestaff team sees him and prepares to write admission orders.

Action

As a laboratory technician, result a troponin = 3.0 mg/L on TestPatient02 but do not view or acknowledge the result. Were you able to result the troponin?

○ Yes ○ No
IS Risk Assessment

Abnormal troponin

Clinical scenario

TestPatient02 is a 65-year-old man with a history of coronary artery disease who presents by ambulance to the ED with 3 hours of intermittent chest pain. EKG at the time of presentation does not show ischemia and the patient is thought to have angina. Plans are made to admit him to a medical floor to rule out MI, routine labs are drawn in the ED, including troponin levels, and the medical housestaff team sees him and prepares to write admission orders.

Action

As a laboratory technician, result a troponin = 3.0 mg/L on TestPatient02 but do not view or acknowledge the result. Were you able to result the troponin?

[ ] Yes [ ] No

Result

As an emergency room physician, do you receive an alert that the abnormal troponin level has not been acknowledged?

[ ] Yes [ ] No
Thank you for taking the Malpractice Risk and Clinical Decision Support (CDS) Test. Your answers have been compared to our database of malpractice risk based on 8 years of claim history at Partners HealthCare.

Risk summary

Overall, your system prevented 63% of CDS-amenable malpractice risk:

63%

In dollar terms this means that your system might have prevented $29,626,600.00 of malpractice loss out of a total of $63,413,925.51 loss experience in our database. There are many types of clinical decision support, and we have also compared your answers to our data on specific CDS types. The results are presented in the table below.

Your grade, for each CDS type, is the number of related questions that your system successfully prevented out of the total number of questions related to that CDS type. The Loss Exposure Prevented shows the associated amount of malpractice loss for each CDS type that your system might have prevented. The Loss Exposure Remaining column shows the amount of malpractice loss that your system did not prevent.

Together, the loss exposure prevented and loss exposure remaining equate to the total loss experienced in our database.

Risk detail

<table>
<thead>
<tr>
<th>Clinical decision support</th>
<th>Grade</th>
<th>Loss exposure prevented</th>
<th>Loss exposure remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automated interpretation of EKGs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automated EKG interpretation</td>
<td>1/1</td>
<td>$400,000.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>Pass</td>
<td></td>
<td>$400,000.00</td>
<td>$0.00</td>
</tr>
<tr>
<td><strong>Bar-code specimen and patient wristband</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrong patient phlebotomy</td>
<td>1/1</td>
<td>$10,000.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>Pass</td>
<td></td>
<td>$10,000.00</td>
<td>$0.00</td>
</tr>
<tr>
<td><strong>Clinical alerting</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preoperative beta blocker</td>
<td>2/4</td>
<td>$1,060,000.00</td>
<td>$1,060,000.00</td>
</tr>
<tr>
<td>Pass</td>
<td></td>
<td>$530,000.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>Fail</td>
<td></td>
<td>$0.00</td>
<td>$530,000.00</td>
</tr>
<tr>
<td>Rule out MI admission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pass</td>
<td></td>
<td>$0.00</td>
<td>$530,000.00</td>
</tr>
<tr>
<td>Fail</td>
<td></td>
<td>$0.00</td>
<td>$530,000.00</td>
</tr>
<tr>
<td>Intake and output documentation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tool to Assess Information Systems’ Ability to Mitigate Risk – Results

- Completed by 11 healthcare facilities
  - 5 AMC
  - 5 community hospital
  - 1 specialty hospital

- Average score 51.8% (33-70%)
- Average total loss exposure saved $ 26,520,883 ($10,491,905-$46,425,120)
Results (con’t)

CDS types found at ALL sites

- Automated interpretation of EKG
- CPOE - drug allergy checking
- CPOE - legibility
- CPOE - limit to approved routes
- CPOE to eMAR communication
- Medication administration checking - drug, dose, patient verification
- PACS - automatic orientation of image on screen

CDS Types found at <=1 site

- Incomplete Referral (electronic referral)
- Operative Consent
- Pre-Procedure Planning
Conclusions

• Malpractice claims data adds to our understanding of the IS role in mitigating risk and can inform systems’ development and modification

• More than half the malpractice cases (54.3%) had identifiable clinical opportunities to intervene

• Among these cases, CDS was a possible solution in 63%
Top 10 HIT interventions to mitigate risk

1. Clinically significant test result alerting (15)
2. Diagnostic decision support (13)
3. Electronic tracking of instruments (12)
4. Template for procedure specific complications (11)
5. (tie) System to enforce pause (timeout) (10)
5. (tie) Electronic referral / consult management (10)
7. Medication administration checking - Drug, dose, patient verification (9)
8. Clinical alerting (8)
9. (tie) System to enforce timely checks (7)
9. (tie) Fall prevention module (7)

Assessing information system readiness for mitigating malpractice risk through simulation: results of a multi-site study

Adam Wright, Francisco L. Maloney, Matthew Wein, Lipika Sama, Srinivas Emani, Gianna Zuccotti

ABSTRACT

Objective To develop and test an instrument for assessing a healthcare organization's ability to mitigate malpractice risk through clinical decision support (CDS).

Materials and Methods Based on a previously collected malpractice data set, we identified common types of CDS and the number and cost of malpractice cases that might have been prevented through this CDS. We then designed clinical vignettes and questions that test an organization's CDS capabilities through simulation. Seven healthcare organizations completed the simulation.

Results All seven organizations successfully completed the self-assessment. The proportion of potentially preventable indemnity loss for which CDS was available ranged from 16.5% to 73.2%.

Discussion There is a wide range in organizational ability to mitigate malpractice risk through CDS, with many organizations' electronic health records only being able to prevent a small portion of malpractice events seen in a real-world dataset.

Conclusion The simulation approach to assessing malpractice risk mitigation through CDS was effective. Organizations should consider using malpractice claims experience to facilitate prioritizing CDS development.

Key words: clinical decision support systems, health information technology, electronic health records

INTRODUCTION

Electronic health records (EHRs), particularly those with effective clinical decision support (CDS) systems, are potentially powerful tools for improving the quality and safety of healthcare. In addition, CDS systems can also be useful for reducing medical malpractice risk.

To determine the potential role of CDS in preventing malpractice events, we previously analyzed closed malpractice claims from Partners HealthCare, finding that 123 of 477 claims might have been prevented by CDS. Although this was a relatively small sample of the number of claims, in terms of indemnity, those 123 CDS-preventable claims represented nearly 60% of the dollars paid out during the study period, in excess of $46 million. Although this pilot study yielded valuable information about the relationship between CDS and past malpractice claims at Partners, we did not have a detailed inventory of our own organizations’ CDS capabilities that would allow us to understand our current exposure to malpractice risks. Moreover, other organizations inquired about whether their CDS strategy would be sufficient to mitigate malpractice risk, but we were likewise limited in our ability to help those organizations understand their own malpractice risk, owing to the heterogeneity of CDS implementation and lack of a systematic tool to do so.

Although several assessments of CDS adoption have been published previously,10–13 they focused exclusively on basic CDS types and relied on simple attribution (e.g., “Yes, diagnostic CDS is in place in our EHR”) rather than actual system testing. One exception is a Computerized Physician Order Entry (CPOE)-focused post-deployment safety testing tool developed with funding from the Robert Wood Johnson Foundation, the Agency for Healthcare Research and Quality, and the California Healthcare Foundation, and administered by the Leapfrog Group. This tool visits hospitals through a set of simulated medication orders to assess whether any CDS is provided. Although we consider this methodology strong, the assessment is focused specifically on medication orders for adult inpatients, and does not consider other types of CDS. To close this gap, we decided to develop and evaluate a robust instrument for self-assessment of information system risk and test it at several sites.
A Summary of How Benefits Were Realized for the Value of Health IT
Questions?

Email: awright@bwh.harvard.edu
Office: 617-525-9811