Enterprise EMR Adoption: Solutions to the Impact on Patient Flow, Productivity, and RVUs

- Analyze the impact of EMRs on physician productivity and revenue
- Identify productivity baselines, benchmarks, and best practices
- Review productivity solutions accelerating the return to baseline
- Review a cost benefit analysis to effectively implement scribes as part of an EMR productivity solution

5/18/2015
1:15:00 PM-2:15:00 PM
Panorama A,B
MO-5

DISCLOSURES:
(+) No significant financial relationships to disclose

(+Kevin M. Klauer, DO, EJD, FACEP

Dr. Klauer is the Chief Medical Officer, Emergency Medicine, Chief Risk Officer and Executive Director of the Patient Safety Organization for TeamHealth. He is an Assistant Clinical Professor at Michigan State University College of Osteopathic Medicine. Dr. Klauer serves as the Medical Editor-in-Chief for ACEP Now, ACEP’s monthly publication, and as former Editor-in-Chief for Emergency Physicians Monthly publication. He is the Co-Author of two risk management books: Emergency Medicine Bouncebacks: Medical and Legal and Risk Management and the Emergency Department: Executive Leadership for Protecting Patients and Hospitals. Dr. Klauer also serves as the American College of Emergency Physicians Council Speaker. He was, Teaching Faculty Award in 2001 and the Emergency Medicine Resident’s Association Robert Dougherty ACEP/Emergency Medicine Foundation Teaching Fellowship. In 2014, he was the recipient of the American College of Emergency Physicians Honorable Mention Outstanding Speaker of the Year Award and was recognized by the Ohio Chapter of ACEP with the Bill Hall Award for service. Dr. Klauer earned his Executive JD, with honors, from Concord Law School in 2011.
Enterprise EMR Adoption: Solutions to the Impact on Patent Flow, Productivity, and RVUs

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Chief Risk Officer
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Productivity
A Success Story?

• The overall ED LOS decreased by 29%, from 6.69 to 4.75
• The ED LOS for admitted patients decreased 35%, from 12.22 hours to 7.96
• The LOS for discharged patients decreased 18%, from 4.61 hours to 3.78

• 28%, from 7 hours to 5 hours
• Chart completion improved from 63% in 2004 to 93% in 2006
• Charges per patient/total charges increased
• Collections per patient increased
Return on Investment

Return on Information: A Standard Model for Assessing Institutional Return on Electronic Health Records

Julia Adler-Milstein, Gregory Daniel, Claudia Grossmann, Chad Muhm, Rachel Nelson, Eric Pan, Valerie Rohrbach, and Jonathan Paridon

January 8, 2014

Participants from the Digital Learning Collaborative of the IOM Roundtable on Value & Science-Driven Health Care

*The views expressed in this discussion paper are those of the author and not necessarily of the author's organizations or of the Institute of Medicine. The paper is intended to help inform and stimulate discussion. It has not been subjected to the review procedures of the Institute of Medicine and is not a report of the Institute of Medicine or of the National Research Council.
HIMSS Analytics Stage 7
- Top 1% in Nation for EHR adoption
- EPIC across its 7 sites
- Ownership costs: $237 million
  - $170 m: Operational
  - $67 m: Capital
- Meaningful use: $70 million
- Projected savings: $53 million/yr

Beyond the EHR:
Sentara Healthcare’s IT Strategy
November 15, 2013
**Essentials for ROI**  
*per Sentara*

- Practically paperless
- Medications barcoding and device integration
- Process Redesign before, during and after DBV
- DBV across inpatient and ambulatory
- Optimization teams deployed to help realize benefits
- Process owners engaged and accountable
- Progress measured monthly
- Embed benefits in goals and budgets

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- EHR: Increased documentation time by 17%
- CPOE: Increased documentation by 98%

• FPs Surveyed at 3 month intervals
  – Quality of care
  – Documentation
  – Work hours

• Measured productivity
  – RVUs/hr: 1.49 to 1.82 (immediate) 1.79 (long term)

• 66% of physicians stated their workload was increased by the EMR

• Improved Documentation

Impact of electronic health record implementation on patient flow metrics in a pediatric emergency department

Stephanie Spellman Kennebeck,1 Nathan Timm,1 Michael K Farrell,2 S Andrew Spooner2

ABSTRACT

Implementing electronic health records (EHR) in healthcare settings incurs challenges, none more important than maintaining efficiency and safety during rollout. This report quantifies the impact of offloading low-acuity visits to an alternative care site from the emergency department (ED) during EHR implementation. In addition, the report evaluated the effect of EHR implementation on overall patient length of stay (LOS), time to medical provider, and provider productivity during implementation of the EHR. Overall LOS and time to doctor increased during EHR implementation. On average, admitted patients' LOS was 6–20% longer. For discharged patients, LOS was 12–22% longer. Attempts to reduce patient volumes by diverting patients to another clinic were not effective in minimizing delays in care during this EHR implementation. Delays in ED throughput during EHR implementation are real and significant despite additional providers in the ED, and in this setting resolved by 3 months post-implementation.

• LOS was 6-20% longer for admitted Pts.
• LOS was 12-22% longer for discharged patients
• Resolved 3-month post implementation


• 6 month study
• ED affiliated with large teaching facility
• Paper to Electronic Transition
• Before-During-After
• Documentation time: 4-5X
• Incomplete charts increased
• Resident v. Attending documentation
• Increased cognitive burden
• Less time at the bedside

• Retrospective review: Before and After EMR
• 1st year EM residents @ large academic ED
• Multivariate regression analysis
  – High acuity zone: 0.038 pt/hr increase
  – Low acuity zone: 0.009 pt/hr increase

- **Time spent**
  - Data entry: 43%
  - Direct pt care: 28%

- **Mouse clicks**
  - Low: 6 for ordering aspirin
  - High: 227 for completing a RUQ pain record
  - 10 hr shift: 3,200-4,000

- **Impact:** 10% increase in productivity
  - $1.77 million incr annual gross revenue

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**The impact of electronic health record implementation on emergency physician efficiency and patient throughput**

Nicholas Risulo, David Anderson, Bruce Golden, Edward Wasi, Fermin Barruto, Laura Pimentel, Jon Mark Hirshon

1 Department of Emergency Medicine, University of Maryland School of Medicine, Baltimore, MD, United States
2 School of Business, Baruch College, City University of New York, New York, NY, United States
3 Robert H. Smith School of Business, University of Maryland, College Park, MD, United States
4 Regent School of Business, American University, Washington, DC, United States

**ABSTRACT**

Background: In emergency departments (EDs), the implementation of electronic health records (EHRs) has the potential to impact the rapid assessment and management of life threatening conditions. In order to quantify this impact, we studied the implementation of EHRs in the EDs of a two hospital system. Methods: using a prospective pre-post study design, patient processing metrics were collected for each ED physician at two hospitals for 7 months prior and 10 months post-EHR implementation. Metrics included median patient workup time, median length of stay, and the composite outcome indicator “processing time.” Results: median processing time increased immediately post-implementation and then returned to, and surpassed, the baseline level over 10 months. Overall, we see significant decreases in processing time as the number of patients treated increases. Conclusions: Implementation of new EHRs into the ED setting can be expected to cause an initial decrease in efficiency. With adaptation, efficiency should return to baseline levels and may eventually surpass them. Implications: while EDs can expect long term gains from the implementation of EHRs, they should be prepared for initial decreases in efficiency and take preparatory measures to avert adverse effects on the quality of patient care.

- 7 months prior and 10 months post implementation
- Pt processing time: Initially increased, then surpassed previous
“Physician experiences documented by the AMA and RAND demonstrate that most EHR systems fail to support efficient and effective clinical work,” said AMA president-elect Steven J. Stack, MD. "This has resulted in physicians feeling increasingly demoralized by technology that interferes with their ability to provide first-rate medical care to their patients.” September 16, 2014

1. Enhance physicians' ability to provide high-quality patient care.
2. Support team-based care.
4. Offer product modularity and configurability.
5. Reduce cognitive workload.
6. Promote data liquidity.
7. Facilitate digital and mobile patient engagement.
8. Expedite user input into product design and implementation feedback.

The Effect of Electronic Health Record Implementation on Community Emergency Department Operational Measures of Performance

Michael J. Ward, MD, MBA; Adam B. Landman, MD, MS; Karen Cass, RN, MHA; Jessica Berthelet, RHIA; Randy L. Phipps, MD; Jesse M. Pines, MD, MBA

*Corresponding Author: E-mail: mward03@gmail.com

| Study objective: We study operational metrics of a ED electronic medical record implementation on the department group that received the project. We measured admitted, discharged, and overall length of stay before and after implementation with an interval difference of stay at 0.10, 95% CI of difference of -0.02 to 0.22, and overall patient satisfaction. The ED length of stay was measured at 0.24%, with no significant differences between the groups. The overall patient satisfaction was measured at 0.39%, 95% CI of difference -0.23% to 2.32%, and overall provider efficiency was measured at 0.62%, 95% CI of difference -0.23% to 2.82%. No Significant Difference in 8 measures

| 4 operational measures left before treatment complete significant returns overall patient satisfaction provider efficiency 6 months: Before and After

| 4 length of stay measures arrival to provider admitted discharged overall length of stay

| 4/7/2015
Efficiencies Gained by Using Electronic Medical Record and Reports in Trauma Documentation. Journal of Trauma Nursing: March/April 2014 - Volume 21 - Issue 2 - p 68-71

- Trauma activation documentation
- 603 activations
  - Pre: 82%
  - Post: 96.5%

Workflow & Safety
The List for 2015

2. Data Integrity: Incorrect or Missing Data in EHRs and Other Health IT Systems
3. Mix-Up of IV Lines Leading to Misadministration of Drugs and Solutions
4. Inadequate Reprocessing of Endoscopes and Surgical Instruments
5. Ventilator Disconnections Not Caught because of Mis-set or Missed Alarms
6. Patient-Handling Device Use Errors and Device Failures
7. “Dose Creep”: Unnoticed Variations in Diagnostic Radiation Exposures
8. Robotic Surgery: Complications due to Insufficient Training
9. Cybersecurity: Insufficient Protections for Medical Devices and Systems
10. Overwhelmed Recall and Safety-Alert Management Programs

4 Common Pitfalls
• Communication Failure
• Poor Data Display
• Wrong Order-Wrong Patient Error
• Alert Fatigue

86.9% of PCPs: Alerts Excessive
69.6%: Received more alerts than could be appropriately managed
55.6%: System promotes missed results
29.8%: Missed results leading to care delays

Integrating Electronic Health Records into Clinical Workflow: An Application of Human Factors Modeling Methods to Ambulatory Care

http://dx.doi.org/10.6028/NIST.IR.7988
Workflow Challenges

- Having to log in to multiple systems separately
- Extensive manipulation of keyboards to enter information
- The number of clicks involved in medication ordering processes
- Difficulty in processing orders that are not standard
- Difficulties in switching between different paths and screens to enter and retrieve information
- Problematic data presentations such as patient medication profile design
- Clutter of order and note screens
- Difficulty seeing patient names on the screen
- Missing free text entry and other word processing functionalities

Systems Engineering Initiative for Patient Safety (SEIPS)

Figure 1. The SEIPS framework for work system elements
### Table 1: Human Factors Workflow Modeling Tools for EHRs

<table>
<thead>
<tr>
<th>Tool Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artificial sense</td>
<td>Examination of cognitive artifacts used by users in relation to identify tasks, stimuli, and information and communications.</td>
</tr>
<tr>
<td>Cognitive walkthrough</td>
<td>A step-by-step process of having the user or users of the task think aloud while they perform the task. This method allows researchers to observe and record the user's thoughts and actions as they perform the task.</td>
</tr>
<tr>
<td>Contextual inquiry and observation</td>
<td>Unstructured observation of users performing relevant tasks supported by informatics technology in their natural working environments. This method is typically used early in the design process of EHR components and compensatory workflow issues.</td>
</tr>
<tr>
<td>Decisional aid/visualization</td>
<td>Analysis of tasks to determine gaps in performance and process issues in complex work domains. Techniques may include decision aids using representations of cognitive states (e.g., models of adaptation processes) and decision aids using representations of cognitive states (e.g., models of adaptation processes). Variants employed by domain experts to increase efficiency of decision making are manipulated in the representation.</td>
</tr>
<tr>
<td>Design matrix</td>
<td>A design matrix determines if a product's work artifacts align with or differ from established design procedures and standards. Typically, a report is produced which summarizes the differences and recommends solutions of order priority.</td>
</tr>
<tr>
<td>Envisioned workflow technique</td>
<td>Representatives from user groups or system developers develop higher-fidelity simulations of how external and internal factors would be conducted in the context of using a technology in its envisioned scenario, which is not yet been experienced.</td>
</tr>
<tr>
<td>Expert role-activity scripting</td>
<td>Evaluates the system by experts with knowledge of human factors, systems, and computer-based systems. The goal is to investigate the strength and weaknesses of such systems as early in the systems development process as possible to ensure that systems meet the needs of the users.</td>
</tr>
<tr>
<td>Contextual inquiry</td>
<td>Identifies the system environment requirements to complete a task from multiple perspectives, including structural, organizational, and operational elements, or as a support tool in the design of systems or services.</td>
</tr>
<tr>
<td>Contextual decomposition</td>
<td>Helps to identify the functional requirements of the task, which are derived from the task analysis.</td>
</tr>
<tr>
<td>Hierarchical task analysis</td>
<td>A structured description of tasks that provides an understanding of the tasks carried out by the operator. This is derived from a hierarchical analysis of the tasks.</td>
</tr>
<tr>
<td>Participatory design</td>
<td>Involves participants in the design process and collaborative design and development.</td>
</tr>
<tr>
<td>Process mapping</td>
<td>Identifies the primary and secondary roles of the workflow active participants in the design process and collaborative design process and development.</td>
</tr>
<tr>
<td>Process modeling</td>
<td>Identifies the primary and secondary roles of the workflow active participants in the design process and collaborative design process and development.</td>
</tr>
<tr>
<td>Structured simulation</td>
<td>Identifies the primary and secondary roles of the workflow active participants in the design process and collaborative design process and development.</td>
</tr>
<tr>
<td>Symbolic representation</td>
<td>Identifies the primary and secondary roles of the workflow active participants in the design process and collaborative design process and development.</td>
</tr>
<tr>
<td>Cognitive walkthrough</td>
<td>Identifies the primary and secondary roles of the workflow active participants in the design process and collaborative design process and development.</td>
</tr>
<tr>
<td>Workflow visualization</td>
<td>Identifies the primary and secondary roles of the workflow active participants in the design process and collaborative design process and development.</td>
</tr>
</tbody>
</table>

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![Figure 2: Overview process map for EHR use related to returning patient visit in ambulatory care](image-url)
### TABLE 2-1
Potential Benefits and Safety Concerns of Health IT Components

<table>
<thead>
<tr>
<th>Computerized Provider Order Entry (CPOE)</th>
<th>Safety Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>An electronic system that allows providers to record, store, retrieve, and modify orders (e.g., prescriptions, diagnostic testing, treatment, and/or radiology/imaging orders).</td>
<td>Increases relative risk of medication errors</td>
</tr>
<tr>
<td><strong>Potential Benefits</strong></td>
<td><strong>Increased ordering time</strong></td>
</tr>
<tr>
<td>- Large increases in legible orders</td>
<td>- New opportunities for errors, such as</td>
</tr>
<tr>
<td>- Shorter order turnaround times</td>
<td>- fragmented displays preventing</td>
</tr>
<tr>
<td>- Lower relative risk of medication errors</td>
<td>- a coherent view of patients’</td>
</tr>
<tr>
<td>- Higher percentage of patients who attain their treatment goals</td>
<td>medications</td>
</tr>
<tr>
<td></td>
<td>- inflexible ordering formats</td>
</tr>
<tr>
<td></td>
<td>- generating wrong orders</td>
</tr>
<tr>
<td></td>
<td>- separations in functions that</td>
</tr>
<tr>
<td></td>
<td>- facilitate double dosing</td>
</tr>
<tr>
<td></td>
<td>- incompatible orders</td>
</tr>
<tr>
<td></td>
<td>- Disruptions in workflow</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinical Decision Support (CDS)</th>
<th>Safety Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitors and alerts clinicians of patient conditions, prescriptions, and treatment to provide evidence-based clinical suggestions to health professionals at the point of care.</td>
<td></td>
</tr>
<tr>
<td><strong>Potential Benefits</strong></td>
<td><strong>Safety Concerns</strong></td>
</tr>
<tr>
<td>- Reductions in</td>
<td>- Rate of detecting drug-drug</td>
</tr>
<tr>
<td></td>
<td>- relative risk of medication errors</td>
</tr>
<tr>
<td></td>
<td>- risk of toxic drug levels</td>
</tr>
<tr>
<td></td>
<td>- time to therapeutic stabilization</td>
</tr>
<tr>
<td></td>
<td>- management errors of resuscitating</td>
</tr>
<tr>
<td></td>
<td>- patients in adult trauma centers</td>
</tr>
<tr>
<td></td>
<td>- prescriptions of nonpreferred</td>
</tr>
<tr>
<td></td>
<td>- medications</td>
</tr>
<tr>
<td>- Can effectively monitor and alert</td>
<td>- Increases in mortality rate</td>
</tr>
<tr>
<td>clinicians of adverse conditions</td>
<td></td>
</tr>
<tr>
<td>- Improve long-term treatment and</td>
<td></td>
</tr>
<tr>
<td>increase the likelihood of achieving</td>
<td></td>
</tr>
<tr>
<td>treatment goals</td>
<td></td>
</tr>
</tbody>
</table>

| **Safety Concerns** | |
| - Rate of detecting drug-drug |
| | - High rate of computer |
| | generated alerts (alert fatigue) |
### TABLE 2-1 Continued

#### Bar-coding
Bar-coding can be used to track medications, orders, and other health care products. It can also be used to verify patient identification and dosage.

<table>
<thead>
<tr>
<th>Potential Benefits</th>
<th>Safety Concerns</th>
</tr>
</thead>
</table>
| Significantly reduces in relative risk of medication errors associated with:  
  - transcription  
  - dispensing  
  - administration errors | Introduction of workarounds; for example, clinicians can:  
  - scan medications and patient identification without visually checking to see if the medication, dosing, and patient identification are correct  
  - attach patient identification bar-codes to another object instead of the patient  
  - scan orders and medications of multiple patients at once instead of doing it each time the medication is dispensed |

#### Patient Engagement Tools
Tools such as patient portals, smartphone applications, email, and interactive kiosks, which enable patients to participate in their health care treatment.

<table>
<thead>
<tr>
<th>Potential Benefits</th>
<th>Safety Concerns</th>
</tr>
</thead>
</table>
| Reduction in hospitalization rates in children  
  - Increases in patients’ knowledge of treatment and illnesses | Reliability of data entered by:  
  - patients,  
  - families,  
  - friends, or  
  - unauthorized users |
Improved Charge Capture

• EDs: 5th largest source of E/M billing in 2010
• 99285: 48%
• 99281: 3%  
  All physicians increased billing of higher E/M levels
  1,700 were identified
  2 highest codes in a visit type 95% of the time

Stephen R. Pitts, M.D., M.P.H. Higher-Complexity ED Billing Codes
— Sicker Patients, More Intensive Practice, or Improper Payments? NEJM:367;26 nejm.org; December 27, 2012

• OIG
• 2001-2010
• Lower codes down & Higher codes up
• 99285: 27% to 48%
• Medicare < 65 yrs: ED: 38% v. 19%
  — Discharged: Dual (Medicaid) eligibility: 33% v. 21%
• Better documentation (EMRs), Sicker Pts or Upcoding?
Medicare Hospital Readmissions Reduction Program. Health Affairs; NOVEMBER 12, 2013.

• 2005 Medicare claims data by the Medicare Payment Advisory Commission (MedPAC) concluded that about three-quarters of readmissions within 30 days were potentially preventable, representing an estimated $12 billion in Medicare spending.
• 1 in 5 elderly admitted are readmitted in 30 days
• Year 1 (Oct 1, 2012): 2,200 hospitals; $280 million!
• Year 2 (Oct 1, 2013): 2,225 hospitals; $225 million!

Becker’s Hospital Review, Sept. 9, 2014

1. Use EHR data to identify patients at the highest risk for readmission, and allocate resources appropriately. Augusta Health in Fishersville, Va., uses data from the EHR on a patient’s length of stay, race, tobacco use, and emergency department visits to determine risk for readmission, and then shares this information with case managers, who then decide to which patients the care team should direct the most attention.

2. Use EHRs to communicate with primary care physicians. Lahey Health System in Burlington, Mass., used secure email in conjunction with data in “handoff reports,” which included patient information and clinical summaries, to improve communication with unaffiliated physicians helping to reduce the health system’s 30-day readmission rate to less than 15 percent.

3. Use EHRs to improve medication reconciliation. At Aurora Healthcare in Milwaukee, pharmacy technicians enter home medications into the EHR directly, allowing physicians to perform more accurate medication reconciliations and keep medication lists consistent between inpatient and outpatient settings. The 30-day readmission rate at Aurora Healthcare is now less than 16 percent, thanks in part to this new medication reconciliation process.

4. Use EHRs to support multidisciplinary rounds. At Northwestern Lake Forest (Ill.) Hospital, all members of a patient’s care team attend bedside rounds. The EHR supports these rounds through customized templates that display the most relevant information for these types of rounds.

5. Use EHRs to improve patient education. Northwestern Lake Forest Hospital also uses its EHR to allow multiple providers to contribute information to a patient’s discharge paperwork and provides patients with EHR-integrated, customized educational materials. This intervention, the rounding process described above and other interventions have helped reduce the hospital’s 30-day readmission rate to around 11 percent.
Impact of Health Insurance Exchanges


- Community-wide HIE 2009-2010 (6 months)
- Accessing within 30 days of discharge
  - 57% Lower adjusted odds of readmission
  - $605,000 Savings

Impact of Health Insurance Exchanges


- 15,645 Adult ED visits in New York State (6 months)
- HIE accessed in 2.4% of encounters
- Odds of admission 30% lower
- $357,000 Savings
Impact of Health Insurance Exchanges


- 2,102 visits by 1,252 adults with HA
- 2 or more visits (August 1, 2007 – July 31, 2009)
- OR for neuroimaging: 0.38
- OR for guideline adherence: 1.33
- No significant change in cost

2 of 3 Radiologists Agreed
EHR Data “Very Likely” to influence interpretation

- Early
  - Inadequate training
  - Documentation gaps
  - EHR bugs and failures
- Mid
  - Metadata creates more events
  - Cut and paste histories
  - Information overload
  - Ignoring decision support
- Long term
  - Failure to use may = breach
  - Widespread decision support
Malpractice 'Discovery' Dangers in Your EHR

Introduction

Picture this: You've been sued, and now the plaintiff attorney has the right to send in an expert to sit at your computer and examine information in your electronic health record (EHR). Besides any mistakes you might have made, system-wide bugs or design flaws that lead to data inconsistencies could be found and held against you in the discovery phase of a malpractice lawsuit.

Doctors are becoming increasingly aware that EHRs can create certain malpractice risks. However, an expert in EHR and liability says there is a new category of malpractice risks in EHRs that most doctors have never considered. These include EHR system issues that you were never aware of and didn't cause.

"Every aspect of EHR selection, implementation, and use may be examined in the course of medical malpractice discovery to uncover the source of the incident, or undermine the records that are being presented in defense of the malpractice claim," says Ronald B. Sterling, CPA, MBA, national EHR expert, Silver Spring, Maryland, and author of Keys to EMR Success (Greenbranch Publishing; Phoenix, Maryland; second edition, 2010). "Anything could be a malpractice issue, from the product itself, the way it was set up, or how you've been using it."

For example, authorized software upgrades can unknowingly cause liability problems. Upgrades to the software can change...
“Copy-Pasting. Copy-pasting, also known as cloning, enables users to select information from one source and replicate it in another location. When doctors, nurses, or other clinicians copy-paste information but fail to update it or ensure accuracy, inaccurate information may enter the patient’s medical record and inappropriate charges may be billed to patients and third-party health care payers. Furthermore, inappropriate copy-pasting could facilitate attempts to inflate claims and duplicate or create fraudulent claims.”
Overdocumentation

“Overdocumentation. Overdocumentation is the practice of inserting false or irrelevant documentation to create the appearance of support for billing higher level services. Some EHR technologies auto-populate fields when using templates built into the system. Other systems generate extensive documentation on the basis of a single click of a checkbox, which if not appropriately edited by the provider may be inaccurate. Such features can produce information suggesting the practitioner performed more comprehensive services than were actually rendered.”

“Audit logs track changes within a record chronologically by capturing data elements, such as date, time, and user stamps, for each update to an EHR. An audit log can be used to analyze historical patterns that can identify data inconsistencies.”

<table>
<thead>
<tr>
<th>Type of Contractor</th>
<th>Copied Language</th>
<th>Overdocumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EHR</td>
<td>Paper Medical Record</td>
</tr>
<tr>
<td>MAC</td>
<td>4 out of 5</td>
<td>4 out of 8</td>
</tr>
<tr>
<td>ZIPIC</td>
<td>3 out of 6</td>
<td>6 out of 6</td>
</tr>
<tr>
<td>RAC</td>
<td>2 out of 4</td>
<td>1 out of 4</td>
</tr>
</tbody>
</table>

Source: OIG analysis of contractors’ responses to questionnaire, 2013.
Report Summary

• Only 24 percent of hospitals had policies in place regarding use of copy-paste
• 44 percent of hospital audit logs reported the method (copy-paste, direct text entry, speech recognition) of data entered into the EHR, as recommended
• 61 percent shifted responsibility to the user to confirm that copy-pasted data was accurate
• 22 percent advised EHR users to avoid "indiscriminately copy-pasting"
• 21 percent of policies required EHR users to cite the original source of the copy-pasted data

Electronic Medical Records: 18 Ways to Reduce Legal Risks
Carolyn Buppert, NP, JD January 13, 2010; www.medscape.com

• Produce information suggesting the practitioner performed more comprehensive services than were actually rendered.
• Develop systems and policies for dealing with orders that occur when the clinician is not at his or her workstation or that occur when the system is temporarily down.
• Print out progress notes from time to time, and evaluate them from the viewpoint of an auditor or expert witness.
• When printing out records for an auditor or for litigation, go over the printout carefully to be sure it includes relevant and necessary data from other tabs or screens.
• Highlight important aspects to template information.
• Beware of generic templates
• Do not set up the system such that the template data automatically repopulate.
Electronic Medical Records: 18 Ways to Reduce Legal Risks
Carolyn Buppert, NP, JD January 13, 2010; www.medscape.com

• Become familiar with the tracking features of the EMR.
• Back up. Check the back-up method frequently. You may think you are backing up, but the hard drive or network storage mechanism may be faulty.
• Install virus protection software on server and workstation computers
• Eyes and ears need to remain attuned to the patient, while the patient is in the room.
• Understand how the system records who is accessing and writing in the record.
• Print out a note from time to time to be sure your entries are in your own name.
• Understand how the time-stamp feature works, so that you can time your documentation accordingly.
• Ensure that only appropriate staff members have access to records.
• Protect records from inappropriate viewing -- set up screensavers, and require a password for reentry.
• Develop and implement security measures to protect the confidentiality of health information that is transmitted electronically.
• Identify an individual responsible for security.

Solutions

Can Scribes Help Improve Emergency Practice Productivity? Written by Jim Strafford, CEDC, MCS-P, Senior Manager, Client Services, Medical Management Professionals | April 19, 2012
Aveh Bastani, MD. An ED scribe program is able to improve throughput time and patient satisfaction. The American Journal of Emergency Medicine

- 320-bed community ED
- 70,000 annual visits
- 11,729 Pts
- Pre and Post CPOE
- Primary outcome
  - door-to-room time;
  - room-to-doc time;
  - door-to-doc time;
  - doc-to-dispo time; and
  - length of stay for discharged/admitted patients
- Secondary outcome measure was patient satisfaction as provided by Press Ganey survey
- 7.5% increase in volume
- All metrics improved post implementation
  - Door to doc: 74 to 61 minutes
  - Patient Satisfaction: 58th to 62nd percentile
  - Physician Satisfaction: 75th to 92nd percentile

Research Article
An Assessment of Emergency Department Throughput and Provider Satisfaction after the Implementation of a Scribe Program

Advances in Emergency Medicine, September 2014
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Objectives. To assess the impact of a scribe program on an academic, tertiary care facility. Methods. A retrospective analysis of emergency department (ED) data, prior to and after scribe program implementation, was used to quantitatively assess the impact of the scribe program on measures of ED throughput. An electronic survey was distributed to all emergency medicine residents and advanced practice providers to qualitatively assess the impact of the scribe program on providers. Results. Several throughput time measures were significantly lower in the postscribe group, compared to prescribe implementation, including time to disposition. The left without being seen (LWBS) decrease was not statistically significant. A total of 30 providers responded to the survey. 100% of providers indicated scribes are a valuable addition to the department and they enjoy working with scribes. 90% of providers indicated scribes increase their workplace satisfaction and quality of life. Conclusions. Through evaluation of prescribe and postscribe implementation, the postscribe time period reflects many throughput improvements not present before scribes began. Scribe Program implementation led to improved ED throughput for discharged patients with further system-wide challenges needing to be addressed for admitted patients.

Worked with an EP performing non clinical tasks

Primary outcomes: Pts/hour/physician and Billings per pt

Patients per hour: Increased by 0.32/hr

Billings increased (NSS)

Door to Dr: Decreased by 22 min

Total LOS: Unchanged

Income increased by AUD104.86 ($86.21) per scribed hour
The Business Case

• Expense
  – Ranges: $10-$26/hr
  – EM Group Avg: Internal: $16/hr, outsourced $18/hr

• Revenue (Hospital Practice Consultants, Ronald A. Hellstern, MD, Principal)
  – 17 EM Groups
  – 50,000 visits
  – Non Academic
  – Templated charts

• 17% increase in productivity

<table>
<thead>
<tr>
<th></th>
<th>Pre-scribe</th>
<th>Post-scribe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean RVUs/pt</td>
<td>2.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Mean pts/hr</td>
<td>2.1</td>
<td>2.3</td>
</tr>
<tr>
<td>Mean RVUs/physician hr</td>
<td>6.09</td>
<td>7.13</td>
</tr>
</tbody>
</table>

Critical Assumptions
1. Non-templated charts
2. Excessive documentation time (EMR)
3. Suboptimal efficiency/Charge capture
**Average EMR® Care Facility Costs (5-year run rate)**

Major assumptions identified in EMR® Care Profile. Additional assumptions identified within and below cost table.

<table>
<thead>
<tr>
<th>Facility Costs</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network Expense</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wide Area Network (WAN)</td>
<td>$7,500</td>
<td>$7,500</td>
<td>$7,500</td>
<td>$7,725</td>
<td>$7,725</td>
</tr>
<tr>
<td>$25/facility/month for assisted/bill/ (w/m)</td>
<td>$100/ facility</td>
<td>3% increase</td>
<td>$100/ facility</td>
<td>3% increase</td>
<td></td>
</tr>
<tr>
<td>Backup Network - Upfront</td>
<td>$45,101</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1000/facility expense (with setup &amp; 3 yr service/installs)</td>
<td>$1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backup Network - Ongoing</td>
<td>$31,007</td>
<td>$31,937</td>
<td>$32,895</td>
<td>$33,882</td>
<td>$34,890</td>
</tr>
<tr>
<td>$100/facility/month broadband w/input service</td>
<td>3% increase</td>
<td>$100/facility/month broadband w/input service</td>
<td>3% increase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility Wireless Upfront</td>
<td>$499,867</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$200/facility - CPE 102 access point full setting 5 yr life</td>
<td>$200/facility</td>
<td>$200/facility</td>
<td>$200/facility</td>
<td>$200/facility</td>
<td></td>
</tr>
</tbody>
</table>

| **Application Expense**             |        |        |        |        |        |
| Application Training - Upfront      | $124,967 |        |        |        |        |
| $25 per facility upfront training   |        |        |        |        |        |
| Application Training - Ongoing      | $50,710 |        |        |        |        |
| $25 per facility per year (after first year rollout) | $25 per facility | $25 per facility | $25 per facility | $25 per facility |

| **Hardware Expense**                |        |        |        |        |        |
| Full/Thin Client Avg. - EMR Increase Over Current | $906,714 |        |        |        |        |
| 2% of $1,250 each ($625/policy - includes software expense) | $2,500 |        |        |        |        |
| Full/Thin Client Avg. - Hardware Refresh All in Year 4 | $1,499,400 |        |        |        |        |
| 45 of $1,250 each ($55,250/policy - includes software expense) | $55,250 |        |        |        |        |
| Cameras                             | $6,577 |        |        |        |        |
| 1 of $3,500 each (125/policy - replace all cameras in Year 5) | $3,500 | $3,500 | $3,500 | $3,500 |
| **Total**                           | $1,621,733 | $901,715 | $926,656 | $1,511,413 | $98,067 |
| **Cumulative**                      | $1,621,733 | $1,711,908 | $1,804,564 | $3,315,976 | $3,411,043 |

Elective Medical Records (EMR) Cost Study Final Report, February 2011

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**Focus On: The Use of Scribes in the Emergency Department**

By Sachin Patel, MD, MPH, Alicia Rau, MS, and Alan Kumar, MD

**Monetary Benefits of a Scribe Program**

There are several monetary benefits that can be categorized as either direct or indirect.

Direct benefits are those that directly increase revenue as a direct result of having scribes, including:

- Potential for increased patient volume throughput (i.e. instead of seeing 2.0 patients/hour, physicians might see 2.25 patients/hour). For example, at one hospital in Miami they were seeing 4,771 patients in November 2008 with an average ED length of stay of 381 minutes, prior to hiring scribes. After implementing a scribe program, by December 2010 they had jumped to a monthly volume of 6,700 patients with an average ED length of stay of 284 minutes. 26% reduction in time (Meyer).
- Increased RVUs/patient (as a result of more robust documentation).
- Increased compliance with core measure documentation, and the ensuing improvement in reimbursement as dictated by CMS for the coming years.
- For hospitals using EMRs, which will be most of them with the new national mandate, scribes document in real-time and allow physicians to leave on time at the end of a shift.
- For hospitals with EMRs, it takes physicians approximately 30% longer to chart compared to paper charting (Meyer), but scribes can actually make EMR charting faster.

Indirect benefits incurred by cost reductions as a result of having scribes include:

- Medical error reduction leading to decreased costs.
- Medical risk reduction through better documentation. For example, patients will get more thorough discharge instructions. There will be more frequent patient rechecks documented on the chart (since physicians often forget this crucial documentation step).
Scribe Abuse?
FAQs, regarding scribes, published by The Joint Commission on July 12, 2012.

• “Scribed for Dr. X by name of the scribe and title” with the date and time of the entry.
• “Scribed” entries— the physician or practitioner must actually sign or authenticate through the clinical information system.
• The authentication must take place before the physician or practitioner and scribe leave the patient care area.
• “It is the Joint Commission’s stand that the scribe does not and may not act independently but can document the previously determined physician’s or practitioner’s dictation and/or activities.”
• “The Joint Commission does not support scribes being utilized to enter orders for physicians or practitioners due to the additional risk added to the process.”

Controversy

The Rise of the Medical Scribe Industry
Implications for the Advancement of Electronic Health Records

With the advent of computerized physician order entry (CPOE) systems, physicians are encouraged to document the medical information and order management as part of a computerized provider order entry (CPOE) system. The American Medical Association supports the use of medical scribes to help improve the quality of care, and because physicians are busy nearly every day, anyone may decide—although physicians approve of the concept and appreciate the assistance, the core responsibility of the physician has not changed. The Joint Commission, as a result of this, is addressing concern of data entry, reduction of errors, and implementation of electronic health information and modified documentation across the nation. The Joint Commission, for instance, states: “it is the Joint Commission’s stand that the scribe does not and may not act independently but can document the previously determined physician’s or practitioner’s dictation and/or activities.” The Joint Commission does not support scribes being utilized to enter orders for physicians or practitioners due to the additional risk added to the process.”

Controversy
The scribe’s note should include:

- The name, title, and signature of the scribe.
- The name of the practitioner providing the service.

Sample Scribe attestation: “Entered by ________________, acting as scribe for Dr./PA/NP ______________________.”
Signature ________________ Date ________________
Time ________________

The practitioner’s note should indicate:

- Affirmation the practitioner personally performed the services documented.
- Confirmation he/she reviewed and confirmed the accuracy of the information in the medical record.
- Acceptable practitioner signature.

Sample Practitioner attestation: "The documentation recorded by the scribe accurately reflects the service I personally performed and the decisions made by me." Signature ________________ Date ________________
Time ________________

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eScribe
Scott Parks, October 2, 2012

1. Create Scribe Training Material Specific to Your EMR
2. Introduce Scribes Gradually into the ED
3. Teach Providers How to Properly Interact with Scribes
4. Audit Scribe Charts Periodically
5. Partner with Local Universities and Pre-Medical Programs for Recruitment
6. Use Scribes in the FastTrack
7. Measure Your Scribe Program’s Impact
Implementation Checklist Links

- [http://www.healthit.gov/providers-professionals/ehr-implementation-go-live-planning-checklist](http://www.healthit.gov/providers-professionals/ehr-implementation-go-live-planning-checklist)
- [http://ehrintelligence.com/2012/06/14/ehr-implementation-checklist-for-hospitals/](http://ehrintelligence.com/2012/06/14/ehr-implementation-checklist-for-hospitals/)

Thank you!