When EHRs Cause Patient Harm
lessons from malpractice

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Learning Objectives

• Name the top two allegations most affected by EHR-related factors, and classify the top five EHR-related factors that account for half of the issues.

• Identify the top contributing EHR factors impacting documentation quality.

• Develop a checklist and action plan based on your role and the organization’s top EHR risk factors.
Session Roadmap

PART ONE
Patient harm

PART TWO
EHR factors

PART THREE
Reducing EHR risk
EHR & Patient Harm
EHR is a huge change in the way health care is delivered.

Dean F. Sittig, Ph.D.
Defense of care is vulnerable to bad documentation habits

*with or without EHR*

vs.

when EHRs cause patient harm
In Mary’s Case
Advanced Uterine Carcinosarcoma
Advanced Uterine Carcinosarcoma

Survival by Stage of Endometrial Cancer

Source: American Cancer Society, Inc. “Survival by stage of endometrial cancer.”
What was in the radiologist’s note on day 19?

- New orders/results process implemented
- Physicians not trained on new workflow
- Notifications/sign-offs not configured for all providers
- This was a follow-up systems failure
- EHR was *not* the only factor…

The uterus demonstrates central decreased attenuation raising the possibility of underlying neoplastic changes. **Ultrasound is recommended for further evaluation.**
Allegations and Harm

Diagnosis-related

- Patient died following failure to diagnose and treat small bowel obstruction when abdominal x-ray incorrectly routed in EHR.

Surgical Treatment

- Vision loss resulted when switching technique mid-procedure. Information of risk factors missing from EHR.

Medical Treatment

- Delayed treatment for DVT when orthopedist was allowed to mark result as “done” without reviewing.

Medication-related

- Patient died following anaphylactic reaction to amoxicillin. Known drug allergy with no alert.
EHR-related Factors
“I meant what I said and I said what I meant.”

- Dr. Seuss
Constellation Claims Data

MMIC Insurance
17,700 providers
600 hospitals & facilities

Healthcare Documentation Integrity Conference #HDIC16
Malpractice claims data as indicators
How often are EHR factors involved?

All Allegations

2,341 claims & suits

$331+ million total incurred costs

EHR-related Factors

1.2% claims & suits, N=29

MMIC N=2,341 PL cases asserted 2010-2014

Healthcare Documentation Integrity Conference

#HDIC16
How often are EHR factors involved?

All Allegations

2,341 claims & suits

$331+ million total incurred costs

EHR-related Factors

1.2% claims & suits, N=29

2.5% total incurred costs, $8.2 million

MMIC N=2,341 PL cases asserted 2010-2014
Delay from clinical event to case asserted
What is the potential increase?

72% increase

Allegations with EHR-factors

MMIC N=29 PL cases with at least one EHR-related factor, asserted 2010-2014

$8.2 million
N=29
Asserted 2010-2014
Digging deeper

MMIC partners with Harvard-based CRICO Strategies in 2013

Proprietary clinical coding taxonomy for medical malpractice claims

Comparative Benchmarking System (CBS)

300,000+ open/closed cases
165,000+ physicians
500+ hospitals
30+ academic and teaching hospitals

Adverse events are unique

With common underlying themes beneath the surface

- Clinical judgment
- Technical skill
- Communication
- Behavior
- Clinical Systems
- ...
Unsafe Use vs. Unsafe Technology

- System and software design: 15%
- Hybrid records/conversion issues: 14%
- Routing of electronic data: 9%
- Pre-populating/copy & paste: 8%
- Training and education: 6%

* A case will often have multiple factors identified.

CBS N=248 PL cases with 1 or more EHR-related contributing factor

Top EHR-related factors

- System and software design: 15%
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- Pre-populating/copy & paste: 8%
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*Note: A case will often have multiple factors identified.*

CBS N=248 PL cases with 1 or more EHR-related contributing factor

System design/configuration fails to meet need

Vision loss
Improper performance of eye surgery

- LASIK converted to PRK during procedure.
- No place for pt risk factors to be documented (not good PRK candidate).
- Insufficient area for documentation
- Patient scans deleted to free up room on computer
Top EHR-related factors

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CBS N=248 PL cases with 1 or more EHR-related contributing factor

Hybrid Record/Conversion Issues

Death
Failure to treat bowel obstruction

• Emergency physician contacts primary care for consult of Crohn’s patient
• Two physicians in clinic were tag teaming consult
• Relying on documentation that wasn’t converted
• EHR was just implemented
Top EHR-related factors

- System and software design: 15%
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CBS N=248 PL cases with 1 or more EHR-related contributing factor

System Failure: Electronic Routing/Interfaces

Delayed Diagnosis

- New EHR implementation
- Lab results didn’t trigger a notification
- MD failed to view results
- Missed diagnosis of lung cancer
### Top EHR-related factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>System and software design</td>
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### Pre-populating/copy & paste

<table>
<thead>
<tr>
<th>Journal</th>
<th>Percentage of Notes/Notes</th>
<th>Contains Copied Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Care Medicine</td>
<td>82% of resident notes and 74% of attending physician notes</td>
<td>contain 20+% copied text</td>
</tr>
<tr>
<td>Journal AMIA</td>
<td>78% of sign-out notes and 54% of progress notes</td>
<td>contain copied text</td>
</tr>
<tr>
<td>Journal Gen Int Med</td>
<td>90% of physicians</td>
<td>use copy and paste in progress notes</td>
</tr>
</tbody>
</table>

Unnecessary steroids

- Resident misdiagnoses adrenal insufficiency and documents in the EHR
- Attending MD copies and pastes
- Error is relied upon for increased evaluation and management
- Medicare is billed
- Injury occurs from treatment with unnecessary steroids
Top EHR-related factors

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CBS N=248 PL cases with 1 or more EHR-related contributing factor
Training and education

Missed check box

• Patient with positive Clostridium difficile screen reported as negative

• In the EHR, C difficile was noted as positive, but not “flagged.”

• Person entering positive result should have checked box.

• Resulted in total colectomy and ileostomy.
Reducing EHR Risk
We cannot solve our problems with the same thinking we used to create them.

- Albert Einstein
Patient Safety Awareness

- Engage your expertise
- Build a common language
- Simplify Approach
Engage your expertise.

Simplified Approach
Build a red-flag based approach appropriate to your role and expertise

“Don’t miss” EHR risk factors

Simplified Approach

Unsafe Technology

System and software design

Electronic routing of data
System and software design

Improper performance of eye surgery led to patient’s vision loss because of inadequate area for documentation on important details. X-ray was deleted to free up storage.

What to look for…

- Is the template appropriate for this patient?
- Is it appropriate for this problem and visit?
- Are text fields too limited to document relevant info that may be outside the box?
- Is information required to be entered in more than one place?
- Is it pre-populating things that didn’t happen?
- Or that might contradict information in the free text?
- …
Electronic routing of data

Critical test result incorrectly routed in the EHR.

Physician never saw the result and treated patient for over a year.

Patient diagnosed with cancer by another physician.

What to look for…

- What orders are missing results in an expected timeframe?
- Are patients receiving incorrect results?
- Are clinicians bringing up inconsistencies on information transferred between systems?
- Are interface failures being reported by IT?
- What radiology notes and other are missing or not seen by provider?
- …
Simplified Approach

Unsafe Use

- Hybrid/Conversion issues
- Pre-populating Copy & Paste
- Training and education
Hybrid or Conversion Issues

Over several visits, patient’s foot pain escalated and other symptoms appeared. Physician didn’t have access to patient history because of a recent system conversion. Delayed diagnosis of vascular issue resulted in leg amputation.

What to look for…

- Are prior visits or history for established, high risk patients (w/co-morbidities, disease registries) missing?
- Are dates and tests results not converted, especially for abnormal results?
- When a paper record exists/is available, is there a flag, alert, or notification in the EHR?
- …
After abdominal surgery, patient was prematurely discharged because normal vital signs were copied forward post surgery. Patient suffered complications and was readmitted for further surgery.

What to look for…
- What screens include clinical pre-populated fields? Look especially at medications, orders, HPIs, review of systems, other assessments, notes
- Which pre-populating fields are high risk for error? eg) not normally assessed/should be assessed and shouldn’t default to “normal”
- Can copy paste information be audited?
- Does copied info include outdated, bad, redundant information?
- Can you identify original author or date?
- Are there services copied, but not rendered?
- …
**DATE OF SERVICE: 06/06/2013**

**PHYSICAL EXAMINATION:** She is afebrile. Vital signs are normal. Abdomen is soft and nontender except around the incision. The dressing is dry. She has no abdominal distention. Her urine output is good.

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**DATE OF SERVICE: 06/08/2013**

**PHYSICAL EXAMINATION:** She is afebrile. Vital signs are normal. Abdomen is soft and nontender except around the incision. The dressing is dry. She has no abdominal distention. Her urine output is good.

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**DATE OF SERVICE: 06/09/2013**

**PHYSICAL EXAMINATION:** She is afebrile. Vital signs are normal. Abdomen is soft and nontender except around the incision. The dressing is dry. She has no abdominal distention. Her urine output is good.
Training and Education

Radiology report with abnormal result routed to physician, but not flagged as abnormal per defined process. Physician closed without reading.

Missed diagnosis of lung cancer.

What to look for…

- Where is human process necessary in the routing of documents or results?
- Are all staff trained periodically on policies and processes on test results and notes from specialists?
- Are customized processes for documentation of information written in a policy/procedure?
- Are training manuals easily available?
- Is hands-on training available as necessary?
- How are new staff trained and oriented to the flow of information?
- …
Closing thoughts
Failing to plan is planning to fail.

- Alan Lakein
What would have happened?

Had Mary’s clinic had processes in place...

• to check open orders
• to audit how test results were routinely routed
• to promote collaboration across skillsets on documentation and workflow

Would Mary have been diagnosed sooner?
Guidance on managing EHR risk

- AHIMA: Health IT and Safety
  http://www.healthit.gov/policy-researchers-implementers/health-it-and-safety

- Integrity of the Healthcare Record: Best Practices for EHR Documentation
  http://library.ahima.org/doc?oid=300257#.V6ADcsL2bcs

- Impact of Electronic Health Record Systems on Information Integrity: Quality and Safety Implications
  http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3797550/

- AHRQ Workflow Assessment for Health IT Toolkit
  http://healthit.ahrq.gov/health-it-tools-and-resources/workflow-assessment-health-it-toolkit
Guidance on managing EHR risk

- ECRI Center for Health IT Safety and Innovation
  https://www.ecri.org/resource-center/Pages/HIT.aspx

- ONC Health IT and Safety
  http://www.healthit.gov/policy-researchers-implementers/health-it-and-safety

- ONC Health IT Safety Webinar Series
  http://www.healthit.gov/safer/health-it-safety-webinar-series
Guidance on managing EHR risk

• Safety Assurance Factors for EHR Resilience (SAFER) Guides
  http://www.healthit.gov/policy-researchers-implementers/safer

• Guide to Reducing Unintended Consequences of Electronic Health Records
  http://www.healthit.gov/unintended-consequences/
Next steps

• Go through the checklists and weigh what matters/is appropriate, add your own concerns

• Use the resources.

• Leverage your expertise and experience. Collaborate.

• Seek to understand how information flows through EHR from beginning to end.
Questions

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