ERRORS IN DIAGNOSIS

analysis and prevention strategies

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Chief Medical Officer, V.P. of Patient Safety Solutions

Constellation is a growing partnership of mutual liability insurers and a leading provider of solutions that help deliver better quality patient care, a better patient experience and lower cost of care. Today, Constellation includes MMIC, UMIA and Arkansas Mutual Insurance. Visit us at ConstellationMutual.com for more information.
Diagnostic error in malpractice claims

#3 most frequent allegation behind surgical treatment and medical treatment

#1 in total cost

Getting it wrong

A hospital can be rewarded through
“pay-for-performance initiatives for giving all of its patients diagnosed with heart failure, pneumonia and heart attack the correct, evidence-based and prompt care …

… even if every one of the diagnoses was wrong.”

(Robert Wachter, 2010)

Rory Staunton … undiagnosed sepsis

Why improvement is possible just now

Better data

Better neuroscience

Better tools and systems

Digging Deeper

Analysis of our coded claims...

- identifies signals of vulnerability
- opportunities to improve safety
- catalyzes change for optimal risk reduction

Since 2013, MMIC has partnered with Harvard-based CRICO Strategies for data analytics

- Risk Intelligence Tool
- Comparative Benchmarking Data

Reaching Farther

Comparative Benchmarking System (CBS)
300,000+ claims

Membership

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Most common failures in diagnostic process

- **Assessment Failures**
  - Problem noted, care sought
  - History and physical conducted
  - Patient assessed, symptoms evaluated
  - Differential diagnosis established
  - Diagnostic test(s) ordered
  - 58%

- **Testing Failures**
  - Tests performed
  - Tests interpreted
  - Test results transmitted/received
  - 29%

- **Follow-up Failures**
  - Physician follows up with patient
  - Referrals/consults
  - Patient info communicated to care team
  - Patient/providers establish follow-up plan
  - 46%

Unique on the surface

- Initial misinterpretation of scan
- Lack of communication among providers
- Failure to respond to repeated symptoms
- Too narrow dx focus
- Lack of pt assessment

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Common underlying themes

Top major allegations across MMIC

- **Number of cases**: 313 cases (16%)
- **Total incurred cost**: $47.2 million (27%)

Injury severity of diagnosis-related cases

- **High Severity**:
  - 19% Death
  - 17% Permanent Significant
  - 10% Permanent Major
  - 4% Permanent Grave
- **Medium Severity**:
  - 18% Temporary Major
  - 13% Temporary Minor
  - 12% Permanent Minor
- **Low Severity**:
  - 8%

Origin of diagnosis-related cases

- **Outpatient**: 55%
- **Emergency**: 28%
- **Inpatient**: 17%

83% originate in ambulatory setting (OP + ED)
Top missed diagnoses: Outpatient settings

- Cancer (10:1 above the next)
- Heart disease
- Orthopedic injury

Primary responsible service

Contributing factors in diagnostic error

*Cases typically have more than one contributing factor.
### Breakdowns in the diagnostic process

<table>
<thead>
<tr>
<th>Stage</th>
<th>Clinical judgment factors/patient assessment issues</th>
<th>% cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial diagnostic assessment</td>
<td>Failure to respond to repeated patient concerns/symptoms</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Lack of/inadequate history and physical</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Failure to note clinical info</td>
<td>9%</td>
</tr>
<tr>
<td>Testing &amp; results processing</td>
<td>Failure/delay in ordering diagnostic test</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>Narrow diagnostic focus - failure to establish differential diagnosis</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Misinterpretation of diagnostic studies (x-rays/slides/scans)</td>
<td>17%</td>
</tr>
<tr>
<td>Follow up &amp; coordination</td>
<td>Failure/delay in obtaining consult/referral</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>Selection/management of therapy – medical</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Communication among providers - failure to read medical record</td>
<td>7%</td>
</tr>
</tbody>
</table>

#### Best places to focus first

**Outpatient settings**

1. Failure/delay in ordering tests
2. Failure to establish differential diagnosis
3. Failure to respond to repeated patient concerns/symptoms
4. Misinterpretation of diagnostic studies

#### Top missed diagnoses: Emergency departments

- Orthopedic injury
- Heart disease
- Stroke

70 cases $11.5 million
Contributing factors in diagnostic error

Emergency departments

### EMERGENCY DEPT % CASES
- Clinical Judgment 87%
- Clinical Environment 21%
- Communication 21%
- Behavior-related 13%
- Clinical Systems 13%
- Technical Skill 13%

### CLINICAL JUDGMENT % CASES
- Patient assessment issues 86%
- Failure/delay in obtaining consult/referral 14%
- Selection/management of therapy 11%

### PATIENT ASSESSMENT % CASES
- Failure/delay ordering dx test 41%
- Premature discharge 30%
- Narrow dx focus 26%
- Misinterpretations of dx studies 21%

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**Contributing factors in diagnostic error**

**Emergency departments**

**Contributing factors**

1. Failure/delay in ordering tests
2. Premature discharge - lack of/insufficient pt assessment
3. Failure to establish differential diagnosis
4. Communication between providers

Best places to focus first

Emergency departments

- Patient assessment issues
- Selection/management of therapy
- Communication between providers

Top missed diagnoses: Inpatient settings

- Mis - cardiac events
- Complications of care - failure to rescue
- Infections/Sepsis

42 cases
$12.9 million
Contributing factors in diagnostic error
Inpatient settings

<table>
<thead>
<tr>
<th>INPATIENT</th>
<th>% CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Judgment</td>
<td>95%</td>
</tr>
<tr>
<td>Communication</td>
<td>45%</td>
</tr>
<tr>
<td>Clinical Systems</td>
<td>29%</td>
</tr>
<tr>
<td>Administrative</td>
<td>17%</td>
</tr>
<tr>
<td>Clinical Environment</td>
<td>10%</td>
</tr>
<tr>
<td>Documentation</td>
<td>10%</td>
</tr>
<tr>
<td>Technical Skill</td>
<td>10%</td>
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<table>
<thead>
<tr>
<th>CLINICAL JUDGMENT</th>
<th>% CASES</th>
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<tbody>
<tr>
<td>Patient assessment issues</td>
<td>93%</td>
</tr>
<tr>
<td>Selection/management of therapy</td>
<td>24%</td>
</tr>
<tr>
<td>Failure/delay in obtaining consult/referral</td>
<td>10%</td>
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<table>
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<tr>
<th>PATIENT ASSESSMENT</th>
<th>% CASES</th>
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<tr>
<td>Failure/delay ordering dx test</td>
<td>33%</td>
</tr>
<tr>
<td>Misinterpretations of dx studies</td>
<td>24%</td>
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<tr>
<td>Failure to respond to patient’s repeated concerns/symptoms</td>
<td>17%</td>
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MMIC N=42, IP PL cases with related allegations, asserted 2010-2013

Contributing factors in diagnostic error
Inpatient settings

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<td>Clinical Systems</td>
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</tr>
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<td>Administrative</td>
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</tr>
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<td>Clinical Environment</td>
<td>10%</td>
</tr>
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<td>Documentation</td>
<td>10%</td>
</tr>
<tr>
<td>Technical Skill</td>
<td>10%</td>
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<table>
<thead>
<tr>
<th>COMMUNICATION</th>
<th>% CASES</th>
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<tbody>
<tr>
<td>Between providers</td>
<td>51%</td>
</tr>
<tr>
<td>Provider/patient/family</td>
<td>14%</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>BETWEEN PROVIDERS</th>
<th>% CASES</th>
</tr>
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<tbody>
<tr>
<td>Regarding patient’s condition</td>
<td>24%</td>
</tr>
<tr>
<td>Failure to read record</td>
<td>2%</td>
</tr>
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MMIC N=42, IP PL cases with related allegations, asserted 2010-2013

Best places to focus first
Inpatient settings

1. Failure/delay in ordering diagnostic tests
2. Communication between providers
3. Misinterpretation of diagnostic studies
4. Failure to respond to repeated patient concerns/symptoms
Better neuroscience

Exploring our thinking patterns

Thinking fast and slow

System 1
- Intuitive
- Fast
- Automatic
- Effortless
- Implicit
- Emotional

System 2
- Analytical
- Slower
- Conscious
- Effortful
- Explicit
- Logical

Illustration by David Plunkert
Common cognitive biases

- **Anchoring bias** – locking on to a diagnosis too early and failing to adjust to new information
- **Availability bias** – thinking that a similar recent presentation is happening in the present situation
- **Confirmation bias** – looking for evidence to support a pre-conceived opinion, rather than looking for information to prove oneself wrong

More biases

- **Diagnosis momentum** – accepting a previous diagnosis without sufficient skepticism
- **Overconfidence bias** – over-reliance on one’s own ability, intuition, and judgment
- **Premature closure** – similar to “confirmation bias” but more “jumping to a conclusion”
- **Search-satisfying bias** – the “eureka” moment that stops all further thought

And more biases

- **Affective bias** – when one’s emotional state adversely affects one’s decision-making
- **Representative bias** – looking for prototypical manifestations of a disease
- **Framing** – drawing different conclusions from the same information, depending on how that information is presented
Cognitive debiasing strategies

- Encourage decision makers to get more information
- Encourage metacognition (thinking about your thinking) and reflection
- Recognize personal biases
- Maintain a healthy skepticism – question everything – “What else could this be?”
- Involve others – group decision-making can be smarter
- Use clinician tools and checklists

Better tools and systems

Consider clinical decision support tools

- Broaden differential diagnosis with tools such as Isabel

Better tools and systems
Leverage EHR technology

- Embed clinical guidelines in EHR

Connect communities through data exchange

- Integration of information from sources including clinics, hospitals, labs and imaging facilities

Strengthen vulnerable systems

- Patient follow-up protocols
- Communication of test results
- Management of patient referrals
- Processes for covering physicians
- Robust documentation
Help your providers thrive

Make physician health and well-being a priority

- Put it in your mission statement
- Measure it
- Invest in training tools
- Incorporate feedback tools in staff development
- Encourage self-care and promote resiliency practices

Promote a collaborative culture

Do care team members...
- Feel supported and support each other?
- Have an accurate perception of their strengths and weaknesses?
- Know it’s okay to be less than perfect?

Do care team members know how to...
- Have quality conversations with patients and colleagues that yield the information they need?
- Keep themselves in optimal condition for their demanding work?
It might have made a difference for Rory

Putting it all together for patients

Better data
Better neuroscience
Better tools and systems

12 solutions for health systems

1. Provide training and education
2. Use problem lists, decision support tools, differential diagnosis tools
3. Leverage EHR
4. Ensure availability of stat radiology reads
12 solutions for health systems

5. Encourage patient engagement
6. Establish ways for providers to receive feedback on their diagnoses
7. Use systems to follow up on tests
8. Close the loop on diagnostic tests

9. Monitor errors
10. Ensure that providers designate a surrogate to review test results
11. Have senior clinicians mentor trainees on new cases
12. Encourage teamwork with nurses

MMIC resources – Bundled Solutions
Resources and References


Questions?

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phone  952.838.6874

Physician Employee Assistance Program
Finding and arranging household cleaning and car detailing
Finding a special gift for a special person
Finding and arranging care for an elderly parent or summer camp for a child
Vacation planning
Concierge Experts help fulfill requests such as:
And Much More

Physician Peer Coaches can help when you experience:
Unusual levels of stress or anxiety
Talk through complications or other clinical stress
Workplace conflict or other issues

Questions?