ERRORS IN DIAGNOSIS

analysis and prevention strategies

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Director of Education, MMIC
Patient Safety Solutions
Role play
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)
Why improvement is possible just now

Better data

Better neuroscience

Better tools and systems
Better data
Digging deeper, seeing more

- MMIC partners with CRICO Strategies (2013)
- Harvard-based
- Leading with medical data
- Patient safety mission, 1998 to extend beyond Harvard
- Created national comparative benchmarking database
CRICO Strategies

Comparative Benchmarking System (CBS)

>300,000 claims

~30% of National Practitioner DataBank

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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

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

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

Resident supervision

Failure/delay ordering diagnostic test

Failure to monitor physiological status

Failure to follow protocol

Inadequate communication

Lack of adequate assessment

Narrow diagnostic focus

Failure to ensure patient safety

Resident supervision

Failure/delay ordering diagnostic test

Visible “Unique” Event

Not-so-visible-or-unique underlying issues
Top major allegations across MMIC

- Surgical Tx: 500 cases, $47.2 million (27%)
- Medical Tx: 400 cases
- Diagnosis: 313 cases (16%)
- Safety & Security: 200 cases
- Medication-related: 100 cases
- Anesthesia: 50 cases
- OB-related: 25 cases

MMIC N=1,958, PL cases, asserted 1/1/2010–12/31/2013

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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**
  - 8%

MMIC N=313, PL cases w/dx-related allegations, asserted 2010-2013
Origin of diagnosis-related cases

Outpatient 55%

Emergency 28%

Inpatient 17%

83% originate in ambulatory setting (OP + ED)

MMIC N=251 PL cases w/dx-related allegations, asserted 2010-2013
Top missed diagnoses: Outpatient settings

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

139 cases
$17 million
Primary responsible service
Outpatient settings

MMIC N=139, OP PL cases w/dx-related allegations, asserted 2010-2013
**Contributing factors in diagnostic error**

*Outpatient settings*

<table>
<thead>
<tr>
<th>OUTPATIENT</th>
<th>% CASES*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Judgment</td>
<td>87%</td>
</tr>
<tr>
<td>Communication</td>
<td>20%</td>
</tr>
<tr>
<td>Behavior-related</td>
<td>21%</td>
</tr>
<tr>
<td>Clinical Systems</td>
<td>16%</td>
</tr>
<tr>
<td>Administrative</td>
<td>10%</td>
</tr>
<tr>
<td>Documentation</td>
<td>9%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>CLINICAL JUDGMENT</th>
<th>% CASES*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient assessment issues</td>
<td>83%</td>
</tr>
<tr>
<td>Selection/management of therapy</td>
<td>20%</td>
</tr>
<tr>
<td>Failure/delay in obtaining consult/referral</td>
<td>14%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PATIENT ASSESSMENT</th>
<th>% CASES*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure/delay ordering dx test</td>
<td>40%</td>
</tr>
<tr>
<td>Narrow dx focus</td>
<td>25%</td>
</tr>
<tr>
<td>Failure to respond to patient’s repeated concerns/symptoms</td>
<td>18%</td>
</tr>
<tr>
<td>Misinterpretations of dx studies</td>
<td>17%</td>
</tr>
</tbody>
</table>

*Cases typically have more than one contributing factor.

MMIC N=139, OP PL cases w/dx-related allegations, asserted 2010-2013
## Breakdowns in the diagnostic process
### Outpatient settings

<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**

<table>
<thead>
<tr>
<th>EMERGENCY DEPT</th>
<th>% CASES*</th>
</tr>
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<tbody>
<tr>
<td>Clinical Judgment</td>
<td>87%</td>
</tr>
<tr>
<td>Clinical Environment</td>
<td>23%</td>
</tr>
<tr>
<td>Communication</td>
<td>21%</td>
</tr>
<tr>
<td>Behavior-related</td>
<td>13%</td>
</tr>
<tr>
<td>Clinical Systems</td>
<td>13%</td>
</tr>
<tr>
<td>Technical Skill</td>
<td>13%</td>
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<th>CLINICAL JUDGMENT</th>
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<tr>
<td>Patient assessment issues</td>
<td>86%</td>
</tr>
<tr>
<td>Failure/delay in obtaining consult/referral</td>
<td>14%</td>
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<tr>
<td>Selection/management of therapy</td>
<td>11%</td>
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<thead>
<tr>
<th>PATIENT ASSESSMENT</th>
<th>% CASES*</th>
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<tbody>
<tr>
<td>Failure/delay ordering dx test</td>
<td>41%</td>
</tr>
<tr>
<td>Premature discharge</td>
<td>30%</td>
</tr>
<tr>
<td>Narrow dx focus</td>
<td>26%</td>
</tr>
<tr>
<td>Misinterpretations of dx studies</td>
<td>21%</td>
</tr>
</tbody>
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*Cases typically have more than one contributing factor.

MMIC N=70, ED PL cases w/dx-related allegations, asserted 2010-2013
Best places to focus first
Emergency departments

1. Failure/delay in ordering tests
2. Premature discharge - lack of/inadequate pt assessment
3. Failure to establish differential diagnosis
4. Communication between providers
Top missed diagnoses: Inpatient settings

- MI - 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>
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<tbody>
<tr>
<td>Clinical Judgment</td>
<td>95%</td>
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<tr>
<td>Communication</td>
<td>40%</td>
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<td>Clinical Systems</td>
<td>29%</td>
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<td>Administrative</td>
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<td>Clinical Environment</td>
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<td>Documentation</td>
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<td>Patient assessment issues</td>
<td>93%</td>
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<td>Selection/management of therapy</td>
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<td>Failure/delay in obtaining consult/referral</td>
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<tr>
<td>Failure to respond to patient’s repeated concerns/symptoms</td>
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MMIC N=42, IP PL cases w/dx-related allegations, asserted 2010-2013
# Contributing factors in diagnostic error

**Inpatient settings**

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<table>
<thead>
<tr>
<th>COMMUNICATION</th>
<th>% CASES*</th>
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<tbody>
<tr>
<td>Between providers</td>
<td>31%</td>
</tr>
<tr>
<td>Providers/patient/family</td>
<td>14%</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>BETWEEN PROVIDERS</th>
<th>% CASES*</th>
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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>
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MMIC N=42, IP PL cases w/dx-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
Role Play
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
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

- Population health
- Experience of care

Per capita cost $$$

Thriving health care workforce
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
MMIC resources – Bundled Solutions

Preventing Diagnostic Error

The leading cause of malpractice claims in the U.S. is missed or delayed diagnosis which cause an estimated 40,000-80,000 deaths every year. Diagnostic errors are estimated to affect about 12 million Americans each year in ambulatory care settings alone. According to experts, one-third of people in the U.S. report that they or a family member have experienced a medical error, with 50 percent of those errors being diagnosis-related.

There are multiple identified causes of diagnostic error. Many are caused by system-related factors, such as the failure to respond to abnormal test results. Another frequent cause is communication failures (1) with patients and (2) among the health care team. However, multiple research studies indicate that the majority of diagnostic errors are related to how physicians think and involve the process of working up a patient’s diagnosis.

The following information will help you minimize risk and reduce harm caused to patients because of diagnostic error.
Assessments, tools and guidelines

Preventing Diagnostic Error - Assessments, Tools and Checklists

Assessments:

- Interactive Online Assessments

Tools for Health Care Professionals:

- SAFER Guides optimize the safety and safe use of EHRs
- Society to Improve Diagnosis in Medicine Clinical Reasoning Toolkit

Tools for Patients:

- MAPS You: Your Own Best Medicine
- NPSF - The Patient's Checklist for Getting the Right Diagnosis

Checklists:

Researchers Ely, Graber and Croskerry describe three types of checklists in their article, Checklists to Reduce Diagnostic Errors, that could reduce diagnostic error in hospitals, clinics and emergency rooms.

- General checklists provide reminders for the routine steps in the diagnostic process.
- Differential diagnosis checklists help physicians avoid the most common cause of diagnostic error – the failure to consider the correct diagnosis.
- Cognitive forcing checklists highlight the unique criteria for specific diseases.

CRICO Clinical Guidelines - we have partnered with CRICO Strategies and are members of the Comparative Benchmarking System (CBS). The CRICO Strategies 2014 Annual Benchmarking Report: Malpractice Risks in the Diagnostic Process is a thorough exploration of diagnosis-related cases stemming from care in an ambulatory setting. This in-depth study provides unique insight into where, when and how things can go wrong for patients and providers trying to make an accurate and timely diagnosis.

- CRICO's 12-Step Diagnostic Process of Care Framework
- CRICO Breast Cancer Management Algorithm home page
- Breast Cancer Management Algorithm (PDF)
Well-being center

At MMIC, we believe your health and well-being — and that of your entire staff — is just as important as the health of the patients you care for. We want to provide peace of mind so you can do what you do best — deliver the best possible patient care. That’s why we’re concerned about the high levels of stress and burnout reported by physicians.

High levels of stress lead to less effective communication, more medical errors, poor morale and lower patient satisfaction. The sources of stress are varied and can include personal, financial and work-related pressures. This often creates challenges for health care professionals trying to achieve work-life balance.

The road to well-being isn’t always easy, but from the first step of recognition to the final step of sustainable success, we’re committed to helping you get there.

Why? Because achieving well-being for you means safer care for your patients.

Well-being and resilience

Learn what it means to be well, how to spot stress or burnout, and how to build resilience. More >>

Self-assessments

Start with a self-assessment to better understand your current level of well-being. More >>

Audio, books, video

Find resources dedicated to mindfulness, purpose, relationships, self-awareness and self-care. More >>

Courses and conferences

Find retreats, online and in-person courses, and conferences dedicated to the well-being of health care providers. More >>

Support

Join a support group or online community and find a list of intervention contacts by state. More >>

Resources and References


