Diagnostic Errors: Lessons Learned

A 10-Year Claims Analysis
Speaker Bio

Thomas R. Snyder, MBA, MS, Vice President, Patient Safety & Risk Solutions, Princeton/MedPro Group (tom.snyder@princetoninsurance.com)

Tom is responsible for the direction and management of patient safety and loss prevention activities for Princeton/MedPro Group-insured providers and facilities. He has more than 30 years of healthcare-related experience.

Tom served as a medical corpsman in the United States Air Force and later became a physician assistant in emergency medicine. Tom’s nonclinical experience includes bond financing for healthcare facilities, risk/compliance consulting, and healthcare insurance contracting and account management.

Tom completed his physician assistant training at Hahnemann Medical College in Philadelphia and his emergency medicine residency at Maine Medical Center in Portland, Maine. Tom received a master of business administration degree in healthcare management and a master’s of science degree in healthcare financial management from Temple University.
Designation of continuing education credit

MedPro Group is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

MedPro Group designates this enduring activity for a maximum of 1.0 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

MedPro Group is designated as an Approved PACE Program Provider by the Academy of General Dentistry (AGD). The formal continuing dental education programs of this program provider are accepted by AGD for Fellowship/Mastership and membership maintenance credit. Approval does not imply acceptance by a state or provincial board of dentistry or AGD endorsement. The current term of approval extends from October 1, 2018 to September 30, 2022. Provider ID# (218784)

MedPro Group designates this continuing dental education activity, as meeting the criteria for up to 1 hour of continuing education credit. Doctors should claim only those hours actually spent in the activity.
Disclosure

MedPro Group receives no commercial support from pharmaceutical companies, biomedical device manufacturers, or any commercial interest.

It is the policy of MedPro Group to require that all parties in a position to influence the content of this activity disclose the existence of any relevant financial relationship with any commercial interest.

When there are relevant financial relationships, the individual(s) will be listed by name, along with the name of the commercial interest with which the person has a relationship and the nature of the relationship.

Today’s faculty, as well as CE planners, content developers, reviewers, editors, and Patient Safety & Risk Solutions staff at MedPro Group have reported that they have no relevant financial relationships with any commercial interests.
Objectives

At the conclusion of this program, participants should be able to:

- Discuss claims data and trends related to diagnostic errors
- Identify and analyze contributing factors/root causes of diagnostic errors that affect patient safety
- Identify processes and systems that reduce and prevent diagnostic errors
- Identify at least one risk-reduction strategy that they can implement in their practices
Experience

“Good judgment comes from experience, and a lot of that comes from bad judgment.”

WILL ROGERS
What is a diagnostic error?

Per the National Academy of Medicine (NAM), a diagnostic error is a failure to:

- Establish an accurate and timely explanation of the patient’s health problem(s); or
- Communicate that explanation to the patient.

It is likely that most of us will experience at least one significant diagnostic error in our lifetimes, sometimes with devastating consequences.

Diagnostic errors account for the largest percentage of malpractice claims and the most severe clinical and financial outcomes.

Assessing diagnostic errors: Why it’s difficult

- Dispersed nature of care in ambulatory settings; time and place
- Long gap between error and detection
- Retrospective studies require time-consuming and costly manual chart reviews
- Frequent disagreement on whether an error or delay occurred
- Easier to measure infection rates, treatment failures, and procedural issues
Key myths that can contribute to diagnostic errors

- It won’t happen to me.
- I can always trust my intuition.
- I always communicate effectively with my patients.
- I'm a good listener.
- Most diagnostic errors involve rare or uncommon diseases.
- I rarely need to make a complete differential diagnosis.
- If I made a diagnostic error, I’d find out about it.

Key myths that can contribute to diagnostic errors

**Patients**
- No news is good news.
- My doctors are talking to each other.
- I would be disloyal if I ask for a second opinion.
- The more tests I have, the better.

**Healthcare organizations**
- If something went wrong, I would hear about it.
- Diagnosis is the physician's problem.
- We open ourselves to liability if we look too hard at diagnostic errors.
- Only physicians have a role in diagnosis.

Claims

Allegations, locations, clinical & financial severity, specialties, claimant types
All claims data by allegation category

Data source throughout: MedPro Group closed claims, 2008-2017; total paid = indemnity + expense; “Other” includes allegations for which no significant claim volume exists; any totals not equal to 100% are a result of rounding
Closed with indemnity payment

All claims

Location specific

Note: OB = obstetrics; ED = emergency department
Clinical severity relates to financial severity

Diagnosis-related claims are more likely than most other claim types to close with an indemnity payment.

Half of the high-severity cases result in death.
Diagnosis-related claims: Volume and financial severity by responsible service

Note: Responsible services are the specialty services that are identified as responsible for the allegation(s) of a claim. Physician assistants and nurse practitioners are included as part of their respective specialties.
Diagnosis-related claims: Location

- Office: 42%
- ED: 21%
- Radiology: 17%
- Inpatient: 11%
- Surgery: 7%
- Other: 2%
Diagnosis-related claims: Claimant (patient) type

Location

- Outpatient: 58%
- ED: 21%
- Inpatient: 21%

Clinical Outcome Severity

- Outpatient:
  - Low: 3%
  - Medium: 29%
  - High: 69%
- ED:
  - Low: 1%
  - Medium: 28%
  - High: 70%
- Inpatient:
  - Low: 2%
  - Medium: 14%
  - High: 84%
Specific Locations

Specialties, diagnoses
Office: Top allegation categories (frequency and financial severity by responsible service)

Note: Diagnosis-related allegations account for 37% of all office-based allegations.
Focus on dental allegations and financial severity

Diagnosis-related allegations are trending upward for dentistry; 2007-2012 claims volume and total dollars paid were 5% and 9%, respectively; 2013-2017 claims volume and total dollars paid were 6% and 13%, respectively.

Diagnosis-related dental claims are primarily related to cancer and dental conditions such as caries and periodontitis.
Office: Diagnostic categories and top diagnoses/financial severity

Diagnostic categories

Top diagnoses/financial severity

Note: MI = myocardial infarction; PE = pulmonary embolism; CVA = cerebrovascular accident
Office: Diagnostic trends

**Diagnostic category trend**

- Cancer: 43% (First 5 years), 43% (Last 5 years)
- Heart: 11% (First 5 years), 7% (Last 5 years)
- Infection: 8% (First 5 years), 10% (Last 5 years)
- Vascular: 8% (First 5 years), 4% (Last 5 years)

**Cancer trend**

- Lung: 18% (First 5 years), 15% (Last 5 years)
- Colorectal: 11% (First 5 years), 13% (Last 5 years)
- Prostate: 11% (First 5 years), 8% (Last 5 years)
- Breast: 11% (First 5 years), 10% (Last 5 years)
- Skin: 9% (First 5 years), 10% (Last 5 years)
- Oropharynx: 8% (First 5 years), 7% (Last 5 years)
Top office cancer diagnoses by responsible service

Note: GI = gastrointestinal; GU = genitourinary
Emergency department: Diagnoses & financial severity

Diagnostic categories

Top diagnoses

- Lung cancer: 2% claims volume, 2% total dollars paid
- MI: 7% claims volume, 9% total dollars paid
- Other cardiac: 4% claims volume, 3% total dollars paid
- PE: 3% claims volume, 4% total dollars paid
- CVA: 8% claims volume, 7% total dollars paid
- Aortic aneurysm: 5% claims volume, 7% total dollars paid
- Appendicitis: 5% claims volume, 2% total dollars paid
- Testicular torsion: 2% claims volume, 1% total dollars paid
- Intraspinal abscess: 7% claims volume, 3% total dollars paid
- Cauda equina: 2% claims volume, 3% total dollars paid
- Spinal fracture: 6% claims volume, 3% total dollars paid
- Meningitis encephalitis: 2% claims volume, 2% total dollars paid
- Traumatic cerebral bleed: 4% claims volume, 3% total dollars paid
Radiology department: Diagnoses & financial severity

Diagnostic categories

Top diagnoses

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Claims volume</th>
<th>Total dollars paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast cancer</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Kidney cancer</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>CVA</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Aortic aneurysm</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Spinal fracture</td>
<td>3%</td>
<td>6%</td>
</tr>
</tbody>
</table>

- Cancer: 44%
- Fracture: 32%
- Vascular: 13%
- GI: 5%
- Other: 6%
Emerging Risks

What’s changing and what’s around the corner?
Emerging issues

- Genetic testing
  - Cancer, pre/antenatal decisions, rare significant disease
- Electronic health records (EHRs) – volume of information
- New technology
  - Clinical decision support – silver bullet?
  - Reliance versus adoption
  - False positives – a shift from underdiagnosis to overdiagnosis
- Access – mandate for the underserved?
  - Telehealth, mobile technology, wearable technology
  - Informed consent for technical deficiencies
- Preventive care for transgender patients
- Burnout
Contributing (risk) factors

Definition, their role in the diagnostic process, and risk mitigation strategies
The diagnostic process: Where do mistakes occur?

Initial diagnostic assessment

Testing and results processing

Follow-up and coordination

Top contributing risk factors

Risk factors are broad areas of concern that may have contributed to allegations, injuries, or initiation of claims.

Note: Totals do not equal 100% because more than one factor often occurs in each case.
Clinical judgment: Top patient assessment details

- **Narrow diagnostic focus (no differential diagnosis)**: 36% ED, 33% Office, 13% Radiology
- **Inadequate assessments (history/physical)**: 14% ED, 13% Office, 6% Radiology
- **Failure to reconcile signs/symptoms**: 38% ED, 37% Office, 15% Radiology
- **Test ordering failure/delay**: 43% ED, 52% Office, 26% Radiology
Diagnostic biases affect decision-making

**Anchoring**
- Locking onto initial presentation

**Availability**
- Relying on recent experience

**Confirmation bias**
- Looking for confirming evidence

**Diagnosis momentum**
- Accepting a previous diagnosis without question

**Gender bias**
- Making gender a determining factor when no basis exists

**Need for closure**
- Feeling pressure due to time or feelings of doubt

**Framing effect**
- Perceiving the story in the way it is framed or presented

**Sunk costs**
- Maintaining a diagnosis due to time/effort invested

**Zebra retreat**
- Feeling less confident in a remote or unusual diagnosis
General checklist: Useful in situations at high risk for diagnostic error

- Have I ruled out must-not-miss diagnoses?
- Did I just accept the first diagnosis that came to mind?
- Was the diagnosis suggested to me by the patient, nurse, or another doctor?
- Did I consider other organ systems besides the obvious one?
- Are data available about this patient that I haven’t obtained and reviewed (e.g., from old records, family members, or a primary care provider)?
- Are there any pieces that don’t fit?
- Did I read the X-ray myself?
- Was this patient handed off to me from a previous shift?
- Was this patient seen in the ED or clinic recently for the same problem?
- Was I interrupted/distracted excessively while evaluating this patient?
- Am I feeling fatigued right now or cognitively overloaded?
- Is this a patient I don’t like (e.g., a difficult patient) or like too much (e.g., a friend)?

Strategies to address clinical judgment factors

- Take a complete personal and family history.
- Perform a thorough physical exam.
- Consider differential diagnoses.
- Seek access to prior health records.
- Retake vital signs prior to discharge.
- Prioritize care coordination among specialties.
- Recognize significance of integrated EHR systems.
Top communication factors

% of diagnosis-related claims volume with associated factors

Among providers
- ED: 33%
- Office: 23%
- Radiology: 23%

With patients/families
- ED: 12%
- Office: 17%
- Radiology: 9%
Strategies to improve communication

Collect and review all pertinent diagnostic information via:

- An EHR structure that allows access to other providers’ notes.
- Verbal communication of findings about the patient from other providers.
- Appreciation of subtle changes that might not be individually noteworthy, but could be significant as part of the big picture (particularly when multiple providers are involved in patient care).
- Reading the health record/incidental findings.

And then:

- Focus on care coordination (next steps and who is responsible).
- Give thorough and clear patient instructions.
- Consider the patient’s health literacy and other comprehension barriers.
### Case example: Lapses in communication and care coordination between providers (incidental finding)

<table>
<thead>
<tr>
<th>Patient</th>
<th>60-year-old male presented for inguinal hernia surgery.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary</td>
<td>Preoperative X-rays revealed right lobe lung nodule.</td>
</tr>
<tr>
<td></td>
<td>Surgeon and internal medicine (IM) physician both received the radiology report, which included a recommendation for a CT scan.</td>
</tr>
<tr>
<td></td>
<td>X-ray report was included in the IM office’s new EHR system; however, the system was new, and providers/staff had not received complete training. Thus, the IM physician did not see the report.</td>
</tr>
<tr>
<td></td>
<td>The surgeon did not discuss the results with the patient because she assumed the IM physician would do so.</td>
</tr>
<tr>
<td>Outcome</td>
<td>One year later, the patient was diagnosed with Stage IV lung cancer.</td>
</tr>
</tbody>
</table>
Clinical systems: Testing and follow-up

“The ordering [providers] and patients rely on the proper performance, interpretation, and transmittal of the [diagnostic testing] results to reach diagnostic certainty.”

— CRICO Strategies, 2014 Annual Benchmarking Report

Malpractice Risks in the Diagnostic Process

<table>
<thead>
<tr>
<th></th>
<th>Provider did not receive report</th>
<th>Failure to notify patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>21%</td>
<td>36%</td>
</tr>
<tr>
<td>Office</td>
<td>17%</td>
<td>36%</td>
</tr>
<tr>
<td>Radiology</td>
<td>16%</td>
<td>27%</td>
</tr>
</tbody>
</table>
Test result failures by diagnostic category and specialty

**Categories**
- Cancer: 45%
- Infections: 10%
- Fractures: 6%
- Other: 9%

**Cancer breakdown**
- Lung: 34%
- Prostate: 7%
- GI: 39%
- Breast: 10%
- Other: 10%

**Specialty**
- General medicine: 31%
- Medicine specialties: 16%
- Emergency: 17%
- Radiology: 8%
- Surgical specialties: 21%

Note: GI = gastrointestinal
Create and review problem lists at each visit

Ensure a process for relaying test results received after discharge

Track missed appointments

Document follow-up attempts

Coordinate care among specialties

Key point

• Do not use a “no news is good news” approach (i.e., “If you don’t hear from us, you can assume your results are normal.”)
Patient behavior (nonadherence)

Patient behavior trends over time

<table>
<thead>
<tr>
<th>Year</th>
<th>ED</th>
<th>Office</th>
<th>Radiology</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-2010</td>
<td>29%</td>
<td>43%</td>
<td>37%</td>
</tr>
<tr>
<td>2009-2011</td>
<td>27%</td>
<td>34%</td>
<td>24%</td>
</tr>
<tr>
<td>2010-2012</td>
<td>27%</td>
<td>34%</td>
<td>24%</td>
</tr>
<tr>
<td>2011-2013</td>
<td>27%</td>
<td>34%</td>
<td>24%</td>
</tr>
<tr>
<td>2012-2014</td>
<td>27%</td>
<td>34%</td>
<td>24%</td>
</tr>
<tr>
<td>2013-2015</td>
<td>27%</td>
<td>34%</td>
<td>24%</td>
</tr>
<tr>
<td>2014-2016</td>
<td>27%</td>
<td>34%</td>
<td>24%</td>
</tr>
<tr>
<td>2015-2017</td>
<td>27%</td>
<td>34%</td>
<td>24%</td>
</tr>
</tbody>
</table>
Strategies to address patient nonadherence issues

- Engage patients as active participants in their care.
- Use technology such as patient portals and apps.
- Encourage patients to ask questions and voice concerns.
- Consider patients’ health literacy when communicating.
- Identify barriers such as financial, social, and cultural factors.
- Carefully document nonadherence using objective information.
Addressing low health literacy

Clear communication can improve a patient’s comprehension.

- Speak slowly and clearly.
- Focus on and repeat “need to know” concepts and information.
- Avoid medical and jargon.
- Use illustrations to explain important concepts.
- Use plain language educational materials.
- Encourage interactive dialogue.
- Use the “teach-back” technique to gauge comprehension.
- Provide treatment and follow-up care instructions verbally and in writing.
Electronic documentation risks

Documentation gaps/errors in transition from paper records to electronic records

New error pathways, particularly when trying to force old habits on a new system

Inconsistencies in use and following policies

Flow of information not intuitive

Copy/paste errors

Failure to use system capabilities (e.g., alerts and reports)

Hybrid systems — paper and electronic

First year of use — experience and training
## Case example: Inaccurate transcription of lab test order

<table>
<thead>
<tr>
<th>Patient</th>
<th>Male patient in his mid-eighties was admitted to the hospital for shortness of breath after knee surgery.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary</td>
<td>The patient was diagnosed with restrictive lung disease.</td>
</tr>
<tr>
<td></td>
<td>He was given a prescription for an inhaler; no pulmonary function tests were ordered.</td>
</tr>
<tr>
<td></td>
<td>A week later, a B-type natriuretic peptide (BNP) test to evaluate for congestive heart failure was ordered.</td>
</tr>
<tr>
<td></td>
<td>A blood metabolic profile (BMP) test order was transcribed and THAT test was completed.</td>
</tr>
<tr>
<td></td>
<td>The error was not discovered for several weeks.</td>
</tr>
<tr>
<td>Outcome</td>
<td>By the time of discovery, the patient had been diagnosed with severe heart failure and shortly thereafter passed away.</td>
</tr>
</tbody>
</table>
Diagnosis-related claims closed with indemnity payment

Note: Average = all diagnosis-related claims closed with an indemnity payment
Wrap-up
## Risk efforts require time

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listening/patient history/assessment</td>
<td>Understand patient complaint and concerns. Update and review medical and family history.</td>
</tr>
<tr>
<td>Awareness/suspicion</td>
<td>Be alert to high-risk diagnoses, such as cancer, MI, PE, stroke, and certain infections (specialty oriented). Maintain problem lists.</td>
</tr>
<tr>
<td>Reconsideration</td>
<td>Consider cognitive aids, such as metacognition, bias awareness, and salient distracting features; acknowledge emotions; plan for alternative diagnoses; and use checklists.</td>
</tr>
<tr>
<td>Consults/testing</td>
<td>Assess procedures for handoffs and care coordination and identify areas for improvement. Formalize procedures for notifications of results and overreads.</td>
</tr>
<tr>
<td>Tracking/follow-up</td>
<td>Review processes for test tracking, consults/referrals, appointment setting, and patient nonadherence.</td>
</tr>
<tr>
<td>Documentation</td>
<td>Document thorough, objective information about informed consent discussions, patient education, and patient nonadherence.</td>
</tr>
</tbody>
</table>
Summary

Diagnostic errors represent a frequent, serious, and costly risk. Significant opportunities exist to reduce them.

By identifying and better understanding the factors that contribute to medical errors and subsequent malpractice claims, healthcare organizations and providers can implement corrective actions to improve quality of care and reduce liability exposure.

Diagnosis-related claims often involve multiple contributing factors and more than one provider. Strategies to address the issues from which the claims arose should target their common contributing factors.
Resources: MedPro Group

- Clinical Judgment in Diagnostic Errors: Let’s Think About Thinking

- Communication in the Diagnostic Process

- Test Result Communication Failures
  https://www.medpro.com/documents/10502/5086245/Communication+of+Test+Results.pdf

- Strategies to Support Patient Comprehension

- Documentation Essentials

- Electronic Documentation

More resources are available at www.medpro.com/dynamic-risk-tools
Other valuable resources

- Agency for Healthcare Research and Quality
  - Patient Safety Primer: Diagnostic Errors
    (https://psnet.ahrq.gov/primers/primer/12/Diagnostic-Errors)

- Society to Improve Diagnosis in Medicine
  - Clinical Reasoning Toolkit (www.improvediagnosis.org/clinicalreasoning/)
  - Clinician Checklists (www.improvediagnosis.org/clinician-checklists/)
  - Patient’s Toolkit for Diagnosis (www.improvediagnosis.org/patients-toolkit/)

- National Academies of Science, Engineering, and Medicine
  - Improving Diagnosis in Health Care (www.nap.edu/catalog/21794/improving-diagnosis-in-health-care)
Disclaimer

The information contained herein and presented by the speaker is based on sources believed to be accurate at the time they were referenced. The speaker has made a reasonable effort to ensure the accuracy of the information presented; however, no warranty or representation is made as to such accuracy. The speaker is not engaged in rendering legal or other professional services. If legal advice or other expert legal assistance is required, the services of an attorney or other competent legal professional should be sought.