Seen Through Their Eyes: Residents’ Reflections on the Cognitive and Contextual Components of Diagnostic Errors in Medicine


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Disclosures

- No relevant disclosures
Diagnostic Errors

- 17% of preventable adverse events
- Most common type of error in medical malpractice claims
- Important to improving patient safety
- Curricula are lacking
Diagnostic errors in patient safety

Context

Systems Errors

Cognitive Errors

Looking Around Us

Looking Within Us
Cognitive error is a difficult target to understand, influence and teach

- Limited insight into the process
- Difficulty providing feedback
- Lack of training in critical thinking
- Inadequate self reflection
Longitudinal Curriculum in Cognitive Bias and Diagnostic Errors

**SESSION 1**
- 40 Minute Didactic
- 20 Minute Facilitated Case-Based Discussion (RCA)

**SESSION 2**
- 10 Minute Review
- 60 Minute Narrative Reflection & Group Discussion

**SESSION 3**
- Web Curriculum: Diagnostic RCA
  - Case: Bias Recognition

June 2010

Oct 2010

May – Sep 2011
Study Objectives

- Capture internal medicine residents’ experiences with diagnostic error caused by cognitive bias
- Identify related contextual factors using reflective writing and narrative discussion as an educational strategy
Methods

- Participants
  - PGY2 Residents in Internal Medicine
  - Trained Faculty Facilitators

- Reflective writing/journaling (10 min)
  - Write about a specific case example of diagnostic error with cognitive bias either witnessed or participated in during training. Include all circumstances that contributed to the team’s diagnostic decisions and describe how they might change in the future.

- Narratives read aloud

- Discussion facilitated by group leader.
Methods: Analysis

- Audiotaped and transcribed verbatim.
- NVivo 9.0 software (QSR International) used for coding and analysis.
- Pilot group used to generate initial code list
  - Refined with subsequent coding.
Methods: Analysis

- Content analysis
  - Inter-rater reliability

- Simple matrices were generated
  - Association between biases and contexts
Results

- 41 PGY2 internal medicine residents
- 22 (53.7%) male

Tracks within the internal medicine program
  - 29 (70.7%) categorical
  - 8 (19.5%) primary care
  - 4 (9.8%) physician scientist pathway
## Cognitive Biases Reported by Residents

<table>
<thead>
<tr>
<th>Bias</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchoring</td>
<td>36</td>
<td>87.8%</td>
</tr>
<tr>
<td>Availability</td>
<td>31</td>
<td>75.6%</td>
</tr>
<tr>
<td>Framing Effect</td>
<td>23</td>
<td>56.1%</td>
</tr>
<tr>
<td>Blind Obedience</td>
<td>22</td>
<td>53.7%</td>
</tr>
<tr>
<td>Unpacking</td>
<td>22</td>
<td>53.7%</td>
</tr>
<tr>
<td>Confirmation</td>
<td>20</td>
<td>48.8%</td>
</tr>
<tr>
<td>Diagnostic Momentum</td>
<td>20</td>
<td>48.8%</td>
</tr>
<tr>
<td>Visceral bias</td>
<td>20</td>
<td>48.8%</td>
</tr>
<tr>
<td>Overconfidence</td>
<td>19</td>
<td>46.3%</td>
</tr>
</tbody>
</table>
Cognitive Biases Reported by Residents

Anchoring

“Once she came in, we had an impression of her…I think that the giant bias in the room…if he’s got a thoracic primary, chest pain in a cancer patient with a thoracic primary is probably going to be cancer pain.”

Availability

“The cognitive bias was that this was a guy who was infected and was hypovolemic and hypotensive when he presented and we see [acute tubular necrosis] patients all the time.”
Contextual Factors

- Patient
- Team and Provider
- Environmental/Systems

Context

- Systems Errors
- Cognitive Errors
## Contextual Factors: Patient Factors

<table>
<thead>
<tr>
<th>Patient Factor</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Patient Factor</td>
<td>28</td>
<td>68.3%</td>
</tr>
<tr>
<td>Complex Illness</td>
<td>26</td>
<td>63.4%</td>
</tr>
<tr>
<td>Vague history from patient</td>
<td>13</td>
<td>31.7%</td>
</tr>
<tr>
<td>Chronic illness</td>
<td>10</td>
<td>24.4%</td>
</tr>
<tr>
<td>Bad reputation or negative connotation</td>
<td>9</td>
<td>22.0%</td>
</tr>
</tbody>
</table>

“Patients having multiple problems that account for their symptoms is one that’s really challenging because our tendency and the way that we’re sort of taught to think is that we have this constellation of symptoms and we’re supposed to create a unifying diagnosis.”
## Contextual Factors: Team and Provider Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Team/Provider Factor</td>
<td>38</td>
<td>92.7%</td>
</tr>
<tr>
<td>Specialty Service</td>
<td>31</td>
<td>75.6%</td>
</tr>
<tr>
<td>Lack of interest in the patient’s case</td>
<td>13</td>
<td>31.7%</td>
</tr>
<tr>
<td>Hierarchy</td>
<td>13</td>
<td>31.7%</td>
</tr>
<tr>
<td>Over-reliance on consultants</td>
<td>12</td>
<td>29.3%</td>
</tr>
<tr>
<td>Lack of confidence</td>
<td>7</td>
<td>17.1%</td>
</tr>
</tbody>
</table>

“That’s one of the downsides of specialization, I think, that we sort of get carried away with our specific area of what we’re doing and forget—not forget, but you’re just not attuned to these other things that are going on.”
## Contextual Factors: System and Environmental Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Systems/Environmental Factors</td>
<td>33</td>
<td>80.5%</td>
</tr>
<tr>
<td>Time Pressure</td>
<td>22</td>
<td>53.7%</td>
</tr>
<tr>
<td>Transfer (outside hospital, within hospital or direct admission)</td>
<td>15</td>
<td>36.6%</td>
</tr>
<tr>
<td>Poor Handoff</td>
<td>14</td>
<td>34.1%</td>
</tr>
<tr>
<td>Lack of Knowledge or Guidelines</td>
<td>14</td>
<td>34.1%</td>
</tr>
<tr>
<td>Insufficient Information</td>
<td>14</td>
<td>34.1%</td>
</tr>
<tr>
<td>Too many patients</td>
<td>13</td>
<td>31.7%</td>
</tr>
<tr>
<td>Emergency Department Environment</td>
<td>12</td>
<td>29.3%</td>
</tr>
<tr>
<td>Delayed or inaccurate test result</td>
<td>12</td>
<td>29.3%</td>
</tr>
</tbody>
</table>

“If we can get to a diagnosis faster, it means that you have more time to take care of other patients.”
Limitations

- Cross-sectional survey
  - Each resident gave one story
- Recall bias
- Potential influence by curriculum
- Residents’ perceptions may not encompass all of the factors that may contribute to diagnostic error
Conclusions

- Resident narratives provide valuable insight to aid faculty in teaching about diagnostic error
- Contextual factors may influence cognitive error in ways that we have yet to determine
Conclusions

- Reflective writing and narrative discussion
  - Engage faculty and trainees in conversations about diagnostic error
  - Enhance learning from one another’s mistakes.

- Novel approach to teach Diagnostic Error
  - Create a psychologically safe learning environment
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