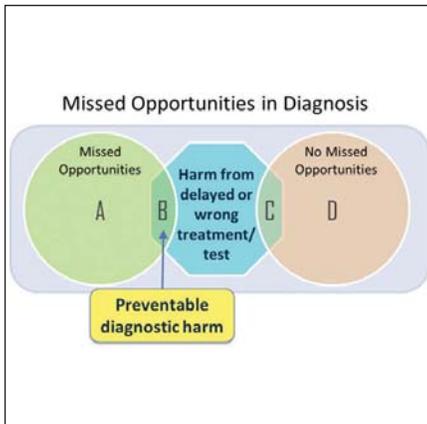


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## Addressing Diagnostic Error: The Challenge for Health Care Organizations

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***“Health care organizations should take an active role in addressing the problem of diagnostic error to provide high-quality care, with the initial challenge being to begin identifying diagnostic errors in routine practice.”***

***—The Next Organizational Challenge: Finding and Addressing Diagnostic Error (p. 108)***



## Diagnostic Error

# Editorial: Helping Health Care Organizations with Defining Diagnostic Errors as Missed Opportunities in Diagnosis

*Hardeep Singh, MD, MPH*

Although diagnostic errors have emerged to be an important cause of harm to patients,<sup>1-4</sup> they seldom rise to the level of other priorities in health care organizations' (HCOs') patient safety portfolios. In their article, Graber and colleagues challenge this current paradigm and present a compelling argument for organizations to develop systematic methods to detect diagnostic errors.<sup>5</sup> Their selected case studies highlight initial progress by a few organizations and illustrate one or more organizational traits that are essential to understand and improve diagnostic performance.<sup>6</sup> These traits include leadership commitment, creating a culture of safer diagnosis, leveraging technology, and creating backup tracking and support systems for frontline clinicians. Attention to diagnostic error is also timely in the context of current reform initiatives related to the National Quality Strategy, an initiative of the Affordable Care Act that prioritizes safer care.<sup>7</sup> Because of the complexity of the "basic science" of diagnostic error, however, HCOs delving into this topic further are bound to face formidable challenges. Their efforts must be grounded in a robust conceptual foundation to address some of these initial obstacles.

One challenge is that the diagnostic process is difficult to operationalize, and the boundaries between diagnostic and other errors in patient care are sometimes blurred. For example, diagnostic errors are often confused with errors related to screening, prevention, management, or treatment. They may also be grouped with other types of safety concerns—such as communication breakdowns, readmissions, and care transitions—that are more readily identifiable but do not necessarily explain the entire problem. To make progress in this area, diagnostic errors must receive a unique place in the landscape of patient care.

Another conceptual challenge that HCOs will face is how to sift through case evaluation data to determine if a diagnostic error occurred.<sup>8</sup> This analysis is not simple because the nature and timing of the error are not always obvious. For example, a diagnosis often evolves over time such that the initial symptoms may not be sufficient to decipher a patient's condition. This is particularly true for rare diseases or highly atypical presentations. Moreover, expert clinicians themselves frequently disagree as to

whether an error was made. Although it's tempting to assign responsibility for a diagnostic error to a single clinician, research suggests that the interplay of both system and cognitive contributory factors is almost universal.<sup>3,9-11</sup> Thus, in our work within our multidisciplinary research group, we have shifted toward rebranding diagnostic errors as "missed opportunities." While our research team continues to refine definitions and measurement, we have found the following three criteria useful in defining diagnostic errors<sup>3,8,12-14</sup>:

**1. Case Analysis Reveals Evidence of a Missed Opportunity to Make a Correct or Timely Diagnosis.** The concept of a missed opportunity implies that something different could have been done to make the correct diagnosis earlier. The missed opportunity may result from cognitive and/or system factors or may be attributable to more blatant factors, such as lapses in accountability or clear evidence of liability or negligence.

**2. Missed Opportunity Is Framed Within the Context of an "Evolving" Diagnostic Process.** The determination of error depends on the temporal or sequential context of events. Evidence of omission (failure to do the right thing) or commission (doing something wrong) exists at the particular point in time at which the "error" occurred.

**3. The Opportunity Could Be Missed by the Provider, Care Team, System, and/or Patient.** A preventable error or delay in diagnosis may occur due to factors outside the clinician's immediate control or when a clinician's performance is not contributory. This criterion suggests a system-centric versus physician-centric approach to diagnostic error.

Reframing diagnostic errors as missed opportunities in diagnosis could help shift attention and resources from attributing blame to learning from these scenarios. HCOs can further contextualize missed opportunities by identifying which aspect of the diagnostic process was vulnerable to error.<sup>15</sup> One potentially useful classification identifies five interactive process dimensions<sup>3</sup>: (1) the patient-provider encounter (history, exam, ordering tests/referrals based on assessment); (2) performance and interpretation of diagnostic tests; (3) follow-up and tracking of diagnostic information over time; (4) subspecialty and referral-

Conceptual Model of Missed Opportunities in Diagnosis

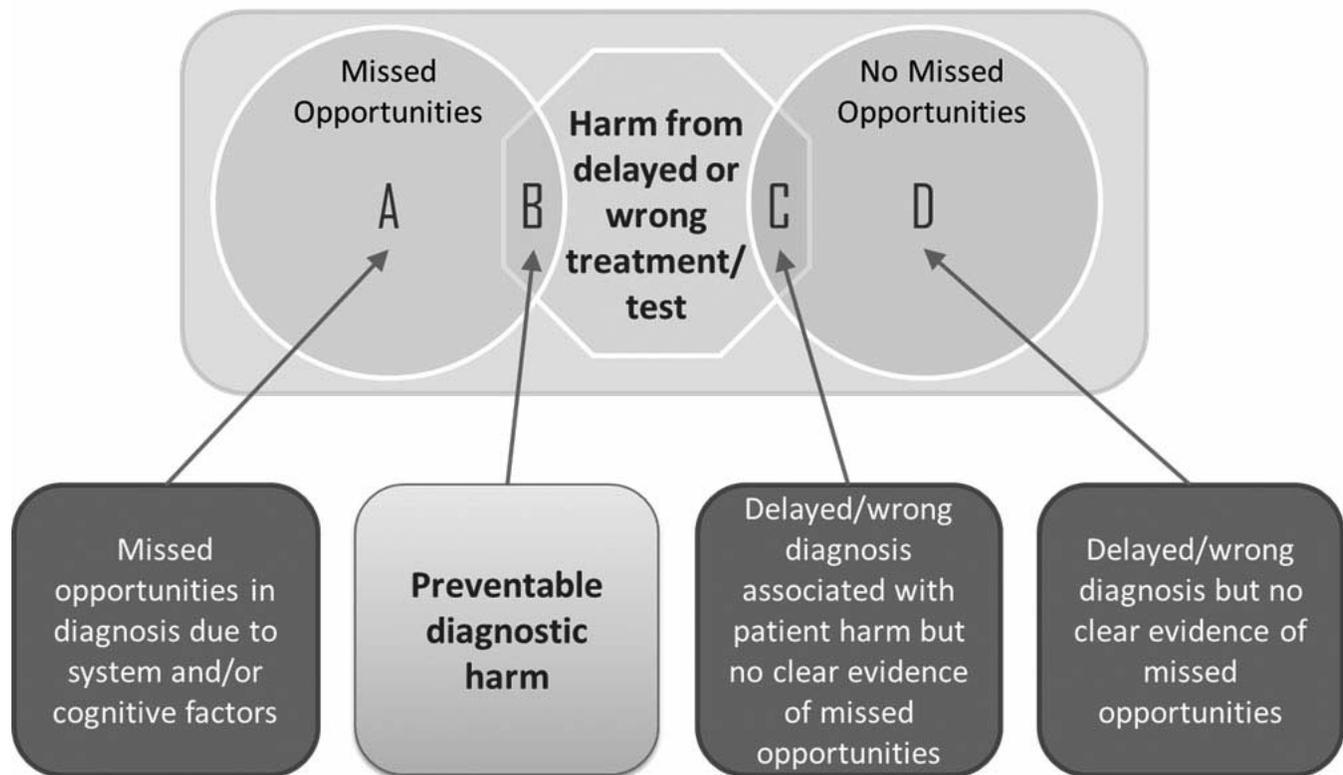


Figure 1. Rather than target all delays in diagnosis, health care organizations could hone their detection strategies by focusing on clear areas of needed improvement (for example, Area B) and choose at least one diagnostic error detection strategy. (Available in color in online article.)

specific issues; and (5) patient-related factors.

HCOs might find it challenging to invest resources to identify and analyze missed opportunities and take action, and thus we need to define the initial scope of the problem. Labeling all delayed or wrong diagnoses as diagnostic errors, regardless of whether there was a missed opportunity, will substantially overestimate their public health burden and will likely lead to overtesting (Figure 1, above). Furthermore, not all missed opportunities will lead to harm. Conversely, research suggests that diagnostic errors often share common process breakdowns across missed opportunities.<sup>3,16</sup> For example, diagnostic errors related to colorectal cancer and lung cancer are often related to missed follow-up of abnormal diagnostic tests.<sup>12,13,17</sup> Similarly, breakdowns in the patient-provider encounter were universally the most common scenario across 190 different types of diagnostic errors in primary care.<sup>3</sup> Redesign of some of these high-risk processes could help address many of the persistent errors. Thus, rather than target all delays in diagnosis, HCOs could hone their

detection strategies by focusing on clear areas of needed improvement (for example, Area B in Figure 1) and choose at least one diagnostic error detection strategy to complement or augment their existing safety and/or risk management programs.

HCOs should explore how best to leverage available data sources to study missed opportunities in diagnosis and design appropriate intervention strategies. While a national emphasis on error reporting continues, currently there are no standardized mechanisms or incentives for providers to report diagnostic errors. As an alternative to voluntary reporting, HCOs with a robust electronic health record infrastructure should pursue electronic triggers; they are one of the most promising tools on the horizon and can be selective for conditions likely to result in meaningful harm (for example, cancer).<sup>18,19</sup> As a second alternative, organizations could partner with their malpractice claims providers and/or patient safety organizations to gain useful insights.<sup>20</sup> Data from peer review could also provide some insight, but currently there is no evidence that HCOs are using such data

for improvements in safety.<sup>21</sup> Nevertheless, our recent work suggests that peer review data might be another underexplored and underutilized source of data for diagnosis-related safety concerns.<sup>22</sup> Researchers should investigate novel ways of asking patients about their experiences in obtaining an accurate diagnosis and work with HCOs on developing future best practices. Given the relatively young state of the science in this area and the cross-cutting process factors that affect many diagnoses, HCOs are likely to get “more bang for their buck” even if they choose only one detection strategy from this menu.

Finally, HCOs will find it challenging to make their discoveries generalizable outside their own systems. However, in the spirit of transparency and what’s best for our patients, efforts must be made to find common ground to create generalizable knowledge. Other than malpractice claims, most knowledge about diagnostic error has come from a handful of HCOs,<sup>2</sup> and we can no longer rely on these few as our sole data sources. Both the media and patient care advocates have called for widespread attention to this topic.<sup>23</sup> I would encourage all HCOs to pick one strategy to look for missed opportunities in diagnosis and over time share their experiences and lessons with others on a common Web-based platform. It will take a few more HCOs to gather the momentum. Although some HCOs might be surprised to learn the extent of the incidence of missed opportunities, all of them should find ways to address them increasingly rewarding. ■

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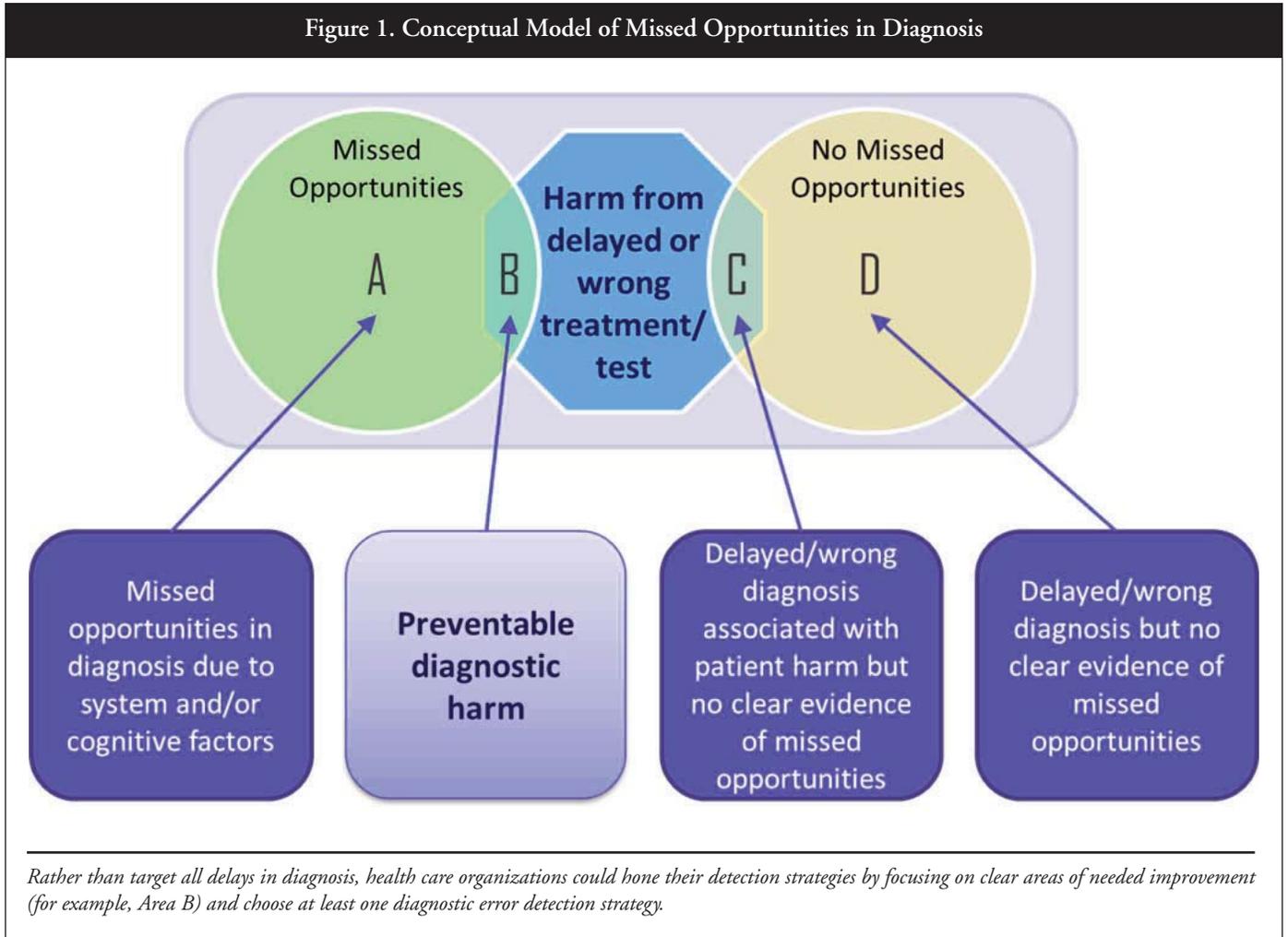
## Online-Only Content

See the online version of this article for  
Figure 1. Conceptual Model of Missed Opportunities in Diagnosis  
(color version)

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Figure 1. Conceptual Model of Missed Opportunities in Diagnosis



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