

## IMPROVING CARE: PART I

# DIAGNOSTIC ERRORS IN INTERNAL MEDICINE

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**D**iagnostic error is defined by the National Academies of Sciences (formerly Institute of Medicine) as failure to (a) establish an accurate and timely explanation of the patient's health problem(s) or (b) communicate that explanation to the patient. Diagnostic errors contribute to approximately 10% of patient deaths and medical record reviews suggest that they account for 6 to 17 percent of adverse events in hospitals.<sup>1</sup>

One of the Core Competencies of hospitalists described by the Society of Hospital Medicine emphasize the importance of hospitalist to be able to minimize the hazards of diagnostic and management strategies, hence indicating their vital role in controlling error.<sup>2</sup>

Diagnostic errors may be subtle and difficult to measure in the hospital and outpatient setting. A slip could be as trivial as giving potassium supplements to a patient who is already receiving IV fluids containing potassium for hypokalemia and making the patient hyperkalemic enough to require ICU care. Although these errors may superficially seem to be of low impact, they have the potential for grave consequences. They account for poor quality of care, increased morbidity, and longer length of stay.

Diagnostic errors in primary care settings are important as well since the primary care provider's (PCP) office is usually the first patient contact for a disease symptom because of easy accessibility. Typically PCPs see high patient volumes and make quick decisions. In addition, PCPs have to accurately assess and balance diagnostic testing with often scarce and costly referral resources. Five dimensions are important when considering diagnostic error in primary care. These include patient provider encounter, diagnostic tests, follow up and tracking, referral and coordination with sub-specialist and patient behavior.<sup>3</sup>

Medical care is fraught with heavy interdependence on generalist and specialist care. Any overlook in the system, in part by a provider, can lead to diagnostic er-

ror. If, for example, a radiologist has made a perceptual or cognitive error in reporting an imaging study, it may lead to delayed diagnosis and poor outcome. Improving timely and correct diagnosis will enhance quality; reduce mortality, readmissions and cost of care. It is our professional and moral responsibility to improve the diagnostic process. One of the important goals of the electronic medical record (EMR) is to enhance quality and safety of care. As currently used, EMRs are far from ideal, but EMRs have changed the diagnostic workflow and improved diagnostic accuracy. At the same time it has also raised many concerns and problems.

According to the National Academies of Sciences report failure to communicate a patient's health problem, is a subcategory of diagnostic error because patients and their families are considered part of the diagnostic team.<sup>4</sup> Effective communication and collaboration among all members of the diagnostic team are required to improve healthcare quality and outcomes and reduce the incidence of diagnostic error.

ACGME requires residents to know how to report patient safety events, including near misses. Residents have the opportunity to participate in disclosing such events to patients, real or simulated. The Clinical Learning Environment Review (CLER) Program is designed to provide U.S. teaching hospitals, medical centers, health systems, and other clinical settings affiliated with ACGME-accredited institutions with periodic feedback that addresses six Focus Areas including Patient Safety and Health Care Quality. Many teaching hospitals have instituted programs to address this specific area which will have a direct effect on diagnosis and management errors.

Current trends of major academic centers collaborating with smaller medical centers as a referral base have led to increased hospital-to-hospital transfers. As a result diagnostic discordance was common (85.5%) during inter-hospital transfers and was associated with

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increased inpatient mortality. At the same time, State Health Information Exchanges have decreased diagnostic discordance and improved patient outcomes.<sup>5</sup>

Cognitive mistakes are behind many diagnostic errors. A recent study showed that physician burnout is likely an independent factor for medical errors than system level factors.<sup>6</sup> Thus, handling burnout and improving wellness initiatives are likely to reduce diagnostic errors. Subtle clinician biases are yet another cause of diagnostic error, which may not be evident to physicians particularly in the setting of shift work and frequent handoffs, when they may not have the opportunity to review and receive feedback for their diagnoses over time. Computerized decision support mechanisms are helpful but have not yet proven to be a reliable method to improve overall diagnostic accuracy.

Reducing diagnostic errors is a complex process. Lack of measures of diagnostic accuracy remains a big challenge. Current quality measures do not take diagnostic accuracy into

account. However, collaboration at all levels is needed to achieve gains. This will involve instituting or the strengthening of educational agendas to improve the metacognitive abilities of clinicians, fostering intuitive reasoning and increasing awareness of the role of systems in the diagnostic process.<sup>7</sup> System-wide EMR standardization, proper Health Information Exchange, and closely working with governmental and professional agencies will likely reduce diagnostic errors and promote a quality and safety culture in our medical centers.

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