

The root causes that contribute to diagnostic error can be clinician cognitive factors, systems factors, and patient factors. Cognitive factors include perceptual and thought processes, which are in turn influenced by differences in clinician training and experience, predisposition to cognitive and affective biases, fatigue, stress, and a variety of other elements. System factors refer to organizational vulnerability to diagnostic error and may include faulty communication practices, inadequate coordination of care, inadequate supervision, poorly designed technology and work environment, reduced availability of resources or personnel, inadequate feedback, and a culture that does not necessarily promote effective learning from error (Kissam, 2010). Patient-related factors include variability in communication styles and practices, heterogeneity in patients' clinical presentation to providers, and differential access to personal health information.

Electronic Health Records (EHRs) can improve physician's ability to diagnose diseases and prevent, minimize or mitigate diagnostic errors. A provider using an EHR can access a more comprehensive look at a patient's medical records, medication history, pre-existing conditions and much more, helping the treating physician to consider the bigger picture before making a diagnosis and recommending treatment (Gordon, 2011). The following features EHRs can adopt in their designs to aid in physician's diagnostic analysis:

- EHRs can help physician cognition process through aggregation, contextual relevance, and minimizing of superfluous data.
- Ensuring that problem lists are integrated into the workflow to allow for continuous updating.

- Ensuring coordination and continuity of care by aggregating and integrating data from all care episodes and fragmented encounters to permit thoughtful synthesis.
- Provide checklists to minimize reliance on memory and directed questioning to aid in diagnostic thoroughness and problem solving.
- Embed calculator into notes to reduce errors and minimize biases in subjective estimation of diagnostic probabilities.
- Provide instant access to knowledge resources through context specific info-button triggered by keywords in notes that link care provider to relevant diagnostic guidelines.
- Integrate immediate online or telephone access to consultants for a second opinion about a diagnostic assessment.
- Clinical decision support systems integrated within EMR can provide a list of possible tests to rule out various disorders.

Other best practices that can reduce diagnostic errors are:

- Automatically double-checking clinician interpretations of test results.
- Enhanced staffing during periods of heavy workload might improve supervision of trainee physicians.
- Addressing problems with particular contributing factors—such as handoffs, supervision, and workload—may also prove to be high-yield strategies

References:

Kissam, SM (Kissam, 2010). System-related interventions to reduce diagnosis errors. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/2212930>

Schiff, Gordon (Gordon, 2011). Can Electronic clinical documentations help to prevent diagnostic errors? Retrieved from <http://www.nejm.org/doi/full/10.1056/NEJMp0911734>

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