REDUCING DIAGNOSTIC ERROR
BY USING DDX SUPPORT ON
PATIENT ROUNDS

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Society to Improve Diagnosis in Medicine

- Diagnostic error is one of the most important safety problems in healthcare today, and inflicts the most harm.
- Major diagnostic errors are found in 10% - 20% of autopsies, suggesting that some 40,000 - 80,000 patients die annually in the US from diagnostic errors.
- The Institute of Medicine reports that 1 in 10 diagnoses are incorrect.
Patient surveys confirm that at least one person in three has first-hand experience with a diagnostic error.

Researchers have found that diagnostic errors - not surgical mistakes or medication overdoses - account for the largest fraction of malpractice claims, the most severe patient harm and the highest total of penalty payouts.

A recent study found that one in twenty primary care patients will experience a diagnostic error every year.
The Institute of Medicine recently defined diagnostic error as the failure to either:

- Establish an accurate and timely explanation of the patient’s health problem(s)
- Communicate that explanation to the patient
DIAGNOSTIC ERROR

- Types of diagnostic error
  - *Missed diagnosis* refers to a patient whose medical complaints are never explained
  - *Wrong diagnosis* occurs when an original diagnosis is found to be incorrect because the true cause is discovered later
  - *Delayed diagnosis* refers to a case where the diagnosis should have been made earlier
WHY DIAGNOSTIC ERRORS OCCUR

- Rarely due to substandard care
  - Most diagnostic errors are made by conscientious clinicians practicing in first-rate medical organizations
- Errors are most often due to:
  - Complexity of the diagnostic process
  - Complexity of health care delivery
  - Cognitive errors
WHY DIAGNOSTIC ERRORS OCCUR

- Complexity of the diagnostic process
  - 10,000+ known diseases
  - 5,000 laboratory tests
  - Small number of symptoms, any symptom may have dozens or hundreds of possible explanations
  - Diagnostic testing may be helpful to clarify the problem, but often the clinician must observe the clinical course in order to make a diagnosis, which takes time
WHY DIAGNOSTIC ERRORS OCCUR

- Complexity of health care delivery
  - Healthcare systems link together hundreds of different processes, practices, procedures and technologies
WHY DIAGNOSTIC ERRORS OCCUR

- Cognitive errors
  - Failing to notice a key finding
  - Misinterpreting what was said
  - Jumping to conclusions
  - Anchoring
  - Premature closure
IMPROVING DIAGNOSIS

Institute of Medicine 2015 report *Improving Diagnosis in Health Care*

- Health IT has the potential to support the diagnostic process through clinical decision support (CDS) tools
- CDS provides clinicians and patients with knowledge and person-specific information that is intelligently filtered or presented at appropriate times to enhance health and health care
DDX GENERATORS

- Evidence shows that the most effective way for clinicians to improve the quality and speed of diagnosis is for them to work up a comprehensive hypothesis or list of likely diagnoses (differential diagnosis) for their patient.

- A DDX generator can help clinicians to generate differential diagnoses for their patients within their workflow.
DDX GENERATORS

- The Effectiveness of Electronic Differential Diagnoses (DDx) Generators: A Systematic Review and Meta-Analysis (2016)
  - Electronic DDx generators are evolving technologies which have the potential to reduce error by augmenting and influencing the diagnostic reasoning process of clinicians
  - Reviewed literature and found the DDx generator Isabel was associated with the highest rates of accurate diagnosis retrieval compared to all other types of DDx tools
IMPROVING DDX AT GEORGETOWN

- The Senior Clinical Informationist at Georgetown University Medical Center has been accompanying clinicians at MedStar Georgetown University Hospital on daily patient rounds since 2009
- Began helping clinicians use Isabel in 2012
IMPROVING DDX AT GEORGETOWN

- Using Isabel may help prevent:
  - Premature closure - clinicians make a quick diagnosis, fail to consider other possible diagnoses and stop collecting data
  - Anchoring - clinicians steadfastly cling to an initial impression even as conflicting and contradictory data accumulate
IMPROVING DDX AT GEORGETOWN

- The informationist or clinician accesses Isabel on a mobile device using either the Isabel website or mobile app.
- Clinical features including age, sex, travel history and symptoms are entered and a list of possible diagnoses are returned.
- “Don’t miss” diagnoses are highlighted with a red flag, alerting the clinician to serious conditions requiring immediate treatment.
Diagnostic error is one of the most important safety problems in healthcare today.

Electronic DDx generators have the potential to reduce error by augmenting and influencing the diagnostic reasoning process of clinicians.

Clinical librarians and informationists can increase awareness of DDx generators and help clinicians utilize them to improve the quality of their diagnoses.
QUESTIONS?