

REDUCING DIAGNOSTIC ERROR BY USING DDX SUPPORT ON PATIENT ROUNDS

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DIAGNOSTIC ERROR

- ▶ 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

DIAGNOSTIC ERROR

- ▶ 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

DIAGNOSTIC ERROR

- ▶ 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

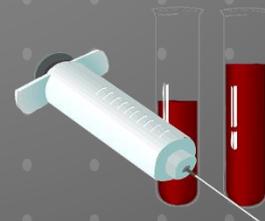
- ▶ Types of diagnostic error
 - ▶ *Missed diagnosis* refers to a patient whose medical complaints are never explained
 - ▶ *Wrong diagnosis* occurs when an original diagnosis is found to be incorrect because the true cause is discovered later
 - ▶ *Delayed diagnosis* refers to a case where the diagnosis 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

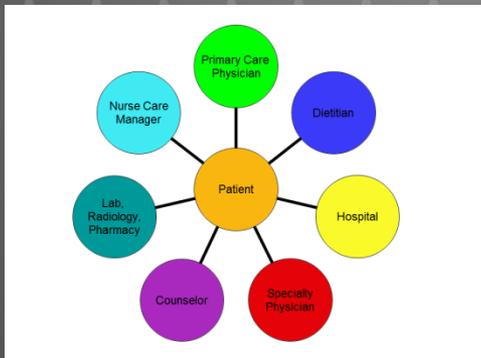
WHY DIAGNOSTIC ERRORS OCCUR

- ▶ 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



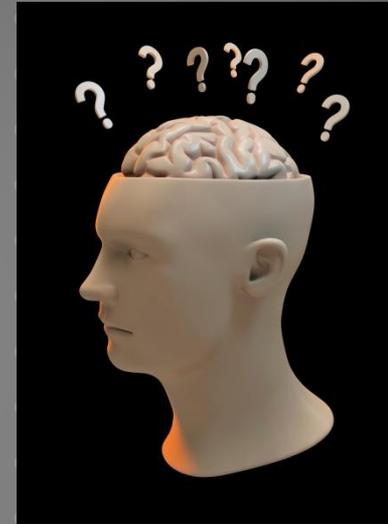
WHY DIAGNOSTIC ERRORS OCCUR

- ▶ 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

SUMMARY

- ▶ 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?



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