Clinical Informatics and Clinician Engagement

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Agenda

▶ What is Clinician Engagement?

▶ Examining the changing landscape of Clinical Informatics

▶ Review the role of patient generated data for clinical decision-making

▶ Discuss the use of external data sources to enrich clinical data, including socio-economic data

▶ Examine the role of data mining and the data conversation for clinicians

▶ Explore the future of mobile applications for Clinical Informatics

What is Clinical Informatics?

▶ Clinical Informatics (aka Health Informatics) promotes the understanding, integration, and application of information technology in healthcare settings. (HIMSS)
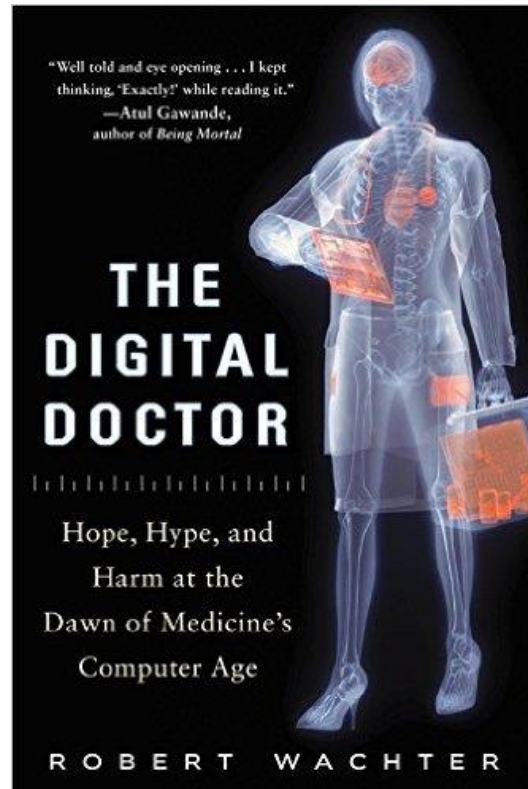
"Written with a rare combination of compelling stories and hard-hitting analysis by one of the nation's most thoughtful physicians, *The Digital Doctor* examines healthcare at the dawn of its computer age. It tackles the hard questions, from how technology is changing care at the bedside to whether government intervention has been useful or destructive. And it does so with clarity, insight, humor, and compassion. Ultimately, it is a hopeful story." (Amazon)

What is Clinician Engagement?

- You need a **strategy** to gain buy-in

- Include physicians in the planning phases

- Engage their intellect, they are rational thinkers

- Have a common goal – **improved patient care or outcomes**

- Use data visualization or the data conversation to allow the clinician to **"discover"** better decision-making

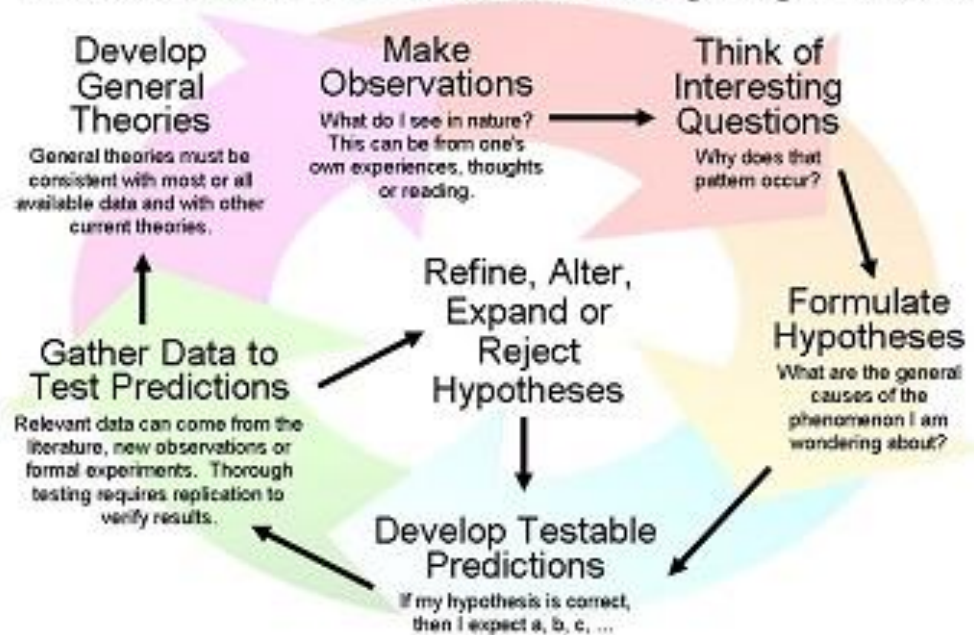- Use data in a common sense manner

Creating a Strategy to Gain Buy-in

▶ Engage them on their own turf

▶ Work hard to understand the problem that they want to solve

▶ Be open to their ideas for the solution

▶ Agree on the definition of success

▶ Don't let perfection be the enemy of good

▶ Iterate the process of continuous improvement

Engage their intellect

▶ Is there an enjoyment of intellectually demanding activities?

▶ Outline the key steps for problem-solving <u>with</u> them (think scientific method)

▶ Discuss how the data will be collected or combined with other data

▶ Consider a "Data Conversation" to discover more action-oriented analytics versus adhoc reporting

▶ Don't dodge the data quality issues

The Scientific Method as an Ongoing Process

Develop General Theories
General theories must be consistent with most or all available data and with other current theories.

Make Observations
What do I see in nature? This can be from one's own experiences, thoughts or reading.

Think of Interesting Questions
Why does that pattern occur?

Formulate Hypotheses
What are the general causes of the phenomenon I am wondering about?

Gather Data to Test Predictions
Relevant data can come from the literature, new observations or formal experiments. Thorough testing requires replication to verify results.

Refine, Alter, Expand or Reject Hypotheses

Develop Testable Predictions
If my hypothesis is correct, then I expect a, b, c, ...

12

Great example:
"Why can't I get OR time for an unplanned surgery? I'm frustrated!"

One Room for Multiple Days

Improved Patient Care or Outcomes

- Have a common goal – **improved patient care or outcomes**

- Methodology counts!

- Free text isn't useful for analytics, only sentiment analysis

- Be prepared to close the loop with the patient on how the data will be used to improve their care

The Changing Landscape

- Desire to collect data from the patient prior to the visit
  - Waiting room - Questionnaires
  - Survey
  - Website – feedback on clinical trials
- Desire to use advanced analytics, including algorithms and predictive modeling
  - Built into a mobile application
- Desire to examine groups of patients as phenotypes for common needs or experience (cohorts)
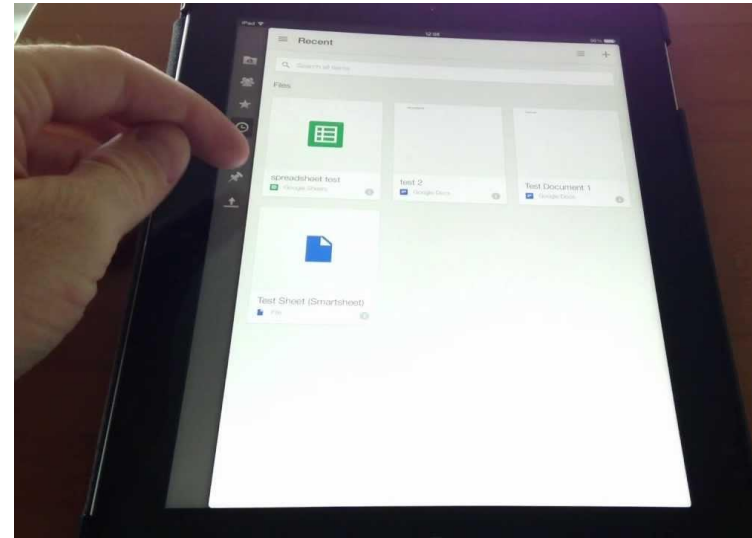
The role of patient-generated data for clinical decision-making

▶ The process must include a journey map of the patient experience that is linked to the goals for the data collection

Human-centric design is important – better to be clear than have cute graphics

Using external data to enrich clinical data, especially socio-economic data

▶ Healthcare is largely a geographic experience – you seek access where it is the most convenient

▶ Use of the American Community Survey (ACS) data tables and tools to help clinicians understand the changes taking place in their communities

▶ Socio-demographic factors that may impact the rate of admission, for example, include age, sex, race and socio-economic status – these variables improve risk scores as well

▶ Value-based programs will require clinicians to evaluate their patients for the ability to comply with clinical protocols, especially for chronic conditions

  ▶ Ability to afford medications

  ▶ Ability to get transportation to follow-up visit after discharge

  ▶ Availability of care-takers

The importance of data-mining and the data conversation for clinicians

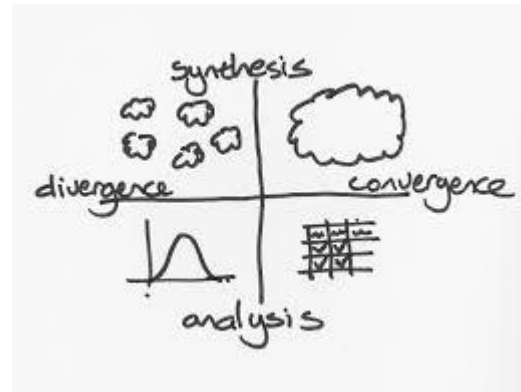- Measuring success – how to know when the goal has been reached

Monitoring and Measuring Success

Setting the Stage

- What is the question?
- What information is needed to answer the question?
- Is this information available?

Developing an Action Plan

Examining the Data

- Setting goals and objectives
- Developing the plan
- Training the stakeholders
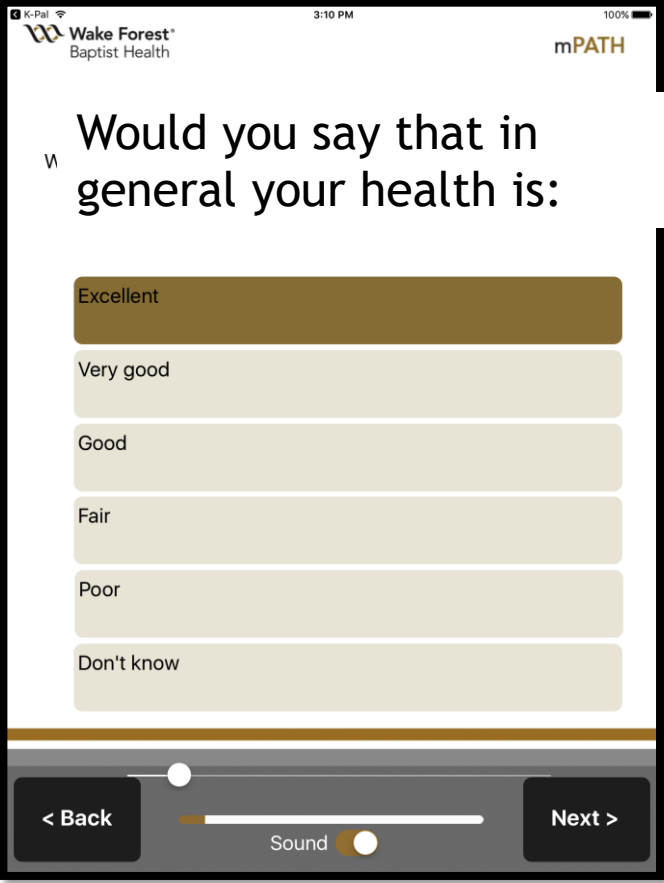
- Looking for patterns and making observations
- Exploring data limitations
- Is this information available?

Understanding the Findings

- Choosing a key challenge
- Examining the value of the challenge
- Brainstorming possible driving factors for strengths and challenges

Future role of mobile applications for Clinical Informatics

▶ Data collection in the waiting room for more patient-centric care

▶ Calculator type applications to help people assess their clinical options

▶ Mobile applications that employ predictive models or algorithms to help patients see future outcomes

▶ Mobile applications that help the patient or care-giver assess status and seek help when needed

Questions?