

EHR Configuration Challenges and Opportunities

Dr. Dean Sittig

A Socio-technical Model for Safe and Effective HIT Implementation & Use

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About

Joe Smith:

How to use a paper towel

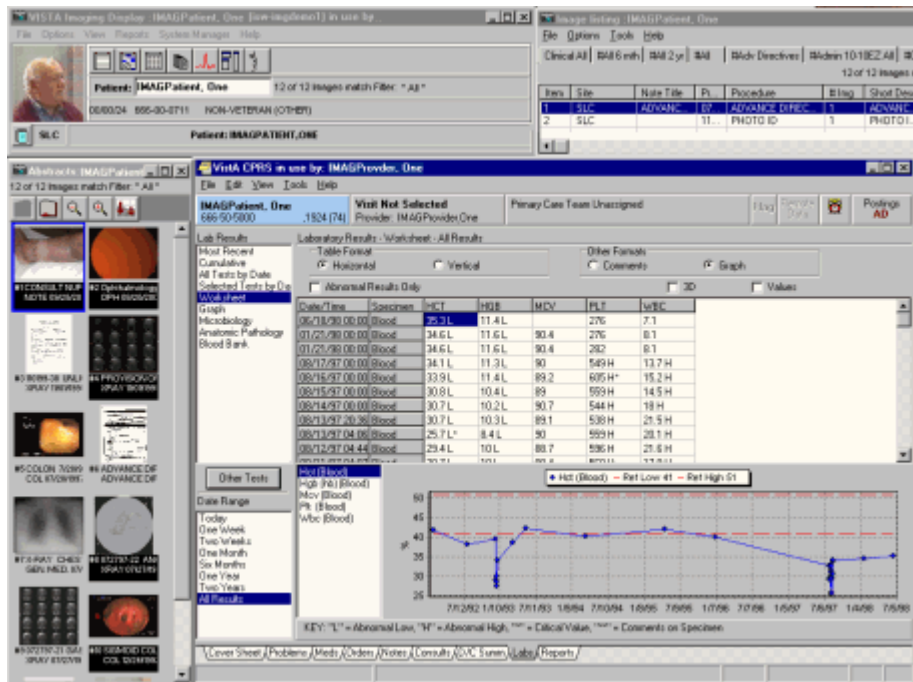
TEDxConcordiaUPortland · 4:31 · **Filmed** Mar 2012

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An EHR is not an ATM



#



SHARP-c Clinical Summarization

- Started with a grand plan
- Quickly realized that there were many obstacles in our path...
 - Data availability and interpretability issues
 - Gaps in computer-readable knowledge bases
 - Limitations of current EHR interfaces
 - No clear agreement on what summarization even meant!
- Didn't even have the tools – theories or frameworks – to address these sorts of complex, socio-technical problems

Modern healthcare system is a complex adaptive system

- Non-linear and dynamic: does not reach a steady state
- Composed of independent agents whose behavior based on physical, psychological or social rules
- Independent agents are not the same

Modern healthcare system is a complex adaptive system

- Agents are intelligent
- Adaption and change leads to self-organizing behaviors
- Result in systems which are unpredictable and uncontrollable

HIT can improve safety and effectiveness of healthcare



Randomized clinical trial of pressure-controlled inverse ratio ventilation and extracorporeal CO₂ removal for adult respiratory distress syndrome.

A H Morris, C J Wallace, R L Menlove, T P Clemmer, J F Orme, Jr, L K Weaver, N C Dean, F Thomas, T D East, N L Pace, M R Suchyta, E Beck, M Bombino, D F Sittig, S Böhm, B Hoffmann, H Becks, S Butler, J Pearl, and B Rasmussen

8-dimension Socio-Technical Model of Safe & Effective EHR Use

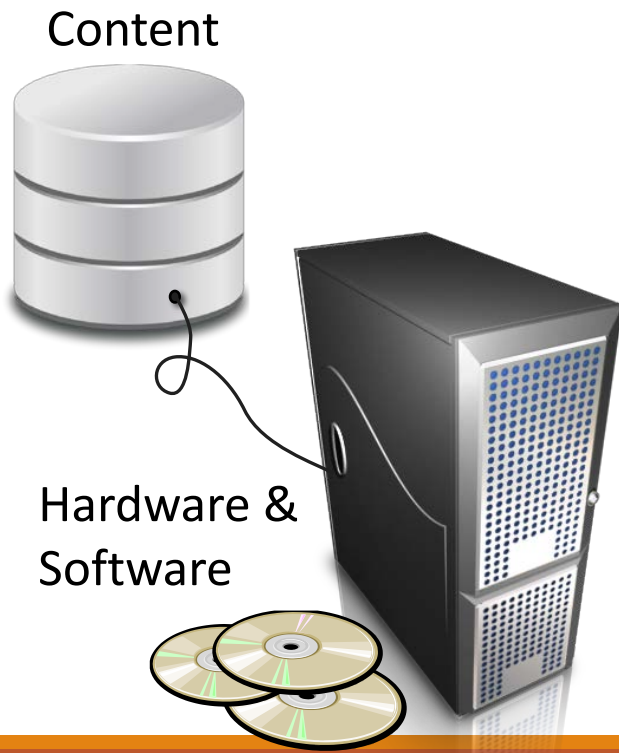
Hardware &
Software



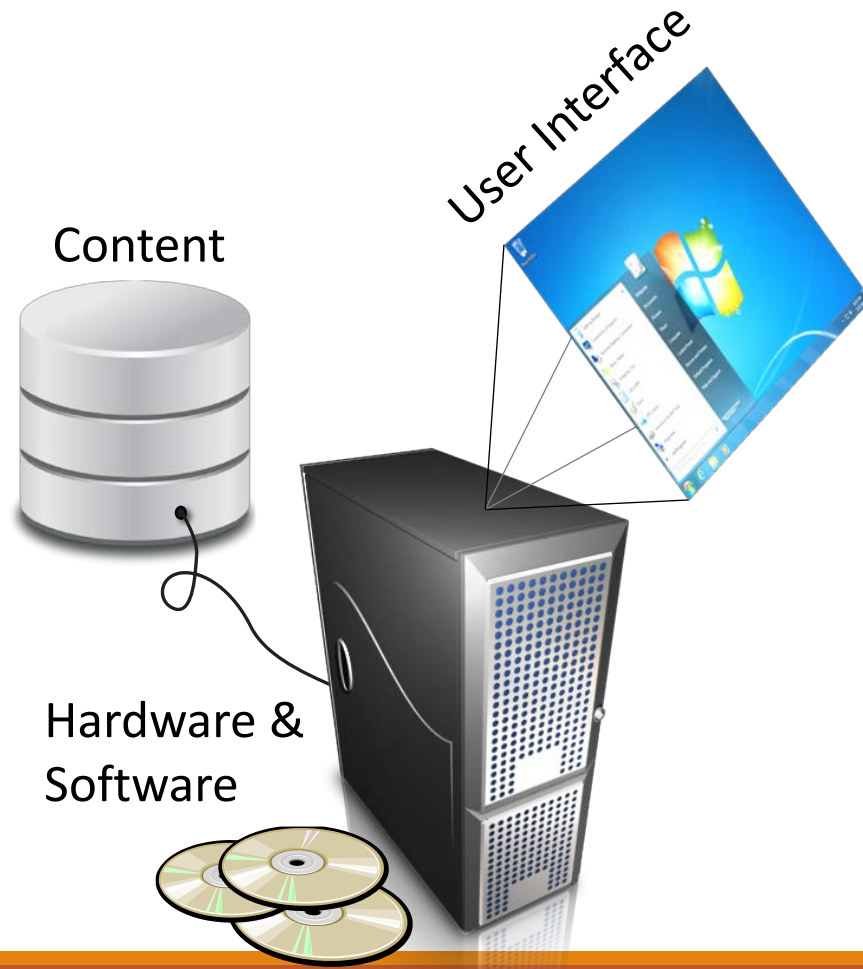
JAMA 2009; 302(10):1111-3

Quality & Safety in Healthcare 2010; 3:i68-74

8-dimension Socio-Technical Model of Safe & Effective EHR Use



8-dimension Socio-Technical Model of Safe & Effective EHR Use



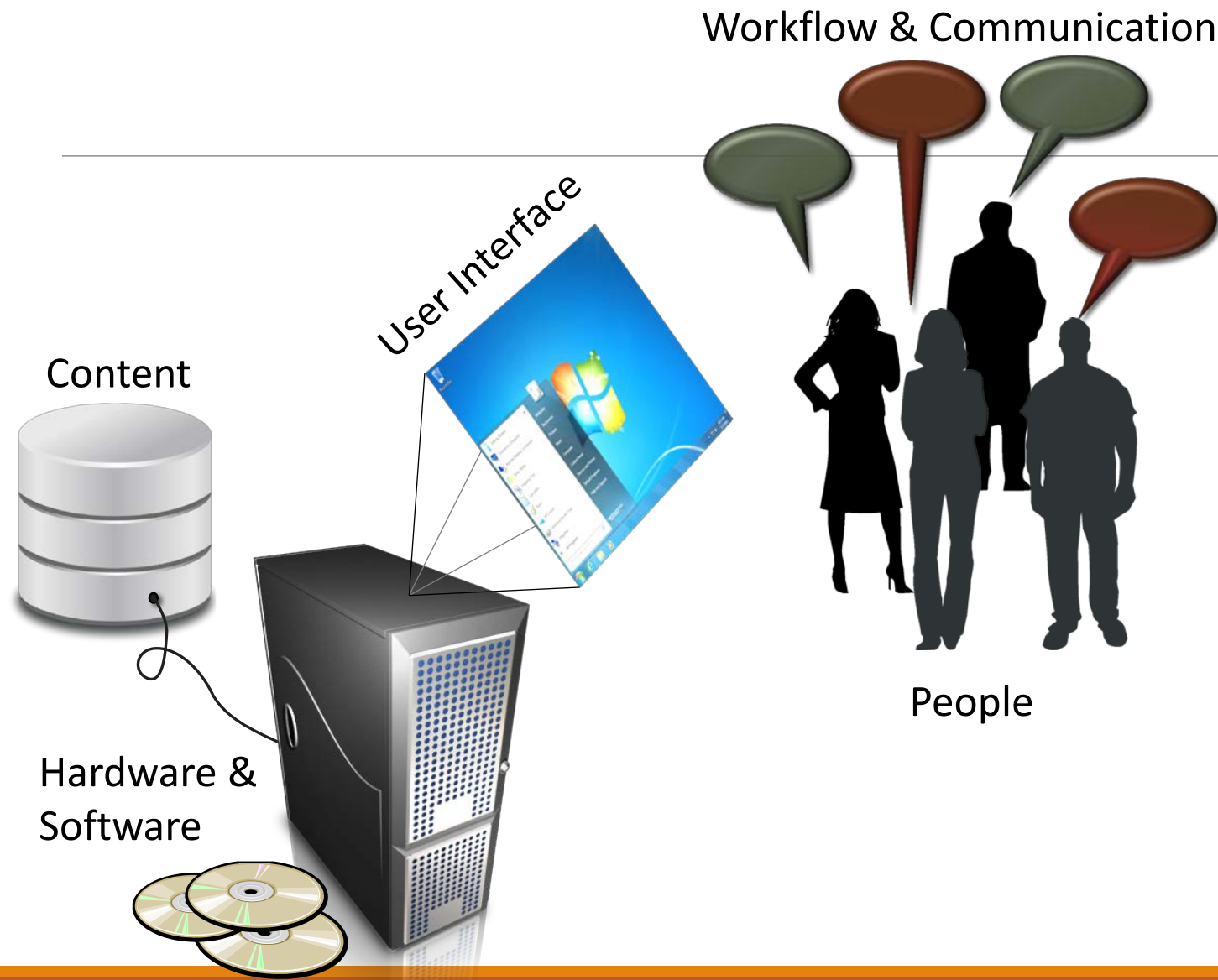
8-dimension Socio-Technical Model of Safe & Effective EHR Use



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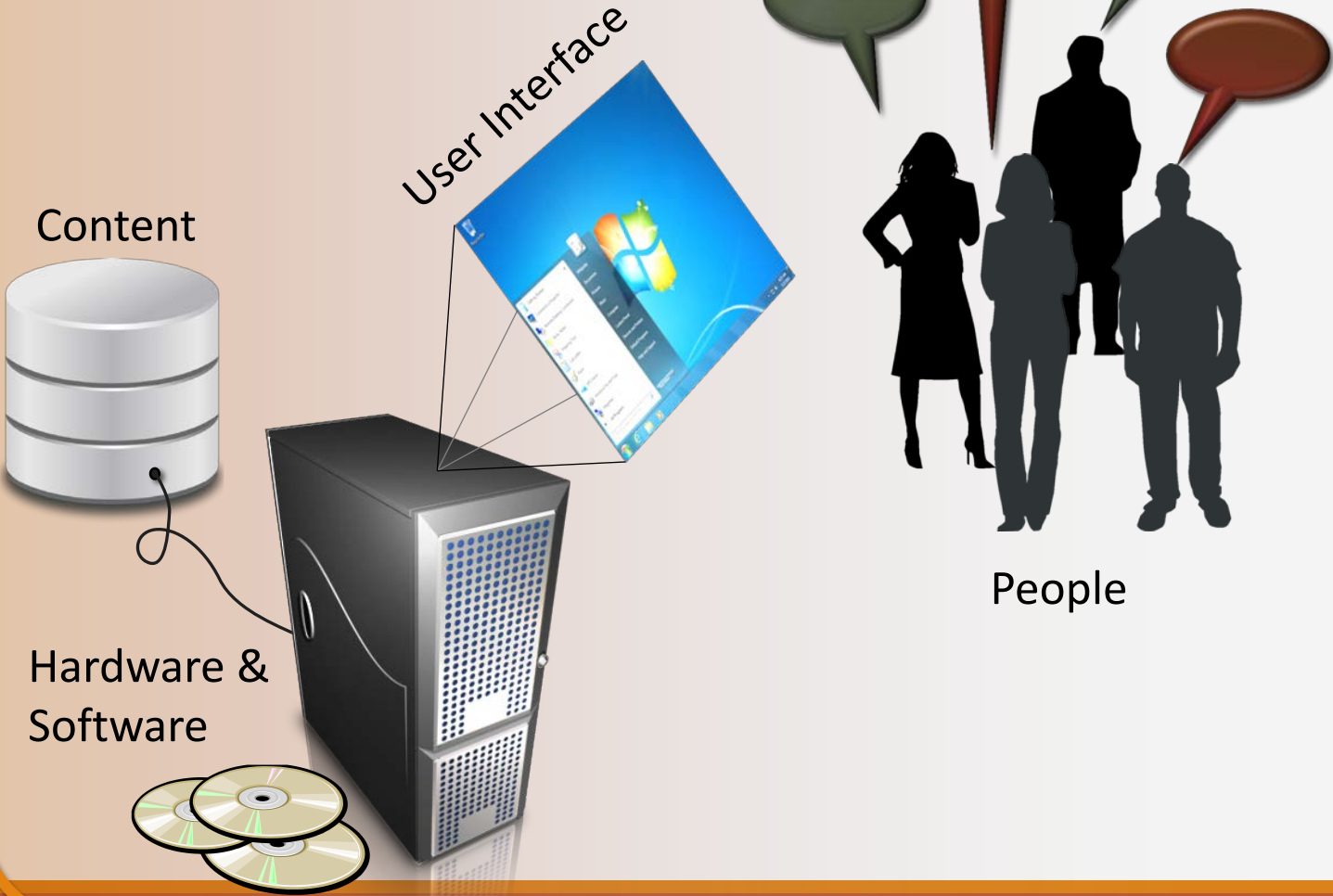
8-dimension Socio-Technical Model of Safe & Effective EHR Use



8-dimension Socio-Technical Model of Safe & Effective EHR Use

Organizational Policies,
Procedures, & Culture

Workflow & Communication



8-dimension Socio-Technical Model of Safe & Effective EHR Use

Organizational Policies,
Procedures, & Culture

Workflow & Communication

User Interface

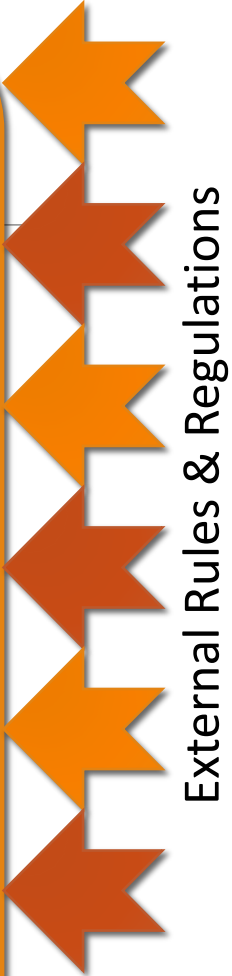
Content



Hardware &
Software



People



External Rules & Regulations

8-dimension Socio-Technical Model of Safe & Effective EHR Use

Organizational Policies,
Procedures, & Culture

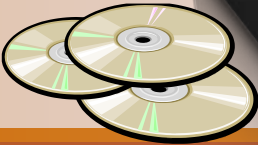
Workflow & Communication

User Interface

Content



Hardware &
Software



People

External Rules & Regulations



Measurement
& Monitoring



JAMA 2009; 302(10):1111-3

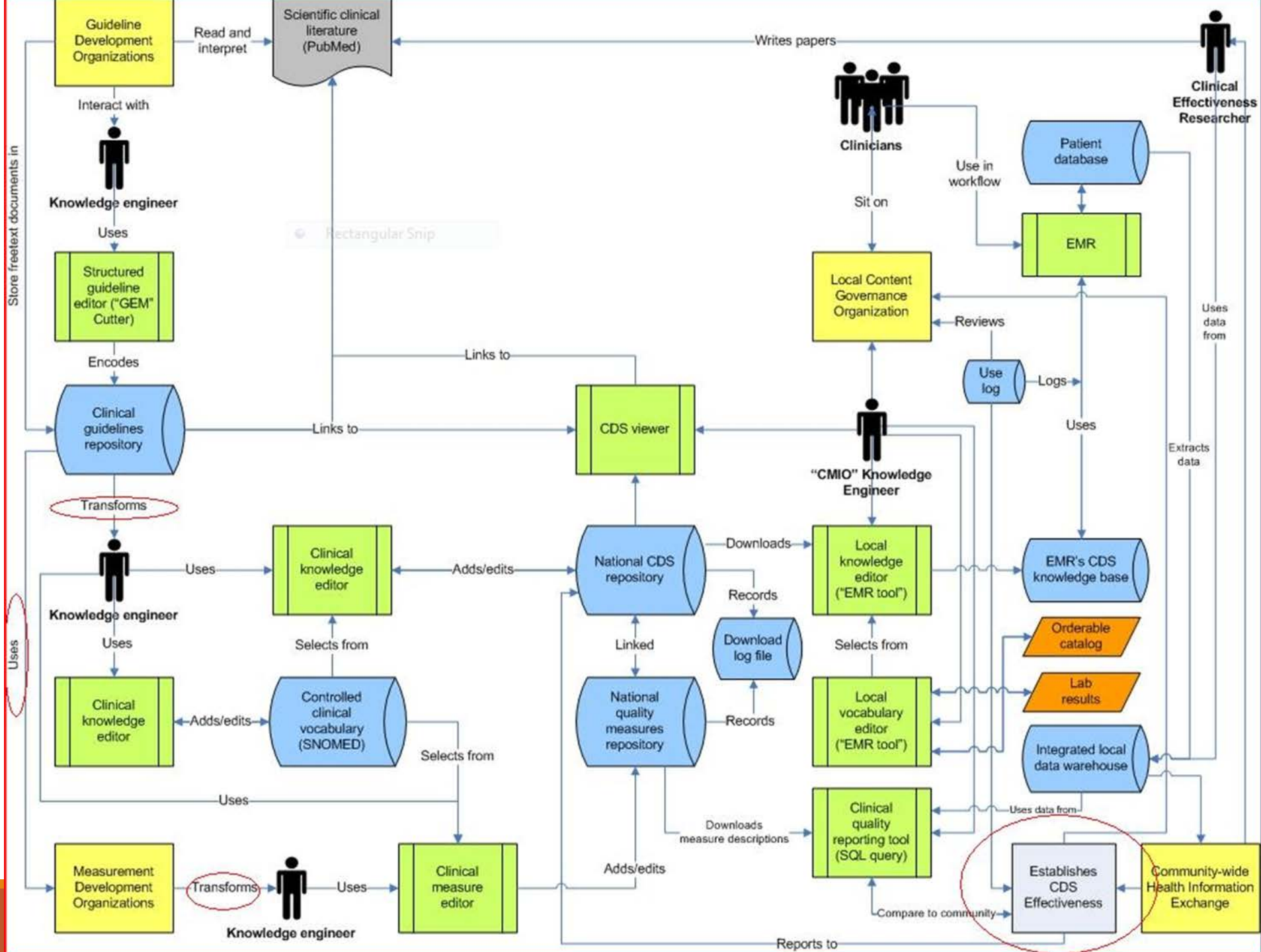
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- A key unaddressed Grand Challenge in clinical informatics
- Requires multiple steps, each with major socio-technical obstacles:
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- Failure to address this challenge is NOT an option
- Require long-term commitment using a socio-technical approach

J Am Med Inform Assoc 1994; 1(5):412-413

J Biomed Inform. 2008 Apr;41(2):387-92

J Biomed Inform. 2011 Aug;44(4):688-99

Thank You!

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