

UVic eHealth Observatory

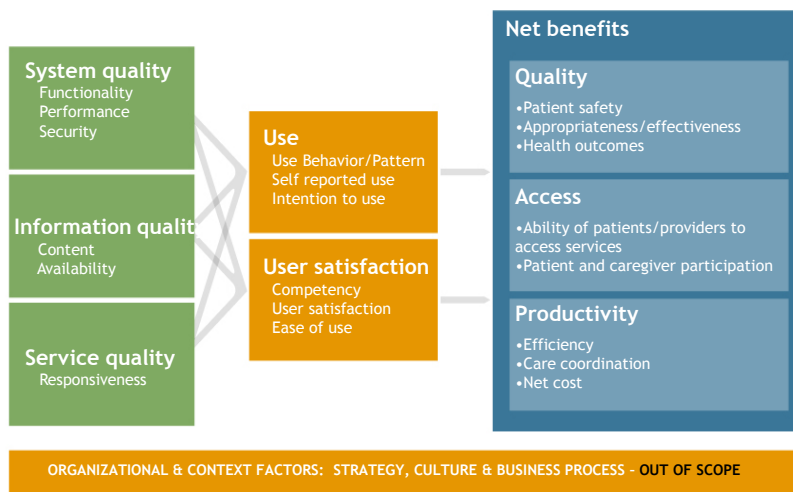
Francis Lau PhD, Professor and eHealth Chair
School of Health Information Science, University of Victoria

- **Key concepts and frameworks in HIS evaluation**
- **Practicality and rigor of different approaches**
- **Examples from literature and challenges**



Key Concepts and Frameworks in HIS Evaluation, #1

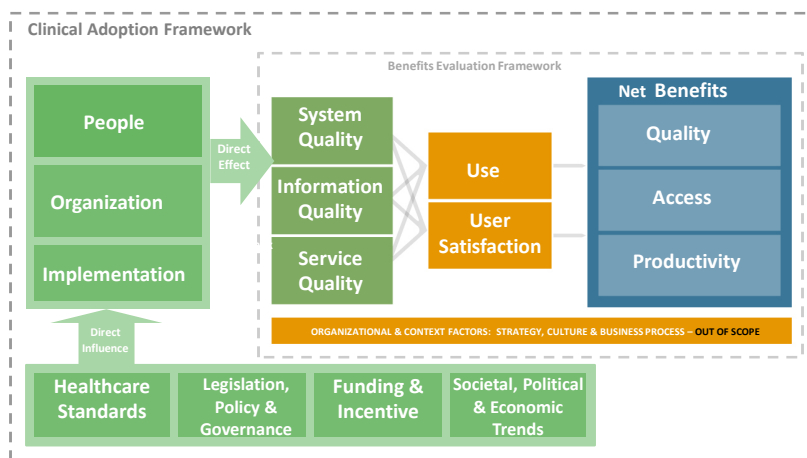
Infoway Benefits Evaluation Framework



Lau F, Muttit S, Hagens S. A proposed benefits evaluation framework for HIS in Canada. *Healthcare Quarterly* 2007;10(1):112-8.

Key Concepts and Frameworks in HIS Evaluation, #2

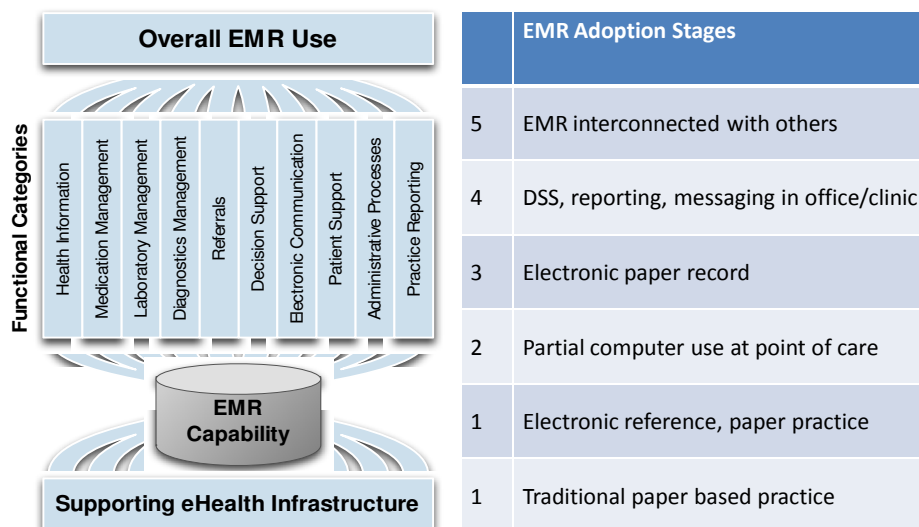
Proposed Clinical Adoption Framework



Lau F, Price M, Keshavjee K. From benefits evaluation to clinical adoption: Making sense of HIS success in Canada. *Healthcare Quarterly* 2011;14(1):39-45

Key Concepts and Frameworks in HIS Evaluation, #3

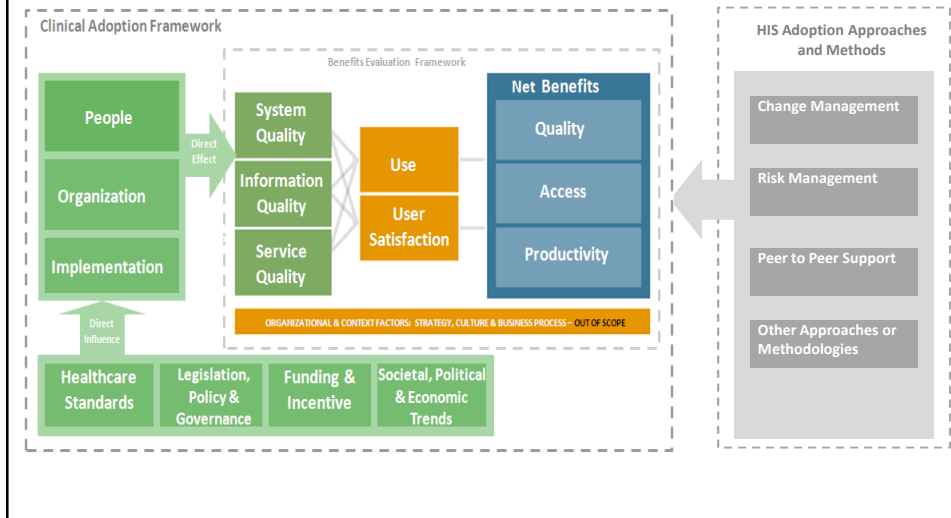
EMR Adoption Framework



Price M, Lau F, Lai J. Measuring EMR adoption: A framework and case study. *ElectronicHealthcare* 2011;10(1):e25-e30

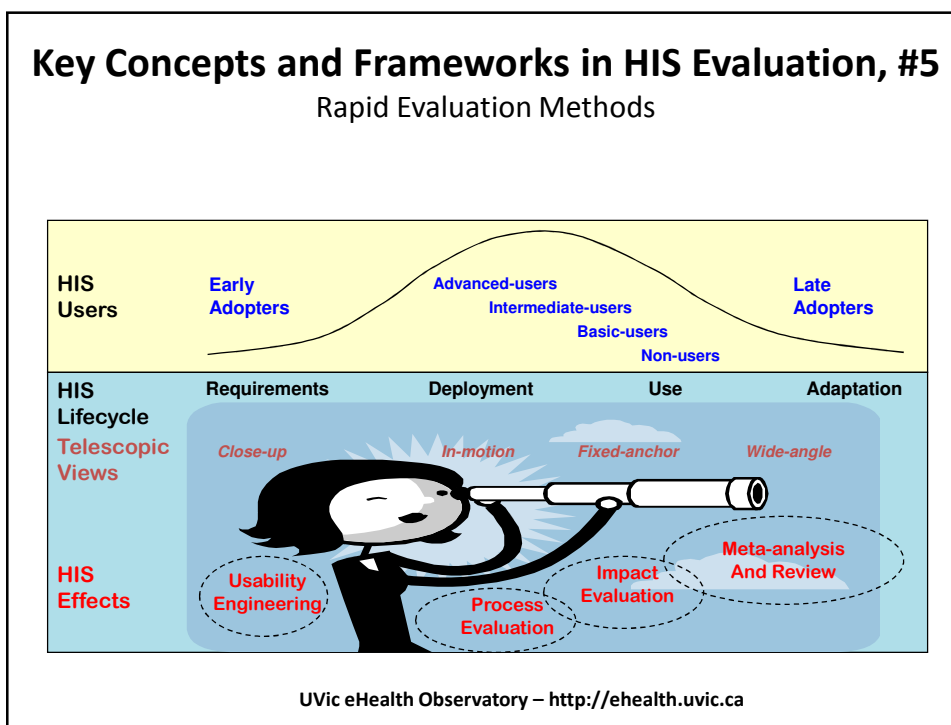
Key Concepts and Frameworks in HIS Evaluation, #4

CA Framework and HIS Adoption Approaches/Methods



Key Concepts and Frameworks in HIS Evaluation, #5

Rapid Evaluation Methods



UVic eHealth Observatory – <http://ehealth.uvic.ca>

Practicality and Rigor of Different Approaches, #1

Newfoundland and Labrador Centre for Health Information

Toward an Evaluation Framework for Electronic Health Records Initiatives: A Proposal For an Evaluation Framework

- [Background](#)
- [Process Used to Develop The Framework](#)
- [Nature of The Intervention Under Study](#)
- [Synopsis of the Literature](#)
 - [Perspectives on Evaluation](#)
 - [Models and Frameworks Commonly Used to Guide Evaluation Projects](#)
 - [Key Messages Regarding Future Efforts To Evaluate Complex Health Information Systems](#)
- [Proposed Approach to Planning an Evaluation Of An E.H.R. Initiative](#)
- [Steps For Framework Development](#)
 - [Step 1: Identify Key Stakeholders in Each Jurisdiction](#)
 - [Step 2: Orient Key Stakeholders To the E.H.R. Initiative and Reach Agreement on Why an Evaluation Is Needed](#)
 - [Step 3: Agree on When To Evaluate](#)
 - [Step 4: Agree on What To Evaluate](#)
 - [Step 5: Agree on How To Evaluate](#)
 - [Step 6: Analyze and Report](#)
 - [Step 7: Agree on Recommendations and Forward Them to Key Stakeholders](#)
- [Proposed Framework: Time Frames, Core Questions, Indicators, Data Sources and Study Design](#)
 - [Evaluation For Accountability: Measurement of Results](#)
 - [Evaluation For Performance Enhancement](#)
 - [Evaluation For Knowledge Development](#)

http://www.hc-sc.gc.ca/hcs-sss/pubs/kdec/nf_eval/index-eng.php

Practicality and Rigor of Different Approaches, #2

AHRQ - HIT Evaluation Toolkit

		Feasibility Scale		
		1-Feasible	2-Moderate Effort	3-Not Feasible
Importance Scale	1-Very Important	(1)	(2)	(3)
	2-Moderately Important	(3)	(4)	(5)
	3-Not Important	(5)	(6)	(7)

Cusack CM, Byrne CM, et al. Health Information Technology Evaluation Toolkit 2009 Update, AHRQ Publication No. 09-0083-EF, June 2009, page12

Practicality and Rigor of Different Approaches, #3

AHRQ - HIT Evaluation Toolkit

Data Collection Strategies	Types of Study Designs			
	Case-Control	RCT	Time-Motion	Pre-Post
Manual Chart Review				
Electronic Data Mining of EMR/ Registry Data				
Instrument the EMR/Registry				
Surveys (Paper/Electronic)				
Expert Review				
Phone Interview				
Focus Group				
Direct Observation				

Cusack CM, Byrne CM, et al. Health Information Technology Evaluation Toolkit 2009 Update, AHRQ Publication No. 09-0083-EF, June 2009, page14

Examples from Literature and Challenges, #1

A Review of Systematic Review of HIS Studies

Purpose

- Consolidate existing evidence on HIS studies to inform practice and research

Method

- Systematic review, Medline+Cochrane 1996-2009, terms=HIS+reviews
- Summary by topics, reconciliation of duplicates, aggregate effects of controlled studies, factors that influenced HIS success

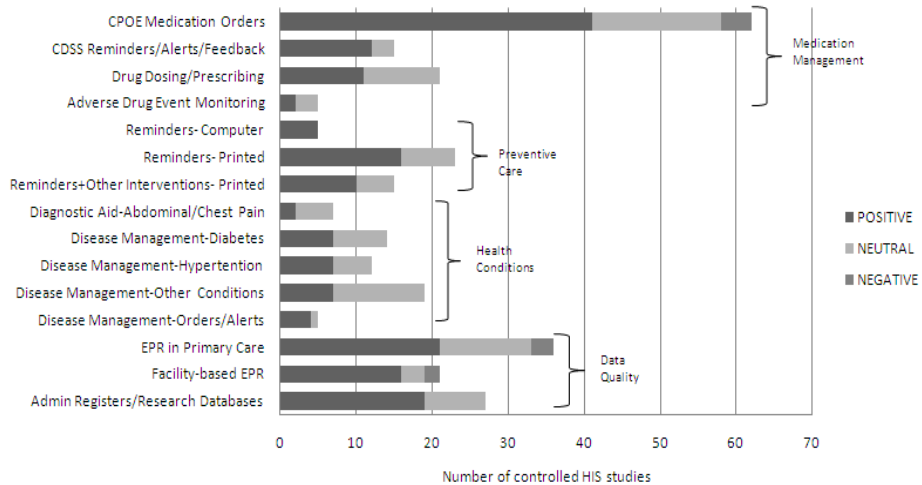
Results

- 50 reviews, 1276 unique studies, 48% North America, 54% ≥2005
- Medication, prevention, health conditions, data quality, care process/outcome
- 31/43 or 72.1% of 287 controlled studies had positive effects, e.g. reminders for immunization and health screening
- HIS success: in-house systems, developers as users, integrated DS, benchmarks
- Addressing contexts: knowledge/perception, implementation, incentives, legislation/policy and interoperability

Examples from Literature and Challenges, #2

A Review of Systematic Review of HIS Studies

Figure 2a - Frequency of Positive, Neutral and Negative Controlled HIS studies by Reported HIS Features

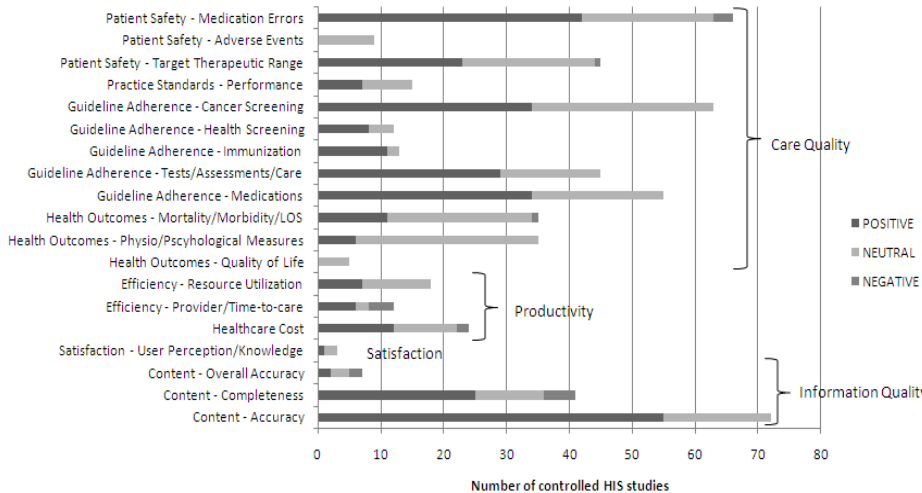


Lau F, Kuziemyky C, Price M, Gardner J. A review on systematic reviews of health information system studies. JAMIA 2010; 17:637-45 , page 643

Examples from Literature and Challenges, #3

A Review of Systematic Review of HIS Studies

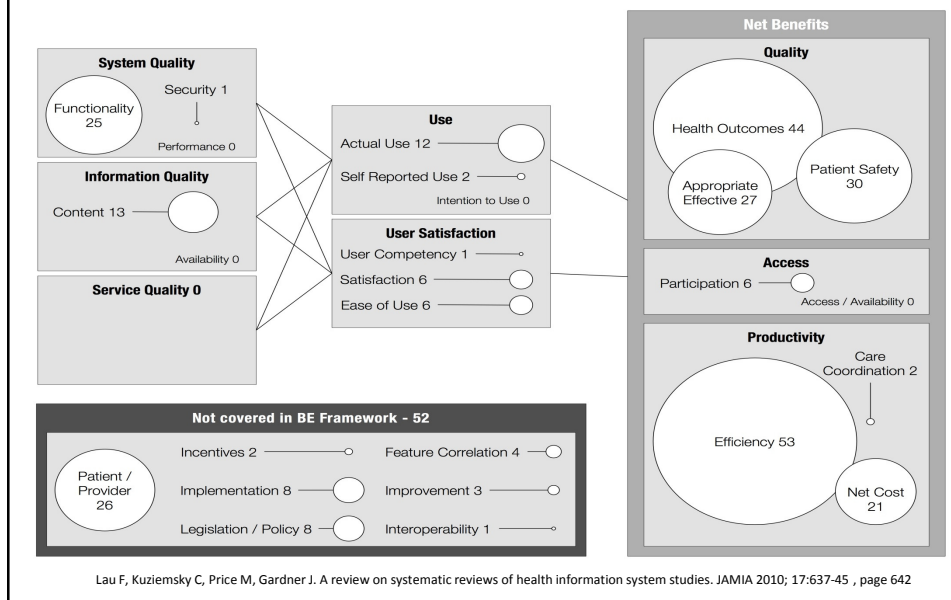
Figure 2b - Frequency of Positive, Neutral and Negative Controlled HIS studies by Reported HIS Effects



Lau F, Kuziemyky C, Price M, Gardner J. A review on systematic reviews of health information system studies. JAMIA 2010; 17:637-45 , page 643

Examples from Literature and Challenges, #4

A Review of Systematic Review of HIS Studies



Conclusions

- Modest positive HIS effects to date
- Improvements needed in HIS areas and metrics
 - ✓ health conditions, satisfaction, productivity and care quality
- Successful HIS adoption requires explicit recognition, strategies and actions to address factors in the clinical adoption framework
- How to improve HIS adoption?
 - ✓ Making the system workable
 - ✓ Addressing contextual issues
 - ✓ Measuring clinical impacts