

The Mysterious Maze of the World Wide Web: New Strategies for Measuring Internet Health Information Quality

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Overview

- Background/context
- Conceptual framework for Internet information quality evaluation
- Design & testing of new tool
- Strategies for advancing robust tools
- Implications



What is the IxCenter?



- Washington: Place you can't explain what you do to your parents
- Luckily, we've got our kids...



“Daddy, are you a ‘real’ doctor?”



- Not really about “MD” vs. “PhD”
- “Boo-boo doctors” vs. “question doctors”



The IxCenter

- Independent, not-for-profit organization
- Mission: Advance practice & science prescribing & using health information to improve people's health
- Vision: A future in which every health decision is informed



Information Therapy

- Ix[®]—corollary to Rx
- Prescribing and using personalized information to improve people's health
- Targeted to moment in care
- Tailored to individual needs



Why “Ix” and “Information Therapy”? Corollaries between Ix & Rx

- Side effects
- Overdose
- Titrate the dosage
- Appropriate frequency & duration



The Need for Measuring Information Quality

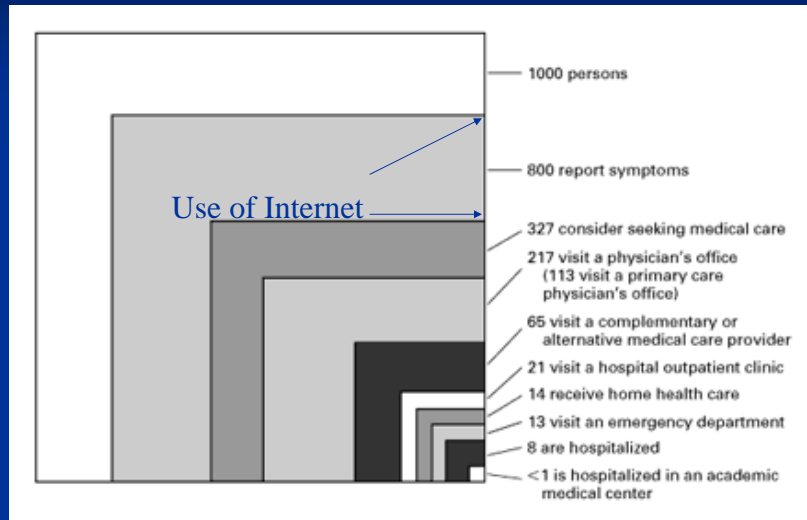
- Internet info dramatically affecting consumer health care decisions
- Ix depends on:
 - Right information
 - Right person
 - Right time

Right Information:

How do we measure that?



Ecology of Medical Care & the Internet



Green et al. The Ecology of Medical Care Revisited. NEJM; 344:2021-2025



Rationale for Quality-of-Care Measurement Conceptual Model

- Donabedian's (or Mindel Sheps, 1955) structure-process-outcomes paradigm has value because "the usefulness of much in clinical practice has yet to be substantiated" (Donabedian, *Inquiry*, 1988)
 - Relevant to health care and health information
 - Process of transforming evidence base into health information and into quality measures involve similar challenges
- Measures ideally derive from evidence base with assistance from expert opinion, as necessary (Donabedian, *JAMA*, 1988)
- Donabedian's other dichotomies (*QRB*, 1992)
 - Technology assessment: activities meant to determine what's right vs. quality/performance assessment: have the right things actually occurred
 - Institutional settings vs. patients (what's done for them, what's accomplished for them)



Applying Quality-of-Care Model to Web Site Accreditation

- Want to provide consumers with guidance on what Web sites they can believe
- Movement has begun for Web site accreditation
- Like early quality measurement accreditation, current efforts do not capture actual performance on quality measures
 - Accuracy
 - Comprehensiveness



Most Guidance on Finding Credible Information on Internet

- Sponsorship characteristics
 - No advertising
 - Not-for-profit
 - Academic
 - Government
- Structural measures of quality
 - Authorship accountability
 - Content dating
 - Peer review
 - Editorial process



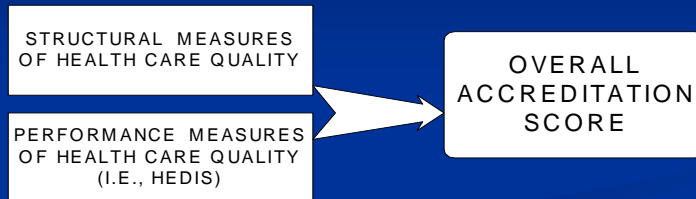
How Do Proxy Measures Relate to Quality?

- Developed objective, systematic tool
 - Drawn from evidence-based guidelines
 - Refined via expert panel review
 - Accuracy
 - Comprehensiveness
- Does sponsorship provide useful information in distinguishing health information quality?
 - e.g., does a lack of advertising actually mean that the content on that site is more credible?

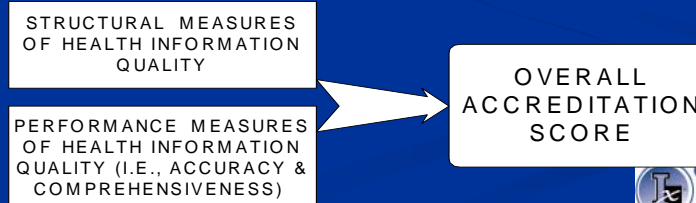


Application of Conceptual Model

Health Plan Accreditation (NCQA)



Web Site Accreditation (Future)



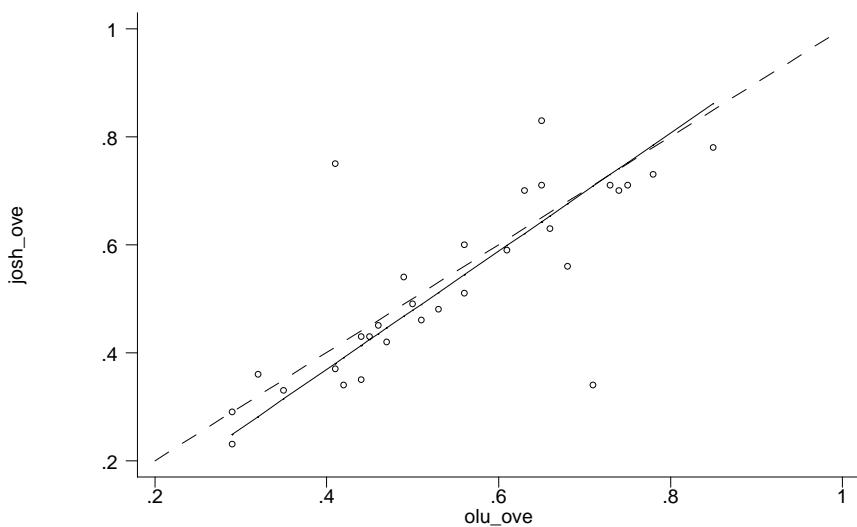
Comparison Between Performance Measure Development Processes

Step	DQIP/Quality-of-Care	JJS/Quality-of-Information
Starting Point	Evidence base—variety of practice guidelines and major studies on diabetes care	Evidence base—ADA practice guidelines, based primarily on major studies on diabetes care
Translation Process	Use key areas of evidence base to identify performance measures to develop	Use key areas of practice guidelines to identify key criteria for diabetes information
Measure Selection Process	Expert panel analyzes measure specs against existing evidence base and makes changes	Subset of same experts analyzes measure specs and recommends changes, which are incorporated
Measure Testing	Pilot testing reveals feasibility issues, which lead to revision of measure specifications	Pilot testing reveals opportunities for refinement of measure specifications
Implementation	Measures implemented in PRP, Medicare, HEDIS/NCQA acc.	Measures could be integrated into URAC accreditation



Is This Instrument Reliable?

Note: Data must overlay dashed line for perfect concordance



Is This Tool Valid?

- Sampling validity: Use of evidence-based guidelines
- Face validity: Review by experts
- Proxy measures insufficient
- Wide variation in scores
- No floor or ceiling effects
- Feasible for condition-specific basis



Is This Tool Necessary (1)? Correlation Between Structural & Performance Measures

Spearman Rank Correlation Coefficients	Composite of Structural Criteria
Performance Measure Composite	0.42
Comprehensiveness	0.45
Accuracy	0.28

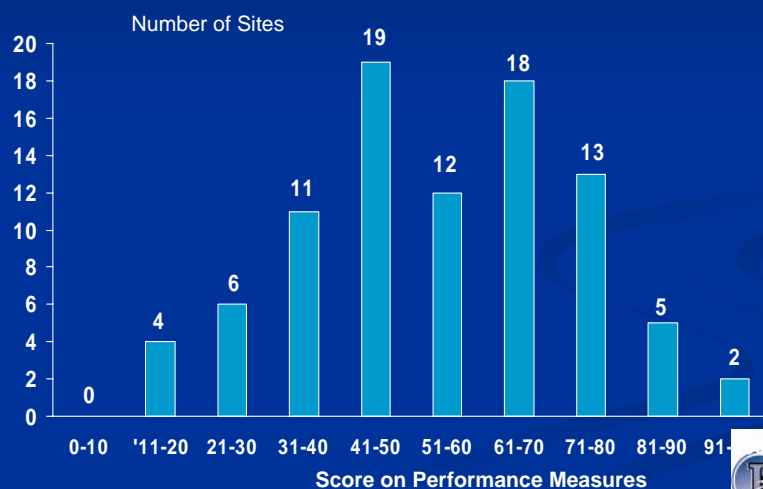


Is This Tool Necessary (2)? Impact of Sponsorship Characteristics

- T tests: No impact
- Multiple linear regression: Virtually no impact
 - Not-for-profit was only statistically significant (barely) predictor of high quality
 - Adjusted R^2 was only 0.02



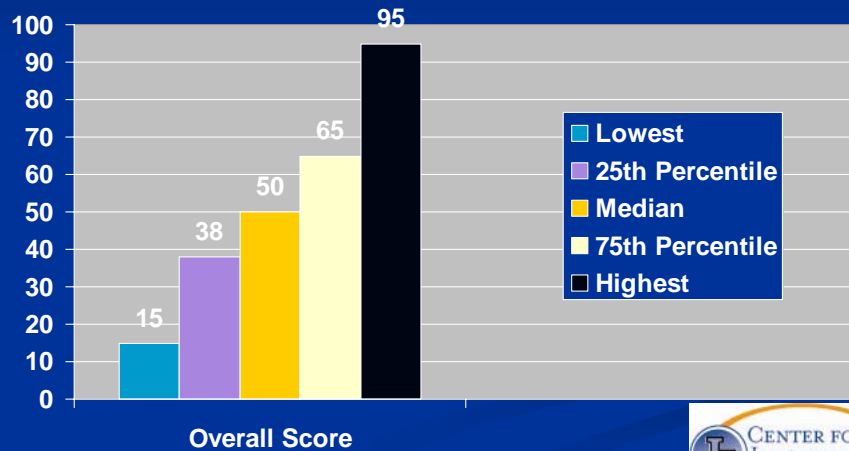
What is Level of Variation & Room for Improvement? Distribution of Diabetes Web Site Scores on Performance Measures



Source: Seidman et al, *JMIR*, 2003.



Does This Tool Differentiate? Range for Overall Scores



Implications, Part 1: Current State of Web Site Assessment

- Web site quality varies dramatically
- “Conventional wisdom” on where to go for high-quality Web sites is inadequate
 - Proxy measures do not provide enough guidance on accuracy, comprehensiveness
- If we want to guide users to accurate & comprehensive health information, we need to measure performance



Implications, Part 2: Policy Recommendations

- Create more robust objective Web site evaluation
 - Integrate into URAC HWS accreditation
 - Integrate into Consumer Web Watch assessment
 - Add to search tools—e.g., Google, Organized Wisdom, Healthline, etc.
- Assessment components:
 - Structural measures
 - Performance measures
 - User-generated measurement



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