

# Buyer Beware: How far can you trust health choices information broadcast to the public?

Northwest Patient Safety Conference  
2015

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## The Patients' Question Before the Internet Public Information Age

- *Doctor, what should I do?*

# The Patients' Questions in the Internet Public Information Age

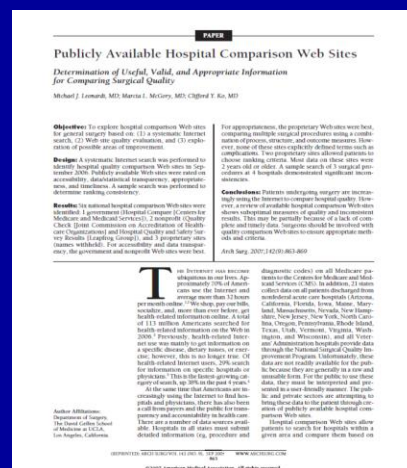
- What are the relative merits of my options?
- Where might I have that procedure done?
- How far can I trust your advice?

## What is the Quality of the Internet's Advice on Hospital Quality?

### Documented concerns...

- 3 non-proprietary sites were free, didn't require joining; 3 proprietary sites tended to rate lower on these aspects
- All identify data sources; nonproprietary sites alone fully described statistical methods used; just one site was judged to provide reproducible risk adjustment
- Many limitations noted (age of data, too limited a range of measures to sufficiently represent overall quality of care, etc.)
- Best to worst ranking of 4 hospitals by the 3 proprietary websites is consistent for laparoscopic cholecystectomy, but inconsistent (colectomy) or not possible due to lack of data (hernia repair)

### started many years ago...



# Leonardi MJ, McGory ML, Ko CY. ARCH SURG 2007;142(9):863-9

From the previously described Internet search strategy, Web sites were subsequently included in this study if they met 3 inclusion criteria: The site needed to (1) rank and compare hospitals based on surgical quality measures, (2) rank hospitals

search, but not included in this study, were insurance company sites that provided a regionally restricted hospital comparison tool available only to their enrollees.

(REPRINTED) ARCH SURG/VOL 142 (NO. 9), SEP 2007 WWW.ARCHSURG.COM  
864

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Table 1. Performance Criteria by Web Site

Measure <sup>a</sup>	Web Site <sup>b</sup>					
	CMS	JCAHO	Leapfrog Group	A	B	C
Accessibility						
Free	Yes	Yes	Yes	No	No	No
No sign-up	Yes	Yes	Yes	No	No	No
Ease of identification	Yes	Yes	Yes	No	Yes	No
Transparency						
Data sources given	Yes	Yes	Yes	Yes	Yes	Yes
Statistical method reproducible	Yes	Yes	Yes	No	No	No
Risk adjustment method reproducible	NA	NA	Yes	No	No	No
Appropriateness						
Process measures	Yes	Yes	Yes/no <sup>c</sup>	Yes	No	No
Structure measures	No	No	Yes	Yes	No	Yes
Outcome measures	No	No	Yes/no <sup>c</sup>	Yes	Yes	Yes
Procedure-specific measures	No	No	Yes	Yes	Yes	Yes
Patient may prioritize ranking criteria	No	No	No	Yes	No	Yes

Abbreviations: CMS, Centers for Medicare and Medicaid Services; JCAHO, Joint Commission on Accreditation of Healthcare Organizations; NA, data not available.

<sup>a</sup>For timeliness, all data were more than 1 year old.  
<sup>b</sup>Web sites A through C were proprietary and their names and URLs were withheld.  
<sup>c</sup>Only coronary artery bypass grafting.

Another commonly identified category of Web site not included in this study was state-specific quality comparison sites (eg, the New York State Coronary Artery Bypass Grafting Reporting System).

the same data could not repeat their calculations and duplicate their results). In addition, some of their quality measures were ill defined. For example, the term *complications* was used and loosely defined, but it was not clear whether a higher than expected complication rate for coronary artery bypass grafting means that a hospital had more

WEB SITE ACCESSIBILITY

# What is the Quality of Popular Advice on Maintaining Your Health?

## Key findings

- The Dr. Oz Show averaged 12 recommendations per episode, and The Doctors 11 - Most common was
  - dietary advice on The Dr. Oz Show (39%)
  - consult a healthcare provider on The Doctors (18%)
- For recommendations in *The Dr. Oz Show*
  - evidence supported 46%, contradicted 15%, and was not found for 39%
- For recommendations in *The Doctors*
  - evidence supported 63%, contradicted 14%, and was not found for 24%
- Believable or somewhat believable evidence supported
  - 33% of recommendations on *The Dr. Oz Show*
  - 53% on *The Doctors*.
- A specific benefit was described for 43% and 41% of recommendations on the shows respectively
  - Magnitude of benefit was described for 17% of recommendations on *The Dr. Oz Show* and 11% on *The Doctors*.
- Disclosure of potential conflicts of interest accompanied 0.4% of recommendations

**RESEARCH**

**Television medical talk shows—what they recommend and the evidence to support their recommendations: a prospective observational study**

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**Abstract**  
Objective: To describe the quality of health recommendations and claims made on popular medical talk shows.  
Design: Prospective observational study.  
Setting: Television medical talk shows.  
Results: Television medical talk shows averaged 12 recommendations per episode on *The Dr. Oz Show* and 11 on *The Doctors*.  
Conclusions: Television medical talk shows averaged 12 recommendations per episode on *The Dr. Oz Show* and 11 on *The Doctors*.  
Magnitude of benefit was described for 17% of recommendations on *The Dr. Oz Show* and 11% on *The Doctors*.  
Disclosure of potential conflicts of interest accompanied 0.4% of recommendations.

**Introduction**  
Television medical talk shows have become a popular source of health information for many people. These shows provide a platform for medical professionals to discuss health issues and offer advice to the general public. However, the quality of the advice given on these shows is often questioned. This study aimed to describe the quality of health recommendations and claims made on popular medical talk shows.

**Methods**  
We conducted a prospective observational study of television medical talk shows. We identified all recommendations and claims made on these shows and assessed their quality. We used a validated tool to assess the quality of the advice given. We also assessed the magnitude of benefit described for each recommendation and the disclosure of potential conflicts of interest.

**Results**  
Television medical talk shows averaged 12 recommendations per episode on *The Dr. Oz Show* and 11 on *The Doctors*. The most common recommendation was dietary advice on *The Dr. Oz Show* (39%) and consulting a healthcare provider on *The Doctors* (18%). For recommendations on *The Dr. Oz Show*, 46% were supported by evidence, 15% were contradicted, and 39% were not found. For recommendations on *The Doctors*, 63% were supported by evidence, 14% were contradicted, and 24% were not found. Believable or somewhat believable evidence supported 33% of recommendations on *The Dr. Oz Show* and 53% on *The Doctors*. A specific benefit was described for 43% and 41% of recommendations on the shows respectively. Magnitude of benefit was described for 17% of recommendations on *The Dr. Oz Show* and 11% on *The Doctors*. Disclosure of potential conflicts of interest accompanied 0.4% of recommendations.

**Conclusions**  
Television medical talk shows provide a platform for medical professionals to discuss health issues and offer advice to the general public. However, the quality of the advice given on these shows is often questioned. This study aimed to describe the quality of health recommendations and claims made on popular medical talk shows.

**Keywords**  
Television medical talk shows, health recommendations, quality of advice, dietary advice, consulting a healthcare provider, believability, magnitude of benefit, disclosure of potential conflicts of interest.

# A Few Observations Regarding Evidence-Based Medicine

Evidence doesn't exist to support all medical decisions, but...

- Half of 1,500 lay people had read about medical research studies helping doctors know what works best
- 34% recalled ever having a doctor discussing research studies on what works best
  - Many thought care decisions are based on the evidence of just their own test results & medical history
- Many thought clinical practice guidelines were rigid rules

DOI: 10.1001/archfam.2013.2726  
 HEALTH AFFAIRS 32  
 NO. 12:2013; E68-E74  
 MEDICAL PROFESSIONALS  
 The Health-Related News Foundation, Inc.

By Kristin L. Carman, Maureen Maurer, Jill Matthews Yeglin, Pamela Dardess, Joanne McGee, Mark Evers, and Karen D. Marko

## Evidence That Consumers Are Skeptical About Evidence-Based Health Care

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**Joanne McGee** is a principal at McGee and Davis Consulting in Washington, Washington.

**Mark Evers** is a principal at McGee and Davis Consulting in Washington, Washington.

**Karen D. Marko** is a director of benchmarking and practice at the Institute on Health Care Costs and Solutions, National Business Group on Health, in Washington, D.C.

**ABSTRACT** We undertook focus groups, interviews, and an online survey with health care consumers as part of a recent project to assist purchasers in communicating more effectively about health care evidence and quality. Most of the consumers were ages 18–64; had health insurance through a current employer; and had taken part in making decisions about health insurance coverage for themselves, their spouse, or someone else. We found many of these consumers' beliefs, values, and knowledge to be at odds with what policy makers prescribe as evidence-based health care. Few consumers understood terms such as "medical evidence" or "quality guidelines." Most believed that more care meant higher-quality, better care. The gaps in knowledge and misconceptions point to serious challenges in engaging consumers in evidence-based decision making.

**M**any studies have shown that some health care provided in the United States is inappropriate, inefficient, and unsafe.<sup>1,2</sup> Moreover, as the rise in health care costs continues to outstrip wages and growth in other sectors of the economy,<sup>3</sup> it is critically important to increase the quality and value of health care.<sup>4,5</sup> Passage of the Patient Protection and Affordable Care Act of 2010 has

stand it or reject it, or if they see it as an invalid basis for making decisions about providers and treatments, the most ambitious goals of this movement may fail. Increasingly, consumers are being asked to use evidence to manage chronic conditions, choose between treatment regimens, and select providers and health plans. In some respects, consumers are rising to the challenge. Research shows that decision aids, which provide infor-

## What is Evidence?

### Information that is:

- Necessary
  - As Specific to the Question
    - Content & Construct Validity
- Sufficient
  - Considering limits to interpretation
- Persuasive
  - Internal validity
    - sufficiently precise, accurate & reliable
  - External validity
    - safe to generalize
  - Motivating but Honest Presentation

### Results from a range of types:

- Anecdotal observation
- Case description
- Case series
- Observational studies
  - Retrospective
  - Prospective
- Blinded randomized controlled intervention studies

# What Makes Convincing Evidence that “A” Causes “B”


## Assessing These Criteria:

- **Strength**
  - The larger an association the more likely that it is causal
- **Consistency**
  - Consistent findings observed by different persons in different places with different samples
- **Specificity**
  - The more specific an association between a factor and an effect, the bigger the probability that factor is truly a cause
- **Temporality**
  - The effect has to occur after the causal exposure
- **Biological gradient**
  - Greater exposure should generally lead to greater incidence
- **Plausibility**
  - A plausible mechanism between cause and effect is helpful (recognizing possibility of limited current knowledge)
- **Coherence**
  - Coherence between epidemiological and laboratory findings increases the likelihood of an effect
- **Experiment**
  - Occasionally it is possible to find experimental evidence
- **Analogy**
  - The effect of similar factors may be considered

## Sir Austin Bradford Hill

**Sir Austin Bradford Hill and the progress of medical science**

Richard Doll



Sir Austin Bradford Hill, honorary Fellow of the London School of Hygiene and Tropical Medicine, died on the night from 1971 to 1972, and professor of medical statistics from 1966 to 1967, and on 18 April 1991. With his death the scientific era of men who had been educated at the general medical education of the research century, despite the fact that he had no degree in either medicine or statistics.

**Sir Austin's career**

Sir Austin, or Tony as he was always known (during most of his lifetime), was born in the Gwent area of South Wales on 12 August 1900. He was the youngest of five children, his father being a coal merchant. His mother was the daughter of a coal merchant. He was educated at the local school, then at the local grammar school, then at the local school, and finally at the local school. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school.

**His career**

After leaving school he went to the local school. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school.

**His work**

He worked for the local school. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school.

**His achievements**

He achieved many things during his career. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school.

**His legacy**

He left a lasting legacy in the field of medicine. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school. He was a very bright student, and was awarded a scholarship to attend the local school.

ICMP Career Studies Ltd. Bookable Network, Online CV/HR for Richard Hill, leading professional network. University of Oxford

# How Strong is the Body of Evidence to Answer a Specific Question?

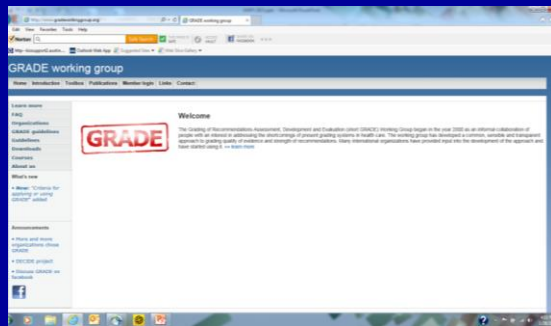
Cochrane Library maintains formal reviews

<http://www.thecochranelibrary.com/view/0/index.html>

GRADE evidence tables assess:

<http://www.gradeworkinggroup.org/>

- Risk of bias
- Publication bias
- Imprecision (random error)
- Inconsistency
- Indirectness
- as well as showing magnitude of effect estimates



## Wouldn't you like your own doctor to

- Let you know the strength of evidence behind a treatment recommendation
  - When the advice is solidly supported by studies
  - When the advice is consistent with limited scientific knowledge
  - When the advice is solely professional judgment
- Give you a quantitative risk-benefit estimate of
  - the size of risk if untreated, and
  - size of benefit if treated, and
  - magnitude of any adverse aspects of treatment

## Misguided Action Based on Bad Evidence Has Negative Consequences

### The legacy of:

- Wakefield's discredited research re: MMR vaccine
  - Measles outbreaks where previously measles-free
- Indirect target events in place of desired outcomes
  - <https://www.youtube.com/watch?v=TMjnEFrrTjY>
- Conflicting guidance about PSA screening test
  - More harm than benefit, added cost & confusion

# Healthcare-Associated Infections Mandatory Public Reporting

## What is meaningful to people?

- Best practices to watch for and questions to ask in order to protect yourself?
- Hospital-specific infection rates?
- Ratios of hospital-specific infection rates?
- Surgeon-specific infection rates?
- Something else entirely?

## Standardized Infection Ratio?



## Is HAI Public Reporting Trustworthy?

### Washington State Validation Protocol (2010, 2015)

- Consistent with ISO 2859
- Maintain pass/fail standard for sensitivity and specificity
- "External" site visits prioritized by "Internal" validation results
  - All hospitals accountable
- Workload sustainable among 65 WA hospitals 2010-2014<sup>2</sup>
- Hospitals exceeded minimum reporting standards<sup>3</sup>

### CDC/NHSN Validation Guidance & Toolkit (2012, 2013)

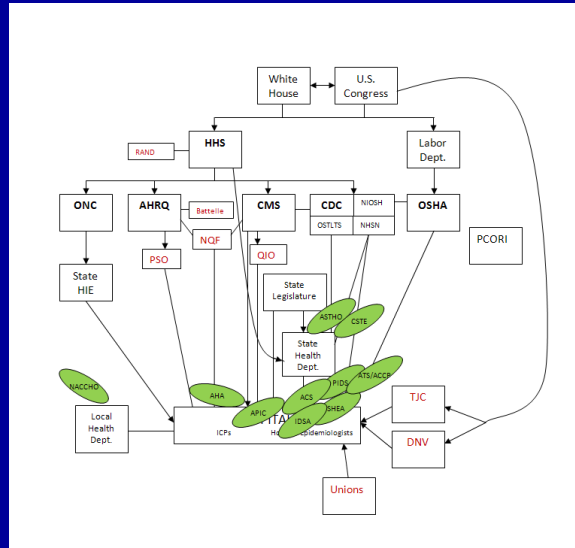
- Inconsistent with MIL, ANSI, ISO
- No pass/fail standard
  - Insufficient power to estimate accuracy?
- Internal validation step not linked
  - Selection by sampling from SIR ranks<sup>1</sup>
  - Selection bias toward large hospitals?
- Workload & sustainability unknown
  - 0 states willing to try in 2012
  - 4 in 2013 & 3 in 2014 with ELC/ACA \$\$\$
    - Might be 2-4 times more work than Washington State protocol

<sup>1</sup> Birnbaum DW, Zarate R, Marfin A. SIR, You've Led Me Astray!. *INFECTION CONTROL HOSP EPIDEMIOLOGY* 2011;32(3):276-282.

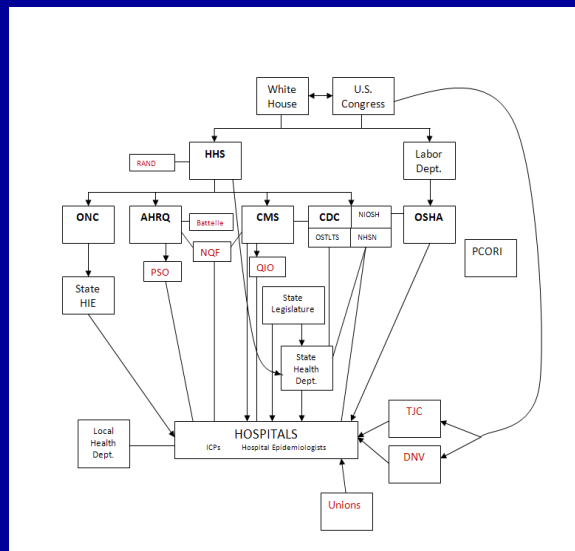
<sup>2</sup> Lempp JM, et al.. Cost of a Sustainable Annual Validation Process to Ensure Credibility of State HAI Reporting. *CSTE 2014*, Poster #135

<sup>3</sup> Lempp JM, et al.. Distribution of Central Line Associated Bloodstream Infections in Washington State, 2009-2013. *CSTE 2014*, Poster #137

# Today's Statutory & Regulatory Authority Environment



# Today's Statutory & Regulatory Authority Environment: Central Role of NQF





# Credible Validation is Essential

Why spend taxpayer dollars on validation reports that begin like this one?

- “Resources for this audit were limited to a review of 200 patient records. Determination of an appropriate sample size is difficult and the sample size (202) is too small to draw statistically significant conclusions about the validity of CLABSI data reported to NHSN.”

Why use validation methods that won't satisfy certified quality professionals?



## Process Validation to Minimize “Producer’s Risk” & “Consumer’s Risk”

Validation has a technical meaning:

- **Definitions from Quality Glossary, American Society for Quality, available at <http://asq.org/glossary/>**
  - “The act of confirming a product or service meets the requirements for which it was intended.”
- **Definition from *A Dictionary of Epidemiology, 5<sup>th</sup> Edition* (International Epidemiological Association)**
  - “The process of establishing that a method is sound.”

Validation is related to, but not the same thing as:

- Audit
- Data Cleaning
- Inspection
- Verification

## Validation in Other Industries

- Acceptance sampling uses statistical sampling to determine whether to accept or reject a production lot of material. It has been a common quality control technique used in industry and particularly the military for contracts and procurement.
  - 1930s
    - Dodge-Romig acceptance sampling tables
  - 1940s
    - MIL STD 105A
  - 1990s
    - MIL STD 105E cancelled, ANSI/ASQ Z1.4 in U.S.
    - ISO 2859 as international equivalent

This is a snippet of a Dodge-Romig acceptance sampling table. It is a grid with columns for lot size (N), sample size (n), and acceptance (Ac) and rejection (Re) numbers. The table is used to determine the appropriate sample size and acceptance criteria for a given lot size and desired level of quality.

## Validation in Other Industries

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This is a snippet of a Dodge-Romig acceptance sampling table, identical to the one in the first slide. It shows the relationship between lot size, sample size, and acceptance/rejection criteria.



## What Can Everyone Do Now?

- Mandatory public reporting arose because of consumer pressure on politicians
  - Credible validation can be promoted to ensure value of the investment
- All hospital quality metrics proposed by federal agencies must pass through the National Quality Forum
  - NQF can be encouraged to create a credible validation metric with the American Society for Quality's Health Care Division as its steward