

# Making Numbers Matter: Present and Future Research in Risk Communication

Angela Fagerlin, PhD; Peter A. Ubel, MD; Dylan M. Smith, PhD  
Brian J. Zikmund-Fisher, PhD

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**Objective:** To summarize existing research on individual numeracy and methods for presenting risk information to patients. **Methods:** We selectively retrieved articles from MEDLINE and the *Social Sciences Citation Index*. **Results:** Many Americans have low numeracy skills, a deficit that impedes effective health care. Approaches to risk communication vary in current practice, but how risks are presented can significantly affect both patients' risk perceptions and

their knowledge. **Conclusions:** Adhering to some basic principles for presenting risk information to patients can improve understanding. However, different risk-communication methods may be needed for individuals with high versus low levels of numeracy.

**Key words:** numeracy, decision aids, graphs, visual displays, informed consent, shared decision making, patient education

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numeracy

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Angela Fagerlin, Dylan M. Smith, and Brian J. Zikmund-Fisher, Research Health Science Specialists, Ann Arbor VA HSR&D Center for Excellence and Research Assistant Professors, Division of General Internal Medicine, University of Michigan, Ann Arbor, MI. Peter A. Ubel, Physician, Ann Arbor VA HSR&D Center for Excellence and Professor, Division of General Internal Medicine, University of Michigan, Ann Arbor, MI.

Address correspondence to Dr Fagerlin, Center for Behavioral and Decision Sciences in Medicine and Division of General Internal Medicine, 300 North Ingalls Building, Rm 7C27, Ann Arbor, MI 48109-0429. E-mail: fagerlin@umich.edu

## **Review of Numeracy Literature**

*numeracy*

*Index*

*Social Sciences Citation*

## **Measuring Numeracy in Adults**

**Utility elicitation.**

**Summary**

**Why Developing Effective Health  
Materials for Patients Is Critical**

**Numeracy and medical outcomes.**

**Presenting Risks/Benefit  
Information Using Multiple Formats  
What we know.**

**What we need to learn.**

**Choosing a Denominator for  
Communicating Risks  
What we know.**

**What we need to learn.**

**What we need to learn.**

**Choosing the Time Span Used to  
Communicate Risk Statistics  
What we know.**

**Absolute vs Relative Risk  
Presentation  
What we know.**

**Frequencies vs Percentages**  
**What we know.**

**What we need to learn.**



**Table 3**  
**Example #2 of a Poor and an Improved Risk Presentation**

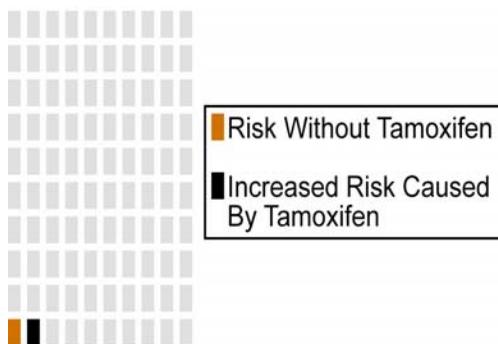
**Poor risk presentation**

*“Women who take tamoxifen have a small risk of getting cataracts sometime during their lifetime.”*

*“Women who take tamoxifen have a 100% greater chance of developing cataracts in 5 years.”*

**Improved risk presentation**

*“A woman who does not take tamoxifen has a 5-year risk of getting cataracts of 1 in 100 (1%). Taking tamoxifen increases this risk to 2 in 100 (2%). This means that, out of 100 women who take tamoxifen, 98 (98%) will not get cataracts within 5 years.”*



Weaknesses:

- Only uses verbal terms to communicate the size of the risk.
- Single format: no visual display.
- Risk increase described only in relative risk terms.
- Uses varying time frames (lifetime and 5-year risk)
- Presented only in loss frame.

Advantages:

- Includes both numeric and visual formats.
- Uses consistent denominator.
- Uses a narrow and consistent time span.
- Risks shown as frequencies and percentages rather than just percentages.
- Increased risk shown in absolute risk terms.
- Presents both gain and loss frames.

**Summary**

**Discussion and Future Directions for Research**

## Acknowledgment



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