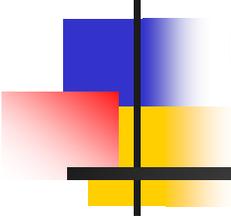


Anticipating and addressing barriers to the communication of critical information



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Decision Research

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Outline

- What is needed to make a good decision?
- Some barriers to effective communication of critical information
- Addressing the barriers



To make good decisions, we must have:

- Information: available, accurate, timely
- Must comprehend it
- And its meaning
- Determine meaningful differences
- Weight factors to match needs and values
- Make tradeoffs (e.g., risks and benefits)
- Choose

(Hibbard & Peters, 2003)



Some potential barriers to effective communication of critical information

1. **Insufficient, uncertain, and changing information**
2. Communicators overestimate what others know
3. Lack of comprehension
4. Communicators overestimate how effectively they communicate
5. Intuitions about how best to provide information do not always lead to comprehension
6. Perceptions of risks and benefits may be linked



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Communicators overestimate what other people know

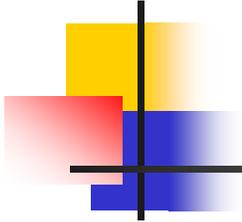
- Adapt what is said to improve communication
- But, use own knowledge to estimate that of others and then insufficiently adjust for those who lack the same specialized knowledge
 - esp when information is quite familiar
- The “curse of knowledge” leads us to overestimate what others know

(Nickerson, 1999, 2001)



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The Comprehension Index:

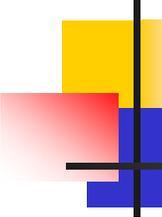
Reflects number of errors made on 33 decision tasks involving interpretation of tables and graphs

Two Study Samples:

Older adults aged 65+ ($n = 253$)

Employed Age < 65 ($n = 239$)

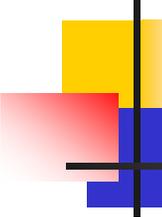
(Hibbard, Slovic, Peters, Finucane, & Tusler, 2001)



EXAMPLE OF DECISION TASK:

	Health Plan A	Health Plan B	Health Plan C	Health Plan D
Monthly Premium	\$50	\$75	\$48	\$63
Copayment for office visit with primary care doctor	\$10	\$5	\$15	\$10

- 1. Which health plan requires the lowest copayment for a visit with a primary care doctor?**

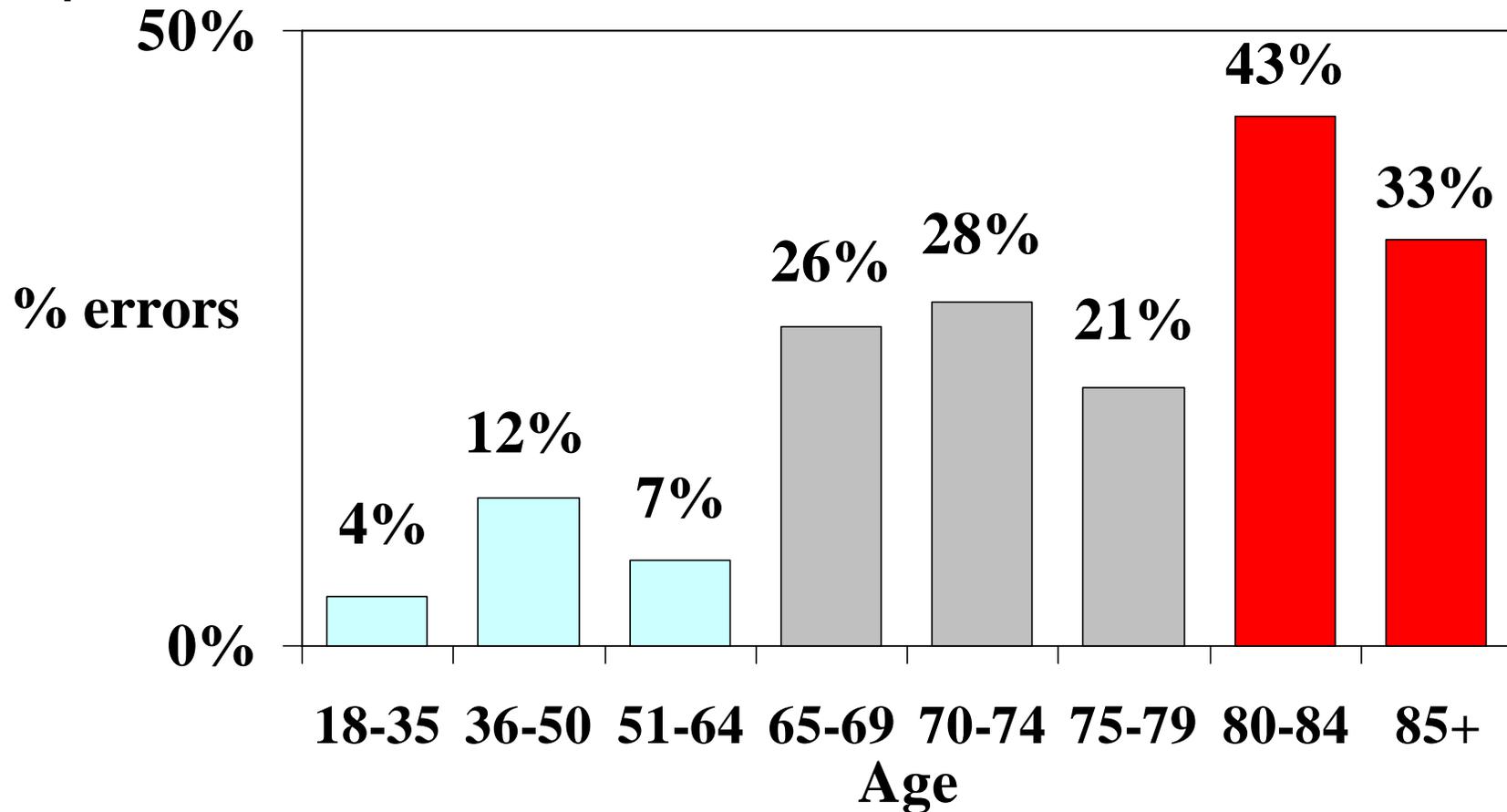
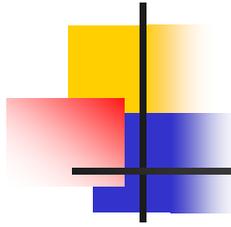


EXAMPLE OF DECISION TASK:

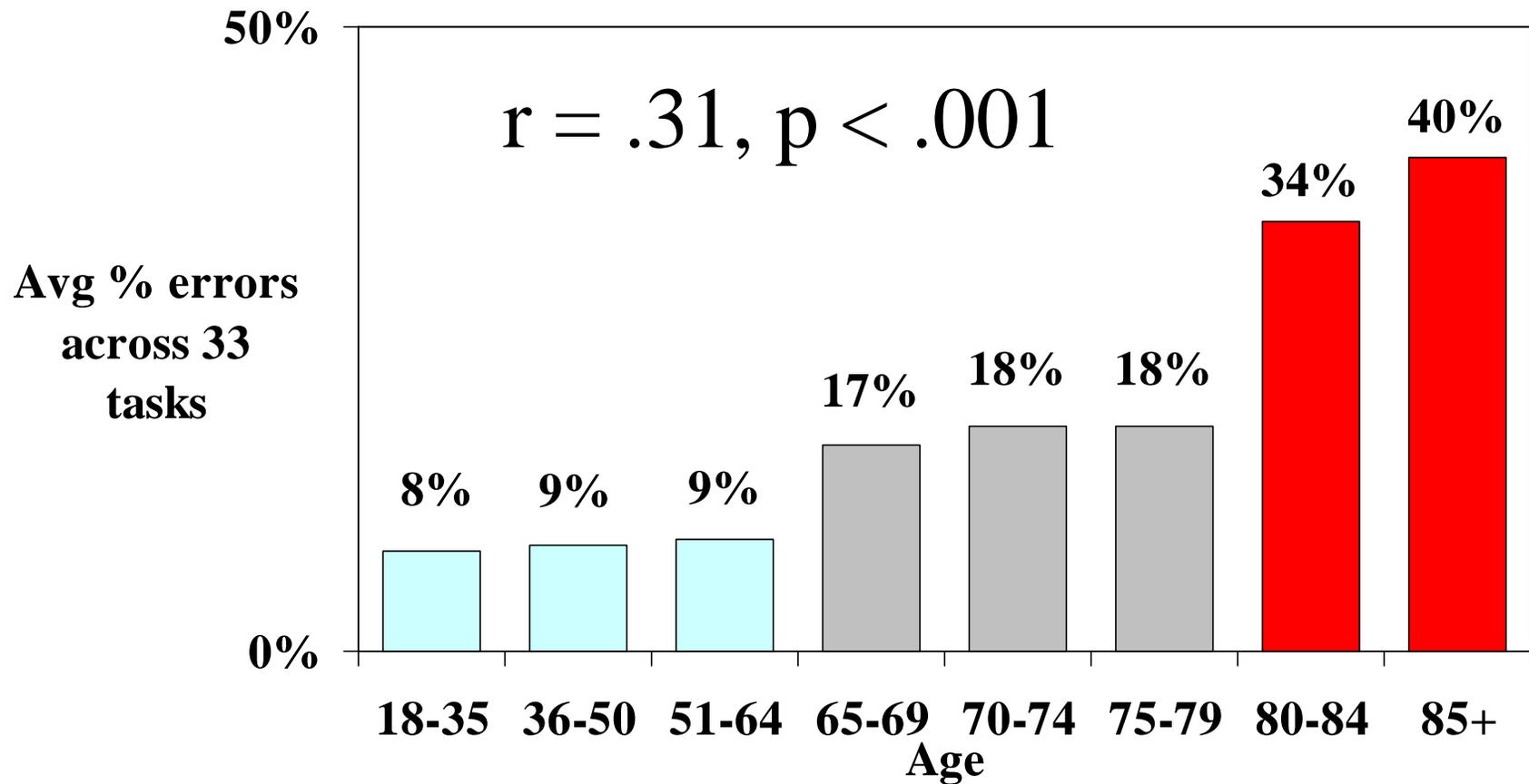
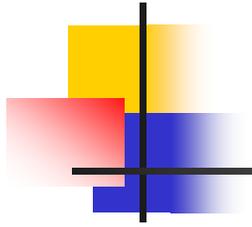
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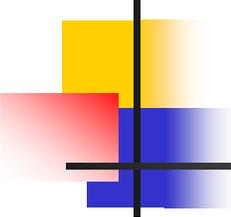
- 1. Which health plan requires the lowest copayment for a visit with a primary care doctor?**

Which health plan requires the lowest copayment?



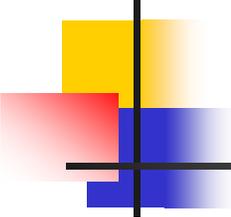
Problems with comprehension and large age differences





Some potential barriers to effective communication of critical information

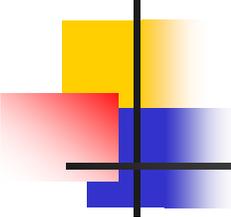
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People often think they're more effective communicators than they are

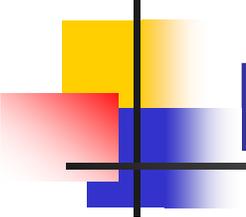
- Not attuned to differences in perspective
- Simple example:
“Angela killed the man with the gun.”
 - Two meanings
 - When asked to make clear and speakers thought they were understood, 50% of the time they were not understood

(Keysar, 2007)



Some potential barriers to effective communication of critical information

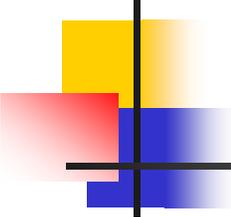
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Intuitions of information providers

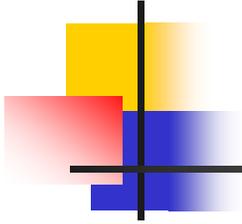
- One example: Provide a framework to help consumers understand more detailed information that follows
 - Helped high-numerate consumers
 - Less numerate consumers
 - Helped when related to framework
 - But hurt their comprehension of other information

(Greene, Peters, Mertz, & Hibbard, 2008)



Some potential barriers to effective communication of critical information

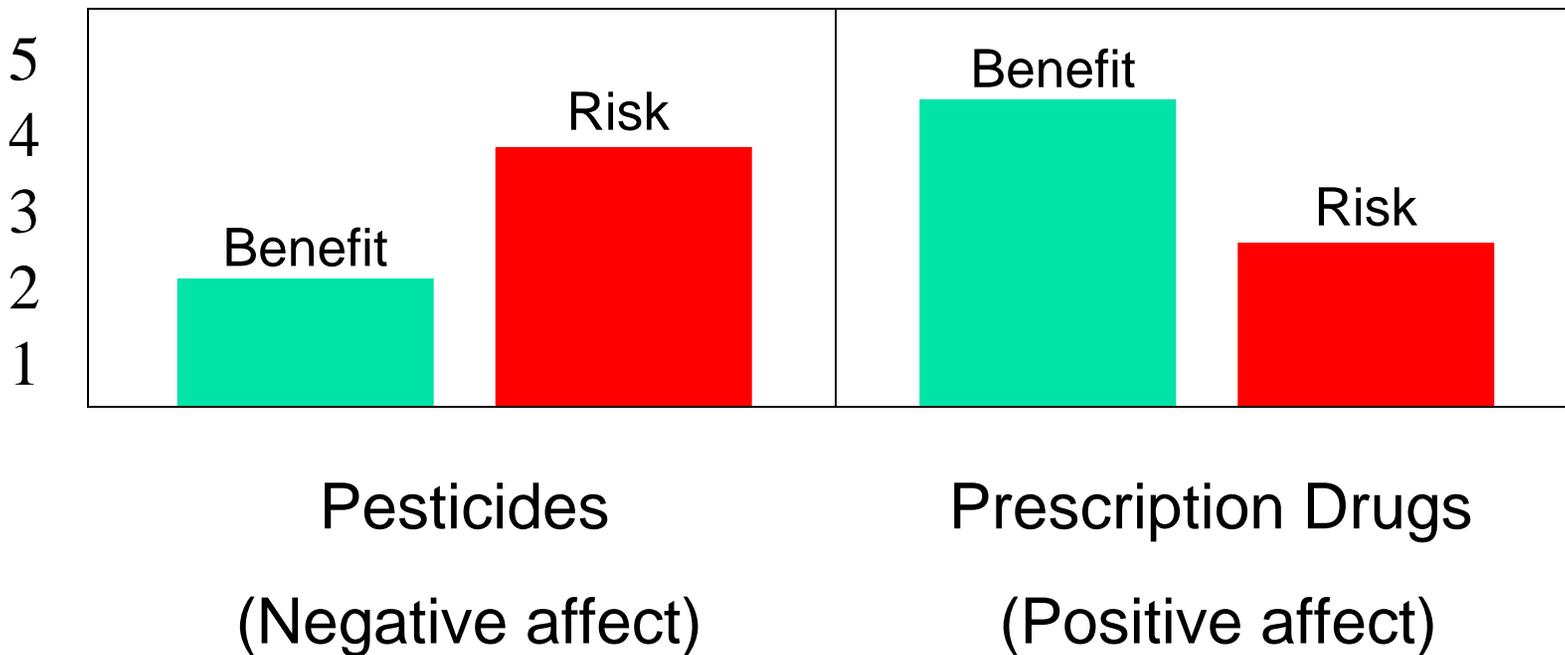
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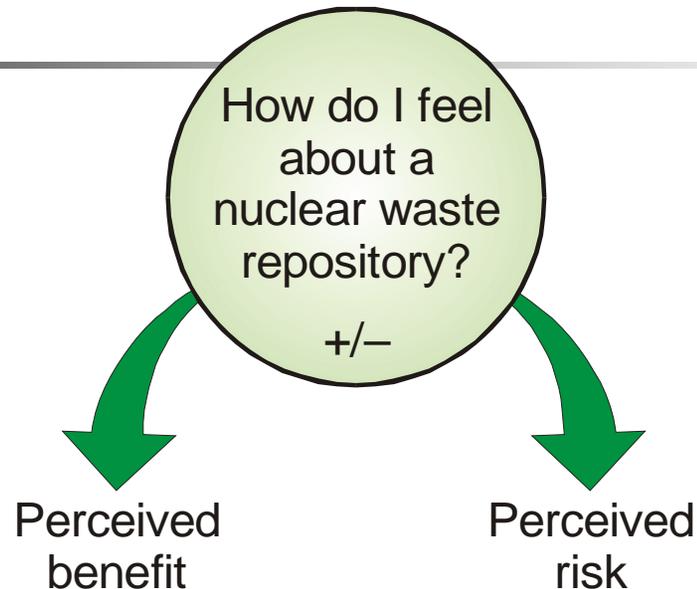
The strength of the inverse (negative) relationship between risk and benefit judgments for a particular hazard or consumer good depends on its affect: how good or bad it feels.

Mean perceived risk and perceived benefit for medical and nonmedical sources of exposure to chemicals.

Chemicals



The Affect Heuristic model



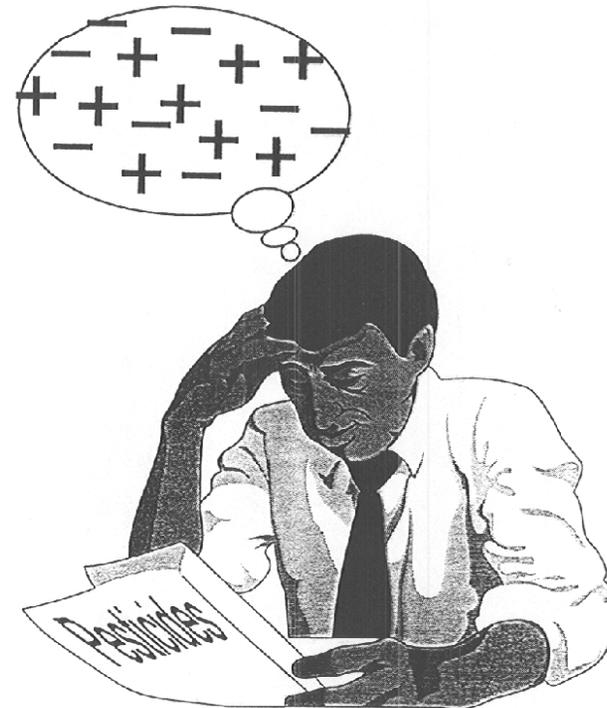
Judgments of risk and benefit are assumed to be derived by reference to an overall affective evaluation of the stimulus item.

Alhakami and Slovic (1994)

Time Pressure strengthens reliance on the Affect Heuristic

- ◆ Time pressure reduces opportunity for analytic deliberation, and increases reliance on affect
- ◆ Prediction: Under time pressure people are more likely to use the *affect heuristic* to make judgments.

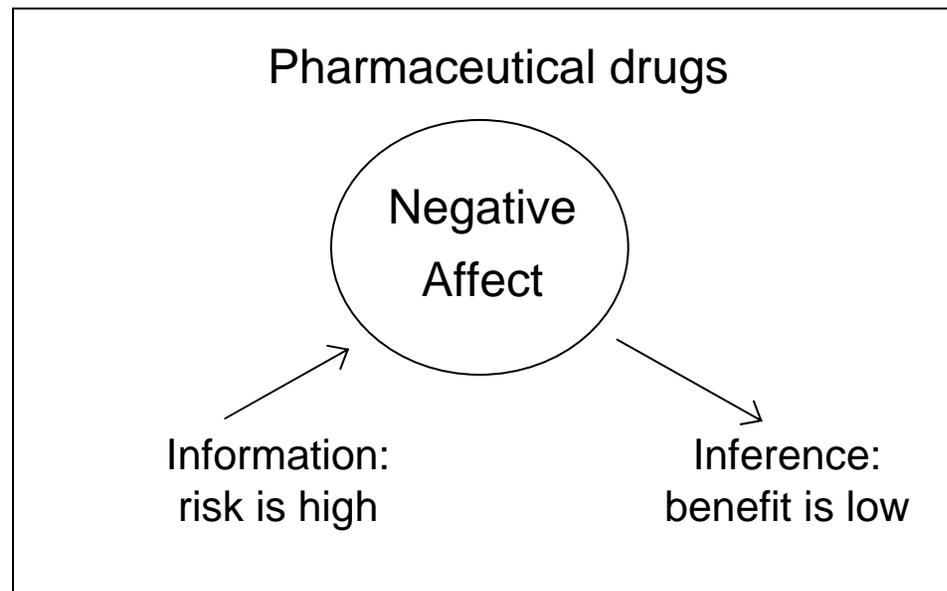
Result: Time pressure increased the inverse relationship between risk and benefit judgments.



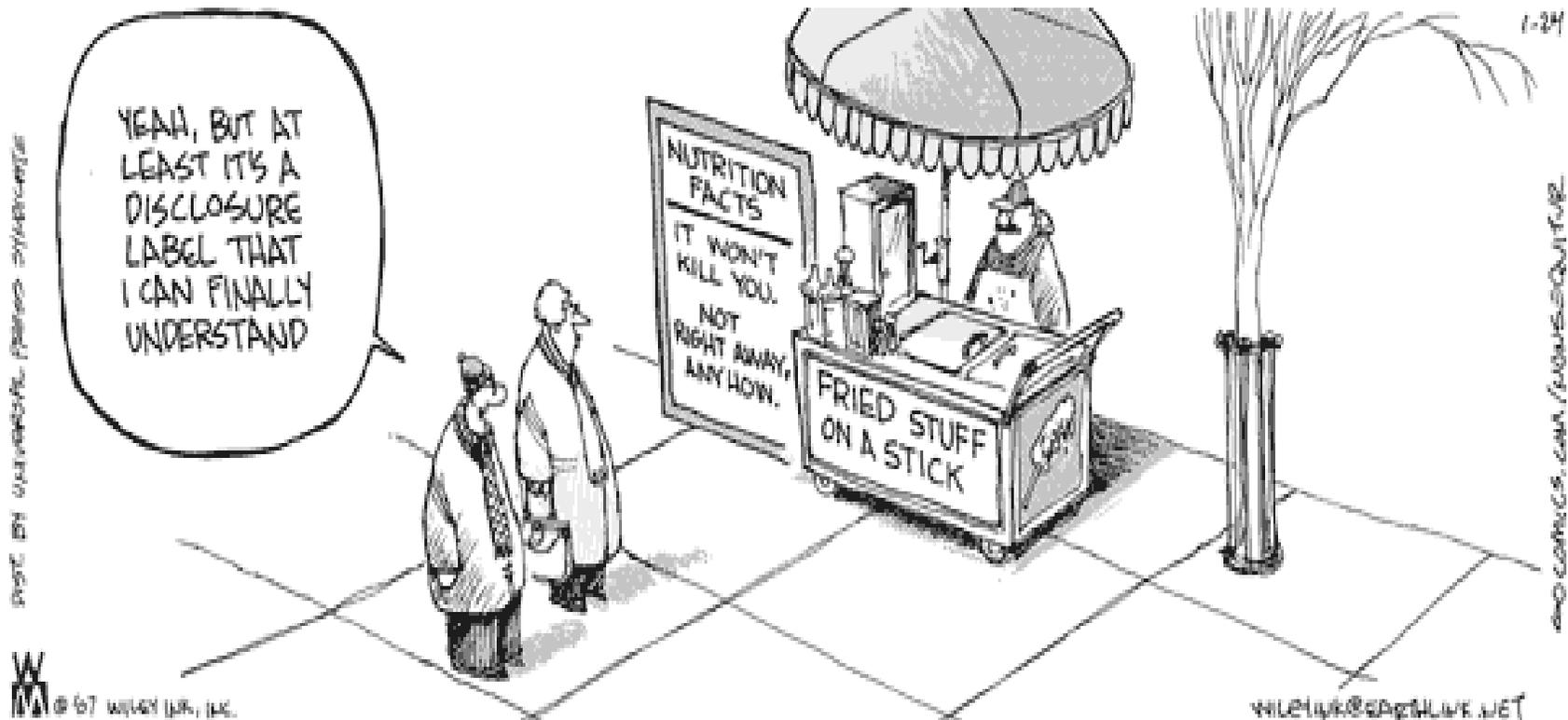
(Finucane, Alhakami, Slovic, & Johnson, 2000)

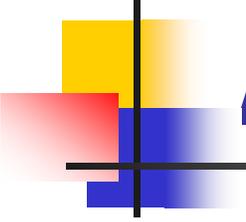
Providing only Risk information changed affect and perceptions of benefits (and vice versa)

Technique: provide information to change overall impression, e.g., create a more negative affective evaluation of a drug with info that it has high risk. Perceived benefit should then decrease.



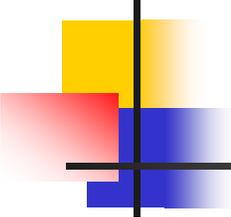
Addressing the barriers





Addressing the barriers

- Provide risk and benefit information
- Make information useable
- Test communications prior to use
 - Health literacy
 - Numeracy
 - Age



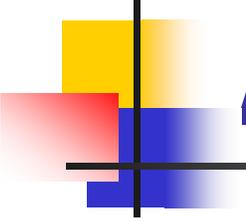
Provide risk and benefit information

- Provide both risk and benefit information in communications

Numeric or non-numeric information?

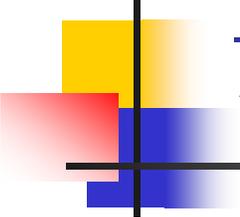
- Trust risk information more when provided numbers
- Providing numeric risk information reduced fear of adverse events
- Providing numeric benefit information reduced perceived benefit

Young & Oppenheimer, 2006; Woloshin, Schwartz, & Welch, 2004; Gurmankin, Baron, & Armstrong, 2004)



Addressing the barriers

- Provide risk and benefit information
- **Make information useable**
- Test communications prior to use
 - Health literacy
 - Numeracy
 - Age

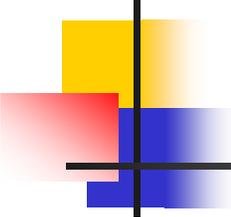


How information is presented may matter
as much as what information is presented

1. Show only the most important information (or highlight it)
- 2.
- 3.
- 4.

Peters, Hibbard, Slovic, & Dieckmann, 2007, *Health Affairs*

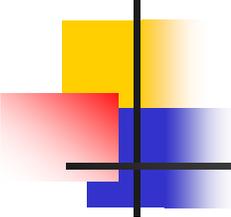
Peters, Dieckmann, et al., 2007, *Medical Care Research & Review*



Less is More

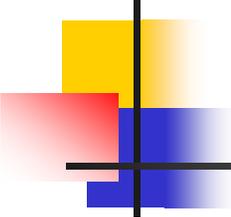
- Subjects are given information about three hospitals (cost, quality information, and other information)
- Two conditions
 - All information and unordered
 - Cost and quality information only and highlighted

(Peters, Dieckmann, Dixon, Hibbard, & Mertz, 2007)



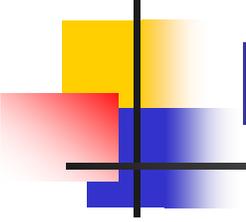
Condition = Unordered, all information

Indicators	Hospital X	Hospital Y	Hospital Z
Your out-of-pocket costs	\$	\$\$\$	\$\$
Number of general care beds	550	231	180
Rated quality of hospital food (higher is better)	4.1	1.1	2.0
% of time guidelines for heart attack care are followed	82%	92%	87%
% of time guidelines for pneumonia care are followed	60%	89%	78%
Number of visiting hours per day	11	6	8
Number of Registered Nurses per 100 patients	18	38	29
Patient references available	Limited	Limited	Limited
Has computer system to prevent medication errors	No	Yes	Limited



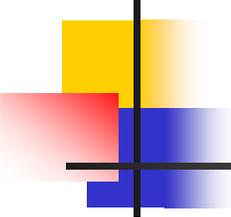
Condition = Cost and Quality Information only, Quality Highlighted

Indicators	Hospital X	Hospital Y	Hospital Z
Your out-of-pocket costs	\$	\$\$\$	\$\$
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Less is More: Hypotheses

1. Including less information will help comprehension.
2. This will be particularly true for those lower in numeracy



Dependent variable

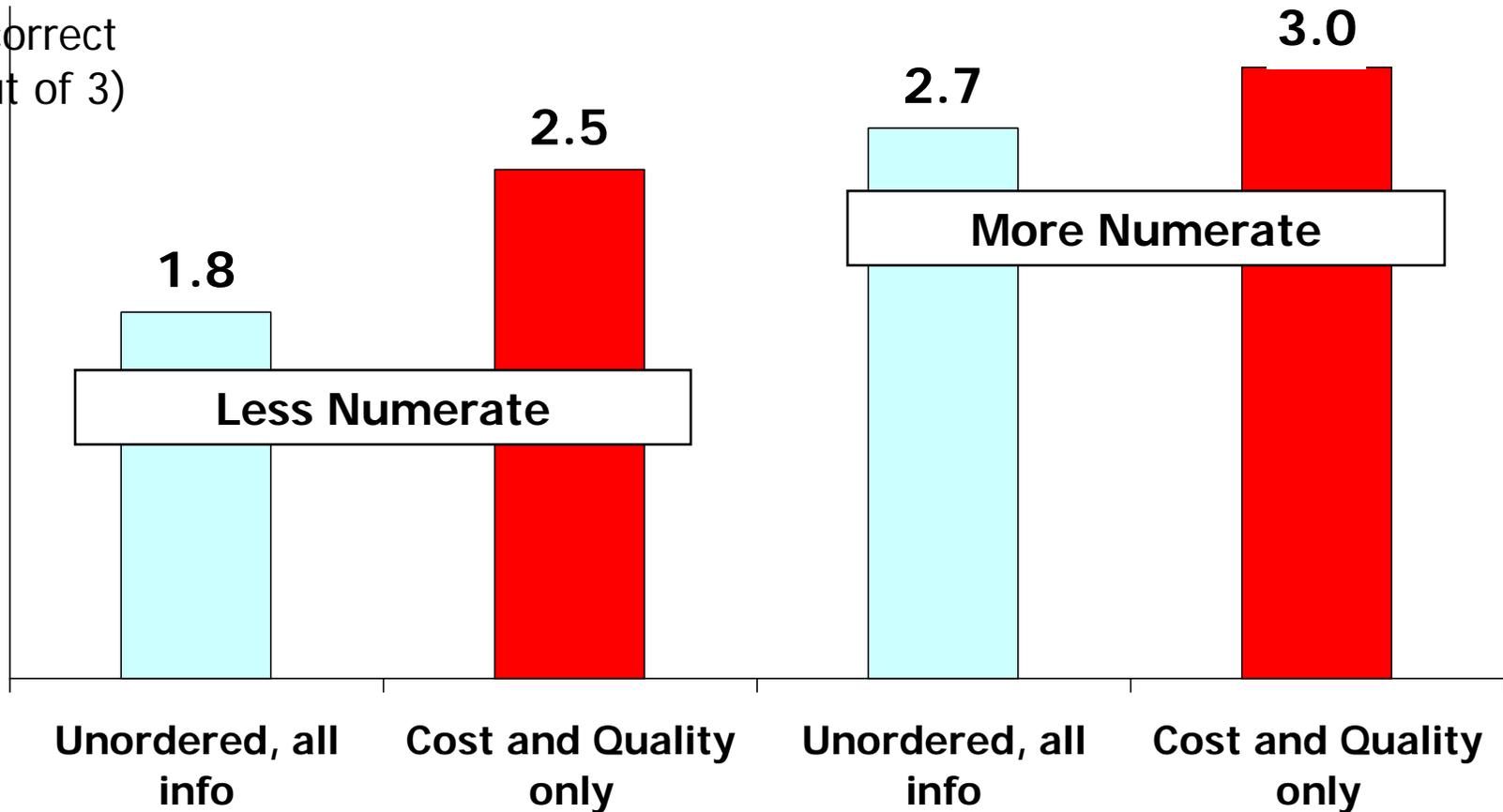
- Comprehension

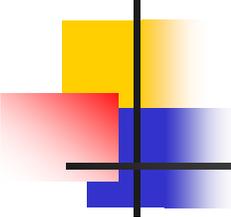
(Index = count of 3 items below)

- Which hospital is most expensive?
- Which hospital is most likely to follow the guidelines for heart attack care?
- Which hospital has the least Registered Nurses per 100 patients?

Including only the most relevant information helps comprehension the most in the less numerate

correct
(out of 3)



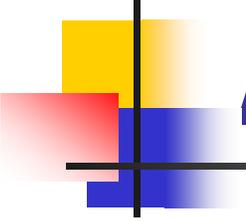


How information is presented may matter
as much as what information is presented

1. Show only the most important information (or highlight it)
2. Make those key points easier to evaluate (order, summarize, interpret information)
3. Require less cognitive effort and fewer inferences (e.g., do the math for them)

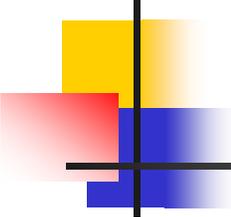
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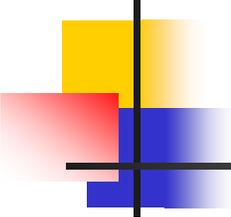
Addressing the barriers

- Provide risk and benefit information
- Make information useable
- Test communications prior to use, including in vulnerable populations
 - Age
 - Health literacy including numeracy



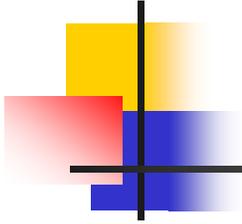
Conclusions I

- How information is presented influences how well it is understood
- This appears to be particularly true for less able individuals
- Careful choices of information formats may promote wellness and reduce disparities

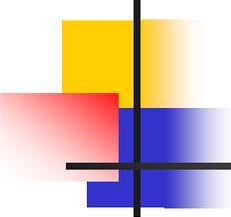


Conclusions II

- Risk and benefit information should be communicated
 - In a numeric format?
- Communications should be tested
- The science of communication exists and should be used as well as developed further by the FDA

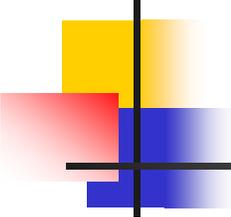


Thank you !



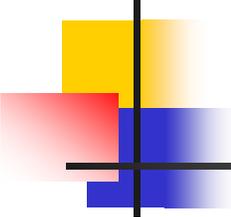
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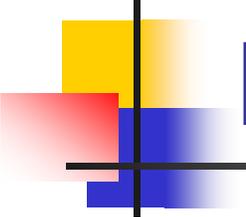
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