

Calculating Care: A Consideration of Health Numeracy

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Agenda

- Health
- Contemporary health care
- Numeracy & Health Numeracy
- Measurement
- So what? / Current research
- Conclusions / Implications



"Health"

http

- How will I spend my lottery winnings?
- Limit fat to 30% of your daily food intake – what does 30% look like?
- Should I get the flu vaccine(s) – what’s the risk of getting the flu if I don’t?
- Come on – what’s the chance of getting [pregnant] [AIDs] [HPV] if we don’t use condoms this time????
- Should I have surgery–chemo–radiation?
- What’s my prognosis?



Contemporary Health Care

CHRONIC DISEASE



**SHARED
DECISION-MAKING**



Literacy Skill

- IALS / ALL
 - Prose, Document, Quantitative (Numeracy)
- Numeracy
 - “... the **knowledge** and **skills** required to effectively manage and respond to the mathematical demands of **diverse** situations”



Numeracy

- Numeracy
 - Continuum of skill
 - Level 1= lowest skill capacity
 - Level 2= simple and clear material
 - **Level 3= expected minimum skill**
 - Level 4/5= integration of information for complex problem resolution
- **Performing below Level 3**
 - 55 % of adults on the numeracy scale



Health Numeracy

- “The degree to which individuals have the capacity to **access, process, interpret, communicate, and act on** numerical... health information to make effective health decisions” (Golbeck et al., 2005)



Health Numeracy

- Basic
 - number identification
- Computational
 - simple arithmetic



Nutrition Facts	
Per 1/2 cup (125 mL)	
Amount	% Daily Value
Calories 70	
Fat 0.5 g	1 %
Saturated Fat 0 g	0 %
+ Trans Fat 0 g	
Cholesterol 0 mg	10 %
Sodium 250 mg	10 %
Carbohydrate 13 g	4 %
Fibre 2 g	8 %
Sugars 6 g	
Protein 2 g	
Vitamin A 1 %	Vitamin C 2 %
Calcium 0 %	Iron 4 %



Health Numeracy

- Analytical
 - Interpret data
 - Multiple sources
 - Normal range – BP; Blood sugar
- Statistical
 - Interpret biostatistics
 - Probability, risk, life expectancy



Health Numeracy

“The lifetime risk of developing breast cancer is 11% (1 in 9) and increases with age... the chance of a 60 year old woman developing breast cancer before age 70 is only 2.9% (1 in 34)” (CCS, 2009)



Health Numeracy Assessment

- Test of Functional Health Literacy for Adults (TOFHLA & STOFHLA)
- The Newest Vital Sign
- General Numeracy
- Health Context Numeracy



Health Numeracy Test



Numeracy Assessment

- **Numeracy Question #1:** Take one tablet by mouth every 6 hours as needed.
- **Question:** If you take your first tablet at 7:00 am, when should you take the next one?
- **Answer:** 1 pm



Numeracy Assessment

- **Numeracy Question #2:** Take medication on an empty stomach 1 hour before or 2-3 hours after a meal unless otherwise directed by your doctor.
- **Question:** If you eat lunch at noon, and you want to take this medicine before lunch, what time should you take it?
- **Answer:** 11 am or before 11 am



Numeracy Assessment

Numeracy Question #3: Which one of the following numbers represents the biggest risk of getting a disease?

- a) 1 in 100
- b) 1 in 1000
- c) 1 in 10

Answer: 1 in 10



Numeracy Skill

- Evidence of competency
 - Consumers = 26% - 71% inadequate skill (Lipkus, et.al, 2001; Woloshin, et.al., 2001; Sheridan, 2003; Davids, 2004; Donelle et.al., 2008; Donelle et.al., in press)
 - Medical trainees = 23% challenged by basic skill (Sheridan & Pignone, 2002)



Research: ↓ Health Numeracy

- Appointment scheduling
- Assess & personalize risk
- Medication errors
- Rx benefits
 - Consumer / trainee
- Health system use



↑ Comprehension

What predicts enhanced comprehension of health risk information?

- ↑ Prose skill = ↑ numeracy skill
- ↑ Familiarity of information context
- ↑ Income
- Education ?



Conclusions & Implications

- Emerging field of research
 - To date = Consumer focus
- Continued research
 - Age cohorts, various chronic illnesses, and among diverse ethnic groups
 - Comprehensive assessment tools
- Health Information
 - construction & delivery
- Education (consumers, trainees, practitioners)



Statistics Canada has come out with a new survey...

Apparently three out of four people make up 75% of the population



The University of Western Ontario

Conversation & Questions


