JRN 101B/ 103G: News Literacy/Fall 2010
Recitation: NUMERACY

Object: A Numeracy discussion, plus We are all publishers

I. **Housekeeping**
1. Attendance
2. Test returned (if you have marked them all)
3. Reminder to do NewsU homework (and use it to practice for the final)

II. **Using Stories with Numbers**

We told students at the beginning of the semester that reliable information is *actionable* information. Determining whether information should be acted on often involves assessing risk. For example, are there risks involved in getting the swine flu vaccine, and if so, do they outweigh the risks of not getting the shot? Evaluating the numbers, rates, and statistics that so often appear in stories involving polls, economics, and health risks is an important skill that gives news consumers another tool in figuring out whether they are getting reliable, actionable information from their news.

Coming out of this recitation students should:

(1)Understand ways numbers can give a false impression;

(2)Understand the difference between numbers and rates and why it is important to know both;

(3) Understand the important questions to ask about health risk stories; and

(4) understand stories about health that include polls and health risks.

III.

1. *Time will likely be short, so you may have to be selective in choosing which of the points to emphasize. The articles you've been supplied with are intended as background information, so your students will not have read them.*
2. There are a variety of reasons to be careful with numbers that appear in news stories:
    i. Understanding the difference between actual numbers and rates. A rate is a quantity or amount considered as a proportion of another quantity or amount.
    ii. Use of misleading base points for comparison purposes
    iii. Sloppiness (e.g., *New York Times* looked at census data and determined that more than 50% of American women were living

without a spouse; however, the sample included women 15 and over, which skewed the sample; without those teenagers the number would have been below 50%)
iv. Poor math skills
v. Improper logic
vi. Hearsay
vii. Assumptions (e.g., the "Girls Gone Wild" spring break story and confirmation bias)

- **HEALTH AND SCIENCE**
  - Below are several cases in which numbers, if not approached with caution and placed in context, can be misleading. A good way to approach these numbers is to provide students with the numbers (perhaps write them on the board), have them interpret the numbers, determine the risk involved, ask questions about missing information. The provide them with the appropriate context that gives them perspective and reveals the numbers' meaning. (Remember the example from the Deconstruction Workbook comparing the percentage of people with diabetes on Long Island [7.9%]with those nationwide [7%]). Be sure to incorporate the swine flu examples, for which you have background articles. You may choose to bring copies and have your students read them in class, but that is up to you.

Individual versus population risk

An oft-reported estimate is the lifetime breast cancer rate among women. This rate varies around the world from roughly three per cent to over 14 per cent.

Using the statistic 'one in eight' makes a strong headline but can dramatically misrepresent individual breast cancer risk.

Throughout her life, a woman's actual risk of breast cancer varies for many reasons, and is rarely ever actually one in eight. For instance, in the United States 0.43 per cent of women aged 30–39 (1 in 233) are diagnosed with breast cancer. In women aged 60–69, the rate is 3.65 per cent (1 in 27).

Absolute and relative risk

You may also have to decide whether to report estimates of absolute or relative risk. Absolute risk is simply the probability of something happening (for instance,

the one in eight figure used above). Relative risk is the comparison between risk in two different situations.

The dangers of comparing risk

Beware of stories that compare risks with everyday activities such as driving

For instance, the all-too-often-used comparison 'you're more likely to be hit by a bus / have a road accident than to…' will generally fail to inform people about the risks they are facing because the situations being compared are so different. When people assess risks and make decisions, they usually consider how much control they have over the risk. Driving is a voluntary risk that people feel (correctly or not) that they can control. This is distinctly different from an invisible contamination of a food product or being bitten by a malaria-carrying mosquito.

1.--Suffolk car fatality rates. The story catches your eye claiming the high number of fatal accidents in Suffolk. But the rate of accidents in Suffolk is actually lower than in other NY counties. Suffolk has more cars and so more accidents. The point here is that the story needs to be placed in perspective, not minimized in importance but also not blown out of proportion.

[Suffolk suffered 164 total vehicular fatalities in 2005, the highest in the state. Nassau suffered 108, good for second in the state. However, when put in the context of population size, the accident rate per 100,000 residents in Suffolk was 11.12 and in Nassau 8.1. Orange County, which suffered 55 total fatalities actually had a higher rate at 14.8 because of its much smaller population. Though Suffolk and Nassau ranked first and second in total crash-related deaths, they ranked 32nd and 45th, respectively, for crash-related fatality rate. When compared to similar counties, such as California's Santa Clara County, the death rate from automobile crashes in Suffolk County is not out of the ordinary.]

Discuss the difference between a rate and the actual number. What is a rate and why is it important and useful?

2. WHOOPING COUGH FATALITES: U.S. deaths from whooping cough (pertussis) doubled between 2003 and 2004, according to the National Center for Health Statistics. Whooping cough is a contagious childhood disease that many thought was no longer a threat. Should public health officials step up their efforts to prevent whooping cough?

[There was one death in 2003 from whooping cough, and two deaths in 2004. You need to know the actual numbers to tell if a percentage increase is major. A large percentage increase (or elevated risk) in a rare disease can have far has less impact than a small percentage increase in a common disease.]

3. SCARLET FEVER EXAMPLE:

Scarlet fever is a form of strep infection that used to be a serious problem in children but is now easily treatable. Yet, according to the figures from the National Center for Health Statistics, the number of U.S. deaths from scarlet fever rose 300% -- tripled -- from 2003 to 2004.

How much of a problem is scarlet fever? To decide, what other information do you need?

[The number of scarlet fever deaths rose from 1 (in a country of 299 million people) to 3. FYI, of the four people who died of scarlet fever in those two years, three of them were over 85, and the fourth was over 65.]

4. MURDER RATE EXAMPLE:

In 2006, 539 people were murdered in New York City, more than three times as many as the 145 murdered in Oakland, Calif. Yet Oakland has a reputation for gang violence and New York officials claim their city is safe. Is New York three times more dangerous than Oakland? To decide, what other information do you need?

[You need to know the rate – the number of murders as a proportion of population. So you need to know the populations. NYC - 8.16 million. Oakland - 398,000. The murder rates: 6.6 per 100,000 in NYC and 36.3 per 100,000 in Oakland.]

SWINE FLUE, THE VACCINE, AND NUMBERS

3. POLLING DATA: How to be a sophisticated reader of polls.
   i. Refer to the background readings, and share with students examples of polls related to swine flu and the vaccine. “Safety Concerns Linger for H1N1 Vaccine” is an example of an unscientific poll. “Official Swine Flu Poll Results Released” discusses a faulty poll with numbers taken from Twitter and Facebook. The article “AP Poll” is a solid, legitimate poll. Also look at the statistics found in the NY Times article and the NPR piece to find numbers that accurately convey the risk of catching swine flu vs. getting the vaccine.

1. whether the poll was scientific (i.e. respondents were chosen in a way--usually random sampling--that gave everyone an equal chance of being interviewed)
2. the number polled, response rate and margin of error
3. who was polled (adults, registered voters, likely voters, etc.)
4. the actual wording of key questions
5. who conducted the poll and paid for it
6. how the poll was conducted, e.g., telephone interviews using random digit dialing, from voter registration lists, person on the street, etc.