# Evidence on the information accuracy and integrity of science reporting in the mass media

Scientific Approaches to Strengthening Research Integrity in Nutrition and Energetics
August 7 - 8, 2012

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# Disclosures

- Adjunct Professor – Tufts Friedman School of Nutrition Science and Policy and the University of Massachusetts Amherst Food Science and Policy Program

- SR Strategy (President) - consults with a number of non-profit organizations and food and agriculture companies and serves on several industry and non-profit boards and advisory committees

- International Food Information Council (IFIC) and the IFIC Foundation (former President & CEO) – primarily supported by the broad-based food, beverage, and agriculture industries

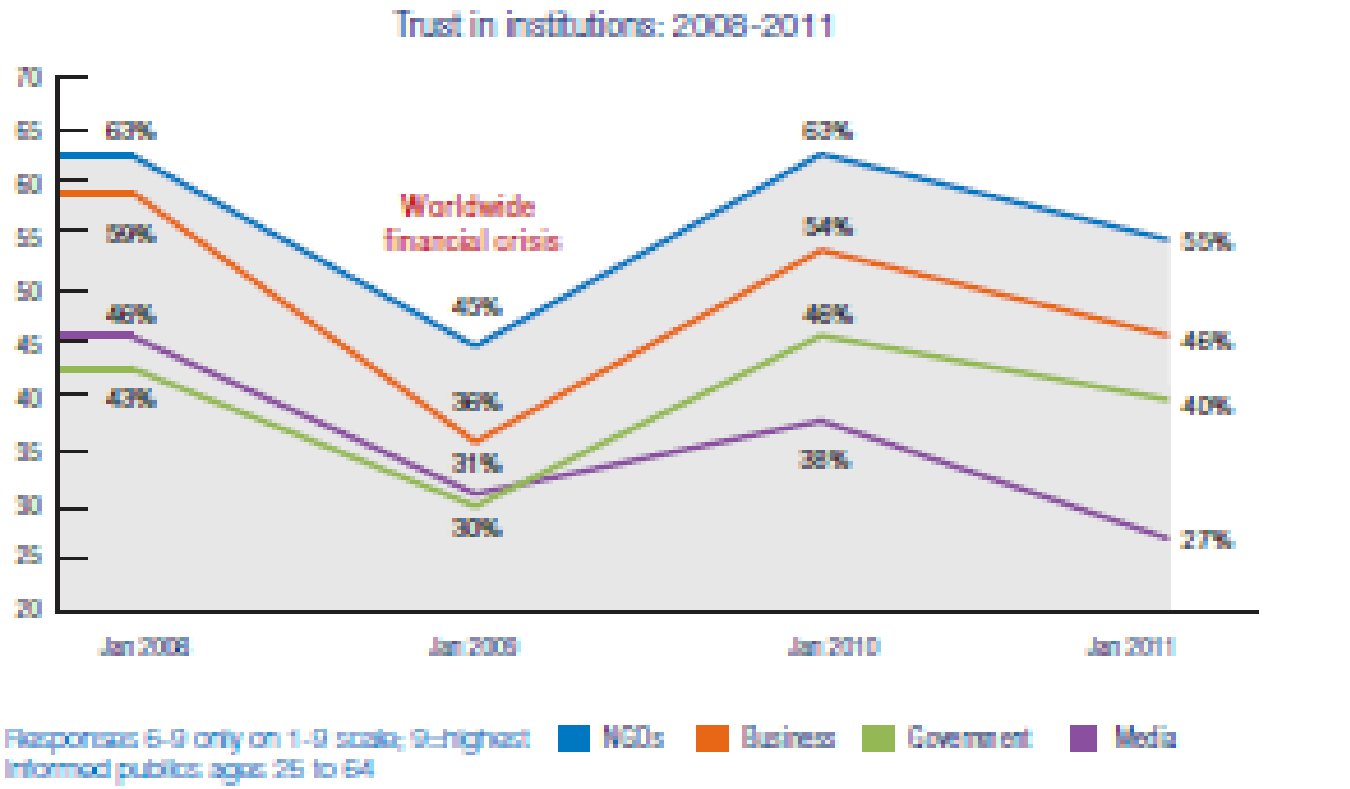
# Presentation Overview

- Today's Environment
- Evidence Base
- Call to Action

# TRUST and Transparency


Edelman
trustbarometer
48 HOURS TO SAVE THE EURO
I NEED A JOB
THE GREAT RECESSION OR THE GREAT DEPRESSION
trust
2011 Edelman Trust Barometer Executive Summary
Edelman

**Figure 6:** In U.S., 2011 decline mirrors 2008-2009 drop; only country to see trust fall in all four institutions




Responses 6-9 only on 1-9 scale; 9=highest
Informed publics: ages 25 to 64

# What is science?

# Science and Research Drive Media and Policy

# Emerging Trends Today

**The Precautionary Principle**

**Public Health Rules**

“Practice-based evidence not evidence-based practice”

“Evidence-informed policy”

and

**Transdisciplinary Science**

# How credible is the science?

- **“Relationship between funding source and conclusion among nutrition-related scientific articles”**

  Lenard Lesser et al, PLoS Medicine 2007

- **“Funding source and research report quality in nutrition practice-related research”**

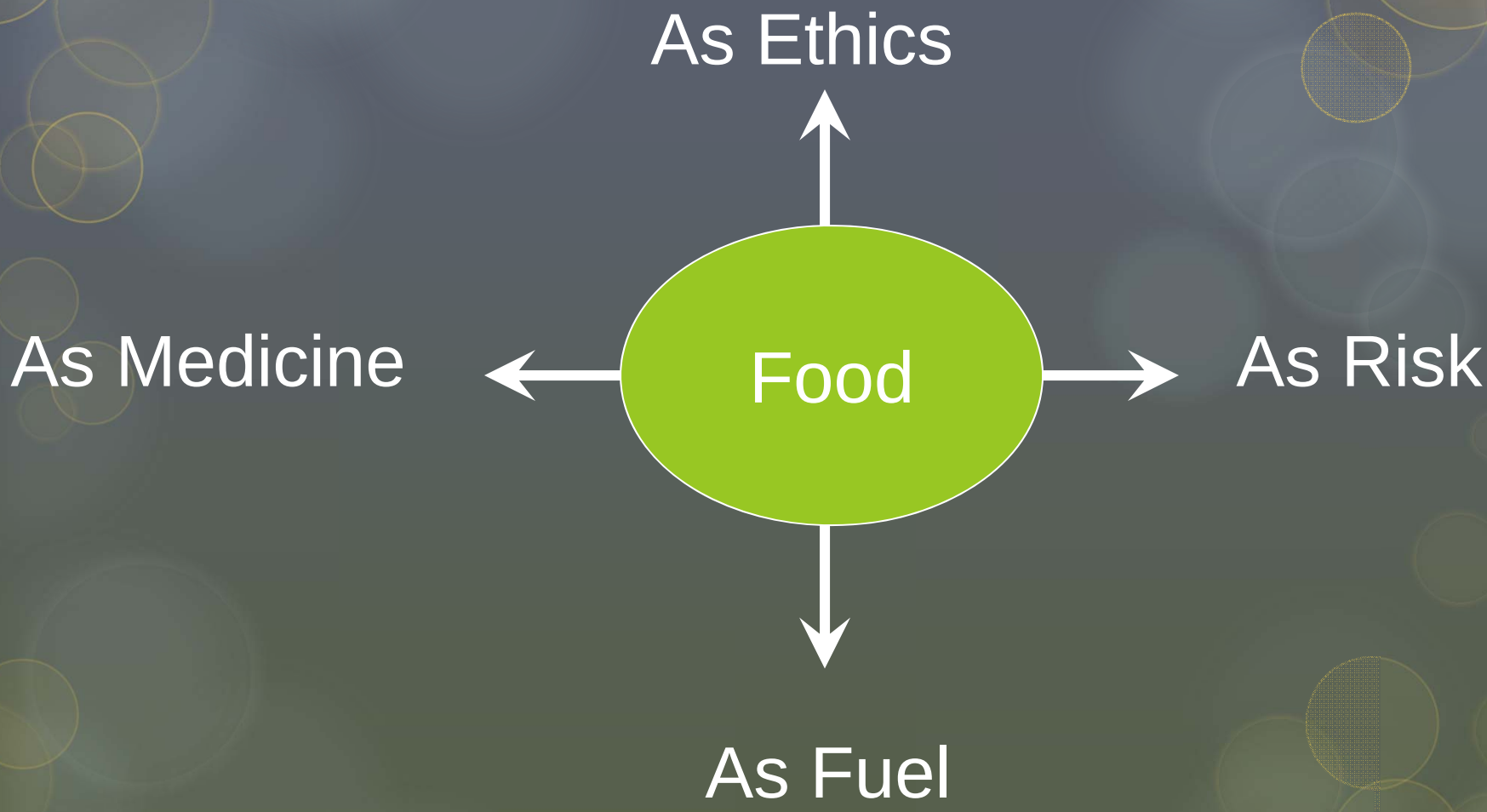
  Esther F. Myers et al, PLoS One 2011 Volume 6 No. 12

- **“Is funding source related to study reporting quality in obesity or nutrition randomized control trials in top – tier medical journals”**

  K. A. Kaiser et al, International Journal of Obesity 2012

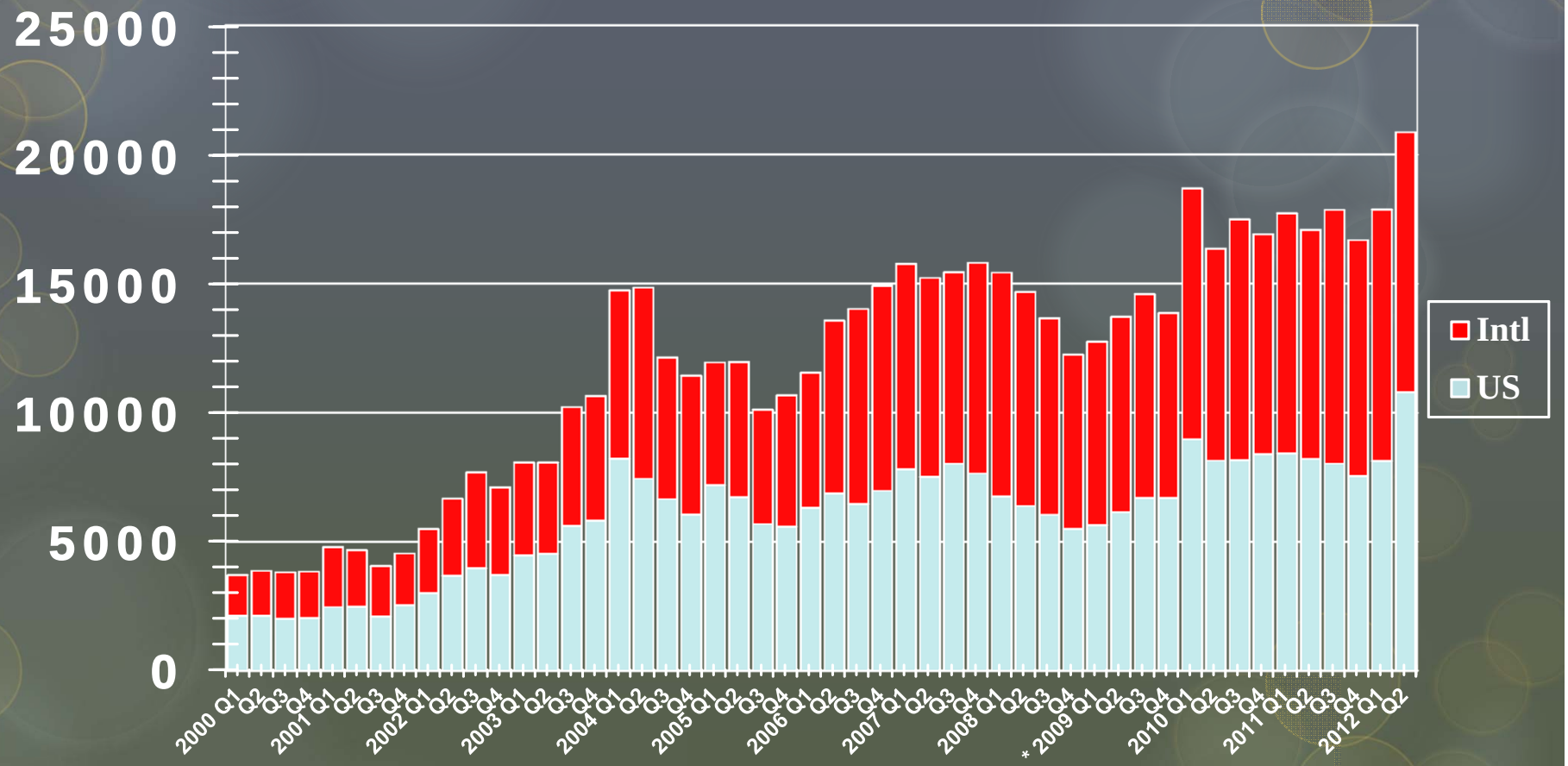
# Are nutrition, energetics and obesity different?

# The Landscape




# Convergence

# Global Trends in Obesity-Related Media Coverage – Q2 2012




Note: Figures retrieved from Lexis-Nexis searches on “obesity or obese” in U.S. and international newspapers and newswires, *and beginning in Q1 2009, online news sources.

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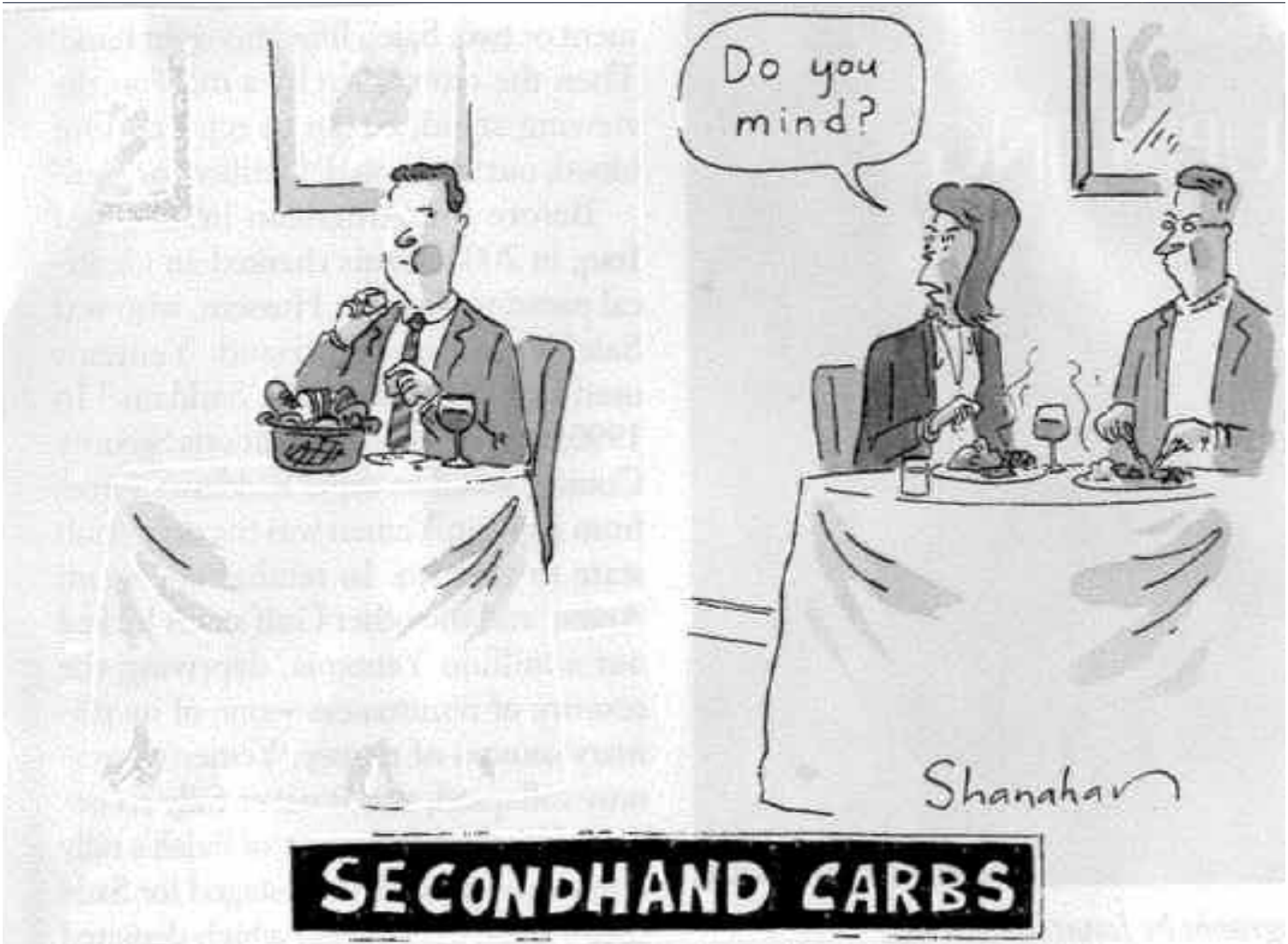
IFIC International Food Information Council


Do you mind?
Shanahan
SECONDHAND CARBS

# Is science to be pursued for “curiosity” or used for policy?

## From Science To Communications to Policy

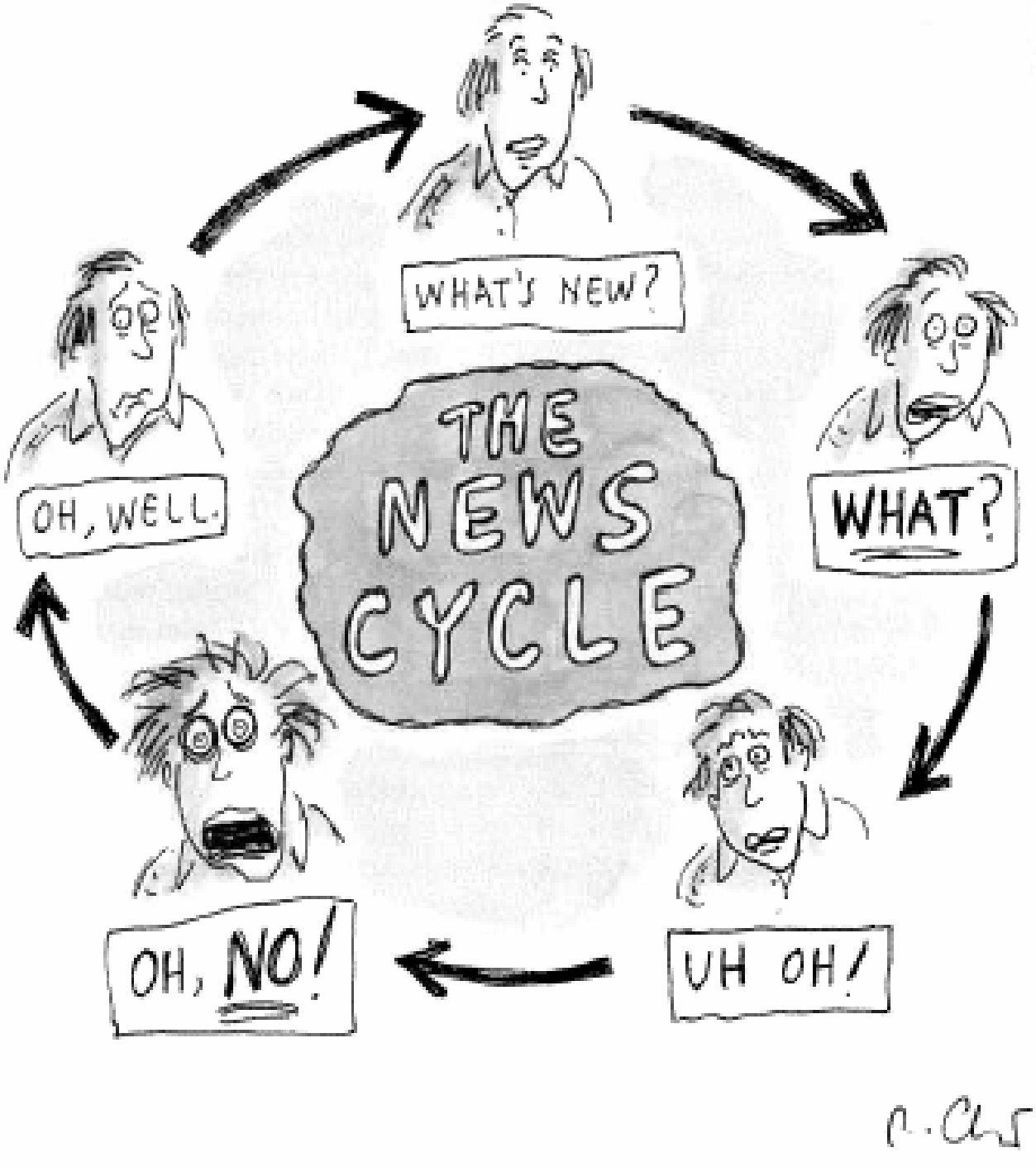
# “The goal of science is to influence policy”

Sabrine Kleinert, Editor – The Lancet

European Science Open Forum Session 2012

# Apres Le Deluge

**“How different is scientific coverage in the multimedia 24 hour news cycle?”**


WHAT'S NEW?
WHAT?
UH OH!
OH, NO!
OH, WELL.
THE NEWS CYCLE

# THE SCIENCE NEWS CYCLE



Start Here

**Your Research**

Conclusion: **A is correlated with B (ρ=0.56)**, given C, assuming D and under E conditions.

...is translated by...

**UNIVERSITY PR OFFICE**
(YES, YOU HAVE ONE)

FOR IMMEDIATE RELEASE: SCIENTISTS FIND POTENTIAL LINK BETWEEN A AND B (UNDER CERTAIN CONDITIONS).

...which is then picked up by...

**NEWS WIRE ORGANIZATIONS**

A CAUSES B, SAY SCIENTISTS.

...who are read by ...

**THE INTERNETS**

Scientists out to kill us again.
POSTED BY RANDOM DUDE
Comments (377)
OMG! i kneeew it!!!
WTH???????
...

...then noticed by...


We saw it on a Blog!
**A causes B all the time**
*What will this mean for Obama?*
BREAKING NEWS BREAKING NEWS BREA

...and caught on ...

**CNC Cable NEWS**


**4 LOCAL EYEWITLESS NEWS**

...eventually making it to...

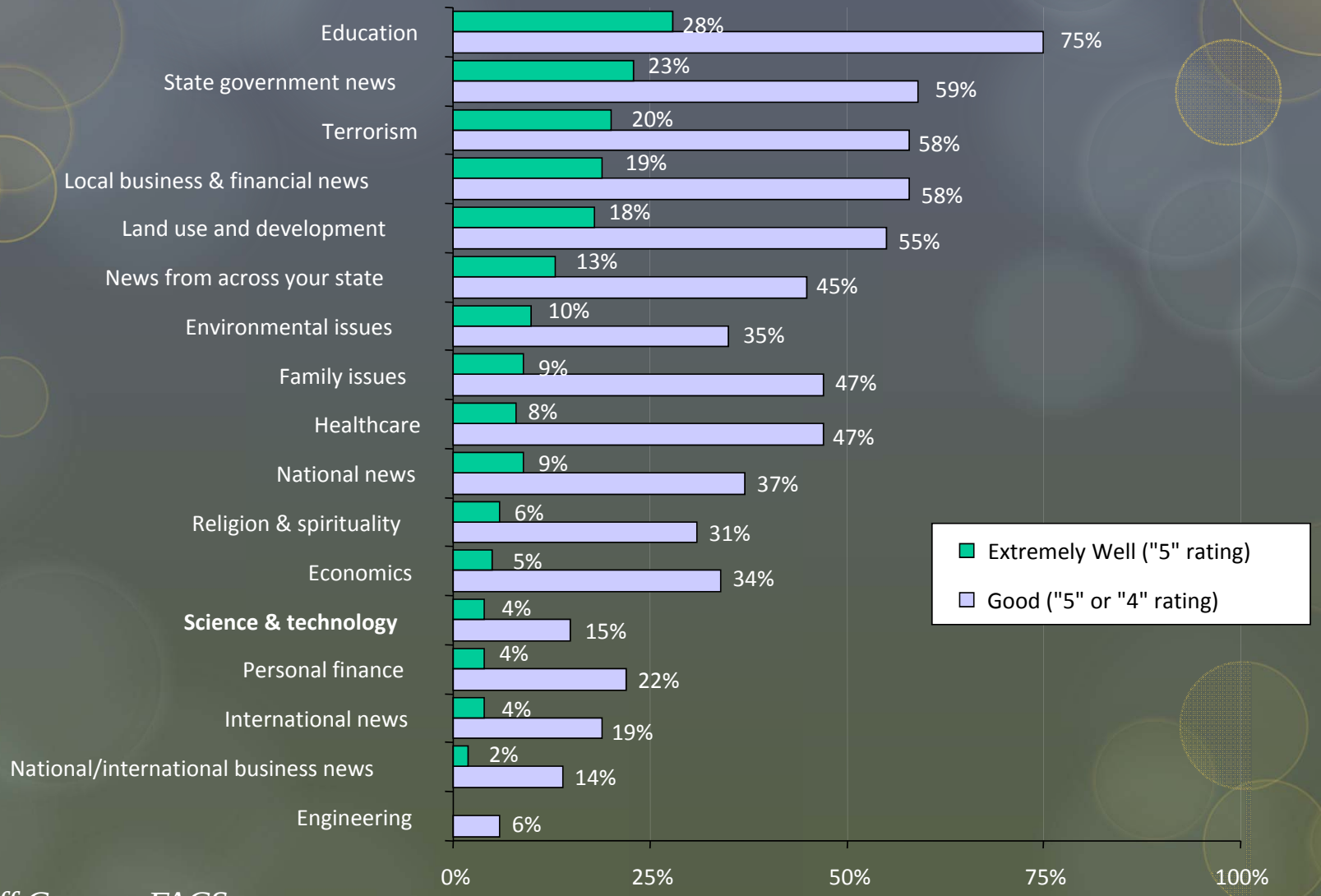
WHAT YOU DON'T KNOW ABOUT "A"... CAN KILL YOU! MORE AT 11...

A: KILLER AMONG US??
LOCAL EYEWITLESS NEWS


YOUR GRANDMA

WWW.PHDCOMICS.COM

# Preparedness of Journalists




*Jeff Cowart, FACS*

**Consensus**  **Conflict**

# The Importance of Context

# Evaluating the Evidence on Accuracy and Integrity in Media Coverage

- There is limited research on media coverage of science and even less focusing on accuracy and integrity
- Public understanding serves as a surrogate or marker for media coverage accuracy and integrity
- The research on a targeted scientific issue or question is more in-depth
- Researchers are predominantly at university schools of journalism
- The research often reflects the scientists' perspective on media coverage
- There is an underlying current of distrust from information sources to funding
- There is a gap between scientists and journalists that has yet to be bridged

## “Sound-Bite Science: On the Brevity of Science and Scientific Experts in Western European Television News”

Piet Verhoeven, *Science Communication*, Sep. 2010

**Findings:**

- Science has a marginal presence in television news
- The ‘science news’ is about technology or the natural sciences

**“Taking stock: A meta-analysis of studies on the media’s coverage of science”**

Mike Schaefer, *Public Understanding of Science*, Aug 2012

**Findings:**

- The research field grew significantly in the past few years and employs a variety of research strategies and methods
- But it is biased in three ways: (overemphasizing) mainly natural sciences (and namely biosciences and medicine), Western countries, and print media

## “A Question of Accuracy: How Journalists and Scientists Report Research on Hazards”

Eleanor Singer, *Journal of Communication*, Fall 1990

**Finding:**

Most media reports, in the process of making science lively and acceptable, introduce some errors of omission, emphasis, or fact.

# “Science on the Web: Student Evaluations of Scientific Arguments”

Sarah Brem et al, *Discourse Processes*, June 2011

**Finding:**

Web sites present challenges relating to multiple layers of argument, missing evidence and evidence that cannot be corroborated, and insufficient detail.

## “Trends in science coverage: a content analysis of three US newspapers”

Marianne Pellechia, *Public Understanding of Science*, 1997

**Findings:**

- Articles frequently omitted methodological and contextual information
- These omissions are most often mentioned as critical for a complete journalistic account of science

# IFIC Foundation "Trends in News Media Reporting of Food and Health Issues" 1995-2005

**Table 4. Contextual Information Presented in Mentions of Dietary Harms and Benefits**

| | 1995 | 1997 | 1999 | 2001 | 2003 | 2005 |
|---|---|---|---|---|---|---|
| Scientific evidence cited | 15% | 34% | 18% | 6% | 21% | 25% |
| Risk/benefit group | 15% | 12% | 13% | 16% | 17% | 18% |
| Amount consumed | 31% | 14% | 13% | 7% | 13% | 13% |
| Frequency of consumption | 7% | 10% | 10% | 4% | 13% | 13% |
| Cumulative effect | 1% | 2% | 1% | 1% | 2% | 2% |
| Total assertions | 2496 | 1921 | 4432 | 4299 | 3284 | 3413 |

Nancy Wellman et al, *Nutrition Today*
May /June 2011

## “Press Releases -Translating Research Into News”

Steven Woloshin et al, *Journal of the American Medical Association*, 2002

**Findings:**

- Press releases do not routinely highlight study limitations or the role of industry funding
- Data are often presented using formats that may exaggerate the perceived importance of findings

## “Assessing Mass Media Reporting of Disease-Related Genetic Discoveries Development of an Instrument and Initial Findings”

Eliza Mountcastle-Shah, *Science Communications*, June 2003

**Findings:**

- One-third of stories exaggerated the benefits of the discovery
- One-third presented a balanced selection of expert opinion

**“The Quality of Media Reports on Discoveries Related to Human Genetic Diseases”**

Neil Holtzman et al,
*Public Health Genomics*, 2005

**Findings:**

- Although usually accurate, the stories contained only 45.5 ± 13.8% (mean ± SD) of relevant items
- Stories appearing on television and stories reporting discoveries of genes for rare diseases were the least complete
- To increase the quality of media reports about genetic discoveries, stories should include more relevant items and be written by journalists skilled in science writing
- Scientists will have to resist the tendency to exaggerate

## “Do the print media “hype” genetic research? A comparison of newspaper stories and peer-reviewed research papers”

Tania Bubela et al, *Canadian Medical Association Journal (CMAJ) 2004*

**Findings:**

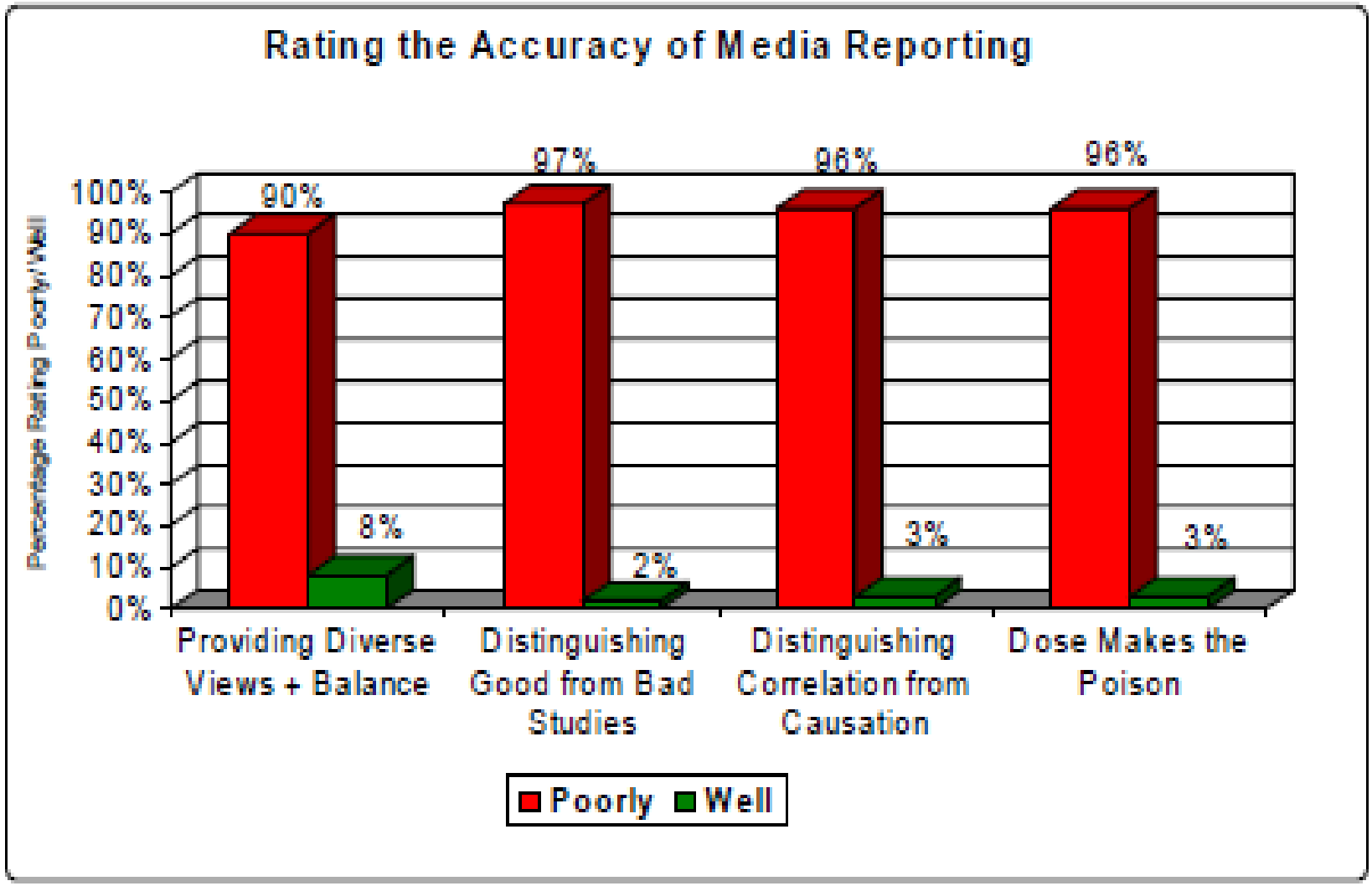
- The majority of newspaper articles accurately convey the results of and reflect the claims made in scientific journal articles
- However there is overemphasis on benefits and under-representation of risks in both scientific and newspaper articles

## “The Media and Chemical Risk”

Center for Media and Public Affairs,
George Mason University, 2009

**Finding:**

90 percent or more say media coverage of risk lacks balance, and the media don’t distinguish good studies from bad ones.


Rating the Accuracy of Media Reporting
Percentage Rating Poorly/Well
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
90%
8%
97%
2%
96%
3%
96%
3%
Providing Diverse Views + Balance
Distinguishing Good from Bad Studies
Distinguishing Correlation from Causation
Dose Makes the Poison
Poorly
Well

## “Fit to Print: A Natural History of Obesity Research in the Canadian News Media”

Stephannie Roy et al, *Canadian Journal of Communication*, 2007

**Finding:**

There is an interdependent and possibly problematic relationship between **health** sources and journalists that shapes the research and the translation of that **health** research to the public.

## “Manufacturing doubt: journalists' roles and the construction of ignorance in a scientific controversy”

S. Holly Stocking, *Public Understanding of Science*, Jan 2009

**Finding:**

Those with vested interests attempt to manipulate journalists' contributions to the social construction of ignorance in scientific controversies.

# “Conflicting stories about public scientific controversies: Effects of news convergence and divergence on scientists’ credibility”

Jacob Jensen et al, *Public Understanding of Science*, Aug 2012

**Finding:**

Surveys suggest that approximately one third of news consumers have encountered conflicting reports of the same information.

# “Evaluating Understanding of Popular Press Reports of Health Research”

William Yeaton et al,
Health Education and Behavior, 1990

**Findings:**

- The overall rate of reader misunderstanding approached 40%
- The range was between one third and one half for each of 16 articles representing five **health** topics

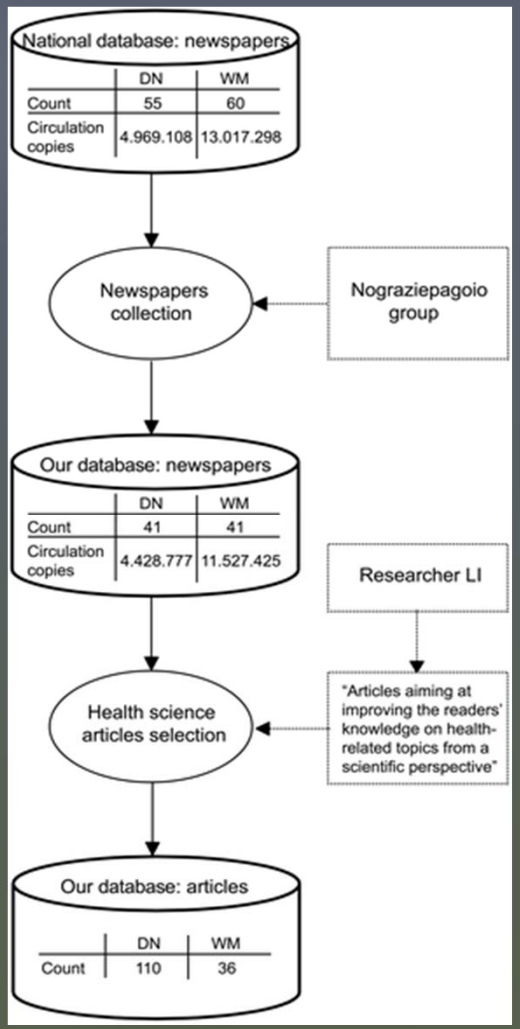
**“The Unbearable Lightness of Health Science Reporting: A Week Examining Italian Print Media”**

Luca Iaboli et al, *PLoS One*, May 2010

**Findings:**

- Consistent with prior research on **health** science communication in other countries, there are undisclosed costs and risks, emphasized benefits, unrevealed financial conflicts of interest, and exaggerated claims in Italian print media
- The risk for a story about a new medical approach to be unbalanced is almost 9 times higher with respect to stories about any other kind of **health** science-related topics
- This raises again the fundamental issue whether popular media is detrimental rather than useful to public health

## Figure 1. Newspapers collection and articles selection for the present database.




Iaboli L, Caselli L, Filice A, Russi G, et al. (2010) The Unbearable Lightness of Health Science Reporting: A Week Examining Italian Print Media. PLoS ONE 5(3): e9829. doi:10.1371/journal.pone.0009829
http://www.plosone.org/article/info:doi/10.1371/journal.pone.0009829

## “The gap between scientists and journalists: the case of mercury science in Québec’s press”

Marie-Evie Maille, *Public Understanding of Science*, Jan. 2010

**Finding:**

There are different sources of frustration felt by both protagonists (scientists and journalists): both questions as to the scientists’ revision of the journalists’ text and the journalists’ lack of accuracy

## “Public Praises Science; Scientists Fault Public, Media”

Pew Research Center for People and the Press, 2009

**Finding:**

About three-quarters (76%) of scientists say it is a major problem for science that news reports do not effectively distinguish between well-founded scientific findings and those that are less well-founded.

## Problems for Science: Lack of Public Knowledge, Sloppy News Coverage

| *Scientists' views of problems for science…* | Major problem % | Minor/ Not a Problem % |
|---|---|---|
| Public does not know very much about science | 85 | 15 |
| News does not distinguish between well-founded findings and those that are not | 76 | 24 |
| News media oversimplify scientific findings | 48 | 51 |
| Public expects solutions to problems too quickly | 49 | 51 |

Figures read across.

Pew Research Center July 2009

**“Scientists are talking, but mostly to each other: a quantitative analysis of research represented in mass media”**

Julie Suleski, *Public Understanding of Science*, Jan. 2010

**Findings:**

- Scientific literacy is declining despite growing public interest and scientific output
- Reliance on journal publication and subsequent coverage by the media as the sole form of communication en masse is failing to communicate science to the public

**“News stories about science are different from those about politics or business, because the role of critical review has already been performed. Accuracy is paramount”**

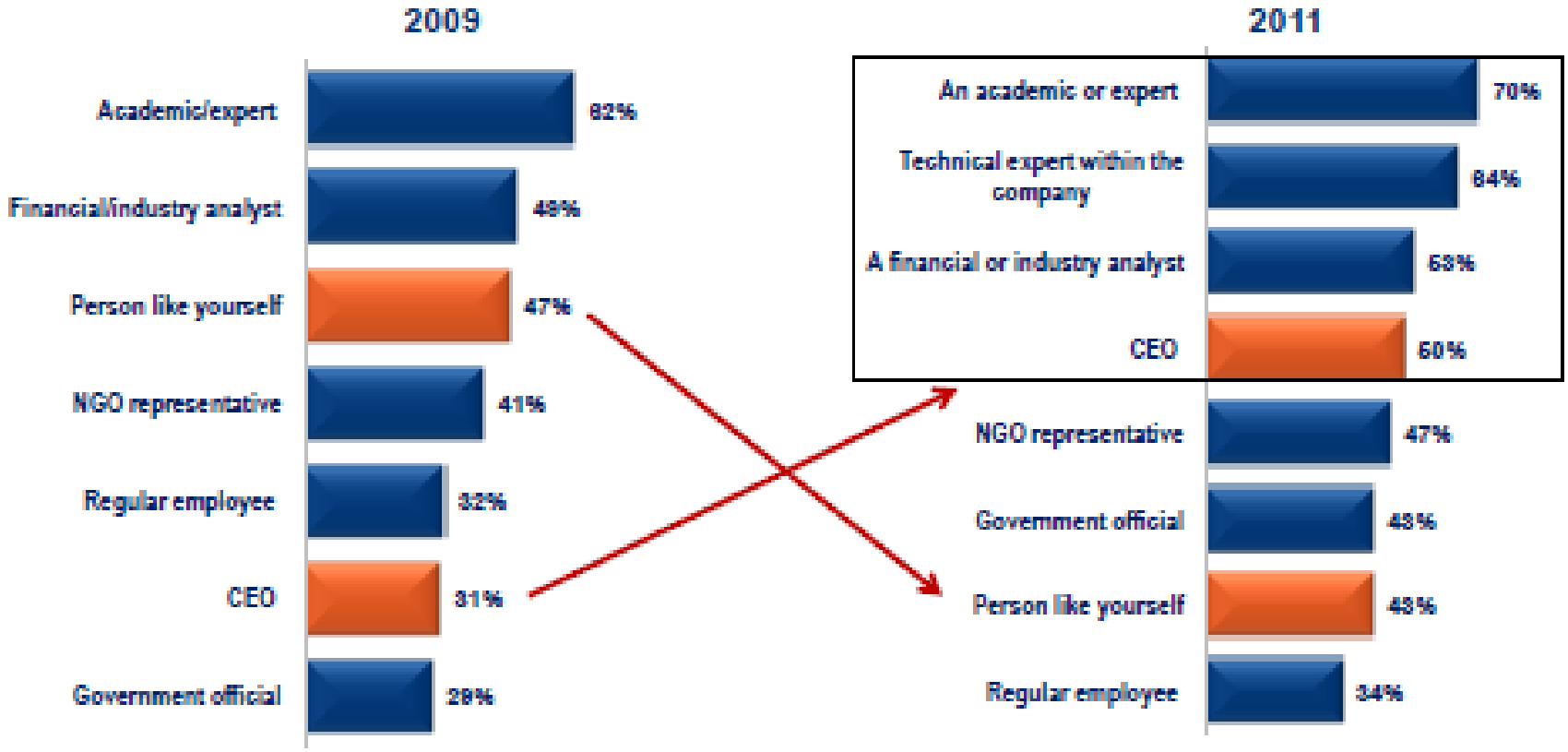
Petroc Sumner et al, *Guardian* Blog Oct. 2011

**Finding:**

We believe that uncurbed press freedom in science reporting, particularly in the tabloids, comes at an unacceptably high price: a price that is ultimately paid by the media consumer through a diet of inaccuracy, bias and, in some cases, fabricated embellishment. Encouraging even less dialogue between journalists and scientists is the last thing we should be doing.

# CEOs lead rise in trust in authority, but "person like me" drops amid flight to credentialed spokespeople

If you heard information about a company from one of these people, how credible would that information be?




Responses "Extremely credible" and "very credible"; Informed publics ages 25 to 64

# The Science of Science Communication
# National Academies of Science
# 2012

**"I'm advocating something different than the usual paradigm of education… We need to take a page from the anti-science people – they use intuition and gist to process their information. We have to compete with those folks on an equal playing field…**
**We have data in our use of 'gist' – we offer context."**

Valerie Reyna, Cornell University

# Engage the Journalists

**“Journalists are more compelled to understand scientists than scientists are journalists.”**

American Association for the Advancement of Sciences (AAAS)