

# Translating Science to the Public: key to gain buy-in for health behavior change



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**FIU**

**Communication**

# OVERVIEW

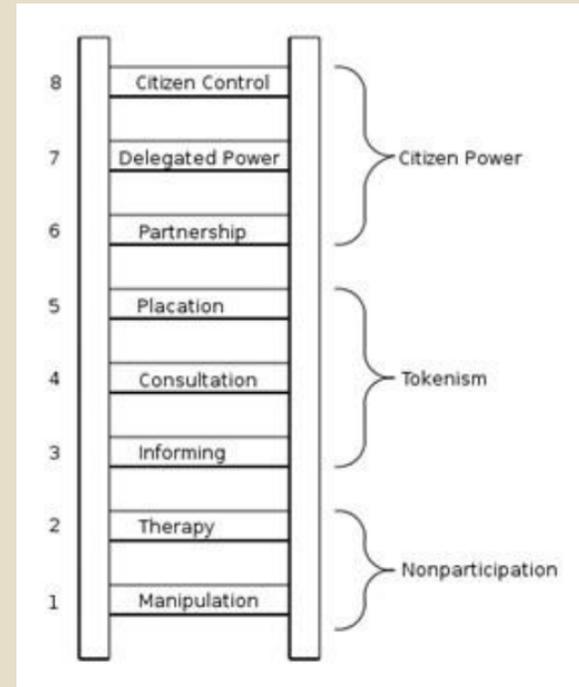


- Public understanding vs. Public participation in science
- Understanding the audience
- The media as an obstacle to translate science to the public
- The communication imperative for public health: how we can do it better

# Public involvement in science



- Which do we aim for?
  - Public interest in science
  - Public support for science
  - Public understanding of science
  - Public engagement with science
  - Public participation in science



Arnstein, 1969. Ladder of Citizen Participation

# Avoiding a Deficit model

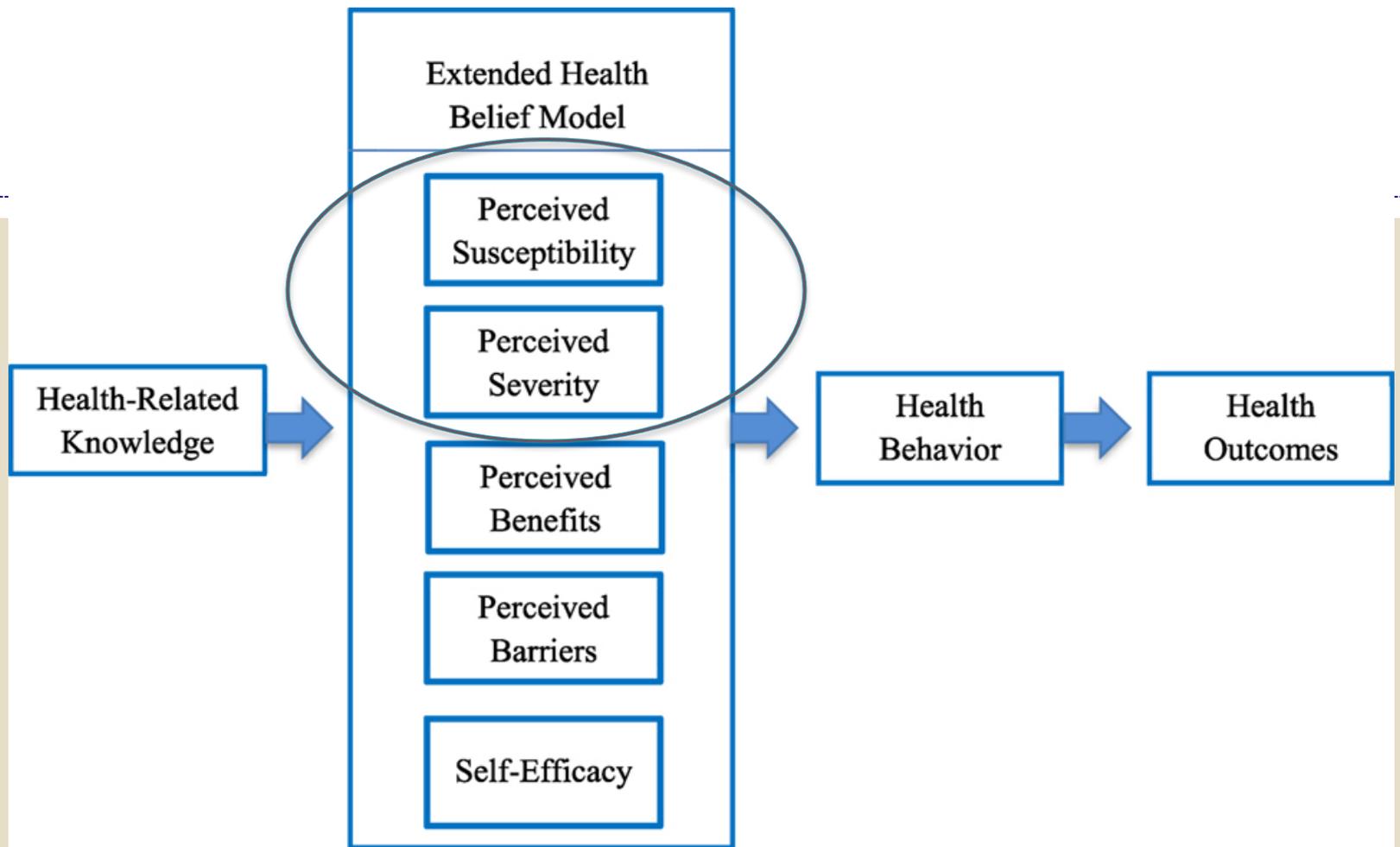


- Public “understanding” of science can be seen as a deficit model
  - Blame lack of knowledge, bad journalism for public’s lack of trust in science
  - Assumes the public must not care because they don’t UNDERSTAND
  - However this is not necessarily the case. If so, we could solve problems with factsheets and documentaries.
- Science literacy DOES NOT EQUAL public support of science
- A person’s knowledge, opinions, attitudes, values and worldview will shape how they interpret scientific information (e.g. evolution)
- It’s a matter of TRUST

# Understanding the audience



- Lay people in the audience also have their own personal experiences and “lay” knowledge based on their personal experience, culture and conventional wisdom (Wynne 1992).
  - Science communicators must take this knowledge into account.
  - Discounting it feed the distrust
- Feeling ignored by the media, the “audience” is using social media and other user-generated content platforms to develop their own frames and interpret scientific issues.



Strecher VJ, Rosenstock IM. The health belief model. Cambridge handbook of psychology, health and medicine. 1997 Sep 25:113-7.

# Understanding of risk and CVD



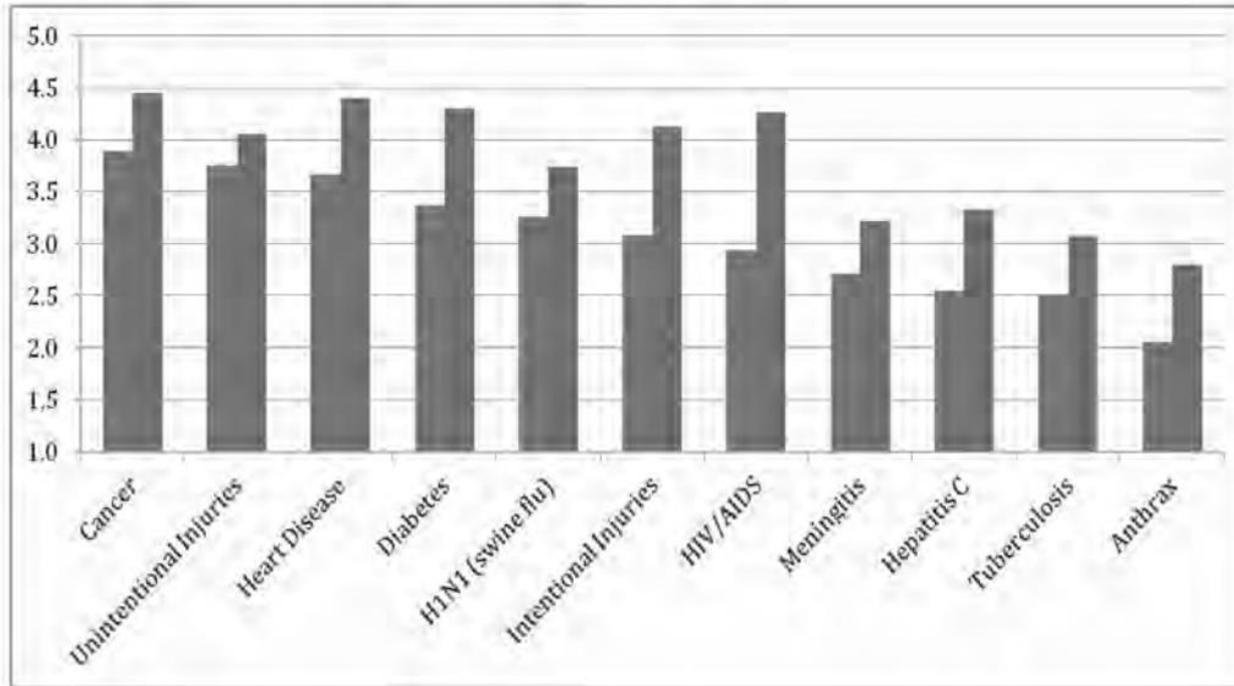
- Patients generally have insufficient knowledge about CVD or CV risk factors<sup>55,68</sup> and often tend to have a dichotomous understanding of risk rather than understanding risk as a continuum.
- Patients show optimistic bias when considering their own risk and consistently underestimate it
- They also tend to compare themselves to patients who are worse off than themselves when judging their personal risk rather than another average person like themselves.
- Although CVD is preventable, it can be prevented only if patients have an accurate perception of their risk of CVD.

Webster R, Heeley E. Perceptions of risk: understanding cardiovascular disease. *Risk Management and Healthcare Policy*. 2010;3:49.

# Perceived threat to self vs society



**Figure 2: Perceived Threat to Self & Society**



Villar ME, Zamith RO. Comparing Frequency Of Online News Coverage, Worldwide Mortality And Perceived Risk Of Leading Diseases And Injuries: Challenging Paradigms In The New Media Landscape. *Journal Of Health & Mass Communication*. 2011;3(1-4):193.

# Which brings us to .... Risk communication



- The way in which individuals assess risk has a potentially huge impact at a societal level.
  - e.g. micro decisions about cyber-crime, national health costs
- Everyone assess risk on a daily basis (crossing the road, eating bacon, second glass of wine, going on a date)
- We often feel more fear things with low probability (terrorism), than high probability (HIV, heart disease).
  - Sunstein (2006) uses the term “misfearing”
  - Kasperson et al (1988) : risk amplification
  - WHY? Media, framing, prevention funding.
- We need more understanding of the way in which individuals assess risk, to enable them to make decisions in their own best interest, or at least “value-congruent”. i.e. The risk fit their value structure.

# Risk communication in the context of uncertainty



- Uncertainty is part and parcel of scientific information and the various disciplines (e.g., medical, management and social and environmental sciences)
  - But we are not good at communicating uncertainty. It requires communicating probabilities, i.e. statistics.
- In a study of perceived severity based on media coverage, there was no relationship between salience of the severity as covered in the media and public risk perceptions (Rim, Ha, & Kioussis, 2014).
- *“Humans are very bad at understanding probability. My hope would be, if we understood probability perfectly, then we would be less open to manipulation: people trying to sell things, scare others, or even falsely reassure someone. But it may not change behavior. All the studies show that, even with good risk communication, people carry on doing what they did before.”*

-- David Spiegelhalter. Winton professor for the public understanding of risk at the University of Cambridge since 2007.

# Cause of death rankings

## Coverage vs. perceived threat

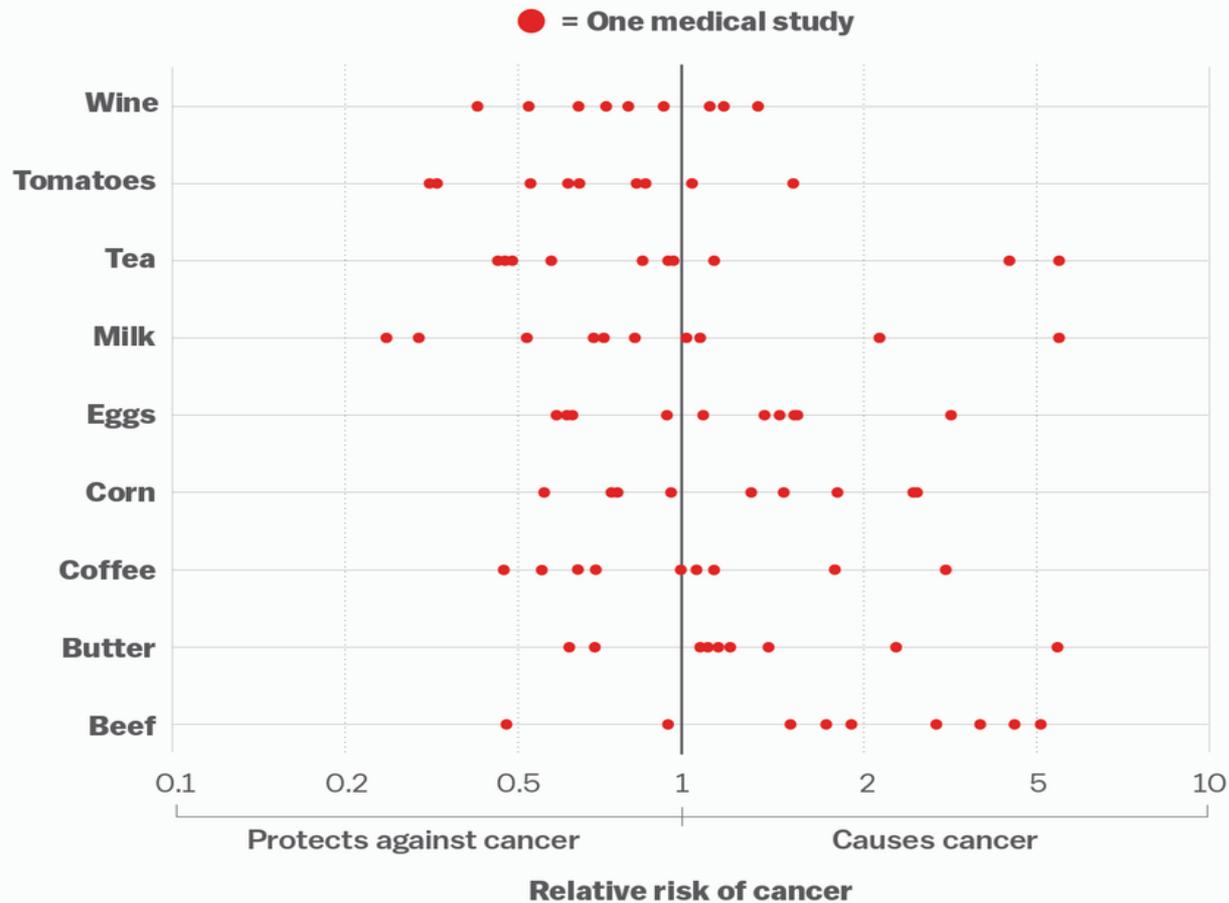
|                      | MORTALITY            | ONLINE NEWS COVERAGE | PERCEIVED THREAT     |
|----------------------|----------------------|----------------------|----------------------|
| Heart Disease        | Heart Disease        | Intentional Injury   | Cancer               |
| Cancer               | Cancer               | HIV/AIDS             | Unintentional Injury |
| Unintentional Injury | Unintentional Injury | Cancer               | Heart Disease        |
| HIV/AIDS             | HIV/AIDS             | Heart Disease        | Diabetes             |
| Intentional Injury   | Intentional Injury   | Unintentional Injury | H1N1                 |
| Tuberculosis         | Tuberculosis         | H1N1                 | Intentional Injury   |
| Diabetes             | Diabetes             | Diabetes             | HIV/AIDS             |
| Meningitis           | Meningitis           | Tuberculosis         | Meningitis           |
| Hepatitis C          | Hepatitis C          | Meningitis           | Hepatitis C          |
| H1N1                 | H1N1                 | Anthrax              | Tuberculosis         |
| Anthrax              | Anthrax              | Hepatitis C          | Anthrax              |

Villar ME, Zamith RO. Comparing Frequency Of Online News Coverage, Worldwide Mortality And Perceived Risk Of Leading Diseases And Injuries: Challenging Paradigms In The New Media Landscape. *Journal Of Health & Mass Communication*. 2011;3(1-4):193.

# “Science” also causes uncertainty



## Everything we eat both causes and prevents cancer



SOURCE: Schoenfeld and Ioannidis, *American Journal of Clinical Nutrition*

Vox

munication

# THE SCIENCE NEWS CYCLE

JORGE CHAM © 2009

Start Here



**Your Research**  
 Conclusion: **A is correlated with B** ( $p=0.56$ ), 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 kneew itt!  
 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

**CNC Cable NEWS**



...and caught on ...

**4 LOCAL EYEWITNESS NEWS**

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



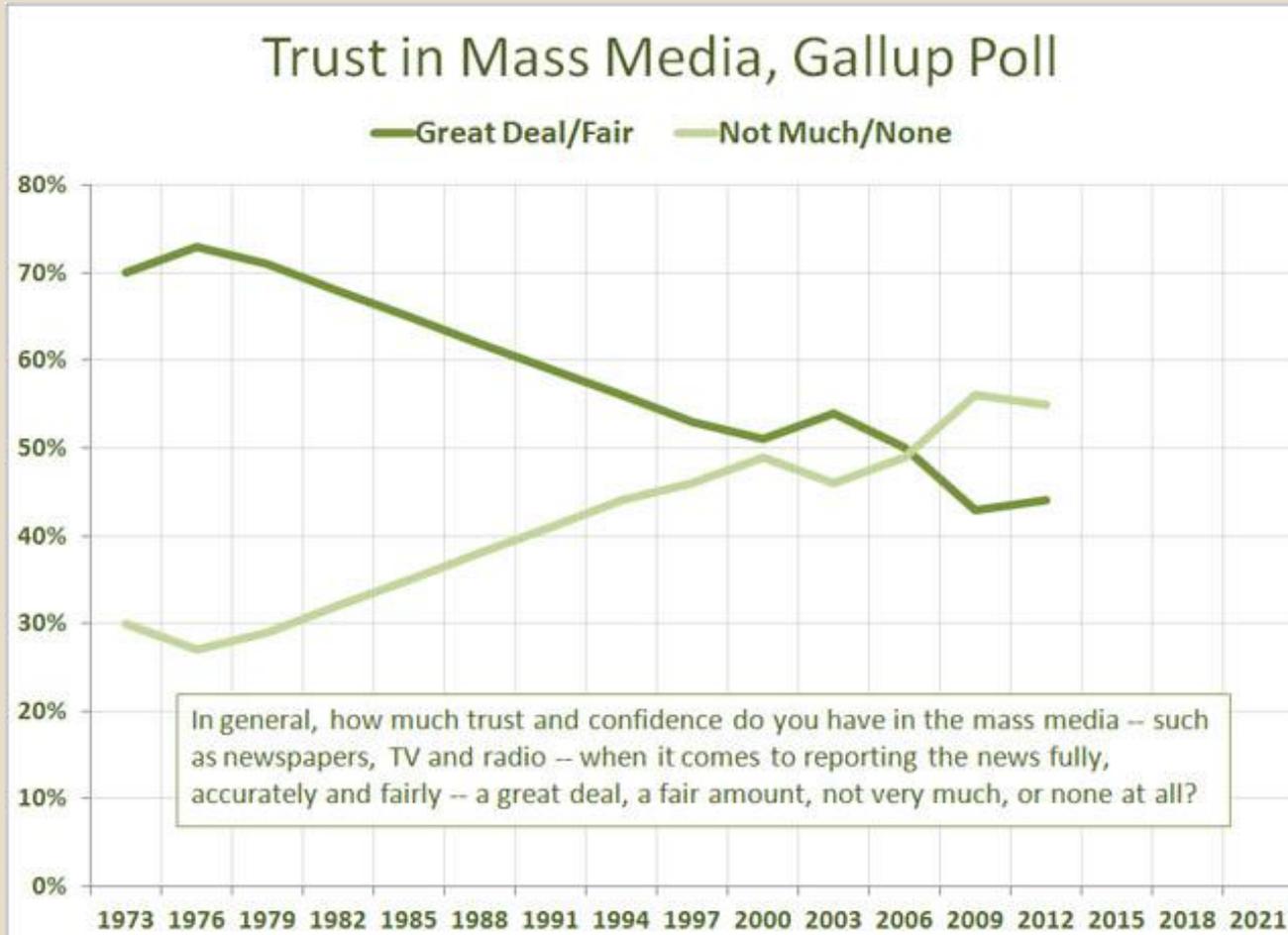
...eventually making it to...



-The quality of public communication of science is highly dependent on the quality of research produced and published in specialized contexts.

-With 24 hour news cycle, "science" is pushed out to the public without proper filtering for quality.

# The media, and its diminishing credibility



# Why.....?



- “I saw it on the news” or “I read it in the newspaper” no longer guarantees that it is accurate
  - “Post truth”
  - Social media
- Scientists sent to talk to the public, are not always prepared...and it does not always go well. (CRISIS OF MEDIATORS)
- Corporate scientists now speak directly to the public
- This creates a Crisis of Mediators

# Crisis of Mediators



## Public Understanding of Science

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### Editorial

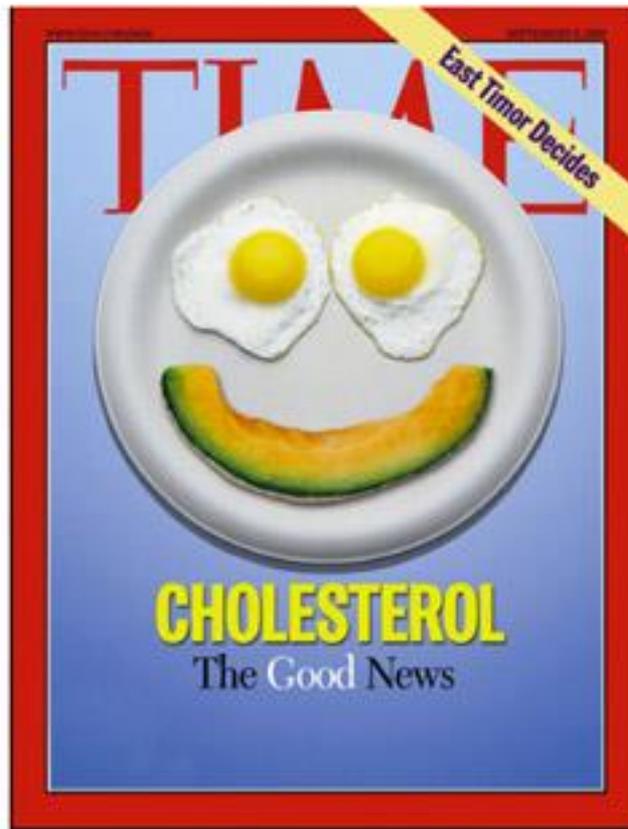
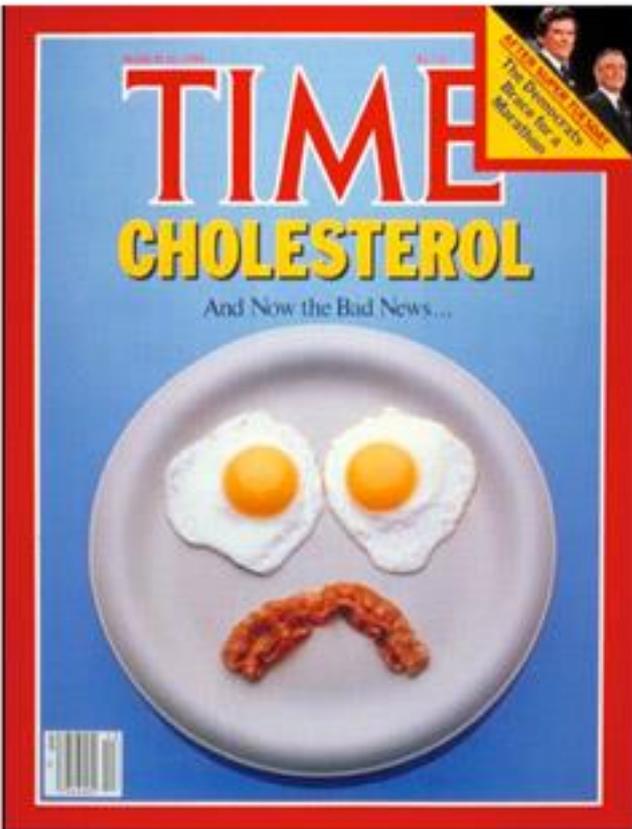
[Massimiano Bucchi](#)

First Published March 30, 2016 | Editorial | 

- Digital media allow research institutions and actors to supply to end-users an unprecedented amount and variety of materials, for example, videos, interviews with scientists, selected news items.
- Ever-stronger public relations efforts by research institutions
- Traditional mediators of science communication like newspapers, magazines, television and radio programs and science museums and centers are losing their traditional centrality as filters and guarantees of the quality of information

1984

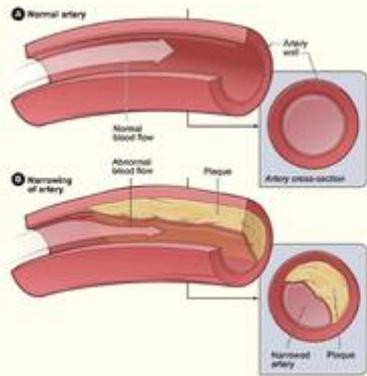
1999



When science advances but medical care doesn't

# Are Eggs Healthy or Safe to Eat?

Studies show an increase in arterial plaque build-up for people that consume eggs.



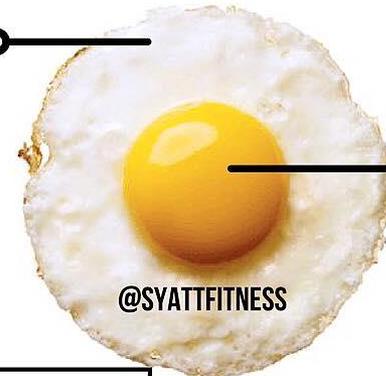
**H** HIGH CARB HEALTH  
Nutrition & Health Experts

# EAT YOUR EGGS

@SYATTFITNESS

17 calories  
3.6g protein

- ✔ Potassium
- ✔ Selenium
- ✔ Folate
- ✔ Riboflavin
- ✔ Magnesium
- ✔ Niacin



55 calories  
2.7g protein

- ✔ Choline
- ✔ Vitamin A
- ✔ Vitamin D
- ✔ Vitamin E
- ✔ Vitamin K
- ✔ Lutein
- ✔ Zeaxanthin
- ✔ Folate

**FACT**  
EGGS HAVE CHOLESTEROL. BUT EATING CHOLESTEROL DOES NOT RAISE YOUR CHOLESTEROL BECAUSE OF YOUR BODIES NEGATIVE FEEDBACK LOOP.

# Trends Health Information Seeking



- Increased direct-to-consumer style advertisements for statins and other pharmaceutical products
- Growing use of social media for health information (e.g., online community; peers)
- New opportunities for social support for reinforcing lifestyle behaviors (e.g. behaviors for controlling hypercholesterolemia)

# Direct-to-Consumer Advertising (DTCA) Via Social Media



- While not legal in many countries, DTCA has generated billions of dollars in the U.S.
- Pharmaceutical companies are beginning to use the full spectrum of social media around the world to promote products (including statins)
- YouTube, Facebook, Twitter, Apple I-Tunes, and a variety of other platforms regularly feature advertisements for statins
- Sponsored content “cholesterol news” stories as new form of advertising

ZETIA is unique in the way it helps block the absorption of cholesterol that comes from food. Unlike some statins, ZETIA has not been shown to prevent heart disease or heart attacks.



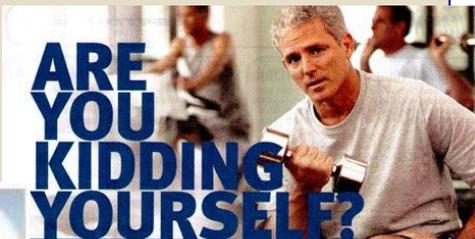
For more information about ZETIA below.

For more information, call

1-800-98-ZETIA or visit [zetia.com](http://zetia.com).

**Zetia**

“Lipitor lowers bad cholesterol 39-60%. It lowered mine.”  
When diet and exercise are not enough.  
\*Average effect depending on dose.  
DR. ROBERT JARVIK - Inventor of the Jarvik Artificial Heart



A LOT OF PEOPLE THINK EXERCISE AND HEALTHY DIET ARE ENOUGH TO LOWER HIGH CHOLESTEROL. FOR 2 OUT OF 3, IT MAY NOT BE.

Did you know, more than 80% of people who have had heart attacks have high cholesterol? For 2 out of 3 people with high cholesterol, diet and exercise may not be enough. If you haven't been successful in trying to lower your cholesterol on your own, stop kidding yourself. Talk to your doctor about your risk and if Lipitor is right for you. You can also learn more at [lipitor.com](http://lipitor.com) or call 1-888-LIPITOR.

• When healthy diet and exercise are not enough, adding Lipitor may help.

• Along with diet, Lipitor has been shown to lower bad cholesterol 39-60% (average effect depending on dose) and Lipitor is FDA-approved to reduce the risk of heart attack and stroke in patients who have heart disease or risk factors for heart disease. These risk factors include smoking, age, family history of early heart disease, high blood pressure and low good cholesterol.

**IMPORTANT SAFETY INFORMATION:** LIPITOR is not for everyone. It is not for those with liver problems. It is not for women who are nursing, pregnant or may become pregnant. If you take LIPITOR, tell your doctor if you feel any new muscle pain or weakness. This could be a sign of rare but serious muscle side effects. Tell your doctor about all medications you take. This may help avoid serious drug interactions. Your doctor should do blood tests to check your liver function before and during treatment and may adjust your dose.

**INDICATION:** LIPITOR is a prescription medicine that is used along with a low-fat diet. It lowers the LDL (“bad” cholesterol) and triglycerides in your blood. It can raise your HDL (“good” cholesterol) as well. LIPITOR can lower the risk for heart attack, stroke, certain types of heart surgery, and chest pain in patients who have heart disease or risk factors for heart disease such as age, smoking, high blood pressure, low HDL, or family history of early heart disease.

LIPITOR can lower the risk for heart attack or stroke in patients with diabetes and risk factors such as diabetic eye or kidney problems, smoking or kidney changes in some blood tests.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit [www.fda.gov/medwatch](http://www.fda.gov/medwatch) or call 1-800-FDA-1088.



**DON'T KID YOURSELF**

Kevin B. Wright, Ph.D. (2017). Health Communication: The Case for Treating Hypercholesterolemia: The Influence of New Media, Online Opinion Leaders, and Messaging

Please see additional important information on next page.

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# Side Effects of Cholesterol-Lowering Statin Drugs



Statin Scam Exposed:

**CHOLESTEROL DRUGS  
cause**

**Rapid Aging**

**Brain Damage**

**& Diabetes**



# Direct-to-Consumer Advertising (DTCA) Via Social Media



- Social media platforms make it easier for pharmaceutical companies to reach global audiences
  - ✦ Such practices are increasing and will not wait for global regulation
  - ✦ Rapidly changing media environment—newer platforms and media convergence makes DTCA easier to accomplish, even in places where it is not legal



# Executive Summary

## Best Practices and Strategies

How do we benchmark social achievements?



Benchmarking social media ROI shows achievement builds up in phases



Where are pharma's social media success stories?



Sanofi, AstraZeneca, Pfizer, Roche, and J&J dominate pharma's social

Where on social media should pharma engage?



Pharma's audience is larger on Facebook but Twitter yields higher ROI



What drives consumers to be social about health?



Consumers are drawn to official healthcare providers on social media because they crave more care



3

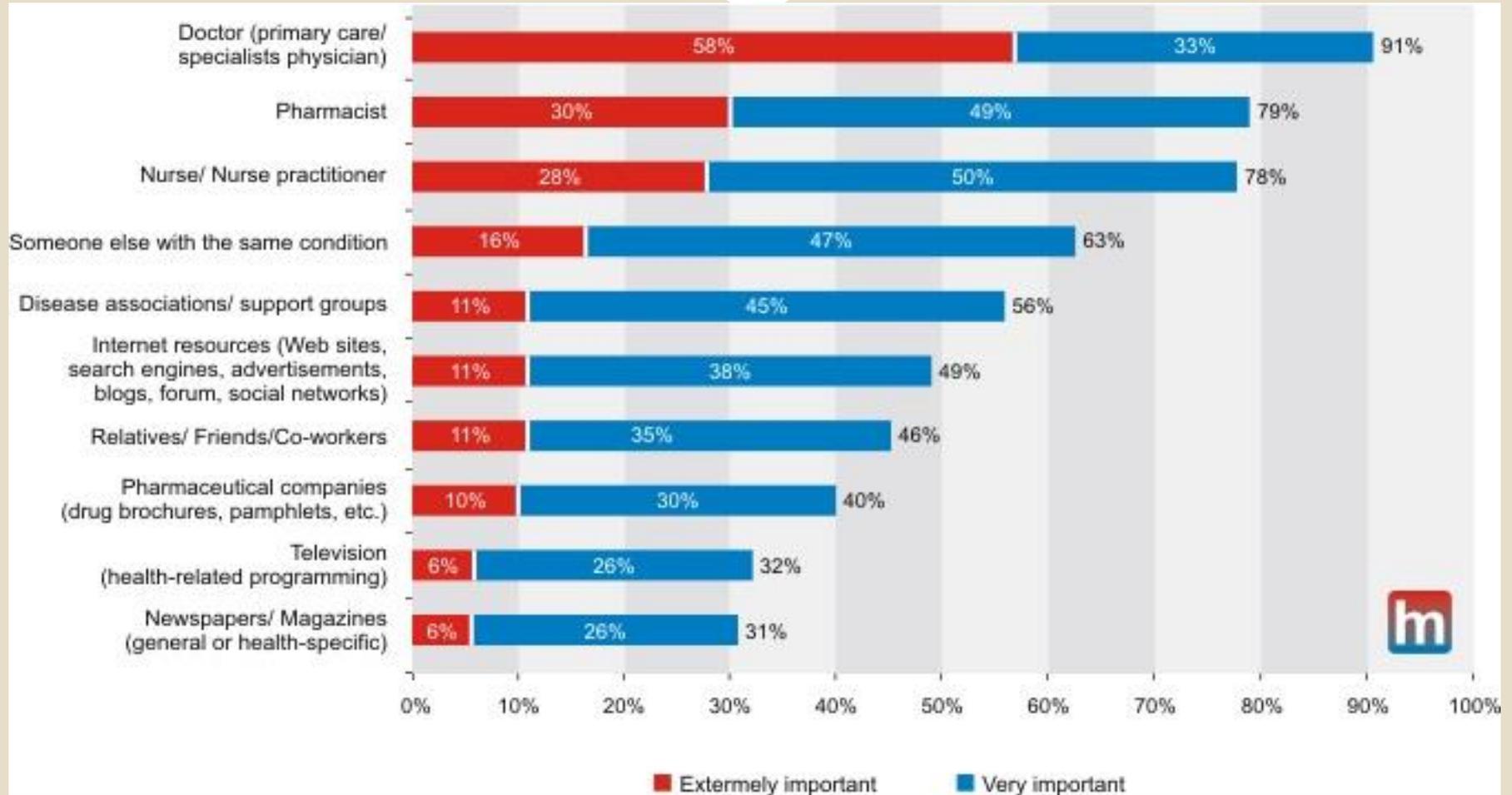


# Online Opinion Leaders



- Research has found that people often rely on online opinion leaders for health information and help with health decision making
- Opinion leaders are prominent person(s) in a person's social media environment
  - ✦ Bloggers
  - ✦ Individuals or organizations a person follows on Twitter
  - ✦ Information shared by trusted family members or friends on Facebook, Instagram, Pinterest, and/or other Platforms
- Online opinion leaders have the strong ties needed to legitimize health information
- Health communicators and online opinion leaders should find ways to work together to reach target populations with important, evidence-based, and up-to-date health information

# Importance of sources influencing prescription medication decision



# Looking forward



- The advent of the social media environment has made it easier for pharmaceutical companies to market hypercholesterolemia control products to an expanded global audience.
- Online opinion leaders are becoming increasingly important to consumers who are trying to make sense of complex health information (including information about hypercholesterolemia).
- Social media can provide a forum for social support with hypercholesterolemia control and health behavior change/maintenance.
- We can't win all argument simply with facts, or attacking faulty arguments.
- We must understand what the barriers are. Perception of risk. Driving fears. What values are threatened?

# Science communicators: we must know our audience



- Research and practice in science communication needs to (continue to) focus on:
  - What people **want to know**
  - **Implications of science issues on people's daily lives**
  - Understanding people's **concerns about science**
  - **Who people want to hear from** (and who they believe)
  -
- Health expert should partner with communicators to provide accurate information to assess risk, frame messages and use relevant communication channels



GRACIAS  
THANK YOU