Changing Hearts and Minds for Science

Mary Woolley, President and CEO, Research!America

April 29, 2019

11th Annual NBL-RBL Network Meeting
UTMB, Galveston, Texas
Changing Hearts and Minds for Science

- Be visible
- Build relationships
- Share your passion
- Offer evidence
- Make regular engagement and public outreach the new normal

You serve the public’s interest!
Research!America’s Mission

The Research!America alliance advocates for science, discovery, and innovation to achieve better health for all.

Research!America is an innovator in advocacy for research
Research!America: 30 Years of Putting Research on the Public Agenda

- Nonprofit alliance with member organizations drawn from academia, independent research institutes, industry, patient organizations and scientific societies
- Distinguished, all-volunteer board includes former elected and appointed officials, media and public relations leaders, and leaders from alliance member organizations
- Four ‘sister’ organizations in Canada, Australia, New Zealand and Sweden
30 Years of Putting Research on the Public Agenda: Examples

- Research!America Founded: 1989
- Collective effort to double NIH budget: 1993
- Public Health Thank You Day Launched: 2004
- NIH receives $2 billion increase: 2007
- 2006
- 2005
- 2012
- 2016
- 2017
- 2018
- $5 billion for NIH in FY18 and FY19
- 2019

- 2005
- 2004
- 2003
- 2000
- 1997-2003
- 1993
- 1989
National Institutes of Health Appropriations
Fiscal Year 1989 – 2020

FY 19 level, $39.1 billion
FY 20 level under sequestration, $35.2 billion
CPI Adjusted, $17.37 billion
Raise the Caps!

If budget caps are not raised, there will be across-the-board cuts slashing EVERY science agency budget.

www.researchamerica.org/raise-the-caps
Shrinking U.S. Share of Global R&D

**1960**
- USA: 69%
- Rest of the World: 31%

**1995**
- USA: 38%
- Rest of the World: 62%

**EST. 2019**
- USA: 25%
- Rest of the World: 75%

*2019 values are estimated based on a 2019 Global R&D Funding Forecast*
China Poised to Lead in R&D Funding

Total Spending on R&D

- USA
- CHINA
- JAPAN
- GERMANY
- SOUTH KOREA

Billions (USD)

Voters across political spectrum say it’s important to stay ahead of China in science and technology research

Data from online national survey among registered voters conducted September-October 2018 by Hart Research and Echelon Insights for Campaign for Science
Voters place high priority on government funding for science and tech research

- How important is it for the federal government to fund research in science and technology?
- Support for a proposal for the federal government to increase funding for research in science and technology each year over the next 10 years

Data from online national survey among registered voters conducted September-October 2018 by Hart Research and Echelon Insights for Campaign for Science
Voter priorities for federal funding of research

Proportions saying each should be a VERY HIGH PRIORITY for federal funding of research

- New medicines, medical technologies/techniques: 66% (54% among the three most important)
- Cybersecurity: 66% (43% among the three most important)
- Managing natural disasters, hurricanes, floods, wildfires: 59% (35% among the three most important)
- Efficient/cleaner renewable energy: 58% (40% among the three most important)
- Technologies related to national defense: 58% (44% among the three most important)
- Addressing climate change: 51% (31% among the three most important)
- Plant, wildlife, environmental conservation: 51% (24% among the three most important)
- Transportation and infrastructure: 45% (21% among the three most important)
- Aerospace/space exploration: 31% (9% among the three most important)

9-10 ratings on a 0-to-10 scale, 10 = should be a very high priority for federal funding

Data from online national survey among registered voters conducted September-October 2018 by Hart Research and Echelon Insights for Campaign for Science
Important for Scientists to Engage Public

How important is it for scientists to inform the public about their research and its impact on society?

- 58% Very Important
- 28% Somewhat Important
- 6% Not Too Important
- 2% Not At All Important
- 6% Not Sure

Source: A Research!America survey of U.S. adults conducted in partnership with Zogby Analytics in January 2018.
Important for Scientists to Engage Policymakers

How important is it for scientists to inform elected officials about their research and its impact on society?

Source: A Research!America survey of U.S. adults conducted in partnership with Zogby Analytics in January 2018.
Q: What do elected officials and the science community have in common?
Q: What do elected officials and the science community have in common?

A: Serving the public’s interest.

You can effectively start a conversation with any elected official by thanking them for serving the public’s interest. And then say how you serve the public’s interest.
“...public sentiment is everything. With public sentiment, nothing can fail; without it nothing can succeed.”

President Abraham Lincoln
Research!America Surveys

- Commissioning public opinion surveys on research issues for 26 years:
  - National Surveys
  - State-Based Surveys
  - Issue-Specific Surveys
- Online surveys are conducted with a sample size of 1000-2000 adults and sampling error of +/- 3.1% to +/- 2.1%. The data are weighted in two stages to ensure accurate representation of the U.S. adult population.
Strong Majority say Americans Should be Concerned about Global Health

When you hear the term global health, do you think it is an issue about which Americans should be concerned?

- Yes: 81%
- No: 9%
- Not sure: 11%

Source: A Research!America survey of U.S. adults conducted in partnership with Zogby Analytics in May 2018.
Government Should Educate Public About Global Disease Outbreaks

Which statement is closest to your view: (A) The federal government should do more to educate the public about global disease outbreaks and the risk to the U.S. (B) The public is sufficiently informed on global health issues and the government should devote its time and resources to other national priorities.

Source: A Research!America survey of U.S. adults conducted in partnership with Zogby Analytics in May 2018.
Concerns with Future Epidemics and Response

Please indicate the extent to which you agree, where '1' means you strongly disagree, and '5' means you strongly agree?

The global community will experience an epidemic in the next 10 years

- 17% strongly agree
- 20% agree
- 42% neither agree nor disagree
- 12% disagree
- 9% strongly disagree

The global community will experience an epidemic in the next 10 years that includes cases in the U.S.

- 15% strongly agree
- 19% agree
- 42% neither agree nor disagree
- 16% disagree
- 8% strongly disagree

The U.S. is prepared to respond to another epidemic like Ebola

- 11% strongly agree
- 23% agree
- 42% neither agree nor disagree
- 16% disagree
- 9% strongly disagree

The global community is prepared to respond to another epidemic like Ebola

- 8% strongly agree
- 20% agree
- 40% neither agree nor disagree
- 21% disagree
- 10% strongly disagree

Source: A Research!America poll of U.S. adults conducted in partnership with Zogby Analytics in May 2018.
Decrease in Percentage say Vaccines ‘Very Important’ to Health of Society

Thinking about the common vaccines available today such as polio, tetanus, measles, and flu, how important do you believe vaccines are to the health of our society today?

Source: Research!America surveys of U.S. adults conducted in partnership with Zogby Analytics in May 2018 and with Charlton Research Company in November 2008.
Decrease in Percentage say ‘Strongly, Yes’ to Personally Benefiting From Vaccines

Do you believe that you have personally benefited from the development of vaccines over the last 50 years?

Source: Research!America surveys of U.S. adults conducted in partnership with Zogby Analytics in May 2018 and with Charlton Research Company in November 2008.
Strong Majority Favor Increased Federal Spending on Vaccine Research

Do you favor or oppose increased federal spending on research to improve and find new vaccines?

Source: A Research!America survey of U.S. adults conducted in partnership with Zogby Analytics in May 2018.
### Americans Express Confidence in Military, Scientists

<table>
<thead>
<tr>
<th>Group</th>
<th>A great deal</th>
<th>A fair amount</th>
<th>Not too much</th>
<th>No confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>The military</td>
<td>33</td>
<td>46</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Medical scientists</td>
<td>24</td>
<td>60</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Scientists</td>
<td>21</td>
<td>55</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>K-12 principals and superintendents</td>
<td>13</td>
<td>53</td>
<td>27</td>
<td>7</td>
</tr>
<tr>
<td>Religious leaders</td>
<td>13</td>
<td>39</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>The news media</td>
<td>5</td>
<td>40</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Business leaders</td>
<td>4</td>
<td>37</td>
<td>44</td>
<td>14</td>
</tr>
<tr>
<td>Elected officials</td>
<td>3</td>
<td>24</td>
<td>54</td>
<td>19</td>
</tr>
</tbody>
</table>

Note: One third of respondents randomly assigned to rate “medical scientists,” two thirds randomly assigned to rate “scientists.” Other questions as of all. N=4,563. Respondents who did not give an answer are not shown. Source: Survey conducted May 10-June 6, 2016. “Politics of Climate.” PEW RESEARCH CENTER
Public is already on board: need to get them engaged.

Key Findings: ATTITUDES

**THE SCIENCE BRAND IS STRONG**
Consistent with previous work, attitudes about science and research role remain very positive. **70% trust** scientists to conduct beneficial research, and **74% trust** scientists to tell the truth.

**NO GOV FUNDS, NO BIG DEAL**
There’s a pervasive lack of knowledge about government’s role in funding research. When asked if corporations, non-profits, and universities would jump-in to fill any funding gap caused by a government pull-back, only **24% say no.**

**PRIVATE & PUBLIC IN HARMONY**
Public has a sense that privately and publicly funded research should complement one another. Sentiment is **private research is better at solving specific problems**, while **government research is better at serving the greater good.**
And Yet, Despite High Levels of Public Confidence, Scientists are Invisible in Our Society...
Indifference of the public

THE ROOT OF THE PROBLEM

Americans are detached from the scientific enterprise

- 52% Half don’t link US leadership in science to their quality of life
- 1 IN 4 Only 1 in 4 see role of government in science as essential
Can Americans Name a Living Scientist?
Most Americans Cannot Name a Living Scientist

Can you name a living scientist? *(participants could list more than one; open-ended)*

- Yes, I can name
- No/Not Sure

- Neil deGrasse Tyson (30%)
- Bill Nye (9%)
- James Watson (9%)
- Jane Goodall (9%)
- Stephen Hawking* (4%)
- Alan Guth (3%)
- Michio Kaku (3%)
- Richard Dawkins (3%)
- Tim Berners-Lee (3%)
- Elon Musk (2%)
- Noam Chomsky (2%)

* deceased

Source: A Research!America poll of U.S. adults conducted in partnership with Zogby Analytics in January 2019
Do Americans Know Where Medical or Health Research is Conducted?
Most Americans Don’t Know Where Research is Conducted

Can you name any institution, company or organization where medical or health research is conducted? *(participants could list more than one; open-ended)*

- Mayo Clinic (21%)
- Johns Hopkins University (12%)
- St. Jude Children’s Research Hospital (10%)
- NIH (6%)
- Cleveland Clinic (5%)
- American Cancer Society (4%)
- CDC (4%)
- Duke University (2%)

Source: A Research!America survey of U.S. adults conducted in partnership with Zogby Analytics in January 2018.
More Americans Can Name a Scientific Research Institution

Can you name any institution, company or organization where scientific research is conducted? (participants could list more than one; open-ended)

- NASA (13%)
- CDC (5%)
- Mayo Clinic (4%)
- Johns Hopkins (4%)
- NIH (4%)
- MIT (4%)
- St. Jude (3%)
- University of California institutions (3%)
- Johnson & Johnson (1%)
- Other (open-ended) (55%)

Source: A Research!America survey of U.S. adults conducted in partnership with Zogby Analytics in October 2018.
Most Americans Don’t Know Research is Conducted in All 50 States

To the best of your knowledge, would you say that medical research in the U.S. is conducted in all 50 states?

- Yes: 41%
- No: 32%
- Not sure: 27%

Source: A Research!America poll of U.S. adults conducted in partnership with Zogby Analytics in January 2019
Increase the Visibility of Science
Each group has unique attributes: can tune-in approach for each.

THE MOST LIKELY TO ENGAGE
The public resolves into four identifiable segments that fall from most to least likely to engage: DRIVERS (17%), FRONT SEATERS (19%), BACK SEATERS (52%), and DISENGAGED (12%).

WILLINGNESS TO RECONSIDER
When presented with stories speaking to benefits of government funded research. Different themes resonated with different segments. Some in every segment shifted their position in a positive way, demonstrating a degree of open-mindedness.

NO BIG ANTI-SCI CONSPIRACY
The disengaged group is best characterized as being equally lib/con, younger, and largely uninvolved with any kind of advocacy. Based upon demographic data, the upper limit for conservative, anti-science contingent is 4%.

DISENGAGED is a small, apathetic minority: A ideologically based anti-science contingent does not exist.
Engage Emotion: You Can’t Use Facts To Change Feelings

• Time and again, research has shown that facts and rational analysis do not convince people to change behavior. Behavior change begins when people see something that makes them feel something.

• The gatekeeper for our decisions is not our rational self but our emotional self.

• If you want to change the narrative around a cause, you have to start by changing the way people feel.

• We are exposed to literally 148 newspapers worth of information every day. We discard 90% of the content that we receive, immediately.

• To be successful, you have to build a narrative that is in the 10% of content that people retain and use.
Engage Emotion: Tell Your Story, Not Your Data

“When we understand that slide, we'll have won the war”
– General Stanley A. McChrystal, 2009

Source: Pentagon, 2009
Skepticism Leads to New Discovery

My favorite papers challenge biomedical dogma. Here's my summary of the ones in 2018 that provided evidentiary shakeups.

<table>
<thead>
<tr>
<th>Topic Challenged</th>
<th>New Finding</th>
<th>Citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The womb</td>
<td>Isn’t sterile</td>
<td>Willyard, Nature, 2018</td>
</tr>
<tr>
<td>Probiotics</td>
<td>Backfire: taken w/ antibiotics, delay gut healing</td>
<td>Suez, Cell, 2018</td>
</tr>
<tr>
<td>Cancer increasing with age</td>
<td>Not only somatic mutations; Δ T cell production</td>
<td>Palmer, PNAS 2018</td>
</tr>
<tr>
<td>The speech gene (FOXP2)</td>
<td>No evidence of selection</td>
<td>Atkinson, Cell 2018</td>
</tr>
<tr>
<td>Type 1 Diabetes</td>
<td>Diagnosed through age 60, &gt; 40% after age 30</td>
<td>Thomas, Lancet 2018</td>
</tr>
<tr>
<td>Cancer combination therapy</td>
<td>Benefits are beyond additivity or synergy</td>
<td>Palmer, Cell 2018</td>
</tr>
<tr>
<td>End-of-life healthcare spending</td>
<td>Not the main explanation for waste; can’t predict</td>
<td>Einav, Science, 2018</td>
</tr>
<tr>
<td>Dairy products</td>
<td>Not bad for health; associated w/ less cardiovascular events</td>
<td>Dehghan, Lancet 2018</td>
</tr>
<tr>
<td>Low-dose aspirin</td>
<td>Not protective, associated w/ higher CV mortality and cancer</td>
<td>McNeil, NEJM 2018</td>
</tr>
<tr>
<td>Salt intake and heart disease</td>
<td>Lack of association with risk unless &gt;5 g/day</td>
<td>Mente, Lancet, 2018</td>
</tr>
<tr>
<td>Diclofenac safety</td>
<td>Risk of heart disease (1.5 X)</td>
<td>Schmidt, BMJ, 2018</td>
</tr>
<tr>
<td>Heart macrophages</td>
<td>Important for electrical conduction and remodeling</td>
<td>Bajpai, Nature Medicine 2018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hulsmans, Cell, 2017</td>
</tr>
</tbody>
</table>
Skepticism is Not Just for Scientists

- People are understandably confused by the three steps forward/two steps back *dynamic process* of science.
- By standing back or failing to engage, researchers and advocates aren’t helping resolve public confusion.
- **Healthy skepticism** is a good thing in science and in public discourse!
Identify a Deep Need

- The first reason we have not been able to engage the audience is simple: we are telling the wrong story.

- We are telling our story, not theirs.

- The first thing you must do is convey that your mission helps to meet their needs.
Changing the Narrative

• **Lead with “why”**. Stop talking first about “what” you do or “how” you do it. People need to understand “why” you act and believe in *who you are* before they can support *what you do*.

• **Name your adversary**. Make it something your audience fears. Talk about what you’re doing to defeat it.

• **Tell a tale of adventure**: Researchers are explorers, looking for a cure. Everyone loves a good adventure story, a good travel story.
Be visible

Katie Bouman, PhD, with the stack of hard drives used for the EHT black hole data

Margaret Hamilton and the Apollo Guidance source code

Flora Graham 🐦
@floragraham
You serve the public interest

- Talk about who you are (and who “we” are).
  - We are the kind of people who cure cancer.
  - We are the kind of people who go to the moon.
  - We are the kind of people who go into the unknown.
  - We are the kind of people who protect Americans from threats.

- Speaking to who you are helps people connect to you and your story.

Narratives project, 2016
If You’re in Starbucks...

- Can you pass the Starbucks test? Know your Representatives and Senators
- Thank them for serving the public’s interest.
- Then share how YOU serve the public interest.
- *Make opportunities to say “thank you!”*
- *Make opportunities to change hearts and minds for science*
THEN... 130,000 new cases of HIV infection occurred annually in the U.S. during the peak of the AIDS epidemic in the 1980s, and most cases were fatal.

NOW... (thanks to research) The development of Highly Active Antiretroviral Therapy (HAART), revolutionized the battle against HIV/AIDS and transformed the virus from a death sentence to a manageable chronic condition.

IMAGINE... (thanks to research) An HIV vaccine and complete eradication of HIV/AIDS, worldwide.

Research is the solution to what ails us!
• Americans spent $100 billion on summer vacations in 2018.

• That amount could fund the National Institute of Allergy and Infectious Diseases (NIAID) for almost 20 years!

Sources: Allianz Travel Insurance, NIH
Re-Cap: How to Think About Talking to Non-Scientists

• Know your audience
• Use the Then-Now-Imagine message frame
• Be visible
• Use emotion
• Remember -- if people are skeptical, they are thinking like scientists!
• Convey your personal commitment/passion

Communicating well demonstrates understanding, sensitivity and accountability.
Put a Face on Research: YOURS!
The most important four words a scientist can say and convey are ...
“I work for you.”
Research!America Works for You

Connect with us

www.researchamerica.org/blog
www.facebook.com/researchamerica.org
www.twitter.com/researchamerica
www.youtube.com/researchamerica