**Science Advocacy Genomics Salon**

April 27th, 2017

Moderators: Cecilia Noecker and Elyse Hope

**I. How to persuade people that science matters?**

* The “Information deficit” model describes the idea that public hostility towards science is grounded in lack of understanding, and that presumably with more effective education people will come to support scientific facts
  + Public is a “blank slate” or “empty bucket” to be filled with knowledge
  + Draws a sharp distinction between experts and non-experts
* Model does not say that this theory is true -- merely a description of the theory
* One potential consequence is the “Backfire effect”: when facts are presented that conflict with a firmly held “cultural worldview”, it can cause that worldview to become *more* entrenched
* Alternative approaches include emotional appeals and gaining the audience’s trust

**Discussion questions:**

Do we assume that greater command of facts will automatically align people to our world views? What if the evidence doesn’t support that?

Is our goal to gain public trust of our expertise in assessing scientific evidence or to make every member of society scientifically literate enough to judge the evidence for themselves?

Should science advocates promote a “democratic” (everyone can do it) or “elite” (listen to us, we know better) view of science and scientists?

Can advocacy for science hurt science literacy by smoothing over the complications of the scientific process?

Does empowering people to understand science make them underestimate the role of experts / overestimate their own expertise?

**Extended reading:**

Against the information deficit model: <http://www.slate.com/articles/health_and_science/science/2017/04/explaining_science_won_t_fix_information_illiteracy.html>

Trying to make science accessible may cause people to think they don’t need experts: <http://journals.sagepub.com/doi/abs/10.1177/0963662516680311>

Generalists are fairly competent at evaluating validity of experts: <http://onlinelibrary.wiley.com/doi/10.1111/cogs.12252/full>

“Should scientists defend science or model science?” <https://www.northcountrypublicradio.org/news/npr/163551623/should-scientists-promote-results-over-process>

Is abandoning the deficit model inherently un-scientific?

<http://www.scidev.net/global/communication/editorials/the-case-for-a-deficit-model-of-science-communic.html>

Backfire: <http://blog.nature.org/science/2013/03/01/dan-kahan-climate-changescience-communications/>

**II. Was the March for Science effective science advocacy?**

**Mission statement:** “The March for Science champions robustly funded and publicly communicated science as a pillar of human freedom and prosperity. We unite as a diverse, nonpartisan group to call for science that upholds the common good and for political leaders and policy makers to enact evidence based policies in the public interest.”

**Arguments in favor include:**

* Advocating for the idea of doing science is different from advocating for political positions
* Science is inherently political because it is performed in a political climate
* Science is inherently non-partisan, and the march is a response to threatening policy decisions, not the party affiliation of the current administrators
* Fosters a sense of community and support and empowers scientists to engage more in their communities

**Arguments against include:**

* It’s fundamentally impossible to define goals since science is by nature multifaceted and uncertain
* Advocating in this way trivializes what scientists do and limits their ability to be objective, reducing science to “just another interest group”
* Scientists are bad at politics; should leave it to more experienced advocacy organizations
* It can lead to distortion of science by “fans” who don’t understand the process
* It perpetuated an image of scientists as tone-deaf and out of touch
* The scientific community would be better served by focusing on solving its own problems internally: issues of diversity, reproducibility, etc.
* It was nothing more than a feel-good experience for participants

**Discussion questions:**

Has the March for Science achieved its goals? What was the impact for the marchers themselves? What was the impact (if any) on society more broadly?

Are initiatives like The March for Science fundamentally flawed by acting politically to claim that science is apolitical?

How are we supposed to negotiate our roles as impartial arbiters of truth and our desire to effect change in the world around us?

Does advocacy for your research erode your credibility as a scientist?

Is there a line between advocating for science and advocating for specific policies? Is advocating “for science” inherently tied to advocating for other political positions? (i.e. specific evidence-based policies)

**Extended reading:**

Stopping short of policy endorsements: <http://blogs.plos.org/models/climate-scientists-must-not-advocate-particular-policies/>

Editorial against the March for Science: <https://www.nytimes.com/2017/01/31/opinion/a-scientists-march-on-washington-is-a-bad-idea.html>

In support of the march: <https://www.scientificamerican.com/article/the-march-for-science-is-just-the-first-step/>

Ongoing March for Science diversity arguments: is it possible/desirable to advocate for science without advocating for scientists and acknowledging structural problems in science? <https://www.statnews.com/2017/03/22/science-march/>

http://www.theroot.com/marginsci-the-march-for-science-as-a-microcosm-of-lib-1794463442

Is the scientific method under attack from within our own community? <http://www.slate.com/articles/health_and_science/science/2017/04/the_march_for_science_was_eerily_religious.html>

Credibility is not lost when scientists politicize (a study says): <https://www.theatlantic.com/science/archive/2017/02/when-scientists-become-advocates-do-they-lose-credibility/518157/>

**III. What are the ultimate goals of science advocacy?**

**Mission statements for existing science advocacy groups:**

314 Action (new science super-pac):

* Strengthen communication among the STEM community, the public and our elected officials;
* Educate and advocate for and defend the integrity of science and its use;
* Provide a voice for the STEM community on social issues;
* Promote the responsible use of data driven fact based approaches in public policy;
* Increase public engagement with the STEM Community through media.

AAAS:

The AAAS seeks to "advance science, engineering, and innovation throughout the world for the benefit of all people." To fulfill this mission, the AAAS Board has set the following broad goals:

* Enhance communication among scientists, engineers, and the public;
* Promote and defend the integrity of science and its use;
* Strengthen support for the science and technology enterprise;
* Provide a voice for science on societal issues;
* Promote the responsible use of science in public policy;
* Strengthen and diversify the science and technology workforce;
* Foster education in science and technology for everyone;
* Increase public engagement with science and technology; and
* Advance international cooperation in science.

Evidence for Democracy (Canadian organization):

* Strong public policies, built on the best available evidence, for the health and prosperity of all Canadians.
* A thriving democracy where citizens are informed and engaged, and all levels of government are both transparent and accountable.
* A national culture that values science and evidence and the important role they play in our society.

Union of Concerned Scientists (original from 1968): “Science for a healthy planet and safer world”

* To initiate a critical and continuing examination of governmental policy in areas where science and technology are of actual or potential significance.
* To devise means for turning research applications away from the present emphasis on military technology toward the solution of pressing environmental and social problems.
* To convey to our students the hope that they will devote themselves to bringing the benefits of science and technology to mankind and to ask them to scrutinize the issues raised here before participating in the construction of destructive weapons systems.
* To express our determined opposition to ill-advised and hazardous projects such as the ABM system, the enlargement of our nuclear arsenal, and the development of chemical and biological weapons.
* To explore the feasibility of organizing scientists and engineers so that their desire for a more humane and civilized world can be translated into effective political action.

**Discussion questions:**

What does a world where science advocates achieve their goals look like? Would all scientists engage in advocacy?

To what extent can societal problems be solved through public policies grounded in rigorous science and evidence?

Should scientists run for political office? Does entering politics mean giving up a (formal) scientific career?

Should the goal of science advocates be to promote science generally or to promote a specific vision of how science should be carried out and applied? For example, what are the moral responsibilites of science advocates with respect to advocating for funding for weapons-related R&D?

Is it possible to advocate for science effectively with full awareness of scientific uncertainty and flaws in the scientific process?

**Extended reading:**

Evidence-based policy: <https://economix.blogs.nytimes.com/2012/11/29/applying-evidence-to-social-programs/?_r=0>

Difficulty of defining science advocacy goals: <https://www.theatlantic.com/science/archive/2017/03/what-exactly-are-people-marching-for-when-they-march-for-science/518763/>

Case studies on moral responsibilities of science/scientist advocates:

Nuclear weapons: <http://www.slate.com/articles/news_and_politics/history/2015/09/hiroshima_nagasaki_hanoi_how_the_manhattan_project_generation_of_scientists.html>

HIV/AIDS: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3964196/>

314 Action and associated concerns: <https://www.buzzfeed.com/azeenghorayshi/meet-the-scientists-who-want-to-run-for-office-in?utm_term=.hfXnnRYODe#.eo7YYL8JQq>

Formal and informal paths to science policy careers: <http://www.sciencemag.org/careers/2003/02/paths-science-policy>

From NASA to a bid for Congress: <https://www.theatlantic.com/science/archive/2017/02/nasa-tracy-van-houten/517335/>

Scientists running for office, and whether they can stay in science as well: <https://www.theatlantic.com/science/archive/2017/01/thanks-to-trump-scientists-are-planning-to-run-for-office/514229/>