Science policy for scientists: A simple task for great effect

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Many scientists have become increasingly concerned with the course and status of science-related policies in recent years, and these concerns have only grown in the past months as governments have had to face a global pandemic. As experts in our respective fields, scientists have an obligation and an opportunity to help to inform science policy.

We are a group of early-career scientists, four UC Irvine graduate students and one postdoc, who have seen great value in getting involved with political discourse and science policy. Each of us has been drawn to science policy for different reasons. For some, the decision to get involved has been deeply personal; Evelyn Valdez-Ward, for example, advocates for undocumented and marginalized scientists like herself. Some of us are concerned that, although we are only now beginning our research careers, our research could quite literally disappear with the onset of climate change if political action is not taken. Those of us who work in public health have seen the need to be engaged politically so that we can communicate with our communities, politicians, and funding agencies about how critical research is for our country's future health and safety. The current pandemic has likely altered the course of research in this

Researchers eager to inform policy with science should seek out the pathways that are available for engaging with lawmakers at the state, local, or national level—while making sure to understand the nuances of political discourse. Image credit: Shutterstock/Orhan Cam.

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To learn more about how to take an active role in science policy discussions, check out these programs and organizations:

P3 Program - https://gps.bio.uci.edu/uci-public-policy-prep/

GPS-BIOMED Program at UC Irvine - https://gps.bio.uci.edu

AIBS Congressional Visit - https://www.aibs.org/public-policy/congressional_visits_day.html AAAS Congressional Visits - https://aas.org/advocacy/how-aas-advocates/congressional-visits-days

UCS Congressional Visit - https://www.ucsusa.org/resources/meet-your-member-congress

AGU Congressional Visit - https://www.agu.org/Share-and-Advocate/Share/Policymakers/Congressional-Visits-Day

AAAS Policy Fellowship - https://www.aaas.org/programs/science-technology-policy-fellowships

CCST Policy Fellowship - https://ccst.us/ccst-science-fellows-program/

NAS Policy Fellowship - https://www.nationalacademies.org/gulf/fellowships-and-grants/science-policy-fellowship

John A. Knauss Marine Policy Fellowship Program - https://seagrant.noaa.gov/Knauss-Fellowship-Program

NCAR Fellowship - https://ncar.ucar.edu/opportunities/fellowships

CSTPR Fellowship - https://sciencepolicy.colorado.edu/students/csepf.html

AAAS Science Communication Program - https://www.aaas.org/programs/communicating-science

AIBS Science Communication Program - https://www.aibs.org/public-policy/communications_boot_camp.html

IEEE-USA Science Advocacy Resources - https://ieeeusa.org/advocacy/cvd/

field for many years to come. And it's still not clear what sort of impacts the pandemic will have on funding across many fields, nor how it might affect how our research is perceived or conducted. We believe that every scientist has an obligation, and a self-interest, to be engaged with science policy and help shape what the future landscape of research looks like. Here we aim to encourage fellow scientists to engage with lawmakers and advocate for evidence-based policy grounded in solid science (Fig. 1).

Although science communication and engaging with the public is increasingly expected by universities and granting agencies, the precise pathways for engaging with lawmakers garner less attention. As scientists, we do not frequently train to present research to policymakers. After peer review and extensive internal critiquing, it can be easy to think that our science can speak for itself. But of course, although subjects such as climate change (1) or evolution (2) are nearly universally accepted by scientists, that's not the case with the general public. And often the public is divided along political lines for such subjects. Our science communication and engagement with the political process still needs improvement.

So how do we effectively communicate our research to policymakers? One way may be to get personally involved in the legislative process. Legislators and their staff do not always have the necessary personnel to synthesize data to help inform their policymaking decisions. As scientists and experts in our fields, we can be a clarifying and helpful hand in this process. Becoming a resource that can bridge the science and policymaking divide is the critical link to making evidence-based policymaking a reality. Luckily, there are several ways to get involved.

Avenues for getting early-career researchers directly involved with legislators and the policymaking process have opened up across the country. Policy fellowship programs such as the American Association for the Advancement of Science (AAAS) or the California Council on Science and Technology (CCST), as well as newer programs in several other states, are already placing young scientists directly in the offices of national and state legislators (3, 4). There are also programs for specific areas of study, such as the fellowship offered by the National Center for Atmospheric Research [NCAR (5)]. In these programs, young scientists learn more about the policymaking process and serve as advisors on legislation involving science and technology as well as using their training to think critically about data regarding other policy decisions.

Building on the momentum of events like the 2017 March for Science (6) and more than 100 scientists and STEM professionals running for office in 2018, scientists are in the best position they have ever been in to bridge the gap between researchers and policymakers. We believe this can be accomplished by getting more young researchers like ourselves engaged with science policy. Whether they are interested in applying to science policy fellowship programs or just looking to become active participants in science policy, researchers should strive to better understand and familiarize themselves with the science policy process. Here we have drawn from our collective experiences to create a short guide for fellow researchers on how to get involved, conduct a meeting with local and national representatives and their staffs, and stay engaged in the policymaking process.

Be Prepared

Representatives (local, state, federal) have been elected to serve the people; it is their job to listen to their constituents' concerns. Many, if not most, representatives are happy to hear from their constituents, especially scientists. However, representatives have busy schedules, and a meeting often needs to be booked weeks or months in advance. Thus, when advocating for specific policies or votes, it is important to be properly prepared for a meeting.

Preparation is the key to a successful and effective engagement. Ideally, you should be able to quickly connect with the representative and clearly and concisely communicate your "ask" on a topic or issue—what exactly do you want the representative to do? Be ready to respond to questions and try to be compelling

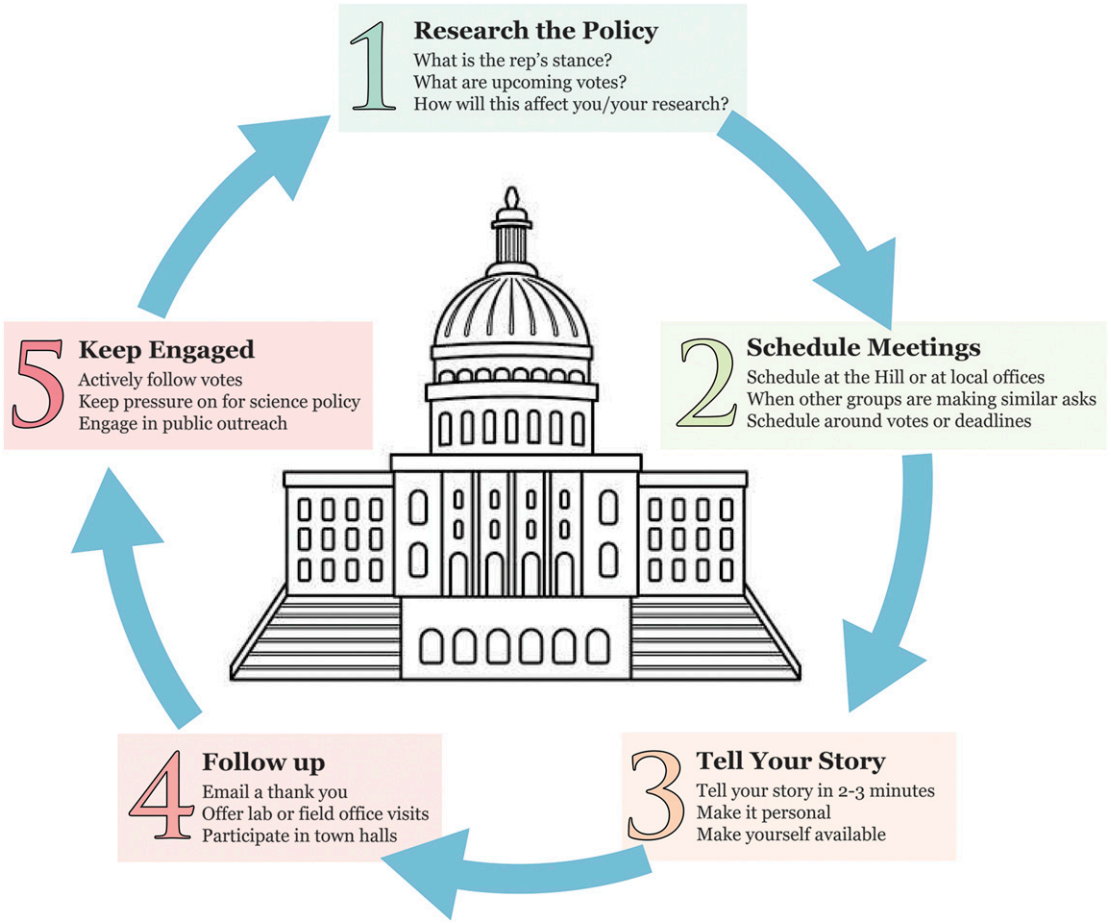

Fig. 1. Scientists eager to offer advice to policymakers should consider a few key steps.

enough to sway opinion during these brief encounters. Even the best scientists and communicators can have difficulty with these interactions, but as with any presentation, repeated practice and input from peers will help the preparation process.

Professional societies and university government relations offices and/or legislative action committees often offer free quality training on how to meet with your representatives. Such sessions teach effective strategies for engaging with representatives including perfecting your pitch, reducing the use of technical jargon, swaying hearts and minds, and practicing through mock meetings. Groups including the American Institute of Biological Sciences (AIBS), AAAS, and the Union of Concerned Scientists (UCS) offer information about these sessions (7, 8), and the skills acquired during these trainings are easily transferable to other areas of research.

Tell Your Story

What happens during a legislative visit? After greeting the person with whom you are meeting (usually a legislative staffer), you or your group customarily introduce yourselves and talk about your work. Keeping it interesting and as brief as possible is key. These meetings tend to pass quickly, so make the most of the time you have.

It is important to try to connect with the representative or staffer. Try talking about how your research impacts not just your field, or the world in general, but their world and the community that they represent. Do not simply state facts and figures but make your story— *your story*. Talk to them about your research and its importance in a personal way. This can bring out any personal connections the office staff or representative may have with your research, which makes the meeting more memorable.

In the course of your conversation, legislators/staffers will respond and sometimes ask questions. Beware that although most legislators/staffers are interested and engaged and make connections between what you are saying and relevant legislative issues, sometimes they can be visibly disinterested. Your visit can also be cut off for another obligation, such as an important vote. These scenarios can be difficult to navigate, but try not to take them personally. Just as not every experiment is a success, not every meeting will be successful either, and you may need to alter tactics in future meetings. For example, if they are not asking questions and do not seem engaged, try asking questions of your own to see what they are curious about learning. The goal here is to provide an ask, quickly state why that request is important to their constituents, and importantly, offer yourself as a resource, someone the lawmaker or their staff can call on.

Make Your Ask Heard

Making your ask is the most critical part of your interaction. However, it is easy to ignore a single request, so make sure your representatives and the public keep hearing your message. This can be done in several ways. Organizations such as the AIBS and AAAS often help science advocates coordinate and plan meetings, allowing many researchers to advocate for the same ask at the same time, thus amplifying the message. For example, when we participated in the AIBS Congressional Visits (9), along with other scientific organizations, one of the major asks we had was for increased funding for the NSF and the NIH. Representatives heard this ask over and over, and as a result many committed to increasing funding.

In the face of science skepticism, scientists cannot simply sit on the sidelines anymore hoping that "truth will come out" and that the importance of our work will be self-evident.

Although science funding is important for continued research and advancement, consider the many other important requests you might make. There may be specific needs that researchers in your community have, and reminders about why your research, and scientific research in general, is integral should never be overlooked. Discussing the importance of science and being able to put a human face to the people doing the research is one of the most crucial pieces of outreach. These types of interactions help build confidence and good will between communities, and simple conversations can help build the trust and relationships that are vital for the advancement of science and evidence-based policy.

Furthermore, your ask does not need to, and likely should not, be identical in every meeting. When crafting your ask, make sure to know the lawmaker's background and policy priorities. How did the representative vote on similar issues before? Have they taken any public stances already? If they have voted in favor or have a positive stance, thank them for their support. If not, tell them you are concerned and explain why. Keep the commentary nonpartisan, because partisanship is one the easiest way to keep your message from being heard.

Thank Your Representatives

After the meetings, take advantage of the new contacts you have made and send follow-up emails thanking staffers for their time, repeating your requests, and asking what the representative will specifically commit to in order to address your requests. These follow-up emails can also be a lot more than an end to the process. They can be the start of a new cycle of engagement and the beginning of a new professional relationship. You can build off this engagement by offering lab or field site tours to the representatives and their office. Again, this brings a human face to the research, showing how science is done. All the care and time that goes into your work can be very compelling for lawmakers because many have never been to a working laboratory or field site.

This continued engagement shows representatives that you can be that critical resource that bridges the science and policy divide if they have questions involving your area of expertise. Even if your personal research may not be helpful to a representative currently, offer assistance in other ways in which your expertise might be useful. Experience with data analysis, reading and deciphering scientific literature, or just being able to search for data that could help support or oppose current policies being proposed can be a major help. Many legislators, especially local officials such as city council members and mayors, may not have anyone on their staffs with these same skills.

Finally, it is critical to amplify your message and bring it to the public as well. This is where writing, attending demonstrations, and participating in city council and town hall meetings become particularly crucial. Be seen, be heard, and be constantly present.

Continue to Engage in Policy

These are only the first steps down this path of engagement. Once a connection has been established, continue to engage with their national representatives. Luckily, you do not have to travel to Washington, D.C., or a state capital to continue to pursue your goals.

It is often easier to establish meaningful and lasting relationships with representatives' local offices. In your meetings ask about working with these offices and their staff. Try to procure an introduction, and just as before, ask what you can do to help these staffers and offer your expertise.

By connecting with policymakers, researchers not only help impact new policies but also advocate for the importance of scientific funding and research in general. One of the main talking points during meetings can be to highlight the importance of funding, not just for research itself, but for the researchers doing the science that keeps our nation scientifically competitive. For example, increased NSF or NIH funds lead to more research programs for undergraduates, or graduate student fellowships, that target minority scientists, which helps diversify and strengthen scientific fields. You can also highlight that increased funding is a matter of social justice, helping to collaborate across borders to tackle the world's top global challenges.

In the face of science skepticism, scientists cannot simply sit on the sidelines anymore hoping that "truth will come out" and that the importance of our work will be self-evident. We have a civic responsibility to advocate for science, not simply because it is in our own best interest, but because it is in the interest of the 8-year-old dreaming of becoming a scientist, the family hoping for a treatment for a debilitating disease, and the community at large. We urge more young scientists to take an active role in this process of engagement. We are optimistic about the future we can help build.

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