



Science Advocacy 101: Realizing the Benefits, Overcoming the Challenges

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Abstract

To many researchers interested in connecting their research to policy decisions and advocating for increased federal investment in science, the federal policy-making and appropriations processes may feel distant and difficult to navigate. The goal of this article is to provide an overview of the federal budget and legislative processes, as well as an understanding of the congressional offices and committees managing these processes, with information about how policymakers incorporate evidence into their work and the challenges they face. The article describes the policy-making ecosystem, in particular the role of the advocacy community. We identify specific points in the process that provide opportunities for researchers and advocates to weigh in on important issues such as federal funding for science and the scientific workforce. Case studies are provided demonstrating two advocacy successes. Finally, we provide a list of relevant resources.

Keywords education policy · science policy · science communication · science advocacy · federal investment in science

Although many scholars may be interested in connecting their research to policy and practice, navigating the policy landscape can be challenging, and academic training rarely includes communicating to a policy audience. In the absence of clear incentives and rewards for science advocacy, many struggle to find the time and motivation. However, federal policy benefits tremendously from scientific expertise, and the research community cannot take the federal investment in science for granted.

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Why Engage?

There are three primary reasons for engaging: to protect and increase funding for science, to advance the process of science and discovery, and to apply evidence to policy and practice to improve the quality of life. All three of these goals not only benefit from but also depend on the voices of constituent scientists. Federal funding fluctuates, particularly during challenging budget times. For scientists dependent on federal funding for their labs, training, graduate students, or personal research, this funding cannot be taken for granted. Beyond direct dependence on federal funding, many researchers rely on data from federal statistical agencies. Investment in those budgets does not happen automatically—in fact, it is often hard won. Scientists also need to weigh in on legislation as it relates to the scientific ecosystem. For example, bipartisan legislation proposed in 2021 and currently being debated includes increasing diversity (The MSI Achievement Act, 2021) supporting early career scholars (Supporting Early-Career Researcher Act, 2021) and reducing sexual harassment (The Combating Sexual Harassment in Science Act, 2021) in the science, technology, engineering, and mathematics (STEM) fields. Scientists should not assume that members of Congress fully understand the process of competing for federal funding or complying with reporting requirements. Improving the quality of life is often the goal that initially inspired many scientists to pursue their chosen career paths. And yet, although scientists may be making progress in their own research, for that work to impact others, it requires translation and engagement. According to our experience¹ and recent research, policy makers, with rare exception, do not read peer-reviewed journal articles (Mattaini et al., 2020; Newman et al., 2016).

Congressional Offices: A Look Behind the Curtain

In order to support the investment in scientific research and make progress connecting research to policy and practice, it is necessary to start with an understanding of the legislative process and the decision makers. Capitol Hill and academia function in dramatically different ways with distinct cultures, relationships to time, and approaches to decision making. Congressional offices tend to be crisis driven—responding to urgent problems—consumed by breaking news, and need to function as “experts” on a wide range of topics. Researchers, however, are trained for a more narrowly defined topic area with considerable depth and longer time frames. Furthermore, scientists are trained to see the complexity in situations and to examine the context, whereas policy makers prefer clear evidence and definitive answers—silver bullets.

Overall, staffers tend to be young, smart, and optimistic about democracy. Despite the media coverage of the political theater, when sitting down for conversations in congressional offices, one is almost always reassured. On a continuum of expertise, personal offices in the U.S. House of Representatives have the smallest number of staff members and are expected to cover the full range of policy topics. In the Senate,

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personal offices have bigger staffs and thus are able to have more diverse areas of training and expertise. The House and Senate each have standing committees—20 and 16, respectively—that handle specific duties of Congress. Committee membership enables staff to have a more focused portfolio, develop specialized knowledge of the matters under their jurisdiction, and take the lead in drafting large authorization bills.

From the perspective of congressional staffers, they may care passionately about a long list of topics and be eager to advance legislation. However, enormous to-do lists, external (including political) considerations, and simply a lack of specific steps to follow to advance the priority may impede progress. Often, congressional staffers do not need to be persuaded that it is important; they just need clear, actionable steps to take—often referred to as “asks.”

The Advocacy Ecosystem: Competing Priorities and Potential Allies

Researchers are not the only ones eager to influence federal spending and policy decisions. Associations and lobbyists covering every topic imaginable—from corner stores and perfume scent producers to Google and cancer survivors—are also working to convince decision makers that their issue or cause should be a legislative or funding priority. Inevitably, the demands for funding far exceed the annual budget, leading policy makers to look for something to cut in order to increase funding for the most compelling causes of the day. It is not uncommon for congressional staffers to ask advocates, “Well, then, what would you cut?” There is a saying in Washington: “If you are not at the table, then you are on the menu.”²

Universities have considerable influence on their congressional delegations. Most universities have federal or government relations (GR) offices. These professionals have established relationships and regularly communicate with congressional staffers. Often, members of Congress will be alumni of the flagship university in their districts and will have interns or staffers who graduated from the university or attend the same sporting events or place of worship. University GR staffs are extremely knowledgeable and can be a valuable resource for faculty interested in engaging with their representatives in Congress. Some GR staffs are open to making presentations to university departments and providing legislative and budget updates. University faculty should always make sure their GR staffers are aware of their interactions with congressional offices, particularly work that is federally funded or may be policy-relevant research.

Coalitions play a critical role on Capitol Hill. The bigger and broader the coalition, the louder the voice on Capitol Hill. Most coalitions come together in support of the top-line number for a particular federal science agency. Congressional staffs appreciate when interested parties speak with a united voice. Developing a community ask also reduces the chances that different disciplines of science will undermine one another’s efforts to secure additional funding for their own organizational priorities. The Federation of Associations in Behavioral and Brain Sciences (FABBS) and the Population Association of America (PAA) are in leadership positions in key coalitions supporting federal funding for science (see the Appendix). Although we have seen a considerable

² Please refer to the Appendix for a list of coalitions on which FABBS serves, representing the interests of the members of the Association for Behavior Analysis International.

increase in the awareness of and appreciation for the social and behavioral sciences, our engagement in these coalitions is essential.

It is also important to remember that members of Congress are political actors beholden to their voting constituents and financial supporters. Congressional offices move quickly and are eager to demonstrate decisive action, with clear messaging. Academics have been accused of being on the other end of the spectrum, embracing complexity and being committed to understanding the context.

Where Do Congressional Staffers Get Their Information?

Congressional staffs have a number of nonpartisan federal offices at their disposal. The Congressional Research Service, Government Accountability Office, and Congressional Budget Office all provide objective and impartial analysis of issues and financial implications upon request. Staffers also turn to think tanks—research institutes that perform research and advocacy on particular topics, such as education, social policy, or technology. Think tanks publish articles and studies and even draft legislation. They range from rigorous academic studies to overtly ideological positions, pushing for specific policy outcomes, with a widely differing quality of research. From the perspective of a congressional staffer, think tanks are a valuable resource as they are already thinking about their research in terms of policy implications and specific actionable recommendations. In addition to relying on think tanks, congressional staffers turn to trusted lobbyists for information, talking points, and a sense of how the community—or voters—will react to policy proposals. They may also contact state and local government officials, as well as constituents or stakeholders, including scientists, with whom they have met or engaged on specific topics. A goal of this article is to provide useful information for behavioral and social scientists to position themselves to serve as trusted and valued resources.

In the report *Barriers in Communicating Science for Policy in Congress* (Akerlof et al., 2018), the authors describe two ways in which congressional staffs use science:

- **strategic:** to support/defend previously established ideas
- **substantial:** to better understand a problem or develop a solution

The strategic use of science is far more common for congressional staffers. When congressional staffers incorporate research in substantial ways, this type of use has the potential to significantly shape the conception and drafting of legislation. Building relationships in advance and establishing oneself as an expert can provide the opportunity to have discussions long before drafting begins.

Figures 1 and 2 reflect the barriers that congressional staffers identified when using evidence. Staffers identified informational fit as an obstacle to both strategic and substantive use of evidence. Although informational fit is an obstacle to both strategic and substantive use of evidence, timing and availability are more commonly identified as obstacles to substantive use, suggesting that existing relationships between researchers and congressional staffers might reduce barriers to the substantive use of evidence (Akerlof et al., 2018). Congressional staffers begin researching, consulting with stakeholders, and drafting legislation long before the legislation is

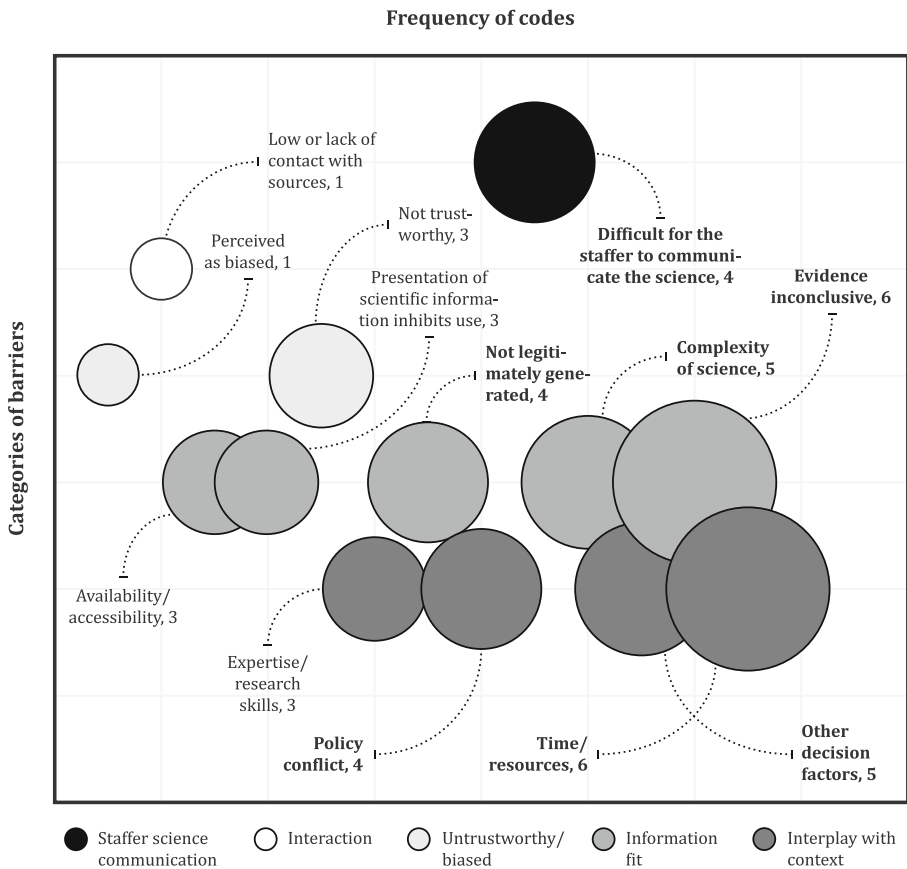


Fig. 1 Barriers to Strategic Use of Science in Policy Making

shared publicly. The best time to engage with congressional staffers is when they are just starting to gather information and formulate recommendations, before they have started drafting the language, and before they begin negotiating with other colleagues.

The Appropriations Process

Every year, Congress must pass all of its annual appropriations bills to fund the federal government. In the regular process, appropriations bills reflect careful consideration and line-by-line analysis, providing oversight and accountability. In recent years, Congress has funded the federal government by passing either an omnibus bill, which encompasses funding for multiple federal agencies, or a continuing resolution (CR), which is a bill that funds agencies at a specific level (usually the previous year’s level) until a specific date. CRs are damaging to federal agencies because they interfere with planning and hold budgets flat that may have been intended for increases. In 2014, when Congress opted to combine an omnibus spending bill with a CR, a new term was coined: the “cromnibus.”

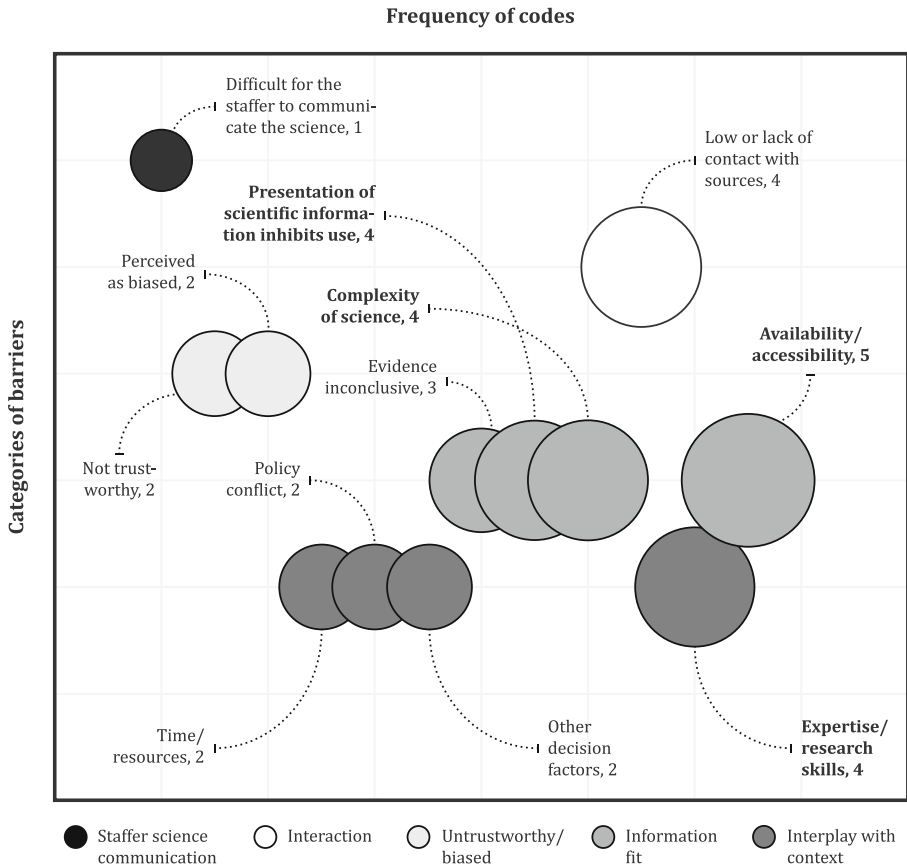


Fig. 2 Barriers to Substantive Use of Science in Policy Making

The president is expected to submit the proposed budget to Congress by the first Monday in February. This may happen later in transition years or if the federal government is operating under a CR and has not yet finalized the current budget. The introduction of the presidential budget request comes after an extensive budgeting process led by the Office of Management and Budget (OMB) in consultation with each federal agency. The OMB works with agencies to review and evaluate current programs and incorporate administration priorities. Organizations such as FABBS and the PAA meet with the OMB examiners to provide feedback from the research community. The strategic plans of agencies and of individual institutes at the National Institutes of Health (NIH) influence budgets and spending. Individual scientific societies and coalitions respond to opportunities to inform strategic plans.

Once the president has submitted a proposed budget, budget committees in the House and Senate begin, ideally, their process by drafting and deliberating a budget resolution. The budget resolution is a nonbinding spending blueprint; however, it is an important first step in the annual appropriations process because it sets overall spending caps and determines allocations for the appropriations subcommittees. Congress does not always pass a budget resolution. In the absence of a budget resolution, each chamber proceeds without having agreed to allocations for subcommittees, requiring

Table 1 Agencies From Which the Members of the Federation of Associations in Behavioral and Brain Sciences and the Population Association of America Receive Most of Their Funding

Member organization	Funding source
National Institutes of Health (NIH) and Institute for Education Sciences (IES)	<ul style="list-style-type: none"> • House and Senate Labor, Health, and Human Services Appropriations Subcommittee funds the NIH and IES. • Senate Health, Education, Labor, and Pensions Appropriations Subcommittee oversees the NIH and IES.
National Science Foundation (NSF) and the Census Bureau	<ul style="list-style-type: none"> • House and Senate Commerce, Justice, and Science Appropriations Subcommittee funds the NSF and Census Bureau.

the chambers to resolve differences at a later date. The budget allocations mark another opportunity for input from the community. The House and Senate each have an Appropriations Committee that is divided into 12 subcommittees. Each subcommittee receives an allocation referred to as a 302(b) allocation. FABBS and the PAA work together with broad coalitions to advocate for strong 302(b) allocations to the subcommittees investing in science (see Table 1).³

How Researchers Can Support Strong Budgets for Science Funding

Programmatic Requests and “Dear Colleague” Letters

As part of their process for determining annual spending priorities, the 12 House and Senate appropriations subcommittees rely on input from their colleagues in Congress. The House and Senate Appropriations Committees receive this input via the submission of “programmatic requests,” specific funding requests that members of Congress communicate to relevant appropriations subcommittees via a centralized database. Committee staffers have systems for tallying member priorities, including awarding points depending on the type of communication (e.g., staff to staff, member to member, partisan or bipartisan), which are then factored into the calculations.

Individual members of Congress establish online forms to garner input from constituents and outside stakeholders regarding funding recommendations. Advocates organize activity around the deadlines that each office, as well as the appropriations subcommittees, establishes for receiving programmatic requests. The highest profile of these activities is the “dear colleague” letter—a mechanism that stakeholders use to organize and communicate widespread support for federal funding recommendations.

The “dear colleague” letter is ideally a bipartisan communication from members of Congress who support funding for a federal agency or line item in an annual appropriations bill. For example, in the U.S. House of Representatives and Senate, a group of Democratic and Republican members has historically circulated a “dear colleague” letter urging the House and Senate Labor, Health and Human Services and Education (LHHS) Appropriations Subcommittees to provide the NIH with the funding level recommended by the NIH stakeholder community. In March 2020, over 200 of the 435

³ To review a brief tutorial on the federal budget process, go to <http://www.cbpp.org/cms/?fa=view&id=155>.

members of the U.S. House of Representatives signed a “dear colleague” letter⁴ urging the LHHS subcommittee to provide the NIH with \$44,700,000,000 in that subcommittee’s fiscal year (FY) 2021 appropriations bill. A similar letter⁵ circulated in the Senate urged that chamber’s LHHS subcommittee to “maintain a strong commitment to funding” for the NIH in FY 2021—an effort that attracted 64 signatories (more than half of all members of the Senate). Once a member signs such a letter, they are obligated to record their support as a programmatic request in the centralized databases maintained by the House and Senate appropriations subcommittees.

“Dear colleague” letters, especially when bipartisan and signed by so many members of Congress, help guide the appropriations subcommittees by providing a clearer sense of members’ interests and funding priorities. Given the potential that these letters hold for influencing funding outcomes, stakeholders invest significant effort in not only recruiting members of the House and Senate to lead these letters but also encouraging members of both chambers to sign the letters. Frequently, outside organizations will encourage their grassroots membership to contact congressional offices and urge members to sign specific “dear colleague” letters. Outside organizations also often use these letters to calibrate the degree to which a member of Congress supports their agenda, making the “dear colleague” letter an even more powerful, consequential mechanism.

Congressional Hearings and Questions

Another tool that stakeholders employ to encourage support for funding their interests is the strategic placement of questions at congressional oversight and appropriations hearings. Whether asked in person during a congressional hearing, or submitted to the record for a written response, these questions are a way in which members of Congress can convey their spending priorities and interests and compel information from federal agency officials. Stakeholders will frequently recommend questions to congressional staff who are charged with preparing their bosses for their participation in committee hearings. This strategy is a tactic employed largely by stakeholders, often GR professionals representing organizations, working directly with congressional staff and members of Congress. The Federation of American Scientists recently set up a nonpartisan effort, the Congressional Science Policy Initiative (CSPI), to facilitate the engagement of scientists, engineers, and other experts with the U.S. legislative branch to help produce evidence-based public policy. One component of the program is aimed at enriching congressional hearings with science. Senate and House committee hearings are forums where members of Congress question witnesses, learn about science and technology, and develop policy ideas. The CSPI tracks legislative branch activity, and when key hearings are announced, the team solicits the CSPI community for questions and ideas that members of Congress could raise during the hearing. This data-driven information is then communicated to Congress for use in the hearings, promoting a rich discussion of the issues.

⁴ <https://www.aamc.org/research/adhocgp/DCL/031120DCL.pdf>.

⁵ <https://www.aamc.org/research/adhocgp/DCL/032720DCL.pdf><https://www.aamc.org/research/adhocgp/DCL/032720DCL.pdf>

Legislation That Advances Science and Is Science Informed

Although Congress has a clear annual process for appropriations bills with opportunities for input from the public and the advocacy community, finding the best ways to influence legislation requires more attention to the congressional calendar and priorities, necessitating more active engagement with personal and committee offices. Funding decisions are made in a two-step process. In addition to the appropriations bills, Congress passes separate legislation to authorize/establish or reauthorize federal programs, agencies, and other policies:

- “An *authorization* may generally be described as any statutory provision that defines the authority of the government to act. It can establish or continue a federal agency, program, project, or activity. Further, it may establish policies and restrictions and deal with organizational and administrative matters. It may also, explicitly or implicitly, authorize the subsequent congressional action to provide appropriations. By itself, however, an authorization does not provide funding for government activities.”

Unlike the annual appropriations process, legislation to create new policies or agencies or reauthorize existing ones often takes multiple years and congressional sessions to be passed by both the House and Senate and be signed by the president. Approaches to reauthorization can vary widely. Some reauthorization bills make only minor adjustments to previous legislation, updating recommended authorization levels for appropriators to consider. Other times, reauthorization bills might propose major changes to federal agencies and programs, with meaningful efforts to solicit feedback from the stakeholder community and numerous hearings to gather information on a range of related topics. There is no constitutional requirement that an appropriation must be preceded by a specific act that authorizes the appropriation. Congressional rules establish the distinction between authorization and appropriations. Federal agencies and programs often continue to operate long after authorizations have expired.

Researchers also have a critical perspective to provide to any legislation speaking directly to the federal research enterprise. Take current efforts to reauthorize the National Science Foundation as an example. Due to concerning breaches, members of Congress are paying close attention to the security of international research collaborations. However, without hearing from their universities, members may not be aware of the degree to which they depend on foreign-born undergraduate students or international expertise to advance science and discovery.

Providing research findings that align with introduced legislation is an excellent excuse to reach out to congressional offices and potential opportunity to initiate a relationship. Another opportunity to both support legislation that advances sciences and to engage with offices is to endorse legislation. FABBS and the PAA have endorsed the following pieces of legislation in the 117th Congress to support the scientific infrastructure:

- 2020 Census Deadlines Extensions Act (PAA)
- Census IDEA Act (PAA)
- Combating Sexual Harassment in STEM Act (FABBS)

- MSI STEM Achievement Act (FABBS)
- NSF for the Future Act (FABBS)
- Research Investment to Spark the Economy Act (FABBS and PAA)
- STEM Opportunities Act (FABBS)
- Supporting Early-Career Researchers Act (FABBS)

Actionable Steps to Support Science in Legislation

Sign Up for Member Newsletters

Members of Congress and most committees have regular newsletters or updates. These communications are a good way to be informed of current legislative priorities.

Track Specific Pieces of Legislation

In 2021, there are at least three reauthorization bills of interest to the science community: the reauthorization of the National Science Foundation (NSF), the Strengthening Education Through Research Act, and the Higher Education Act. All are overdue. Admittedly, this may require reviewing the past authorizing language, as bills range in terms of duration. University GR and scientific society colleagues are able to help determine relevant legislation due for reauthorization.

Track Relevant Committees

- **Senate:** The Committee on Health, Education, Labor and Pensions (NIH and IES) and the Committee on Commerce, Science, and Transportation (NSF and Census)
- **House:** The Committee on Energy and Commerce (NIH), the Committee on Education and Labor Science (IES), and the Committee on Science, Space and Technology (NSF and Census)

Opportunities for Connecting Research to Policy

To attract the attention and support of members of Congress, it is imperative that stakeholders connect the relevance of their federally supported research to policy. There are numerous ways in which stakeholders, especially constituents, can entice and sustain support from their members of Congress. These strategies are key not only to ensuring policy makers understand the research that their constituents are conducting but also to improving the odds that scientific research findings will be used to inform evidence-based policy and translate into more funding for federal scientific and statistical research agencies. It is important to keep in mind that due to limited time and enormous portfolios, congressional staffers are most likely to absorb information that is brief, to the point, and actionable. Staffers recommend limiting documents to two pages and, if possible, including bullets, visuals, and a mix of numbers and stories.

The following are ways in which scientific organizations and their members can develop and sustain relationships with policy makers and become trusted resources.

Keep in mind that engaging with congressional staffers—as opposed to the elected official themselves—can be just as effective for connecting your research to policy. Members of Congress and their staffs are generally willing to accept meeting requests and participate in public events—particularly when it provides an opportunity to engage with constituents. In what follows are some examples of the ways in which constituents can meet their elected officials, establish a personal connection, and initiate a relationship. The *FABBS Handbook for Behavioral and Brain Advocacy* has additional information about meeting with congressional staffers on Capitol Hill and crafting your message. Here are two pieces of general advice: Do your homework so that you have a sense of office priorities and say thank you—before, during, and after interactions.

Engage Congressional Offices via Social Media

According to a July 2020 Pew Research Center analysis, Compared with a similar time period in 2016, the typical member of Congress now tweets nearly twice as often (81% more), has nearly three times as many followers and receives more than six times as many retweets on their average post. On Facebook, the typical member of Congress produces 48% more posts and has increased their total number of followers and average shares by half.⁶

Social media is a popular forum that congressional offices are relying on increasingly to communicate and receive information and input from constituents and outside organizations. It is best to use social media platforms to share positive, constructive feedback and information.

Share Newsletters, Blogs, Press Releases, and Other Informational Materials

Many organizations, institutions, and academic departments or research centers publish regular newsletters, blogs, or other informational materials. It is advisable to add congressional contacts to email lists so they can receive your information automatically and directly. This strategy keeps congressional offices apprised of your interests and activities and helps reinforce the information that was shared when contact was initiated during an earlier meeting or event.

Even if you have not met with the office previously, yet are aware of their interests, consider sharing relevant research with congressional offices. Most staffers do not read more than two pages and much prefer bullet points. FABBS has a journal, *Policy Insights From the Behavioral and Brain Sciences*, that has articles that are short and challenge researchers to describe the potential policy implications of their work—it could be a useful resource.

⁶ https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2020/07/PDL_07.16.20_congress.social.media_full_report.pdf

Attend a Town Hall or Constituent Coffee Hour

During district work periods, members return home, using that time to meet with constituents. Members of Congress will often host in-person or virtual events, such as town halls, calls, or office hours, for the sole purpose of meeting constituents and seeking their input. When in Washington, DC, many members host regular constituent coffee hours in which individuals in DC from a member's district or state may stop by the office to informally meet with the member and their staff. The availability of these events varies, so constituents are encouraged to contact their elected officials' offices for scheduling information.

Participate in a Virtual or In-Person Advocacy Day

Most scientific societies or professional organizations sponsor annual advocacy days in which their members travel to Washington, DC, to meet with their elected officials and staff. In addition, special annual events sponsored by numerous organizations, such as the Rally for Medical Research, offer other unique opportunities for scientists and constituents to meet with their elected officials in DC. In 2020, these events pivoted to virtual platforms, and given the opportunities for access, some of these might be here to stay. Advocacy days, whether conducted in person or virtually, are efficient forums for individuals to meet with their elected representatives, initiate a dialogue about their research or interests, and make specific funding or other policy requests endorsed by larger national organizations. Participants in these events receive training and materials to prepare them for their meetings and are typically accompanied to their meetings by an experienced GR professional from the sponsoring organization—features that should help improve the participants' confidence and ensure a more successful meeting.

Host or Participate in a District Event or Briefing

Members of Congress are always eager to learn more about activities and organizations operating in their own districts or states—especially those that are federally funded. Most members also enjoy attending events (with photo opportunities) in which they can observe activities, such as laboratory research, training, or service delivery, that they played a role in supporting. Further, members of Congress and staff are receptive to briefing invitations, whether held in Washington, DC, or in their districts, at which they can learn about topics and receive policy or legislative recommendations. Participating in a successful district event or a congressional briefing in the district or DC can leave a lasting impression on a policy maker and be the foundation for a future relationship with a member of Congress and their staff.

Once a relationship is established, it is necessary to maintain the connection by communicating with policy makers and their staffs on a regular basis. The regularity of these communications is especially important given the high staff turnover rate in congressional offices. According to a September 2020 report by New America,⁷ the average tenure for staff on Capitol Hill is 3.1 years. There are simple steps constituents

⁷ <https://www.newamerica.org/political-reform/reports/congressional-brain-drain/>

can take to maintain continuity of communication and be a proactive, ongoing resource to congressional offices.

Respond to “Action Alerts” and Send Staff Direct Messages

Many stakeholder organizations issue action alerts to urge their members to contact members of Congress when bills or issues arise that an organization supports or opposes. These alerts usually provide suggested text and an automatic option for sending the message directly to a constituent’s U.S. representative or senators. Sharing the messages with congressional offices is a fundamental, simple way to communicate with them. If one already has an established relationship with a staff member within an office, making the message more personal and sending it directly helps ensure it will be read and considered.

The benefit of maintaining regular communication cannot be overstated. These strategies keep congressional offices informed and facilitate the ability of stakeholders and constituents to engage members and staff quickly when issues arise. One is more likely to get a response from an office if they have an established, ongoing relationship than if they attempt to reach a member or their staff during intense, fast-moving deliberations on a bill or funding measure.

Examples of Successful Advocacy

Defending the Behavioral and Social Sciences at the NSF

In addition to working to increase federal investment in social and behavioral sciences and connect research to practice and policy, advocates frequently find themselves in the unfortunate position of having to defend against threats to sciences.

In 2013, after taking the helm of the House committee with jurisdiction over the NSF, Rep. Lamar Smith (R-TX) and then–House Majority Leader Eric Cantor (R-VA) placed an op-ed in *USA Today* stating, “While the NSF spends most of its funds well, we have recently seen far too many questionable grants, especially in the social, behavioral and economic sciences (Cantor & Smith, 2013).” This op-ed was followed by varied and repeated attempts by Smith to challenge the value of behavioral and social sciences. In addition to working to publicly undermine public confidence in the NSF and the principles of fundamental science, he challenged decisions to fund individual grants, demanding that the NSF send over confidential reviews of specific grants. Smith introduced legislation to reduce authorization levels for the Social, Behavioral and Economic Sciences (SBE) Directorate at the NSF and introduced an amendment to the NSF budget on the House floor to reduce spending on these sciences. Smith and Cantor were not alone in their attacks on. They claimed that spending on intellectual elites was wasteful and that efforts to save taxpayers dollars were popular with constituents back home. Frequently the attacked grants were international or “foreign” in nature or related to climate change or sex.

Thankfully, the science community had a real champion in Eddie Bernice Johnson (D-TX), Ranking Member of the House Committee on Science, Space and Technology. Rep. Johnson maintained that Congress should leave it to the NSF merit review

process and scientists to make funding decisions and to inform the investment in different scientific disciplines. During this time, FABBS, the PAA, and other colleagues from the broad scientific community, together with the leadership of the Coalition for National Science Funding (CNSF), collaborated to provide accurate information to congressional offices and worked closely with committee staff of the House Appropriations Commerce, Justice, Science Subcommittee with oversight of the NSF budget. Advocates brought NSF-funded behavioral and social scientists to Washington, DC, to meet with congressional staff and talk about their research. FABBS, the PAA, and others drafted fact sheets and talking points, making it easy for offices to understand and articulate the value of this research. Our groups generated action alerts encouraging our scientists to reach out to their elected officials and express support for the federal investment in behavioral and social sciences.

One of the most threatening moments during this time was when Rep. Smith introduced the amendment to cut the SBE Directorate on the House floor. In the moments leading up to the introduction, FABBS and the PAA were in real-time communication with committee staff for Chairman Frank Wolfe (R-VA), offering talking points to object to the amendment while respecting a fellow committee chairman. The amendment was defeated, and since then, the NSF has maintained, and even increased, its investment in the behavioral and social sciences.

The involvement of the CNSF was critical to successfully fighting off these attacks. It was not just the behavioral and social scientists claiming that these sciences were important for national interests; it was the broad scientific community. This underscores the importance of the representation of our sciences in these broad scientific coalitions (see the Appendix). FABBS and the PAA were active and contributing members of the CNSF, keeping our science colleagues informed of the attacks and underscoring the implications for the merit review system.

Growing the NIH Budget

Recent growth in the NIH budget is an advocacy success story highlighting how multiple strategies led to a restoration of sustained, robust funding for the agency. The purchasing power of NIH funding peaked in FY 2003—the last year of a 5-year period in which Congress had doubled the agency’s budget—and then declined fairly steadily for more than a decade.⁸

In response to this funding cliff, science advocates, working with supporters in Congress, launched a full-scale, multipronged effort to educate policy makers about the implications of the funding decline—even in the wake of a historic doubling effort.

Scientific societies and organizations, led by the Ad Hoc Group for Medical Research (a coalition composed of hundreds of patient and voluntary health groups, medical and scientific societies, academic and research organizations, and industry that support the NIH), developed a unified funding recommendation. Further, they solicited anecdotes from the medical research community regarding the training and research implications of the funding decline. The advocacy community used this information to develop constituent messages that were used in congressional testimony and in “dear colleague” letters that bipartisan members in the U.S. House of Representatives and

⁸ <https://fas.org/sgp/crs/misc/R43341.pdf>

Senate agreed to lead in support of promoting the community's funding recommendation. This information was also used to inform and suggest grassroots and social media messages that scientists nationwide shared with U.S. elected officials.

In 2013, over 300 national organizations came together to launch the first Rally for Medical Research Day—an advocacy day involving thousands of scientists, patients, health care providers, and other stakeholders who came to Washington, DC, to urge Congress to make funding the NIH a national priority. The event has been held every year since 2013, with participation steadily increasing.

Between FY 2016 and FY 2020, Congress provided the NIH with consistent, robust funding increases—an outcome attributable largely to the diverse efforts that the advocacy community employed to communicate the implications of the agency's funding decline and its needs.

Conclusion

The advancement of science is dependent on federal funding. When one understands the policy-making ecosystem, the need to engage becomes obvious. Funding decisions happen every year, and it would be unwise to ever take this funding for granted. Furthermore, members of Congress take seriously their roles as stewards of taxpayer dollars. The onus is on scientific societies and universities to share the value and return on investment in science. There are many different paths to connecting science to policy. They all start with making a personal connection to congressional staffers who either already share an interest in your area of expertise or sit on a funding or oversight committee of influence. We encourage you to not only offer to be a resource but also anticipate or research their legislative priorities and proactively connect your research to their work.

As this article demonstrates, there are many opportunities and resources for engaging, including

- getting involved in your professional society's government affairs activities by responding to their action alerts or calls for grassroots action;
- meeting directly with federal policy makers, either in Washington, DC, or in their state or district offices;
- attending in-person or virtual events, such as advocacy days, town hall meetings, and congressional briefings;
- engaging directly with policy makers over social media; and
- sharing information about your research activities and findings with policy makers via email or social media.

We hope that this article will inspire you to introduce yourself to your university GR professional. In our experience, even if initially hesitant, researchers find interacting with congressional offices rewarding, educational, and enjoyable. In addition to engaging with Congress, there is also tremendous value in engaging with colleagues at federal agencies and in the administration. This is a potential topic for a subsequent article.

Appendix

Additional Resources

Documents Goldschmid, K. (2017). *State of the Congress—Staff perspectives on institutional capacity in the House and Senate*. Congressional Management Foundation. https://www.congressfoundation.org/storage/documents/CMF_Pubs/cmf-state-of-thecongress.pdf

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Coalitions

- **Ad Hoc Group for Medical Research:** The Ad Hoc Group represents 300 patient, medical, and scientific organizations that support funding for the National Institutes of Health (NIH).
- **American Brain Coalition (ABC):** The ABC comprises professional neurological, psychological, and psychiatric associations and patient organizations. The ABC seeks to advance the understanding of the functions of the brain and to reduce the burden of brain disorders through public education and advocacy.
- **Coalition for Health Funding (CHF):** The CHF advocates on behalf of funding for all public health agencies, including the NIH and the Centers for Disease Control and Prevention. The coalition's staff organize briefings, sign-on letters, and visits to Capitol Hill and send updates regarding budget and appropriations issues.
- **Coalition for National Science Funding (CNSF):** The CNSF advocates on behalf of the National Science Foundation.
- **Coalition for National Security Research (CNSR):** The CNSR is a broad-based coalition including industry, research universities and institutes, and scientific and professional associations committed to a strong Defense Science and Technology Program.
- **Friends of the Institute of Education Sciences (FIES):** FIES represents more than 40 scientific associations, education organizations, universities, and research institutions that support the critical research, data, statistics, and evaluation programs at IES.
- **Friends of the National Institute on Aging (FoNIA):** FoNIA supports the NIA mission and organizes relevant advocacy activities to educate policy makers about aging research and the institute's funding needs. Over 50 organizations belong to the coalition.

- **Friends of National Institute of Alcohol Abuse and Alcoholism (NIAAA):** Friends of National Institute of Alcohol Abuse and Alcoholism (NIAAA) is a nonprofit advocacy group of organizations supporting the mission and research being conducted by the NIAAA.
- **Friends of the National Institute of Child Health and Human Development (NICHD):** This is a coalition of over 100 organizations interested in the NICHD. Member organizations represent scientists, physicians, health care providers, patients, and parents.
- **Friends of the National Institute on Drug Abuse (NIDA):** This coalition of individuals, scientific and professional societies, patient groups, and other organizations is committed to the elimination of drug abuse and addiction through education, advocacy, and the promotion of broad public and private support for the research agenda of the NIDA.
- **Friends of the National Institute of Mental Health (NIMH):** The Friends of NIMH coalition is dedicated to supporting the mission of the NIMH to transform the understanding of mental health and the treatment of mental illnesses through basic biomedical, behavioral, and clinical research to best inform prevention, early intervention, recovery, and cures.
- **Friends of NIH Behavioral and Social Science Research:** This coalition works to support the NIH Office of Behavioral and Social Science Research and other social and behavioral science research activities conducted across the NIH.

Related Organizations

- **American Association for the Advancement of Science (AAAS) Science and Technology Fellowship:** The AAAS Science and Technology Fellowship’s goal is to “advance science, engineering, and innovation throughout the world for the benefit of all people.” To accomplish this objective, the fellowship uses its connection to scientists, engineers, and the public to promote, defend, and strengthen the support of science. It is a member-oriented organization with associates in over 91 countries all participating in cutting-edge research. (For more information, see <https://www.aaas.org/programs/sciencetechnology-policy-fellowships.>)
- **The Conversation:** The Conversation was born out of a fear that cordial public discourse was slowly fading and the realization that facts and evidence from experts could help remedy the problem. The Conversation is a nonprofit news organization that curates articles written by trusted academics and experts that are then edited by a team of talented journalists. The Conversation covers topics on policy, science, health, economics, education, history, ethics, and most topics covered by universities. (For more information, see <https://theconversation.com/us.>)
- **Day One Project:** The Day One Project is committed to working with experts across science and technology to help form policy and innovative proposals. The organization aims to complete its goals through workshops, accelerators, and conversations. The Day One Project’s ultimate mission is for more leadership positions in the federal government to be filled by scientific and technical experts. (For more information, see [https://www.dayoneproject.org/.](https://www.dayoneproject.org/))
- **Federation of American Scientists (FAS) Coronavirus Taskforce:** The FAS Coronavirus Taskforce is a group of world-class professionals charged with

distributing expertise and information to policy makers and leadership about the pandemic to aid in the creation of policy and regulations that would be beneficial for public health. (For more information, see <https://fas.org/coronavirustask-force/>.)

- **The Op-Ed Project:** The Op-Ed Project’s goal is to create a pathway for under-represented experts to take charge of their professional lives and move into leadership roles in their respective fields. They do this by connecting them to mentors, programs, op-eds, and top faculty in order to get them the resources they need to achieve success. The Op-Ed Project’s mission is to address the questions of “What do you know, why does it matter, and how can you use it to change the world?” (For more information, see <https://www.theopedproject.org/>.)
- **Scholars Strategy Network (SSN):** The SSN is a collection of talented university-based scholars whose aim is to use research, evidence, and scholarship to help facilitate better policy making in order to improve democracy. The SSN has a presence in over 25 states and works with both federal and local issues. (For more information, see <https://scholars.org/>.)

Declarations

Conflict of interest The authors declare no conflicts of interest.

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- Supporting Early-Career Researcher Act, H.R. 144, passed by U.S. House May 18, 2021. <https://www.congress.gov/bill/117th-congress/house-bill/144/text>
- The Combating Sexual Harassment in Science Act, H.R. 2695, passed by U.S. House, May 18, 2021. <https://www.congress.gov/bill/117th-congress/house-bill/2695/text>