Opinion

I’m a health researcher. NIH’s pause on research grants could have a devastating cost.

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By Dr. Esther Choo, MSNBC Columnist

I had planned to spend my Thursday attending an all-day meeting reviewing research grant applications for the National Institutes of Health. The meeting was abruptly canceled Wednesday in a terse email from an NIH staff member; I soon heard from colleagues that all such committees, and other related meetings in the grant process that were scheduled for the remainder of January, were being canceled.

Because there was no official statement about these cancellations, their intent, extent and duration are unclear. It is presumed to be part of the shutdown of various activities across scientific agencies, including hiring, travel and scientific communications at the NIH. Regardless of the reason, this is a potentially devastating event — not just for the scientific community, but for all Americans.

To understand why, it’s important to explain a bit of the research funding and review cycle. To review grants for scientific merit, grant agencies bring together committees, or “study sections,” of around 25 to 30 people from different fields, with topical and methodological expertise of various kinds. These study sections are followed by advisory council meetings that ensure proposals are scientifically sound and align with the NIH’s priorities. The council meetings have apparently been canceled as well, affecting proposals that had already cleared study sections’ review within the past few months.

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Without scientific review, a cycle of applications cannot move forward to the council meetings, and without councils’ recommendations, a cycle of proposals with high merit cannot move forward for funding at this time. If this pause is not reversed soon, the fallout for scientific research in the U.S. may be felt for years to come.

Let’s say a researcher trains for many years to conduct a line of scientific inquiry, acquiring knowledge about the disease and about cutting-edge research methodologies, and then manages to secure a job at a university to do that research as faculty. In general, that job by itself will not provide sustained funds to pursue that research full time, no matter how necessary or lifesaving or successful the work is. For the most part, researchers must secure funds for their research through a competitive grant process. And the backbone of funding is from federal agencies.

Research grants do not just pay for the material and technical resources to conduct the research project. They cover the salary and benefits of the researcher and the staff, which includes research coordinators, lab technicians, data analysts, biostatisticians and others, representing a large, economy-boosting workforce across the country. They also “keep the lights on,” providing support for universities and other organizations that provide the infrastructure for the research and other, nonresearch activities. And they support trainees who work under an established researcher, generating the future research workforce.

Because any given grant only supports a small portion of a researcher’s time for a few years, most must continuously pursue funding so that they and their teams can receive a full paycheck that doesn’t abruptly disappear when a grant ends. So by and

large, scientists are not only doing the science, but serving as their own fundraisers, supporting the institution that has hired them, and helping fund the trainees whom they teach.

The work of filing grant proposals is nearly invisible to the public, but represents a staggering amount of work and a skill set unto itself. A single grant proposal may take years to conceptualize; the preliminary studies leading up to a major grant proposal may be the result of decades of work. A fully assembled application is at least over 100 pages, including an explanation of its significance and novelty, its methods, the team assembled to perform the project, the research budget, the ethical conduct of research, and more. More complex, multicenter grants can be north of 400 pages. And researchers are in a continuous process of reworking prior grants that did not get funded and generating new grant submissions.

Once submitted, the proposals typically go through a standardized review process that filters each application through the eyes of multiple experts to identify proposals that have high potential to have significant impact on our health. The process is a year-round, complex administrative undertaking: At the NIH alone, it engages tens of thousands of reviewers annually in more than 1,000 meetings with study sections like the one I should have been sitting in Thursday.

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In a standard process at the NIH (where most of my grants have been submitted and review work has been), a given session may be assigned as many as 100 grants or more. Each reviewer may be assigned eight to 10 grants and spend upward of 50 hours reading applications and submitting their critique prior to the meeting. Because so many reviewers have research-related positions that keep them very busy outside these sections, and some meetings require travel and lodging arrangements, scheduling these sections occurs well in advance.

And for just a single study section, federal staff prep for months to ensure submitted grants are complete, assign them to review committees with the appropriate focus and expertise, and contend with myriad logistical issues.

I've never heard of mass cancellations like those that occurred this week, so I don't have a good mental model for what happens next, but rescheduling and restarting the whole process described above will be challenging, to say the least, particularly in the context of any hiring freezes or personnel reductions.

The cost of delays is hard to overstate. Mary-Claire King, an award-winning cancer researcher, once shared a story about how she almost didn't make it to the NIH to secure an initial grant for what eventually became a lifesaving therapy for breast cancer. While parts of her story are extraordinary (like a run-in with baseball legend Joe DiMaggio), it underscores the fact that careers in research can be incredibly fragile.

One well-timed grant can seed a line of sustained inquiry that leads to something meaningful for the health and longevity of Americans; a missed grant can delay or derail that work. A single grant can ensure that whole research teams that have taken years to build can stay together and sustain their work. For those early in their careers, even a small, short-term grant at the right moment can serve as a critical fork in the road to a research-track career.

Why do these changes in trajectory, even a single skipped research cycle, matter? There are lives on the other end. Practices in medicine unimaginable a generation ago are now routine because the research machine marches on, cycle after cycle.

The colleagues I've heard from this week have dedicated themselves to improving and saving lives. Studying novel cancer therapies. Improving the management of childhood asthma. Understanding factors that make diabetes difficult to manage. Slowing the course of Alzheimer's. Across my research communities, the overwhelming sentiment is concern about the impact on bodies of science, current and future, on being able to help people and sustain ongoing improvements in quality of life and lifespan.

"My research helps a lot of people," a research colleague, who is a cancer geneticist at a top-10 research institution, wrote to me Wednesday. "However, I am not yet tenured faculty, meaning that I won't get to keep my job as a physician scientist in a couple of

years if I don't get an NIH grant. Period. It is terrifying, devastating, to think it could all just disintegrate so quickly."

For people everywhere living with a disease that does not yet have an effective therapy, it's likely that somewhere in this cycle of deferred research, there is someone who cares about that disease, knows that you cannot wait for the solutions, and has been working night and day to chip away at the answers for you. If this week's shutdown is any indication of our government's approach to science, those answers may remain lost for longer than they should.

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