Sequester Stories
How Heart and Stroke Research Hangs in the Balance
In March 2013, an across-the-board budget sequestration went into effect that cut $1.5 billion, or five percent from the NIH’s budget. All told, these cuts could reduce the number of competitive research project grants by approximately 640, cost 20,500 jobs nationwide, and reduce new economic activity by $3 billion.
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Funding is the lifeblood of medical research

Through a strong partnership between the National Institutes of Health and the research and health provider communities, our nation has made considerable advances in the understanding, diagnosis, treatment and prevention of heart disease and stroke.

Literally, millions of lives have been saved. From 1968 to 2006, the death rates from heart disease and stroke have declined by 65 percent and 73 percent, respectively. NIH-sponsored research provided for the groundbreaking, multi-generational Framingham Heart Study that broadened our understanding of heart disease and its causes. NIH research grants also helped develop cholesterol-lowering statins and the clot-busting drug tPA that has saved stroke victims and lowered medical costs.

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In an interview with The New York Times, Dr. Francis S. Collins, Director of the National Institutes of Health, called this year the “darkest ever” for the agency. The Times notes that NIH’s budget is at its lowest inflation-adjusted appropriations level in more than a decade. The agency is also awarding fewer grants supporting research projects and to a dwindling number of applicants.

Dr. Collins went on tell the Times that the stopgap measures to fund the government have also harmed the agency and its ability to deliver on its mission. “Continuing resolutions discourage you from trying new and bold. You’re supposed to tread water. And science is very badly served by that tread-water message.”

It is important to get behind the budget sequestration’s numbers and see and hear their devastating impact on medical research. As you will read in the these seven real stories, promising life-saving studies are being delayed, or stopped altogether as a result of the cuts to the NIH’s budget.

Equally troubling is their effect on the medical research community. Frustrated by the lack of funding and by the trend favoring short-term successes over long-term gains, many researchers are leaving the field entirely. With the odds stacked against them and with such a bleak future in sight, some of today’s researchers are also discouraging their students from a research career. A whole new generation of promising young scientists could be lost due to the budget sequestration.

Research continues to be our best hope for finding new and innovative ways to prevent, treat and eventually cure heart disease and stroke. And our hopes for a cure now hang in the balance unless we can restore the funding to the NIH that was taken away by the budget sequestration.
Dr. Shobha Ghosh is a gifted researcher with 33 years of experience. Her research is focused on developing novel strategies for preventing heart disease, particularly atherosclerosis, also known as hardening of the arteries. Atherosclerosis is a killer and is the leading cause of heart attacks, strokes and other forms of cardiovascular disease. But its causes are complex and researchers like Dr. Ghosh have been working to unlock the mysteries.

Researchers do know that the atherosclerosis process begins when plaque — fatty substances, cholesterol, cellular waste products, and debris and calcium build up in the inner lining of an artery. Although there is no definitive answer, many researchers believe that the deadly process starts when the innermost lining of the artery is damaged. Some of the possible culprits include high levels of cholesterol and triglycerides, elevated blood pressure and cigarette smoking.

The studies Dr. Ghosh and her staff were undertaking held enormous promise in combatting atherosclerosis and rolling back the mortality and morbidity caused by it.

“The proposed studies are designed to examine the role of a key liver enzyme that regulates the elimination of cholesterol from the body. Studies over the last three years have clearly demonstrated that increasing this enzyme in the liver reduces atherosclerosis,” she told the association.

Her research into atherosclerosis was first funded through the American Heart Association and is currently supported by the National Institutes of Health. Yet, despite approved funding for four years, the resources awarded for the last two years have been reduced. Due to the budget sequestration, current year funding that started on May 1st has been slashed by more than 11 percent.

Dr. Ghosh faced some tough choices brought upon by sequestration. “The budgeted salaries and benefits for the lab personnel working on this project cannot be reduced, and I don’t want them to lose their jobs. Therefore, I have been faced with only one alternative, which is to decrease the scope of the studies,” she said.

And what does that mean for those at risk for cardiovascular disease? “At this crucial point, a decrease in funding will slow us down resulting in delayed development of a potentially novel therapeutic strategy for preventing heart disease. This and similar instances across the nation underscore the need to restore funding for heart disease,” Dr. Ghosh concluded.
Dr. Benjamin Abella’s research team is focused on cardiac arrest and approaches to improve cardiopulmonary resuscitation (CPR) training and performance. More than 300,000 cases of out-of-hospital cardiac arrest occur each year; over 80 percent of cardiac arrest victims do not survive.

“We have seen very real impacts from our work in clinical outcomes and lives saved. However, like most academic research groups, our work is very sensitive to federal funding support,” Dr. Abella told the association.

With the budget sequestration process, a relatively young program at NIH’s National Heart, Lung, and Blood Institute (NHLBI) — focused on real-world dissemination/implementation of research work — was cancelled. “This prevented us from receiving continued support from the program, resulting in difficult decisions regarding staffing and project direction,” Dr. Abella observed.

Dissemination/implementation projects generally represent so-called “shovel-ready” high-impact projects, and the budget sequestration has therefore forced the stunting of key new opportunities to improve the health and the survival of the U.S. population.

Dr. Abella put a face on the budget sequestration numbers. “Our programs employ young graduate students, research assistants and other staff. Sadly, we have had to cut down on this staff due to sequestration, thus not providing excellent technical jobs to a young and eager workforce,” he told the association.

Dr. Abella also pointed to the economic benefits generated by NIH-funded research. “It’s important to stress that the jobs provided by NIH funding have myriad benefits. NIH funding supports young people as they embark on careers in science and technology. Second, NIH support promotes innovation and technology development, which can create more opportunities and jobs downstream. And third, it helps the U.S. maintain its international reputation as a leader in science worldwide — a reputation that has been falling alarmingly in recent years.
Inside Dr. Steven Houser’s laboratory at Temple University, a group of 12 graduate students, post-doctoral fellows, and staff researchers are exploring groundbreaking ways to repair the heart in the aftermath of an attack. They are testing three potential therapies, one of which they hope will be the game-changer that could revolutionize the way patients recover from heart disease.

Yet, as they seek to bring hope and recovery to those who have suffered a heart attack, those hopes could be dashed by the budget sequestration, which threatens to undermine their breakthrough efforts.

According to a May article published in the Huffington Post, the NIH informed Houser’s group that the $1.5 million grant to fund their research would be cut by 10 percent because of the budget sequestration. As a result, Dr. Houser said he would be forced to choose between firing staff or scaling back on his research.

He told The Huffington Post that he mulled over the fallback strategy of testing two rather than the three original therapies. Dr. Houser still hopes that his team will be able to do at least part of what they originally planned with all three therapeutics. “However, we won't be able to test all aspects of what we want to test. So it is much more likely that we will miss something important,” he said.

As reported in the story, Dr. Houser expressed his frustration at how budget politics — and in particular, the budget sequestration cuts — have stacked the odds against critical research. “We have the best tools we've ever had to make rapid progress towards developing novel therapies. It’s not even close to 30 years ago. I call it the best of times and the worst of times. We have so many wonderful things we can do right now, but we end up in this political climate,” he concluded.

Dr. Houser also tells the association that his University, like many others, is decreasing the number of scholarships for graduate training. This follows from the fact that NIH support, which supplies much of the project support for trainees, has been reduced by the NIH budget reductions. His concern is that “we are losing a generation of talented young scientists because they see no commitment by the federal government for research and development.”

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Dr. Reena Pande's research has focused on the benefits of exercise in patients suffering from cardiovascular disease. She uses muscle biopsies from patients in a training regimen in an effort to isolate the molecular signature of physical fitness.

She told The Huffington Post that the ultimate goal of this research would be to “find a gene that we can craft into a pill to help people who can’t exercise with their medical issues.”

Research like Dr. Pande’s requires reliable funding and although she has a grant from the American Heart Association, she still needs additional financial support to see the project “to complete fruition.” But annual decreases to the NIH’s budget, followed by this year’s budget sequestration cuts, have made obtaining a grant extremely challenging.

Despite receiving high scores, several grant requests to the NIH have been turned down. With the budget sequestration in full force, Dr. Pande worries that a generation of researchers will be driven from their chosen profession.

Young researchers see a very bleak landscape where they must compete for a shrinking pot of federal dollars and where shorter grant cycles place a premium on short-term successes versus long-term meaningful gains.

Dr. Pande sees many researchers acting with their feet. She told the Huffington Post: “The honest truth is, people like me are going to leave science. There will be junior people, people in college, who will be steered away from doing research or going into science ... We won't be able to stay in the field.”
Dr. Brett Mitchell is a highly-respected researcher whose interests include how immunosuppressive drugs used to reduce rejection in organ transplant recipients may cause high blood pressure and cardiovascular disease.

As a new investigator in 2007, he received his first NIH RO1 grant (the oldest and most traditional grant mechanism) when the paylines were at the 14 percentile. “We were very productive as we published numerous papers in high-quality journals during the five-year grant and we contributed several new discoveries to the field of high blood pressure caused by immunosuppressive drugs,” Dr. Mitchell proudly observed.

He was also aware that funding was being cut and responded appropriately. “I was very frugal with the funds and did not over-hire personnel,” Dr. Mitchell told the association. But his financial stewardship was not rewarded and was no match for the budget sequestration cuts.

“Due to the recent NIH budget cuts and the payline dropping significantly, my first renewal application for this grant missed the payline by two percentage points and would have been funded had the budget cuts not occurred. As a result, I have had to let one lab technician go,” he said.

The budget sequestration cuts are not only affecting researchers — they will have an impact on patients too. “We were really close to discovering a novel therapy to decrease blood pressure in patients taking these medications, which include those who have received organ transplants and those with autoimmune diseases. However, without NIH funding being restored, we will have to abandon this project and try to operate a laboratory without any technicians,” Dr. Mitchell observed.

Will the budget sequestration claim the promising career of yet another brilliant researcher? “It is difficult as an early stage investigator ... when it seems like you are being set up to fail and I know many will likely change careers,” Dr. Mitchell concluded.
Dr. Heather Duffy was everything you wanted in a researcher and professor. After 20 years in science, she won several prestigious awards, published approximately 40 papers, and authored chapters in major text books. Nothing seemed out of her reach. Dr. Duffy began her career as a member of the faculty at the College of Physicians and Surgeons of the Columbia University Medical Center and most recently was an Assistant Professor of Medicine at Harvard Medical School. She focused on the mechanisms of cardiac arrhythmias and fibrosis.

But it was not a happy ending. Dr. Duffy was forced out of science due to a lack of funding, particularly from the NIH. Flat funding, stop-gap spending bills and the budget sequestration cuts became all too real for Dr. Duffy and many researchers like her across the United States.

“As a post-doctoral scholar, I had successfully gotten grants from internal sources, an AHA Scientist Development Grant, NIH funding and some other small grants,” she recounted to the association. “But as the payline at NIH got below 10 percent, I did not get a grant when my last one was ending,” she said.

This year’s budget sequestration cuts were sadly the final straw for Dr. Duffy. “I was given some funds to hold me through one more grant cycle, but the payline dropped again and I lost my entire career,” Dr. Duffy explained. Unfortunately, she was not alone. “I also watched as my young colleagues grew despondent and dropped out as well. I could no longer tell my students that this was a good career for them so I walked away. I was not the only one,” Dr. Duffy observed.

Dr. Duffy is still co-chair of AHA’s Early Career Committee of Basic Cardiovascular Science (BCVS) Council and is still involved with the American Heart Association. “We need to do something to solve the loss of scientists we are seeing in this country today. I am happy to help and unfortunately, I have a lot of time on my hands these days,” she said.
“It’s becoming a new reality of working in science to plan for government instability, funding delays, capricious and inexplicable decisions, and the inability to count on future federal support.”

Dr. Mark Sussman is a researcher with a distinguished record of achievements, awards and scholarly publications. He too has been affected by the dysfunctional budget process in Washington, D.C. But it’s not just the budget sequestration that concerns Dr. Sussman. It’s also the uncertainty and instability brought about by the seemingly endless procession of stopgap spending measures that ended with the 16-day government shutdown.

Volatility, unpredictability and ever-changing policy make it impossible to engage in long-term planning, according to Dr. Sussman. “Stability, reproducibility, and predictability are essential for scientific progress,” he told the association.

“However, the current fluctuations in funding support for NIH, changing priorities, and political brinksmanship challenge the ability of our scientific community to create stable work environments and discourage young enthusiastic students and trainees from pursuing a career in research,” he concluded.

He went on to observe that the government shutdown had widespread ramifications. It disrupted NIH operations, reviews of funding proposals, and delayed some decisions for months, creating additional burdens on a system that was already stretched to the breaking point.

In a sad commentary on our troubled times, Dr. Sussman pointed out that uncertainty and unreliability have become the new norms and must be accounted for in the federal funding process. “It’s becoming a new reality of working in science to plan for government instability, funding delays, capricious and inexplicable decisions, and the inability to count on future federal support,” he said.

“It’s a far cry from the way things were when I started my career and one heck of a way to run a country. In some ways, it feels like we are becoming more like those countries where public services are subject to closure whenever the employees or politicians get annoyed with the status quo,” he observed.

Dr. Sussman is worried that few lessons have been learned from October’s budget meltdown. Further damage could occur “if another solution is not found and the federal government repeats the same arbitrary cuts in 2014 as they are currently on track to do.”