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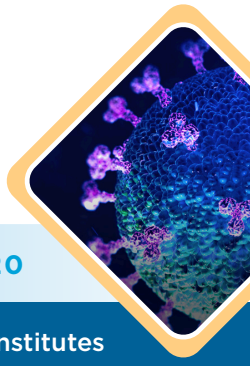
UNITED FOR MEDICAL RESEARCH

AN UNPRECEDENTED IMPACT

A SERIES OF FACT SHEETS ON COVID-19 AND BIOMEDICAL RESEARCH

JULY **2020**



We must maintain and strengthen our nation's investment in medical research through the National Institutes of Health. This is an urgent priority for Congress, as our nation works to restart stalled research, keep up with pressing public health challenges, continue to fight COVID-19 and prepare for the next potential pandemic.

PART 2 | THE THREAT TO THE RESEARCH PIPELINE

Not until the **COVID-19** pandemic has something caused such a massive disruption to ongoing research in all fields, delaying and jeopardizing important work, stalling life-saving clinical trials and upending the career paths of many graduate students and early career scientists.

RESEARCH IS BEING DEEPLY AFFECTED BY COVID-19 AND THE DEPTH OF THIS IMPACT IS NOT YET KNOWN

IN MARCH

Research universities across the country suspended a majority of the work at their labs — **more than 80% by some accounts** — and the outlook for resuming work at pre-COVID levels is unclear.

Many researchers can't simply pick up where they left off due to the specialized nature of their work. For some, restarting could take up to one year.

> **"We will have to first retest [our equipment] to make sure it is working, regrow our [bacterial] cultures, which takes a while, before we can even consider doing an experiment,"** said Eric Rubin, an immunology and infectious diseases researcher and professor at the Harvard T.H. Chan School of Public Health.

Subhash Kulkarni, a scientist and assistant professor at Johns Hopkins University School of Medicine, will have to rebreed genetically engineered mice at staggered intervals to restart his study. **"Think of this as the time when the planets are in perfect alignment. Once that time is lost, making the next time requires [new] breedings, which can take anywhere from six to 12 months."**

Research institutions also are dealing with issues of scarcity or higher cost of certain supplies due to COVID-19, according to an April report from the Congressional Research Service.

Early career researchers are hit particularly hard by the suspension of laboratory work. This has affected their ability to complete degrees, collect critical data, submit work for publication and move onto permanent research positions.

JOHNS HOPKINS UNIVERSITY

"While we've been able to continue with some analysis of existing data and to write manuscripts, all of our experimental cancer research, including clinical study accrual, has been completely stopped since March 13. It will be months from when we restart onsite research until we are back to full speed in the lab."

"There's also a significant impact on anyone going through a career transition … Opportunities are suddenly disappearing, and it isn't clear when they are coming back. Lots of people will be lost in that uncertainty. Some of the foundations supporting me also have had to reduce future grants because of the economic effects of the pandemic."

Andy Ewald | Associate Professor of Cell Biology, Oncology and Biomedical Engineering, Johns Hopkins University

VANDERBILT UNIVERSITY

"Having recently transferred to a faculty position at Vanderbilt University, my research was just starting as COVID-19 hit. My study of the neurobiological mechanisms that contribute to mood and anxiety disorders in youth requires performing functional MRIs and EEGs of study participants. That work has been indefinitely delayed and resulted in having to report a deficiency in study enrollment in my annual progress report to NIH in May, having excess unused funds on my grant from not paying study participants, and facing the difficult decision of whether to continue funding two full-time staff during the prolonged study suspension. If I do, I won't have funding for staff during the extra time that will be required to finish data collection."

Antonia N. Kaczkurkin | Assistant Professor of Psychology, Vanderbilt University

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UNPRECEDENTED IMPACT, *cont.*

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COVID-19 IS DELAYING CRITICAL AND IN SOME CASES, LIFESAVING, RESEARCH AND CLINICAL TRIALS

More than half of cancer research was halted due to COVID-19:

According to an April survey by the American Cancer Society of 488 of its research grantees, **51%** said their work was on hold until further notice and another 43% said their work was modestly affected with some aspects of their work on hold.

Studies related to many life-threatening conditions, including heart disease and stroke, Alzheimer's disease and countless rare diseases have been put on hold:

- ✓ NIH is conducting a survey to understand the impact of the pandemic on the rare disease community, including access to medicines and medical care and the status of clinical trials, as well as the prevalence of COVID-19 among those with rare diseases.
- ✓ According to Alzheimer's Association, **Alzheimer's and dementia research has been significantly affected**. In many instances, intervention trials were paused and participants may have missed one or more doses. As of late June, many of these studies have resumed in one form or another thanks, in some cases, to scientists and volunteers finding creative ways to move forward.

- ✓ **"The entire clinical trials enterprise is in turmoil,"** cardiologist Steven Nissen of the Cleveland Clinic said in April. Nissen is study chairman for eight clinical trials, including four large-scale cardiovascular outcome studies, with some 50,000 patients enrolled.

DURING THE FIRST TWO WEEKS OF MAY

The number **of new patients entering clinical trials was down 74 percent** compared to last year. Rates for specific areas of research varied:

- New patients entering **cardiovascular** trials ⇩ **91%**
- New patients entering **oncology** trials ⇩ **58%**
- New patients entering **endocrine** trials ⇩ **78%**

Source: Medidata

THIS SLOWDOWN IN BIOMEDICAL RESEARCH WILL HAVE LONG-TERM CONSEQUENCES THAT MIGHT BE FELT FOR YEARS TO COME — IN PUBLIC HEALTH OUTCOMES AND THE ECONOMY

Half of all U.S. basic research is conducted by universities. This research fuels American innovation and output generally, and contributes to the success of our life sciences and biopharmaceutical industries.

Research funded by the National Institutes of Health supports hundreds of thousands of jobs and billions of dollars in economic activity across the United States each year — **nearly 476,000 jobs and more than $81 billion in economic activity in 2019.** The extent of this economic ripple effect in 2020 could be significantly muted due to COVID-19.

> "Given the long timeline between basic cancer research and changes to cancer care, the effects of pausing research today may lead to slowdowns in cancer progress for many years to come.
>
> **Ned Sharpless** | Director, National Cancer Institute