PATIENT-LED RESEARCH COLLABORATIVE

Statement of:

The Patient-Led Research Collaborative

U.S. Senate Committee on Appropriations

Biomedical Research: Keeping America's Edge in Innovation

April 30, 2025

The Patient-Led Research Collaborative welcomes this opportunity to provide comments on the benefits to the nation of sustaining and strengthening investments in biomedical research. We will focus our comments on research that addresses the Long COVID crisis, and we will highlight how the very nature of Long COVID and other infection-associated chronic conditions (IACCs) – complex, multi-system conditions that present themselves in myriad ways – testifies to the need for a research enterprise of tremendous breadth and depth.

At least 1 in 19 US adults are currently living with Long COVID – similar to the rate of diabetes – with many additional cases likely going undiagnosed or misdiagnosed. Long COVID has caused the highest rates of serious, persistent cognitive problems in the US population than at any time in the last 15 years. Even more concerning is that recovery from Long COVID is rare, with only 6% to 9% of people with Long COVID having recovered after 2-3 years.

The destructive impact of this on our economy and well-being is already evident. In 2024, 1.5 billion work hours were lost in the US due to Long COVID, corresponding to a potential cost of over $150 billion. Five years of Long COVID burden is projected to total $3.7 trillion in costs to the US economy from reduced quality of life, lost earnings, and increased medical spending. The impact on national security is also apparent: a quarter of US Marines who had COVID developed Long COVID, with long-term decrease in functional performance.

The complex, multi-system nature of Long COVID and other IACCs make them particularly onerous scientific challenges. Even though these conditions – which include ME/CFS, post-treatment Lyme disease, dysautonomia, and others – have a profound and often disabling impact on people's quality of life, they remain opaque to standard diagnostic tools.Fortunately, the scientific understanding of these conditions is now becoming possible, but only because of research that pushes the boundaries of existing knowledge. For example:

- Researchers are now able to see deeply into how our immune systems respond to pathogens and other triggers. This response (and how it can go awry) is central to the debilitating impact of Long COVID and other IACCs, and advancing this work requires extending the frontiers of both immunology and neurology, and it also helps us prepare to tackle future infectious pathogens.

- We often take for granted how our bodies convert food into energy. That's fundamental to life itself. But for people with Long COVID and other IACCs, this process stumbles, leading to profound and debilitating fatigue and the significant worsening of symptoms after exertion. Researchers are only now gaining insight into why and how the dynamos behind our energy – our mitochondria – become dysfunctional in people with IACCs. This work requires in-depth understanding of skeletal and muscle systems plus the real-time monitoring of processes at the cellular level.

- Inflammation is a normal part of our body's response to an injury or an infection, as it increases blood flow and promotes healing. But chronic inflammation can have the opposite effect, potentially causing debilitating symptoms and organ damage. In Long COVID and other IACCs, chronic neuroinflammation is a particular concern. Today, advanced neuroimaging techniques are able to identify the types of brain cells that are most affected by neuroinflammation as well as the potential damage to blood vessels in patients with Long COVID.

As these examples highlight, there has been noteworthy progress toward understanding and addressing Long COVID and other IACCs, and this progress is both a source of hope for patients and a harbinger of the scientific challenges that remain. Current research is providing invaluable insight into the biological basis for the symptoms that patients are experiencing, but perhaps the most fundamental challenge remains: why do such a diverse set of triggers (different viruses, bacteria from tick bites, etc.) lead to such similar symptoms in patients? As was noted at the June 2023 workshop led by the National Academies of Science, Engineering, and Medicine, "the pathogenesis mechanisms and link between infection and long-lasting symptoms remain poorly understood, leading to limited treatment options for the often debilitating symptoms of infection-associated chronic illnesses."

Long COVID and other IACCs remain both a major public health crisis and a daunting scientific challenge. Significant additional investments in research are required, as are efforts that draw upon the full breadth and depth of the US biomedical research enterprise. These efforts will need to 1) span the full breadth of biomedical disciplines, 2) cultivate opportunities to work across established fields and open new avenues of research, 3) utilize and advance

state-of-the-art technologies and 4) draw upon capabilities for rigorously testing potential treatments. The U.S. biomedical research enterprise is currently better able to realize these attributes than any other in the world. The 1 in 19 Americans currently struggling with Long COVID hope it remains that way, and we encourage the Committee to ensure that it does.

About PLRC

Patient-Led Research Collaborative (PLRC) is a fiscally-sponsored research nonprofit whose members are people with Long COVID and infection-associated chronic conditions who come from a diverse range of professional backgrounds. Our mission is to improve the breadth, depth, and speed of global research into Long COVID and associated conditions, and to advocate for policies that improve the quality of life for Long COVID patients worldwide. We have published over 30 papers on Long COVID and We have published over 30 papers on Long COVID and our work impacts patients and the general public; health care professionals; researchers in academia, government and industry; policy makers in several governmental sectors, including public health agencies and drug regulation; and pharmaceutical and biotechnology companies.