HB 0027 – This testimony supports the bill:

TEDCO Long COVID R&D Initiative for Grants and Loans

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The Problem

Long COVID affects almost half a million people in Maryland. The state of Maryland has done studies for precise numbers. The economic burden according to David Cutler, a Harvard economist is $3.7 trillion for the U.S. These numbers are corroborated by other countries' disability counts published in 2026 such as in the Netherlands, and in Germany. Long COVID has a worldwide impact.

Long COVID affects US military readiness according to my personal conversations with officers in the US military, doctors providing care to military members and their families, and the service members themselves.

The Tragedy and Opportunity of Long COVID

Approximately 25% of Long COVID patients are bedbound and at least half cannot work in their former capacity. Not only does this remove patients from the workforce, it causes the people around them to become their caretakers. Despite this, there are no FDA approved diagnostics, treatments, or cures for Long COVID. Long COVID is a societal tragedy. The flipside of this is an economic opportunity to provide the diagnostics, treatments, and cures that are sorely lacking

Current Status of Research and Development

The pathophysiologies that have been worked out include COVID spike protein persistence in organs causing long term inflammation, autoimmune processes, endothelial and clotting problems, gut dysbiosis, and mitochondrial dysfunction.

Long COVID is heterogeneous, comprised of at least four major types identified by the Patient Lead Research Collaborative (PLRC) and the NIH RECOVER program. Diagnostic mapping has been stalled by lack of funding to correlate these known causes with known symptoms such as brain fog and post exertional malaise (PEM). This creates problems for

clinical trials in selecting the testing patient populations. There are no FDA approved diagnostics for Long COVID. Biomarkers that are fully validated are few and far between.

The Solution

NIH is currently testing four potential treatments: low dose naltrexone; baricitimib which is a Jak 1-2 inhibitor; a GLP-1 of weight loss fame; and stellate ganglion block. The NIH had over 50 potential treatments that did not make the cut for the $500 million RECOVER TLC program. Note: There is a strong reliance on patient questionnaires for quantifying trial outcomes.

Team TEDCO Leverages Maryland Businesses and Institutions

Maryland creates diagnostics, treatments, and cures that are FDA cleared and approved. Maryland does it well. It could be described as a superpower. TEDCO is the driving force. HB 0027 leverages Maryland's TEDCO superpower for translational development of technologies resulting in economic reward for the state.

Start-up companies often initiate the work of developing diagnostics and treatments. TEDCO supports them. Successful start-ups attract millions of dollars of funding by Venture Capital.

Other measurable outcomes for TEDCO would include increased awareness among Maryland biotech companies to enter this market. This expands Maryland's economy by creating more jobs for Marylanders. HB 0027 also welcomes federal dollars into the state by supporting powerhouses such as Johns Hopkins University and the University of Maryland.

TEDCO can increase research scientist's competitiveness for Federal grants from NIH and ARPA-H as demonstrated by other successful programs. Congress has recently signaled its financial support of NIH to enter the disability and Long COVID. Testimony about this is provided by others.

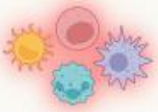
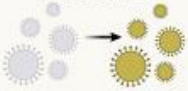
The Opportunity

HB 0027 enables TEDCO to establish a program to translate the known underlying mechanisms into diagnostics, treatments, and cures. This is huge market that will open up to the first to explore it.

Call To Action

Voting "Yes" for HB 0027 will position Maryland to be an integral part of developing solutions for Long COVID.

Biological mechanisms of Long COVID

	Research testing	Therapeutics for evaluation
Acute infection (prevention) 	COVID-19 testing Viral dynamics	Vaccination COVID-19 antivirals Monoclonals Metformin Anti-inflammatories Anti-platelet drugs Anticoagulants
Virus persistence 	Blood antigen Blood PCR Tissue biopsy	Vaccination (therapeutic) COVID-19 antivirals Monoclonals
Post-acute inflammation 	Blood markers (e.g., CRP) Cellular immunology Proteomics Radiographic imaging PET imaging Tissue biopsy	JAK/STAT inhibitors Interleukin inhibitors Inflammasome inhibitors Checkpoint inhibitors Rapamycin
Autoimmunity 	Blood markers (e.g., ANA) Autoantibody testing B cell testing	IVIG Plasmapheresis B cell depletion
Thrombosis 	Blood markers (e.g., fibrinogen, D-dimer) "Microclot" assays	Anti-platelet drugs Anticoagulants Thrombolytics Plasmapheresis
Latent virus reactivation 	EBV PCR EBV serology EBV cellular assays VZV assays HHV-6 assays	Antivirals (e.g., ganciclovir) EBV cellular therapies
Dysbiosis and gut translocation 	Microbial markers (e.g., B-glucan, LPS, zonulin) Fecal microbiota	Probiotics Larazotide Fecal transplant
Mitochondrial dysfunction 	Mitochondrial proteins Reactive oxygen species Muscle biopsy	Amino acids N-acetylcysteine Metformin

Reference

Peluso MJ, Deeks SG. Mechanisms of long COVID and the path toward therapeutics. Cell. 2024 Oct 3;187(20):5500-5529. doi: 10.1016/j.cell.2024.07.054. Epub 2024 Sep 25. PMID: 39326415; PMCID: PMC11455603.