



**Testimony in Support of HB626**

**Presented to the House Health and Government Operations Committee**

**February 28, 2023**

**By Aysha Akhtar, MD, MPH. Co-founder and CEO, Center for Contemporary Sciences**

Dear Chair Pena-Melnyk, Vice-Chair Kelly, and Members of the House Health and Operations Committee,

Thank you for giving me the opportunity to submit this written testimony on behalf of the Center for Contemporary Sciences, a non-profit organization based in Maryland, and as a personal citizen of Gaithersburg, Maryland. [I urge a favorable report of HB626.](#) This legislation creates a Human-Relevant Research Fund to provide grants to public and private institutions in Maryland to advance the discovery, creation, and use of human-relevant research techniques in the medical sciences.

A Personal Story

One of the hardest things I have had to do as a neurologist is to watch my own aunt, a strong, vibrant woman, deteriorate from Parkinson's disease until she died. I watched helplessly as she slowly lost control of her own body, a truly terrifying experience. Her arms pained continuously from the constant, uncontrollable tremors. Meanwhile, her legs often refused to move. By the end, she was unable to walk, stand, and perform the most basic of movements we expect from our bodies. Perhaps even more devastating, she lost her sense of self and her unique personality, humor and intelligence disappeared, to be replaced with a swirling chaos of dementia. My uncle, her husband, had to call my family on several occasions to help find my aunt after she walked out of her home and got lost –unable to remember her way home.

I tell you my aunt's story because there is not a single effective treatment for Parkinson's disease. Nor is there an effective treatment for Multiple Sclerosis, dementias, spinal cord injury, most cases of stroke, and just about every neurological disease. At best, we have treatments that help with some of the symptoms, but which do not truly impact the illnesses themselves. I routinely have had to tell patients after I diagnosed them with devastating neurological illness that there is no treatment that will significantly alter the course of their diseases.

## A Professional Story

In fact, there is no approved treatment for most diseases, neurological or otherwise.<sup>1</sup> During my decade as a Medical Officer at the Food and Drug Administration (FDA) and in their Office of Counterterrorism and Emerging Threats, I studied the safety and effectiveness of new drugs and saw how promising drug after drug came through the pipeline only to fail in human clinical trials. During my tenure as Deputy Director of the Army's Traumatic Brain Injury Program, I witnessed how despite hundreds of billions of dollars spent on head injury experiments in animals, we had not a single treatment to offer soldiers who suffered from head injuries, other than supportive care. I myself am a US Veteran and have seen the immense suffering experienced by soldiers from traumatic brain injury.

At some point, it became clear to me why there are so few effective treatments for human illnesses. We now know that whatever role animal testing may have played in the past, medicine is now exploring the subtle nuances of molecular biology, chemistry, and physiology. Subtle differences between humans and other animals now significantly mislead the results of studies. In fact, evidence now shows that 90—95% of all drugs that are found safe and effective in animal tests are unsafe and/or don't work in humans.<sup>2</sup> I authored a study that showed that one of the most significant reasons why there are so few treatments for most illnesses is because animal tests do not predict human results.<sup>3</sup> There is strong concern that drugs that would have been safe and would have worked—maybe even been cures—in humans were discarded because they didn't work in the animal tests. Perhaps, this, more than anything else, is most alarming.

## A Way Forward

Despite the dire situation in drug development, you have a great opportunity before you in HB626. In 2020, I founded the Center for Contemporary Sciences to help the discovery, development, and use of human-relevant testing methods. We helped the passage of a significant new bill, the FDA Modernization Act 2.0. which was signed into law by President Biden this past December. This new law recognizes the importance of allowing better innovative human-relevant testing methods to be used in place of unreliable animal testing for drug development.

Human-relevant testing methods are the future in medicine. These are methods, such as human body on a chip, bioprinted mini-organs, smart AI, and virtual humans that are rapidly becoming the go-to methods for biomedical research. Not only are these methods so advanced and sophisticated, but they are based on human data and human biology. Thus, unlike tests using different species, these new methods are *human-relevant*. They are already outperforming animal tests in modeling human diseases and predicting human results. But these testing methods need more funding.

Passing HB626 will showcase Maryland as a true leader in the future of biotechnology and medicine. This is a unique, and important bill. Perhaps my aunt would not have suffered so much had there been more human-relevant testing methods to use for Parkinson's disease

research. I and the Center for Contemporary Sciences urge a favorable report of HB626 that can pave the way for a new frontier in medicine, more effective research tools, and real hope for people suffering from devastating illnesses.

Sincerely,

A handwritten signature in black ink, appearing to be 'AA' followed by a horizontal line.

Aysha Akhtar, MD, MPH  
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1. <https://ncats.nih.gov/director/dec-2014>
2. <https://pubmed.ncbi.nlm.nih.gov/31622895/>
3. Akhtar A. The flaws and human harms of animal experimentation. *Camb Q Healthc Ethics*. 2015 Oct;24(4):407-19. doi: 10.1017/S0963180115000079. PMID: 26364776; PMCID: PMC4594046.