

Viewpoint: Here's what happens when legislators pander to activists by over-regulating science and medical practice in an ill-advised effort to 'protect the public'

It is bad enough when [unqualified pundits offer dumb opinions](#) about science, but bad legislation can cause real damage. The COVID pandemic has given rise to some real legislative doozies from politicians at both the state and federal levels.

I've written, for example, about a proposed [Idaho bill](#) that would make it a misdemeanor for a healthcare giver to "provide or administer a vaccine developed using messenger ribonucleic acid [mRNA] technology for use in an individual or any other mammal in this state." As bizarre as it seems, *administering an FDA- or USDA-approved vaccine to prevent a potentially lethal disease would be a crime.*



Then there was U.S. Senator J.D. Vance (R-OH), who introduced [legislation](#) to prohibit federal mask mandates from being imposed in the U.S. The Freedom to Breathe Act, which would apply through the end of 2024, "would prohibit any federal official, including the President, from issuing mask mandates applying to domestic air travel, public transit systems, or primary, secondary, and post-secondary schools," according to [the senator's office](#).

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The rationale? According to Vance, "We tried mask mandates once in this country. They failed to control the spread of respiratory viruses, violated basic bodily freedom, and set our fellow citizens against one

another.”

That is like saying that because masks and handwashing in hospital operating rooms fail to prevent all intraoperative infections, mandating them should be prohibited. The logic is preposterous. And as for sowing divisiveness, such absurd pseudo-libertarian legislative proposals go a long way toward that.

The most recent ill-conceived proposal came from the U.S. House of Representatives, which on November 14 approved an insidious amendment to the 2024 spending bill for the Department of Health and Human Services (HHS), the parent agency of the National Institutes of Health (NIH). It would ban federal funding for “gain-of-function” (GOF) research that modifies high-risk pathogens in ways that can make them more harmful.

As part of their campaign to discredit biotechnology, anti-biotechnology crusaders repeatedly misrepresent such research. The Institute for Responsible Technology—a highfalutin name for a one-man band operation headed by [Jeffrey Smith](#), an unhinged cultist, former [flying yogic instructor](#) and graduate from Maharishi University of Management, [claims](#) that a GOF could “spread easily between humans [and] could decimate the population.” Smith and other lobbying groups called for a “global ban” starting with “emergency legislation” in the US, and the Republican far right delivered.

Gain of Function Research and the Risk of the Next Pandemic



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Institute for Responsible Technology

It appears that anti-biotech critics and the authors of the bill, Representatives Thomas Massie (R-KY) and Mariannette Miller-Meeks (R-IA) misunderstood the potentially broad interpretation of “gain of function,” which simply means an organism has acquired a new or enhanced property, and the importance of such research. (And note that such acquisitions occur naturally through [horizontal gene transfer, via transformation, transduction, and conjugation](#).)

GOF experimentation that is intended to increase the transmissibility and/or virulence of pathogens usually aims to improve understanding of disease-causing agents, their interaction with human hosts, and/or their potential to spread and cause pandemics. The ultimate objective is to better inform public health preparedness efforts and/or development of medical countermeasures, so it is beneficial.

But the vaguely worded provision in the House bill could unintentionally inhibit important research – for example, on improved vaccines to prevent flu, COVID-19, respiratory syncytial virus (RSV), or other infections that could lead to pandemics. It could even be interpreted to prevent the funding of work on genetically engineered bacteria like the *Escherichia coli* that are the source of human insulin, or on the genetically engineered yeast that produce Hepatitis B vaccine.

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The amendment was probably spurred by speculation that the original Wuhan variant of the SARS-CoV-2 virus, which causes COVID-19, was the product of GOF genetic manipulation in a Chinese laboratory that was accidentally released. However, the [Biological Weapons Convention](#) (BWC) already prohibits the “development, production, acquisition, transfer, stockpiling and use of biological and toxin weapons.” It entered into force in 1975, supplementing the Geneva Convention of 1925. The United States is a signatory of both.

What is especially disappointing about the Massie and Miller-Meeks GOF amendment to the HHS spending bill is that the two sponsors should recognize its possible unintended consequences. Rep. Massie has two engineering degrees from MIT, and Rep. Miller-Meeks is an ophthalmologist.

It is unclear whether the GOF provision will survive given the partisan divide between the Republican-led House and the Democratic-controlled Senate, which has not yet voted on its own version of the HHS spending bill.

We can only hope that cooler heads will consider the scientific imperatives and dump the GOF restrictions on research funding.

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