Our new Centre for Disease Control should be an anticipated and welcome development for all of us. We should be grateful for COVID-19 as it has given us an opportunity to reflect and develop our resilience. Gratitude for a pandemic might sound a little bizarre, but let's not forget that that opportunity was never guaranteed. Neither is it next time.

The age-old public health saying, "prevention is better than a cure," was written with pandemics in mind, and for good reason too! Research by Pike and colleagues in "The Origin and Prevention of Pandemics", supports the apparent: treating pandemics is inadequate, we need to work on prevention.

It's easy to overlook the impact that Australia can have by setting a standard. We may not have the most labs to make flu's, nor a large population for them to mutate through, but we can still set standards that will help pressure and support the biggest players. Even still, I fear the day we fall victim to home-grown pathogens.

In my proposal, I will concentrate on the possibility of a lab leak within Australia, and the necessity for more frequent testing. I cannot tell you what to do with more data, but I can sleep easy knowing it is being uncovered. I don't want to believe pandemics are an inescapable fate, but I'm not completely convinced.

Public attention has often been drawn to the origins of COVID-19, with theories including (amongst others) the possibility of a laboratory leak. Politics aside, it should be alarming to note the frequency of safety incidents in labs dealing with hazardous pathogens. Research by Manheim and Lewis reveals that between 1975 and 2016, there were 71 reported events of high-risk pathogen exposure caused by humans, with a possibility of underreporting. Additionally, a Belgian study, conducted anonymously on biosecurity and laboratory accidents, recorded nearly 100 infections acquired in labs over a five-year period. You have probably already heard the 1977 flu pandemic is suspected to have originated from a lab leak too.

Considering the immense cost in lives and finances that pandemics can incur, do our safety standards or adherence to them seem adequate? While I strongly support scientific research as a key weapon against pandemics, we have to be careful not to shoot ourselves in the foot.

From an outsider's perspective, the regulatory transparency of physical containment facilities in Australia appears limited. The Office of the Gene Technology Regulator (OGTR), primarily focuses on GMOs but offers scant details about its role in overseeing these facilities.

The OGTR's 2022-23 annual report highlights the certification of a record 132 physical containment facilities, bringing the total to 1,874 high-level facilities in Australia. But

only 49 inspections were carried out during the year, with **none** involving the highest-level PC4 facilities. This trend is not new; previous reports indicate a similar lack of inspections in the highest-risk facilities. Despite the limited number of inspections, 26 facilities were found non-compliant in 2022-23, and the OGTR's approach to compliance has been described as "cooperative," with no culpability assigned in these cases. But what does this really tell us? If we're only flagging for ineffectual breaches of standards, doesn't that imply our standards are too tight? And yet if we find no culpability doesn't that also imply our standards don't actually correlate to identifying breaches?

Further, the guidelines governing these facilities are dated and potentially inadequate. The standards for PC4 facilities, last revised in 2007, refer to outdated standards, including AS1324.1 on air filters (criticized by the HVAC industry) and AS/NZS 2243.3 on lab safety. These standards themselves have not been updated for two decades.

This isn't a direct criticism of the OGTR, which, with only 51 employees, has a broad range of regulatory responsibilities. However, it does paint a troubling picture of the state of regulatory oversight in Australia, one that seems to fall short of public expectations for managing such critical facilities. I had assumed that PC4 facilities would adhere to the most current global standards and undergo frequent inspections.

Throughout history, the domain of public health has continuously evolved and expanded. In the past, the significance of vaccination programs or vitamin C in the prevention of scurvy designs might have been overlooked in public health discourse. In this day and age, I believe our generation's innovation is biosecurity.

Thanks :)