

March 6, 2023

Delegate Joseline Peña-Melnyk
Chair
House Health and Government Operations Committee
HB0699 – State and Local Government - Proof of Vaccination for Employees and Applicants for Employment - Prohibition (Vaccination by Choice Act)

Position: Favorable with amendments

Dear Chair Peña-Melnyk and Members of the Committee:

Thank you for the opportunity to voice my strong support for **HB0699 – State and Local Government - Proof of Vaccination for Employees and Applicants for Employment - Prohibition (Vaccination by Choice Act)**

My purpose today is to share the results of a new study my colleagues and I performed which has important implications for your deliberations. It was published in February 2023 in the Journal of Evaluation in Clinical Practice. The paper can be found here:

<https://onlinelibrary.wiley.com/doi/full/10.1111/jep.13813>

In this study, we developed a method for estimating how much vaccine mandates are able to reduce (1) the risk of transmission from unvaccinated people and (2) the risk of severe or critical illness among unvaccinated people. We call this method the number needed to isolate, or “NNI”. The NNI is the number of unvaccinated people needed to isolate on any given day to prevent (1) one transmission event in a given type of community setting or (2) one case of severe or critical illness.

Vaccine mandates are hypothesized to benefit public health by isolating unvaccinated people from accessing various settings. The assumption is that isolation reduces unvaccinated people’s contact with others and thus risk of transmission. It is also assumed that isolation reduces unvaccinated people’s exposures and thus their risk of developing an infection that leads to a severe or critical illness. At the heart of this hypothesis is the idea that unvaccinated people are at high absolute risk of transmission and severe or critical illness. These absolute risks are thought to be high enough to justify isolating unvaccinated people. However, these absolute risks were never quantified in the scientific literature until the publication of our paper.

The arithmetic behind the NNI is simple and the data are publicly available. I refer you to our paper for details. In brief, you can estimate the absolute risk of transmission from unvaccinated people by taking the combined probability of the infection risk and the transmission risk. Similarly, you can estimate the absolute risk of severe or critical illness among unvaccinated people by taking the combined probability of the infection risk and the risk of severe or critical illness, which we defined as hospitalization or ICU admission, respectively. Since there is a steep age-risk curve for the severity of COVID-19 infections, we broke these risks down by age, from children to older adults. Dividing 1 by these absolute risks gives you the NNI.

We examined the NNI across the United States and in other countries during the fall 2021. The NNI data are alarming. In Maryland, we found that on any given day about 1,000 to 4,000 unvaccinated people needed to be excluded from accessing various types of community settings, including working in healthcare, in order to prevent one transmission event. Note, this is to prevent usually mild, sometimes asymptomatic, infections, especially given the high levels of immunity which already existed in the population during this period. The NNIs were even higher for preventing one case of severe or critical illness among unvaccinated people under the age of 50.

In medicine, there is a clinical intuition that if you have to apply an intervention to hundreds or thousands of people to extract one benefit, a careful weighing of benefits vs. harms is needed. Our data show that vaccine mandates have very small benefits on transmission and severe or critical illness. The harms of vaccine mandates are substantial and immediate, including unemployment, exclusion from education, stigmatization, and restriction of liberties. Therefore, my testimony is one of proportionality and compassion. We may disagree with the viewpoints and decisions of others. But we must consider the harms of excluding unvaccinated people using vaccine mandate policies relative to the small benefits of these policies.

Thank you,

A handwritten signature in black ink, appearing to read 'Aaron Prosser', written in a cursive style.

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