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BRIEF19

A daily review of covid-19 research and policy

RESEARCH BRIEFING

Vaccine Breakthrough Infinitesimally Small

There has been disproportionate media focus on the very low occurrence of vaccination-related complications rather than their phenomenal success in preventing death from covid-19. Released this week in the US Center for Disease Control and Prevention's [Morbidity and Mortality Weekly Report](#) is a detailed report examining vaccine breakthrough infection—that is the number of infections that have occurred despite inoculation—in the United States. Vaccine breakthrough has become an important area of concern with the ever-increasing number of variants appearing.

In this report the CDC Vaccine Breakthrough Investigations Team investigated all reported breakthrough cases from January through April of 2021. By the end of April approximately 101 million people in the United States were fully vaccinated against SARS-CoV-2, the virus that causes covid-19. By this same time, only around 10,000 cases of vaccine breakthrough (0.01 percent) were reported. People who reported breakthrough infections tended to be older (median age 58 years) and were more likely to be female (63 percent). Of the breakthrough cases around a quarter were asymptomatic and only 2 percent (160 individuals) died. Even among the 10 percent who required hospitalization, almost 30 percent were asymptomatic and were actually primarily being hospitalized for another reason. Further investigation was completed on the 160 deaths; among these 18 percent were asymptomatic and died from causes other than covid-19. Those who died were much older as well (median age 82 years). Genetic sequencing was available for just 5 percent of the breakthrough cases though of those, known “variants of concern” were found in almost two-thirds of the cases.

The authors of this study did acknowledge that the true number of breakthrough cases in the community was likely an undercount, given how many asymptomatic cases there were. Nevertheless, the findings reflect what is likely to be an extremely small number of cases, and even fewer significant ones, in the US among vaccine recipients. In fact, the number of breakthrough cases is so small, that the CDC has announced that it will no longer investigate new cases among vaccinated persons unless they result in either hospitalization or death.

The data presented here only further bolster the success of vaccination turning the tide of the pandemic and will hopefully convert anyone who remains undecided.

—*Christopher Sampson, MD, FACEP*

POLICY BRIEFING

Intelligence community continues to question virus's origins.

President Biden on Wednesday announced that the US intelligence community continues to look into the [origins](#) of the particular coronavirus which causes covid-19. Though questions about the virus's origin have been previously decried as racist and misleading, given the implication that the pandemic was caused by China, the administration for the first time acknowledged that it was possible that the global pandemic might have been due to an accident at one of the top virology laboratories in Wuhan, China. That theory, however, remains a stretch.

In his statement, the president noted that the majority of the intelligence community does not believe there is sufficient evidence to point toward any one cause, but there are factions which lean towards specific scenarios. He did not elaborate on what these scenarios potentially

could be. He did, however, note that he has ordered the intelligence community to increase investigative efforts surrounding the situation. The efforts will include pushing China to participate with full transparency into the investigation which is being conducted by the US, and its allies and partners around the world. It has not yet been stated whether China will face economic sanctions from the United States if its leaders and scientists refuse to participate.

We emphasize that despite extensive efforts in this area internationally as well as within the US government, no definitive evidence pointing to one origin or another has been found. Most experts continue to believe that a species jump, from a pangolin or bat, is the most likely scenario. However, increased scrutiny has been placed on so-called “lab leak theory” that was widely panned as a conspiracy after the *Wall Street Journal* recently reported that several researchers from the laboratory in question were hospitalized in the months leading up to the discovery of the SARS-CoV-2 virus.

— *Jordan M. Warchol, MD, MPH, FACEP*

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