*3 December 2020*

# ***BRIEF19***

*A daily review of covid-19 research and policy*

## ***RESEARCH BRIEFING***

### Was there an increase in overdose-related cardiac arrests during the pandemic? Maybe.

During the covid-19 pandemic, many individuals have deferred care for pre-existing conditions to avoid the risk of exposure to the SARS-CoV-2 virus in healthcare settings. Emergency room visits went down during the shelter-in-place period, and cancer screenings have gone down. In addition, many have feared that substance use disorders may have also been exacerbated during 2020, owing to economic woes or lack of access to medical treatment that saves lives. Some reports have circulated stating that overdoses had gone up, but these were not fatal overdoses. Until now, no study has assessed whether drug overdoses serious enough to cause cardiac arrest increased during the pandemic period in the United States.

According to a new study published today in *JAMA Psychiatry* out today, drug overdose related deaths *appear* to have risen during the covid-19 period—but it's complicated. The investigators used an Emergency Medical Services (EMS) database that included 80 percent of all calls in the United States in 2020 to investigate the relationship between the covid-19 pandemic and mortality from drug overdoses. They found that even after controlling for the overall *increase* in 911 utilization, overdose-related cardiac arrests rose sharply during April 2020, peaking at 74.1 per 100,000 EMS calls (123.4 percent above baseline) on May 4, and remaining at a newly elevated plateau (53.7 percent above baseline in July). The question is, did overdose calls rise *numerically*, or merely *in relation to other causes*? For example, if EMS calls for car accident deaths plummeted, the fraction of calls for other causes of death would automatically increase. The pie chart has to equal 100%.

However, in direct communication with the authors of this study, *Brief19* was told that the absolute number of overdose-related cardiac arrests went up "sharply" during the pandemic period. While overdose deaths were already trending well above normal in January, February, and March, an impressive spike occurred on top of that in May. A rigorous statistical analysis of that data has not been published so far.

If overdose deaths did increase, it would be an example of "secondary harm," a term that encompasses medical issues which arise owing to another medical issue. Officially quantifying secondary harm is challenging because it requires at least two high quality data sources to establish the primary and secondary harms, and then researchers must attempt to demonstrate a causal relationship or at least a statistical association between the two. A further challenge arises in gathering these data in a timely manner to guide public health interventions.

The methods of the paper are an innovative demonstration of how a combination of EMS and 911 call data can provide quicker insight into a secondary harm. The authors do not describe how the calls were identified as related to overdoses nor quantify the strength of the relationship. For example, the data could be confounded by a person who took one extra Percocet pill to treat chest pain that ultimately turned out to be a heart attack leading to cardiac arrest. It is unclear whether this study would count that patient as an *overdose-related* cardiac arrest. The authors provide no details about which substances were involved nor on how they combined two data sets sampled at different rates. We do not know whether substance abuse has increased, or whether other services like methadone and buprenorphine use (two medications the treat opioid-use disorder and make fatal overdoses less likely) or naloxone (a powerful antidote used to reverse opioid overdoses) dispensing decreased.

It stands to reason that the covid-19 pandemic and public health response to the pandemic have indirect consequences. In order to intervene and prevent further harm, it is critical to understand these effects quickly. Equally, we should be thoroughly interrogating the data so as to provide actionable information that guide the implementation of effective public health measures.

*—Michael Chary, MD PhD*

## ***POLICY BRIEFING***

**United Kingdome approves Pfizer/BioNTech covid-19 vaccine.**

On Wednesday, the United Kingdom became the first Western nation to approve a vaccine against the SARS-CoV-2 virus responsible for covid-19. Russia and China have previously approved vaccines engineered within their own countries, though robust and transparent efficacy data on these products has not been widely available.

The Pfizer/BioNTech product approved in the UK is expected to be available for use as early as next week and will be delivered in a two-injection regimen, spaced three weeks apart. The first persons to receive vaccines will be those who live or work in nursing care facilities followed by healthcare and social services workers and individuals over 80 years old. In total, nine groups have been prioritized to receive the vaccine by the UK's joint committee on vaccination and immunization. Health Secretary Matt Hancock noted that the country expected to receive 800,000 doses in the immediate future and had been able to secure a total of 40 million doses, enough to vaccinate 20 million people. Several other regulatory bodies, including those in the United States, Canada and the European Union, are currently reviewing the vaccine and its current competitors, Moderna and AstraZeneca/Oxford University.

The announcement of vaccine approval in the UK raised eyebrows in the Trump administration as to why the United States' Food and Drug Administration (FDA) has said they will not be able to approve a vaccine for at least another week. FDA commissioner Stephen Hahn said that his teams have been working "around the clock" to speed a vaccine to the American people as soon as possible, but also noted that they must "make sure that any vaccine meets [the FDA's] high standard of safety and efficacy."

Significant concerns have been raised throughout vaccine development that the speed of the process, and resulting product safety questions, will keep Americans from volunteering to receive the injections. Dr. Anthony Fauci recently said that the speed of the process did not reflect any corner cutting.

On Tuesday, the United States' Advisory Committee on Immunization Practices met and recommended that the first group to receive any available vaccinations in this country should be healthcare workers and those who live in nursing homes. These groups accounts for roughly 24 million out of 330 million people living in the United States. Forty million doses of vaccine are expected to be available by the end of this calendar year. Some experts believe that over 200 million doses will be available to Americans by this coming summer.

*—Jordan M. Warchol, MD MPH*

*Kimi Chernoby, MD, JD, Policy Section Founder, Joshua Niforatos, MD Research Section Editor, Frederick Milgrim, MD, Editor-at-Large, Barb Cunningham, Copy-editor. Anna Fang , Week-in-Review. Megan Davis, social media. Kane Elfman PhD, Publishing and Design. Jeremy Samuel Faust MD MS, Editor-in-Chief.*
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