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BRIEF19

A daily review of covid-19 research and policy

RESEARCH BRIEFING

Placentas won't give covid-19 a pass.

While the covid-19 pandemic has undoubtedly been an ongoing healthcare crisis for global citizens of all ages including young pregnant women, the question of whether unborn fetuses are at risk has been top of mind for many. Fortunately, a new study published today in *JAMA Network Open* should now allow pregnant women to breathe a sigh of relief.

The investigators gathered data from pregnant women in Boston between April and June 2020 in order to determine whether covid-19 positive mothers passed on the SARS-CoV-2 virus and/or antibodies to their babies through umbilical cord blood, respiratory fluid, and the placenta. The study setup was ideal, as all pregnant women are tested for covid-19 at some point before giving birth, so the researchers had a significant group of positive and negative patients to compare. In addition to sampling the previously mentioned tissues, the researchers tested infants born to covid-19 positive mothers 24 hours after birth.

In a surprise to many, among the 64 covid-19 positive mothers, *not a single* umbilical cord, placenta, or baby was found to have the virus. Reassuringly, however, mothers *did* pass on antibodies to their children, conferring some amount of acquired immunity to the infants. Compared to influenza, the antibodies passed along were not as numerous, but nevertheless, notable. For context, an estimated 20 percent of children hospitalized with covid-19 are between 0-2 years old.

It is exceedingly rare that a scientific study manages to find *zero* cases of the very outcomes of interest. That this one found exactly that provides commanding and compelling evidence that the placenta does its job of protecting fetuses from coming into contact with the SARS-CoV-2 virus circulating in a pregnant mother. While antibodies don't pass through the placenta as readily as in some other viruses, it seems, there is nevertheless some hope that infants obtain some immunity from the time they come into the world.

It also remains to be seen what effect the covid-19 vaccine will have on fetuses since this study was conducted prior to vaccine rollout. And while we still have much to learn about this disease, these new data showing that fetuses and newborn babies are shielded from the virus itself *and* obtain some degree of transmitted protection via antibodies that reach the fetus through blood circulation is a ray of hope and reassurance.

—Joanna Parga-Belinkie, MD

POLICY BRIEFING

Preliminary impact assessment of Russian cyberattack on entities involved in the covid-19 response.

On December 13, 2020, FireEye, a US based cybersecurity firm, published information regarding an ongoing cyberattack involving mission-critical information technology (IT) software that is used by public, private, and nonprofit entities. Some targets included key players in the ongoing covid-19 response.

This information was subsequently confirmed by SolarWinds, whose software was used to perpetrate the attack, Microsoft, and the Department of Homeland Security. Since then, the global cybersecurity community has revealed more details about the attack and developed resources to help identify some of the compromised systems.

A timeline of events in mid-December includes FireEye's disclosing of the attack, which was confirmed by cybersecurity consultants and experts at a technology firm in China. FireEye was able to identify many of the victims, including government agencies like the National Institutes of Health. Shortly thereafter, the Cybersecurity and Infrastructure Security Agency (CISA) and the US National Security Agency (NSA) issued alerts regarding the threat posed to American infrastructure. Finally, on December 19th, Secretary of State Mike Pompeo publicly attributed the cyberattack to Russia.

As much of the global covid-19 preparedness and response is intertwined with information technology and security, it is clear that this attack has a potentially significant effect on some big names in the healthcare IT industry. Specifically, it appears that the Department of Health and Human Services was compromised, but to a yet unknown extent. Another target in the private sector was Deloitte Consulting, which has $120 million worth of federal contracts for covid-19 projects relating to IT and analytic support for vaccine distribution. A third notable target of the hack was Vocera Communications, a company that supplies communication devices for clinical workers at over 1700 hospitals and healthcare facilities around the country. A litany of other entities are known to have been involved at the local, state, and federal level, and more are expected come to light in time.

This cybersecurity breach has far reaching implications Private healthcare data could be leaked and vaccine administration could be severely compromised. The information gleaned from the HHS compromise could potentially allow bad actors access to Medicare and Medicaid claims data, and information from clinical trials. Any impact on Deloitte's responsibilities regarding vaccine rollout would be inherently detrimental to almost every American. For this attack to be handled appropriately, it would be prudent for a coordinated Federal response to take place in order to neutralize the ongoing threat.

—Jorge A. Caballero, MD

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