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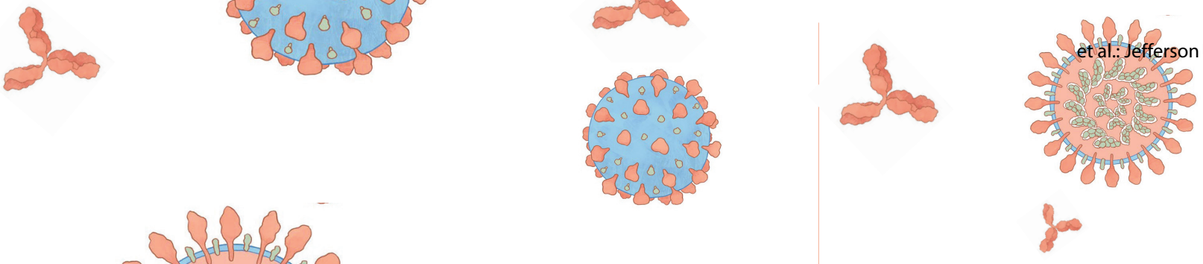
COVID Briefs



COVID Briefs

Intellectual Disability a High Risk for COVID-19 Death

Early in the COVID-19 pandemic, researchers realized that people over 65 were more likely — 80 times more likely — to die from a COVID-19 infection than younger patients. As the pandemic continued, other risk factors emerged: underlying health conditions and those from racial and ethnic minority groups. Mary Stephens, MD, Wendy Ross, MD, and colleagues were interested in whether having an intellectual disability might be a risk factor also. To find out, they analyzed a massive dataset of nearly 65 million patients infected with COVID-19, in a study published in *NEJM Catalyst*. Their analysis showed that having an intellectual disability put people at the highest risk for COVID-19 infection and second-highest risk for death from the disease, after older adults. As a result of the study, patients with intellectual disabilities were prioritized for vaccination. ■ ESZ

Design Solutions for COVID-19 Problems

Jefferson's focus on design thinking and innovation paid dividends during COVID-19, when hospitals, including our own, were hit with shortages in everything from hospital gowns and full-body protective coverings, to masks and childcare for essential workers. Collaborating across disciplines, doctors and designers, textile experts and frontline workers came together to come up with solutions that could relieve the stress put on the system. When there weren't enough ventilators for the patients who needed them, they developed prototypes for a computer-controlled ventilator splitter. When surgical gowns became more expensive to use, textile researchers designed a better-fitting surgical gown that simplified manufacture. When a factory-issued part of the full-body PAPR hazard suits kept breaking, a large team came up with a 3-D printed alternative to keep the suits in circulation. ■ ESZ

The Secret Sauce in COVID-19 Vaccines

The first two COVID-19 vaccines in the U.S. were a unique formulation: mRNA strands packed inside of a nano-sized layer of fat — a lipid nanoparticle. The mRNA held instructions for making the COVID-19 spike protein, and the nanoparticles offered a convenient way to fuse easily with the lipid covering of our own cells. However, because the vaccine wasn't expected to cause all of the inflammatory side effects — like fever, chills and body aches — that it did, Botond Igyártó, PhD, and team wondered whether the lipid particles might be to blame. To find out, they injected mice with the lipid nanoparticles alone (no mRNA), and saw massive inflammatory reactions. Their work showed that the nanoparticles were not just for mRNA delivery, but also could have been responsible for jump-starting the immune response, and giving some of us those achy post-vaccine symptoms. ■ ESZ

At Home with Dementia during the Pandemic

Isolation, due to COVID-19, became a necessity in the past two years, especially for those 65 and older due to their high mortality risk. But limiting social interaction presents challenges for maintaining mental wellbeing. It is particularly problematic for persons with dementia, as social engagement is often used to slow the progression of dementia. Together with colleagues, Kristin Rising, MD, and Angela Gerolamo, PhD, interviewed patients with dementia and their at-home caregivers about the most challenging aspects of the COVID-19 pandemic. Respondents described how prolonged isolation led to feelings of loneliness, depression and worsening memory problems. Caregivers felt a heightened responsibility and burden for care, and reported often putting their own needs on hold. The work highlights the need for healthcare providers to develop and provide interventions and tools to support families who care for people with dementia. ■ ESZ

Predicting the Severe Cases of COVID-19

One of the most unsettling facts of COVID-19 is how difficult it is to predict when the disease will turn deadly. For some, there are only mild symptoms; for others the disease can turn severe in a rapid and unexpected manner. Colleagues from the Department of Medicine and Department of Surgery built a tool to help clinicians predict those severe cases that would require closer monitoring. Using machine learning and clinical experience, the investigators defined a list of eight predictors that included risk factors such as age, sex, diabetes or labored breathing, together with clinical measurements collected by blood test. They used these input variables to create a web-based tool that could be accessed at the bedside on a phone or tablet. ■ ESZ