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MONTHLY UPDATES ABOUT
VACCINES ACROSS THE LIFESPAN

FEATURE ARTICLE: UPDATE ON LONG COVID

August 2024

In the summer of 2022, the Social Security Administration asked the National Academies of Sciences, Engineering, and Medicine (NAS) to convene a committee to understand the state of knowledge about long COVID given the number of people dealing with lingering effects of infection. Experts in epidemiology, diagnosis and clinical care of long COVID were brought together from across the country to carry out the work. Some of these individuals were, themselves, affected by long COVID. To gather evidence, the committee conducted a global literature search and held three information-gathering workshops open to the public. They heard from many people, including invited speakers and individuals with long COVID. The result was a 265-page report published in 2024.

The committee came to nine conclusions. While each is informative, this article will focus on four that can provide an understanding of what the research into this condition has shown to date. Importantly, as the authors highlighted, no definition of long COVID has been agreed upon at this point, and more remains to be learned.

Diagnosis

Diagnosis of long COVID is complicated by several factors:

- Affected individuals can experience a range of symptoms. More than 200 symptoms have been reported, and this long list can affect almost any organ system.
- Because of the array of symptoms, the effects across individuals can vary widely, so no clear set of diagnostic criteria have evolved.
- A history of a positive COVID-19 test is not required for someone to be diagnosed with long COVID because over the course of the pandemic, testing was variably available and employed.

In 2022, about 34 of 1,000 adults and 5 of 1,000 children were estimated to have experienced lingering effects of a COVID-19 infection. However, the authors indicated the numbers may be higher given that a standard approach to diagnosis has not been defined and awareness may be lacking among both healthcare providers and the public.

Risk

While anyone can get long COVID, some groups are more prone to experience the lingering effects of this infection. According to the analysis, the following are supported by research:

- Long COVID is found twice as often in women compared with men.
- Although people with a mild infection, including children, can get long COVID, people with more severe disease are at higher risk. For example, those who were hospitalized for COVID-19 infection are two or three times more likely to experience long COVID. Similarly, those who required life support or who were in intensive care are twice as likely to have long COVID than others who were hospitalized for COVID-19.
- People with certain preexisting conditions can experience more severe disease and are, therefore, more likely to experience longer effects. Some of these conditions include diabetes, heart failure, chronic obstructive pulmonary disease (COPD) and dementia.
- People who were vaccinated are less likely to experience long COVID. The data suggest that taking antiviral or steroid treatments during infection also decreases the likelihood of experiencing long COVID.

Importantly, the number of people with long COVID who had mild disease surpasses the number with long COVID who had severe disease. Because people with severe disease are more likely to develop long COVID, this statement may seem counterintuitive. However, most people experience mild infection, so the percent of total long COVID diagnoses is greater in this group.

Effects

Because of the range of symptoms and the wide array of affected organs and systems, the health effects among affected individuals can be variable. Regardless of one's individual symptoms, however, about 1 in 5 affected adults described "significant activity limitations" as of January 2024 (p. 56). Importantly, these limitations are reported as fluctuating over time. For example, some people report increased severity after exercise or other activities, known as post-exertional malaise.

Long-term effects can include development or worsening of preexisting conditions, including:

- Acute coronary disease, heart failure, or irregular heartbeat
- Coughing, shortness of breath, or low blood oxygen
- Kidney injury or disease
- Joint pain or muscle weakness
- Tiredness or lack of energy
- Anxiety, depression, sleep disorders, or substance abuse
- Stroke, headaches, memory issues or issues with sense of smell
- Obesity, diabetes, or high cholesterol
- Constipation, diarrhea, or acid reflux
- Hair loss or skin rash
- Blood clots

This is not a complete list; however, the report includes several tables with more information. The authors also included more detailed discussions about chronic fatigue and post-exertional malaise, cognitive impairment, and nervous system dysfunction. These more detailed discussions were included because of their potential to affect an individual's ability to work and participate in normal daily activities — something particularly relevant to the Social Security Administration.

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Treatment

While no cures for long COVID have been found to date, some efforts to treat symptoms and improve functional ability have been helpful, such as:

- Pacing, meaning balancing periods of activity and rest
- Mobility support
- Social support
- Diet modulation
- Medications
- Cognitive-behavioral therapy
- Rehabilitation

For more information

As noted, the committee came to additional conclusions based on the current literature, and the entire report can be downloaded for free. So, if you are interested in more details, we recommend checking the NAS website.

If you or someone you know is suffering from long COVID, you can stay abreast of news and developments by checking out “The Sick Times,” a website developed by science journalists to “chronicle the long COVID crisis.”

To see how long COVID can affect families, check this article by a single parent in Canada whose daughter developed long COVID following a COVID-19 infection.

For links to resources in the Feature Article, please visit bit.ly/Aug2024FA.

DR. HANDY'S CORNER: IF I RECEIVED THE WHOOPING COUGH VACCINE DURING PREGNANCY, SHOULD I DELAY THE DTaP VACCINE FOR MY INFANT?

The Tdap vaccine is recommended between 27 and 36 weeks of pregnancy. In this video, Dr. Lori Handy describes the reasons for this recommendation and why parents do not need to be concerned that the vaccine given during pregnancy will interfere with their baby's response to the DTaP vaccine recommended in first few months of life.



Watch the video: bit.ly/DTaP-vaccine.

TRIVIA CORNER

In the 1700s, the mayor of what major U.S. city died from yellow fever?

- A. Chicago
- B. Austin
- C. Philadelphia
- D. San Diego

NEWS & NOTES

MMR infographic

The Vaccine Education Center (VEC) recently updated its infographic about MMR vaccine and the diseases it prevents. The updates allow for more easily printing on 8.5" x 11" paper. We will be updating other infographics to make them more printer friendly in the coming weeks.

- Check out the updated MMR infographic.
- See other infographics currently offered by the VEC.

Contaminated tattoo ink

According to a Pew Research survey, about one-third of the U.S. population has at least one tattoo. Some people have experienced adverse reactions after getting a tattoo. These can include inflammatory and allergic responses, but sometimes they also include infections.

To evaluate the sterility of tattoo ink, a group of scientists from the Food and Drug Administration (FDA) examined 75 samples of tattoo ink and permanent makeup covering 14 different brands. The results, published in the journal *Applied and Environmental Microbiology*, indicated that 26 of the 75 samples were contaminated with bacteria. Further, of the two-thirds of the samples sold as sterile, about one-third of them contained bacterial contaminants. Almost 4 in 10 of those without a sterility claim were also contaminated. Permanent makeup products were more likely to be contaminated than tattoo inks. Thirty-four different types of bacteria were identified from the 26 contaminated samples. Most of the bacterial types require oxygen to grow, but some do not (called anaerobes). Given that the inks breach the skin, anaerobes could have the opportunity to reproduce under the skin after receipt of the tattoo. For these reasons, products used for these purposes should be monitored to ensure their safety.

Find out more:

- Pew Research findings
- Study from the journal, *Applied and Environmental Microbiology*

For links to News & Notes resources, please visit bit.ly/Aug2024NN.

TRIVIA ANSWER

The correct answer is C. In 1793, a yellow fever epidemic hit Philadelphia and sickened many people, including the mayor of Philadelphia, Matthew Clarkson, and many members of his committee. In fact, the book, “Fever 1793,” by Laurie Halse Anderson, describes the yellow fever outbreak that occurred during this time.

Go to vaccine.chop.edu/trivia to play Just the Vax, the Vaccine Education Center's trivia game, where you can find this question and others like it.

