## COVID-19 and Long-Term Lung Damage

While there is a roughly 97% recovery rate among the 16 million Americans who have been diagnosed with COVID-19 since March, that doesn't mean all of them have returned to good health.

According to the Centers for Disease Control and Prevention (CDC), people with certain medical conditions such as cancer, kidney disease, heart disease and asthma have an increased risk of developing severe illness from COVID-19. However, even people who are not hospitalized, do not have underlying conditions, and who have only mild illness can experience persistent or late symptoms, including lung problems.

"Not all patients who end up with long-term lung damage have underlying diseases. We do have healthy people who got infected with COVID and they have significant lung disease even if they don't have any prior medical condition. So they don't have diabetes, cancer, kidney disease – they are completely healthy and all different age groups. There are patients who are 20, 30, or 40 years old who have COVID who are healthy before and end up on home oxygen with significant lung disease," explains Nasser Zakieh, M.D., pulmonologist and medical director of critical care medicine, OSF HealthCare

According to Dr. Zakieh, the effects of COVID on the lungs can be unpredictable – especially in the long run.

"Some people recover very well. They have minimal exertional dyspnea. That means if they were able to, let's say, walk two city blocks before the disease, they are now able to walk one city block. If they are able to do, let's say, four flights of stairs, some of them are now able to do two flights of stairs," Dr. Zakieh says.

Early studies suggest typically people who have recovered from COVID-19 see a decline in their ability to do day-to-day physical activities compared to before their infection, and many people experience even more severe long-term lung damage. In some cases, Dr. Zakieh says that damage could be permanent.

"Some patients do not improve completely 100%. We do what's called a pulmonary function test, which is a test to examine the lungs and the effects of the infection on the lung tissue and the airway. Pulmonary function test does show permanent damage to the airway and to the lung tissue," explains Dr. Zakieh.

He continues, "When we do a breathing test, or a pulmonary function test (on people who have recovered from COVID), the majority have what's called restrictive lung disease. That means the lung volume gets smaller, and that is consistent with what's called interstitial lung disease. So the lung tissue itself gets inflamed, scarred. Scarring of the lung, we don't know if this is going to improve. Some patients do have airway disease similar to asthma – called reactive airway disease – induced by the COVID infection itself."

In addition to long-term effects on the lungs caused by the virus, being on a ventilator can cause long-term complications as well.

"Being on a ventilator for a long time has many complications, including on the lung itself. This is what is called Ventilator-Induced Lung Injury. So some patients will have injury from the ventilator itself," warns Dr. Zakieh.

Dr. Zakieh says the potentially long-lasting problems from COVID-19 make it even more important to reduce the spread of the disease by sticking with prevention efforts. Those will need to continue until a majority of the general population receives the COVID-19 vaccine which, according to Dr. Anthony Fauci, could take until sometime into the third quarter of next year. Those precautions include: wearing a mask, maintaining a physical distance of 6 feet when around others, and washing your hands.

Furthermore, getting vaccinated remains the number one way to protect yourself from known infectious viruses and to build up your immunity to certain diseases.

For more information on COVID-19, including frequently asked questions, visit the OSF HealthCare COVID-19 digital health hub: www.osfhealthcare.org/covid19/. If you are experiencing COVID-19 symptoms and it is not an emergency, use one of the digital care options offered by OSF. You can connect through Clare, a digital assistant available through the OSF website, or by calling the 24/7 nurse hotline at 833-OSF-KNOW (833-673-5669). If you are experiencing a medical emergency, call 911.