

18/mhs06/028

COURSE CODE : ANA 204

Once the virus's particles enter the body, they begin to attach to a particular receptor on the surface of the body's cells, usually starting with cells in the mucous membranes in the nose and throat. The coronavirus is distinguished by spiky proteins on its surface; these spikes latch onto cell membranes. The virus then enters the cells and disassembles so its RNA—molecules that carry instructions from DNA to the body's cells—can start to reproduce.

“You can find very high levels of virus in the nasal passages even before people have developed cough and fevers, suggesting that it is initially an upper respiratory infection,” says Daniel Kuritzkes, chief of the division of infectious diseases at Brigham and Women's Hospital in Boston.

Though most people likely start with an upper respiratory infection, it's also possible that respiratory droplets are inhaled more deeply and go directly into the lungs, says Brian Garibaldi, an associate professor of pulmonary and critical care at Johns Hopkins University. “It has a special protein that binds more tightly to cells in the lower respiratory tract,” he says.

Wherever it lands, the virus hijacks cells and starts replicating, ultimately producing millions of viral particles that flood the body.

“Like other viruses it takes over the cellular machinery of the cell and makes more copies of itself and spreads,” says Dr. Garibaldi.

When your immune system recognizes there's a new virus in your body it starts using signaling molecules called cytokines to start calling in reinforcements to the site of infection. “Many of those cytokines end up causing a fever,” says Dr. Garibaldi.

Once the virus has attacked enough cells in the upper respiratory system, most people will start to feel symptoms. This happens on

average five days after being exposed to the virus but it can be sooner or as many as two weeks later, studies show.

These early symptoms usually include a dry cough and fever, and sometimes a sore throat, as well as aches and fatigue. Loss of taste and smell have also been reported as early signs of infection.

For the majority of people—roughly 80% according to reports from China—the symptoms end there and dissipate in a few days or weeks.

But for some people, predominantly older people and those with other medical conditions, the virus keeps traveling down and invading cells in the lungs.

When the cells start moving down the respiratory system into the lungs it becomes a lower respiratory illness, which is considered more serious. That could happen two to seven days after symptoms start, says Dr. Kuritzkes.