

## How Coronavirus Kills Some People But Not Others - I'm a Lung Doctor (MEDICAL TRUTH)

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Coronavirus | COVID-19 YouTube Video Playlist: [https://www.youtube.com/playlist?list=PLgqCliyXQhezro4JBt2zJDWo7XdCTn\\_45](https://www.youtube.com/playlist?list=PLgqCliyXQhezro4JBt2zJDWo7XdCTn_45)

Welcome to another video, for those of you who don't know me, I'm doctor mike Hansen, I am a real doctor who specializes in pulmonary medicine, critical care medicine, and internal medicine.

When I'm not working in the hospital or pulmonary clinic, I'm at home working on making these videos for you, to deliver you accurate medical expertise, to the best of my ability (especially during this pandemic).

This virus, we know, is mainly transmitted by respiratory droplets, and through contact, by getting into our mucosa, like our mouth, nose, and eyes. Although less common, it also can be transmitted through aerosol, meaning airborne. Most likely when you have people in an enclosed space, such as an elevator, and someone sneezes or coughs without covering their mouths, and someone else can inhale it in.

This virus attaches to cells in our body by this ACE2 receptor. This ACE2 receptor is only located on certain cells in our body. It's on our tongue, in our nose, back of the throat, and in our lungs. Specifically, within the lungs, it's only located on our type II alveolar cells.

We know that ARDS develops in about 4 to 5% of COVID-19 patients. And of all the people who get COVID19, the mortality rate is around 1 to 2%. So why do some COVID-19 patients get ARDS, and why do some die? There are different reasons, and let's talk about them. It could be one of these reasons, but more likely it's a combination of these reasons.

1) The virus only gains entry into our cells that express the ACE2 receptor. They are located in multiple sites. Besides being in the lung, they're in your mouth, nose, throat, stomach, small intestine, colon, skin, lymph nodes, thymus, bone marrow, spleen, liver, kidney, brain, and testes.

2) It makes sense that if the virus only gets into your mouth or nose or throat, but not the lungs, that it would cause only cold-like symptoms. But if the virus gets all the way down into the alveoli of your lungs, that's what's going to cause ARDS. And by the way, the ACE2 receptors in your gut probably explains why some patients get nausea, vomiting, and diarrhea.

3) The amount of virus that you get into your body likely determines how sick you get. This is what we call the viral load.

4) The inflammatory reaction that occurs with COVID-19 is extremely complicated with lots of different proteins and hormones and interleukins at play. But there are several known genetic polymorphisms of these proteins that likely make some people more prone to getting worse illnesses than others. A genetic polymorphism simply means a variation on a particular gene. For example, there are genetic polymorphisms for the ACE gene, as well as IL-6. Basically, a lot of it just comes down to our genes. And sex.

5) Because the 5th reason has to do with estrogen. Estrogen is known to inhibit the effects of IL-6, which plays a huge role in this cytokine storm. This might explain why women overall have less severe disease compared to men.

6) And the 6th reason is because of people who are already taking certain medications. For those people who are already on an ACEI such as lisinopril, or an ARB such as losartan, or telmisartan, or candesartan, or irbesartan. Or people who take hydroxychloroquine for lupus or rheumatoid disease. Or people who take tocilizumab, an IL-6 receptor inhibitor. Are these patients less prone to getting severe illness? My guess is yes.

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