

Report to the Boards of Health
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Mid-Michigan District Health Department, Wednesday, October 28, 2020
Central Michigan District Health Department, Wednesday, October 28, 2020
District Health Department 10, Friday, October 30, 2020

Complications of COVID-19

“Don’t be afraid of it (COVID-19).” “This is like a flu.” “99% of cases are totally harmless.”

These are a few of the comments that have been made about COVID-19 in the United States. It is true that most cases, 80%, are described as being mild illness, while severe illness is reported in only around 15%, critical illness in 5%, and a death rate around 2.6%. Even in those with “mild” symptoms, there is a misconception that people either get better within 2 weeks, go to the hospital, or die. Even mild cases can have long lasting, life altering effects. There is also a misconception that COVID-19 only effects the lungs.

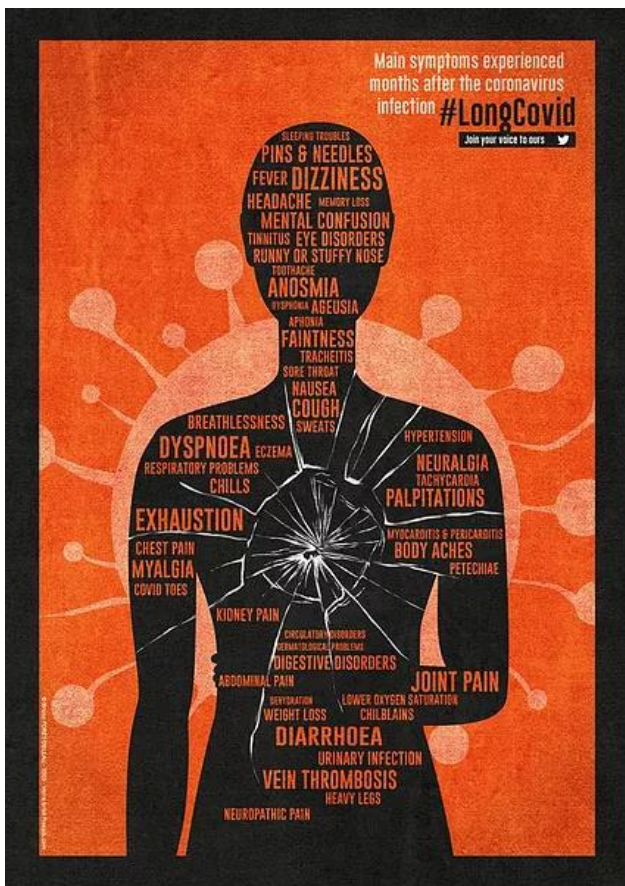
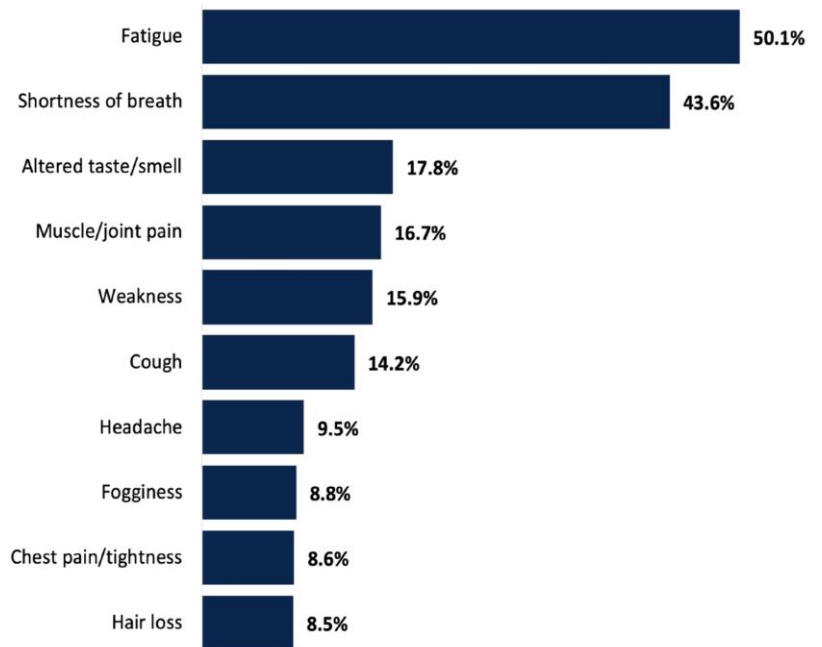
It has been found that the virus SARS-CoV-2 can cause damage to many different organs. The lungs are damaged most. In those that are hospitalized, 70% are still short of breath one month after being discharged and 13.5% still need oxygen. SARS-CoV-2 also causes the immune system to overact, leading to harmful inflammation throughout the body. The heart is also be affected in 20% to 30% of people that are hospitalized. Myocarditis, cardiac arrhythmias, fibrosis of the heart, and heart attack are some of the heart complications. Gastrointestinal symptoms are also frequently encountered during COVID-19 and may continue after other symptoms have gone away. These include loss of appetite, vomiting, nausea, diarrhea, and abdominal pain. Direct damage to neurologic tissue, like the brain and nerves, is suspected to happen due to the number of neurologic symptoms that occur. One third of patients with moderate illness have some neurologic issue, such as dizziness, headache, taste, or smell impairment, altered consciousness, stroke, seizure, vision impairment, or nerve pain. Kidney damage also occurs, even in mild illness. Acute kidney injury has been seen in 5% of those with mild to moderate illness and 5% of hospitalized patients. About 15% of those needing intensive care need dialysis at some point. About 20% of people with COVID-19 have skin complication, ranging from mild rashes to more serious blistering.

New onset of diabetes has been observed in patients with COVID-19. It has also caused existing diabetes to worsen, sometimes severely. The SARS-CoV-2 virus binds to a receptor for angiotensin-converting enzyme 2 (ACE2) which is found in many organs, including the pancreas, adipose tissue, small intestine, and the kidneys. It is thought this is why it effects so many organ systems and has something to do with how SARS-CoV-2 effects glucose metabolism. An international group of diabetes researchers have started a registry of patients that have developed COVID-19 related diabetes. This registry, called the Global Registry of New-Onset COVID-19 Related Diabetes COVIDIAB Registry (<https://covidiab.e-dendrite.com>), should help develop an understanding of how COVID-19–related diabetes develops and progresses, as well as how it could be managed.

Damage to the body’s systems can continue for months after COVID-19 illness first starts. Evaluation of patients that were hospitalized for moderate to severe COVID-19 2 to 3 months after their illness started showed that many still had signs of organ damage, worse in those that were sicker at time of admission. At 3 months, 71% still had inflammatory damage in their lungs. Evidence of liver damage was found in 11% and kidney damage in 29%.

Severe exhaustion and fatigue along with other symptoms suggestive of chronic fatigue syndrome have been seen in around 10% of patients for months after having COVID-19. Patients have called this “Long COVID” or being a “long hauler”. Similar issues with long lasting fatigue have been seen in people after surviving Ebola and SARS. Several groups, both in the United States and internationally, are working to study this. The Michigan COVID-19 Recovery Surveillance Study (MI CRESS), a joint project between the University of Michigan School of Public

Health and the Michigan Department of Health and Human Services (MDHHS), is one such effort. The study aims to learn more about Michigander’s experiences with COVID-19. In June, a random 2,000 individuals reported as having COVID-19 prior to April 15, 2020 were contacted for a survey. Of those, 638, or 31.9%, replied. The average age was 52 years (rage 18-98 years). Just over half (56.6%) were female. At the time the survey was finished, 26% had not yet fully recovered from COVID-19. The most common symptoms they were still having, illustrated in the bar graph, were fatigue and shortness of breath. Other common symptoms were altered taste and/or smell, muscle or joint pain, weakness, and cough.



Drawing by Bruno Foret
<https://www.longcovidosos.org/>

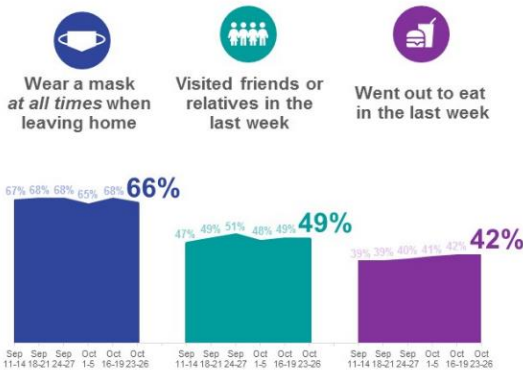
There have been some arguments to allow infections of COVID-19 run unchecked, in the effort to cause more infections and hope for herd immunity. Unfortunately, it is estimated that 80-90% of the U.S. and Michigan population is still susceptible to infection. Letting COVID-19 spread without control would not only lead to hundreds of thousands of more hospitalizations and deaths in the US, it would also lead to thousands, if not millions, of chronically ill and disabled Americans. Studies are now showing that antibodies produced during natural infection, both symptomatic and asymptomatic, drop between the 2 and 5 months after infection. There has also been evidence of reinfection. Therefore, the risk of mass infection is likely not risk it.

Despite the serious complications, chronic illness, and deaths COVID-19 can cause, cases of COVID-19 are increasing rapidly. Case numbers in the United States have hit the highest levels of all time. Rural areas are now the most heavily effected areas. In the past 2 weeks, Michigan has had an 83% increase in cases and a 117% increase in deaths. Despite this, and the fact that the majority of people in the U.S. know someone who has had COVID-19 and at least 1 in 4 know someone that has died from COVID-19, compliance with COVID-19 prevention recommendations is still low.

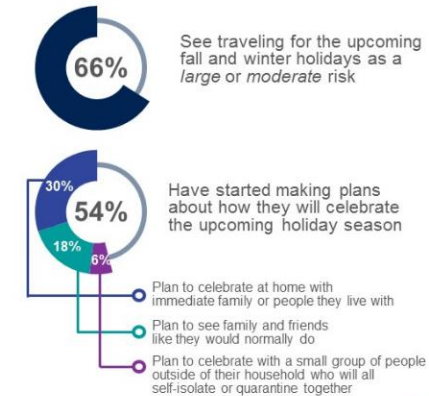
Despite COVID-19 spike, few individual behaviors are changing

However, celebrating upcoming holidays seen as somewhat risky

Percentage of Americans who...



COVID-19 and the upcoming holidays

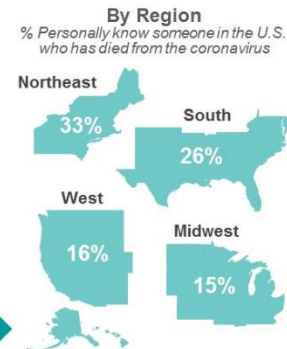
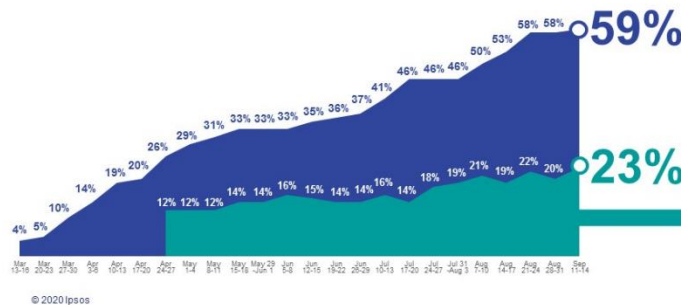


Most Americans know someone who has had COVID-19

More than one-fifth knows someone who has died from the virus, but there are stark regional differences

Do you personally know anyone in the U.S. who has...

- Tested positive for the coronavirus
- Died from the coronavirus



Source: Ipsos <https://www.ipsos.com/en-us/news-polls/axios-ipsos-coronavirus-index>

Recommendations:

- Continue to encourage and support COVID-19 prevention measures to prevent long term complications and death.
- Support those with long term illness after COVID-19 infection. Refer them to support sites such as:
 - <https://www.facebook.com/LongCovidPage>
 - <https://www.facebook.com/groups/longcovid/>
 - <https://www.survivorcorps.com/>

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