

COVID Update

August 2020

Disclaimer

Reliable Information about any medical condition or treatment requires multiple carefully designed large studies done over many years.

- Small initial studies are often proven wrong by later larger studies
- Early results of a study often change:
 - After the study is completed
 - After other researchers re-analyze the data
- The actual data published does not always support the narrative asserting what the data means
- It's years too early into this illness to view any current information as reliable and I did not review the research methodologies in detail.

Risk of Transmission

- By Close Contacts (within 6 feet of an infected person for at least 15 minutes starting from 2 days before DX) – Overall 3.7%
 - Household 10.3%
 - Health Care Setting 1.0%
 - Public Transportation 0.1%
- Depends on Severity of the Index Case
 - Asymptomatic 0.3%
 - Mild 3.3%
 - Moderate 5.6%
 - Severe 6.2%
- Symptom with greatest risk –Expectoration
 - 13.6% with vs 3.0% without

Testing Rates

- National Testing Rate is Falling since late July
- Portion Testing Positive is High in Some States
- Experts recommend increasing testing until Positive rate is below 5%
 - 0-5% 23 states
 - 5-10% 18 states
 - 10-15% 7 states
 - 15-20% 3 states
- Overall US Positive test rate is currently 5 %
- Race and ethnicity information is missing for about half of reported COVID-19 cases nationwide. New CDC guidance released June 4.

Don't be Misled by COVID Testing Results

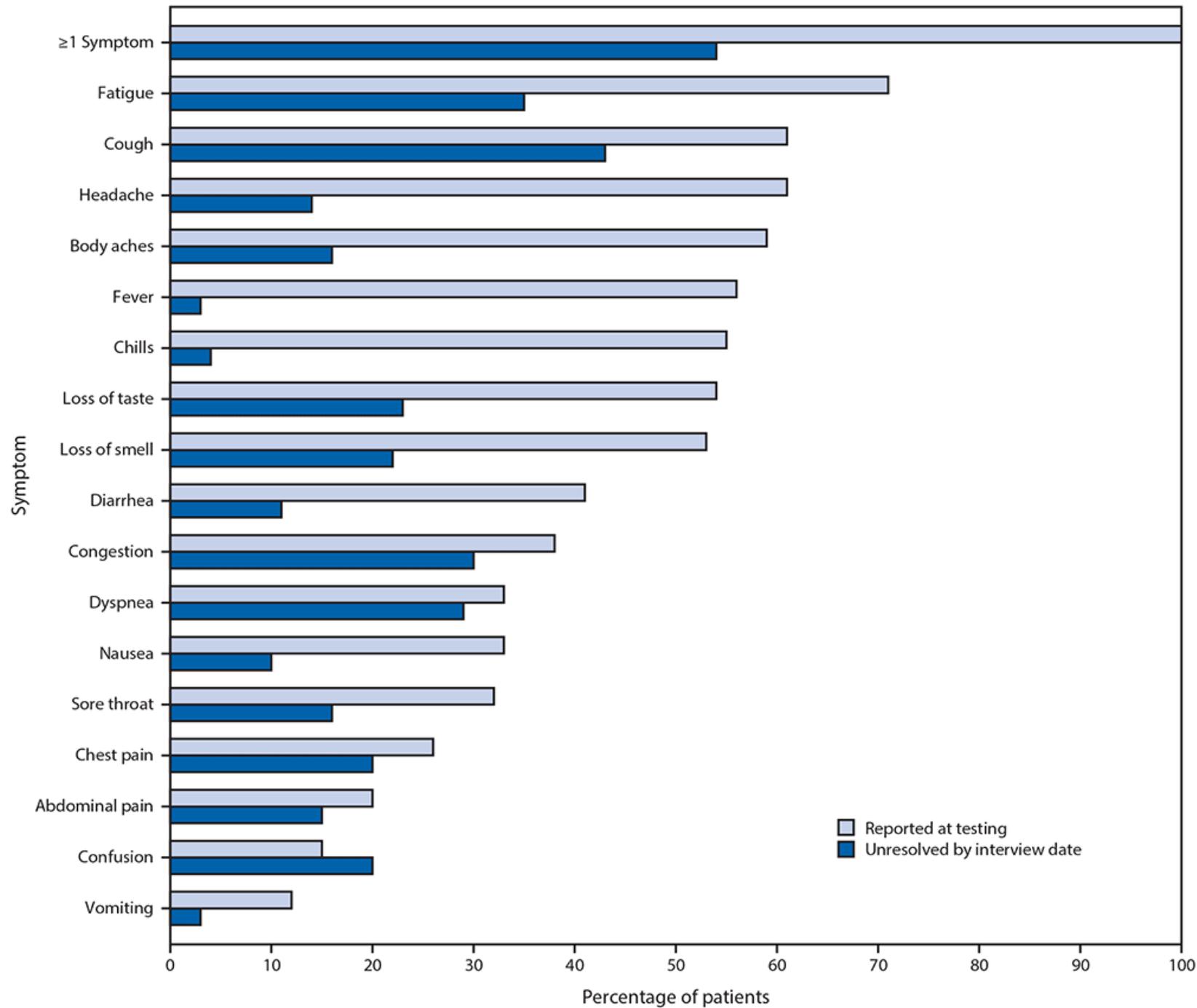
- Highly reliable for confirming a person has COVID (95-100%)
- Not reliable for confirming a person does not have COVID (briefly 80% at best)
- False negative test rate varies widely over time

Days after Infection	False Negative
1	100%
4	67%
5- Sx Onset	38%
8	20%
9	21%
21	66%

<https://www.acpjournals.org/doi/full/10.7326/M20-1495>

Prolonged Illness for Some

- One study of Non- Hospitalized symptomatic persons testing Positive 35% had not returned to their usual state of health 2–3 weeks after testing.
- Data from the COVID Symptom Study, which uses an app into which millions of people in the United States, United Kingdom, and Sweden have tapped their symptoms, suggest 10% to 15% of people—including some “mild” cases—don’t quickly recover.
- fatigue (71%), cough (61%), and headache (61%) those most commonly reported
- Some reports of new onset Chronic Fatigue Syndrome (myalgic encephalomyelitis)



Wide Range of Severity

- Asymptomatic 40-45%
- Outpatient 40-35%
- Hospitalized 20%
 - Ongoing medical care after D/C 45%
 - Long term rehab after D/C 4%
 - SNF 1%
- Die (BTW- COVID mortality is declining) 3%

Organ damage in some severe cases

- SARS-CoV-2 uses a spike protein on its surface to latch onto cells' ACE2 receptors. The lungs, heart, gut, kidneys, blood vessels, and nervous system, among other tissues, carry ACE2 on their cells' surfaces—and thus, are vulnerable to COVID-19.
 - Lungs – acute respiratory distress syndrome (ARDS) inflamed lungs become full of blood and fluid leading to fibrosis of lung tissue leading to permanent decreased lung capacity but less common than feared.
 - Heart - 20-30% of severe cases developed myocarditis leading to arrhythmias and a loss of cardiac capacity
 - Blood coagulation – blood clots to leg veins and heart
 - Kidneys – moderate to severe damage in up to 30% of severe cases
 - Brain – reports of seizures, hallucinations, confusion and Guillian-Barre' syndrome

COVID Impact on Mental Health and SUD

Percent Reported	Anxiety	Depression	Serious SI
2019	8.1%	6.5%	4.3%
2020	25.5%	24.3%	10.7%
Increase	3X	4X	2X

- Symptoms of a trauma- and stressor-related disorder (TSRD) – 30.9%
- Started or increased substance - 13.3%
- Serious Suicide Considerations significantly higher among respondents
 - Aged 18–24 years (25.5%),
 - Hispanic (18.6%)
 - Unpaid caregivers for adults (30.7%)
 - Black (15.1%)
 - Essential workers (21.7%)

https://www.cdc.gov/mmwr/volumes/69/wr/mm6932a1.htm?s_cid=mm6932a1_x

Re-Infection?

- Overall remains uncertain but increasingly likely that it will not be a significant problem
- No unequivocally proven cases of reinfection to date
- Purported cases of reinfection
 - None have grown out live virus
 - No reports of a person with re-infecting infecting new other
 - May have been protracted illness waxing and waning
- Antibody levels drop rapidly within 1-3 months of infection but:
 - This is a common pattern in immune response
 - High initial levels are killer cells/antibodies
 - Immunity depends on a small residual of memory cells (M, T, and B cells)
 - Persist at levels is too low to detect for individual illnesses
 - reactivate rapidly

COVID Mutation

- Changes more slowly than most other viruses
 - On average accumulates about two changes per month
 - Most of the changes don't affect how the virus behaves
- Mortality rate falling – cause unclear
 - More testing and better treatment
 - Selective pressure/mutation
- One mutation (D614G) makes it more contagious but not more deadly
 - Affects spike on outside of virus
 - 90% of cases in AZ
- Another mutation (ORF8) also occurred in SARS and caused it to replicate slower
- Mutation can impact vaccine efficacy

Vaccines

Phase	Pre-Clinical	One	Two	Three	Approved
Description	Animal Studies	testing safety and dosage	expanded safety trials	large-scale efficacy tests	approved for early or limited use
Participants		Small number	Hundreds	Thousands	
Vaccines	135	20	11	8	2

- 31 Vaccines in human trials total – 10 in Multiple phases
- Different Approaches
 - Inactivated and Live Attenuated Virus (influenza, chickenpox, measles, mumps and rubella) 3 in phase 3
 - Protein based (HPV, Shingles, Hepatitis B) 0 in phase 3
 - Adenovirus (Rabies, Distemper, Ebola, HIV) 2 in phase 3
 - DNA or RNA 2 in phase 3

Vaccines Approved for Early Use

- CanSino Biologics (Chinese) adenovirus vaccine called Ad5,, the Chinese military approved the vaccine on June 25 for a year as a “specially needed drug.” No phase 3 trial published.
- Gamaleya Research Institute (Russia) produced a combination of two adenoviruses, Ad5 and Ad26, both engineered with a coronavirus gene. Approved on Aug. 11 before Phase 3 trials had even begun.
- F.D.A. requires a coronavirus vaccine to protect at least 50% of vaccinated people to be considered effective.

Questions?

Thank You

for being an important part of
the National Council community.