

# COVID-19 Diagnosis/Testing

# Overview

- Dependent on a combination of history, symptomatology, and testing.
- Molecular (swab-based) testing vs. serologic (blood-based) testing
- **Molecular testing more useful for initial diagnosis.**
- Common symptoms include fever, shortness of breath, cough, fatigue, anosmia/hyposmia (changes in smell), dysgeusia (changes in taste; likely a function of change in smell), GI symptoms (e.g. hepatitis, diarrhea).
  - 27% present with anosmia as heralding symptom.
  - *Up to 80% potentially mildly symptomatic or asymptomatic.*
- Viral burden thought to correlate roughly with severity of symptoms.

# Types of Tests

- Molecular tests based on oropharyngeal (throat) or nasopharyngeal (back of the nose) swabs.
- Unreported heterogeneity in sensitivity across tests in the United States.
  - PCR-based
  - Presence of 2x SARS-CoV2-specific genetic sequences from sample
  - Nasopharyngeal > oropharyngeal
- **Molecular test is indicative of an active infection.**
- Serologic testing (IgG, IgM) from **blood** only suggests history of exposure.

# Serologic Testing

- Blood tests are more useful in understanding historical disease prevalence (i.e. 'asymptomatic carriers') than in diagnosing COVID-19.
- May take 1-2 weeks (or more) to develop detectable antibodies.
- **So far, we do not know if seropositivity confers immunity. More research is needed to confirm the value of antibody testing, outside the realm of understanding historical disease prevalence.**

# Should you get tested?

- On a policy level, resource prioritization is considered.
- Symptomatic- **YES**
- High-risk (immunocompromised, older age)- **YES**
- Healthcare worker- **YES**
- Close contact with known carrier/infected- **YES**

	SARS	COVID-19 (95% CrI)	Influenza
Overall	14-15%	1.38% (1.23-1.53)	0.0962%
Age, years			
0-4	0.0%	0.00260% (0.000312-0.0382)	0.0073%
5-9			0.0028%
10-14		0.0148% (0.00288-0.0759)	
15-17	0.5%		
18-19			0.0206%
20-24		0.0600% (0.0317-0.132)	
25-29	1.6%		
30-34		0.146% (0.103-0.255)	
35-39	10.0%		
40-44		0.295% (0.221-0.422)	
45-49	13.0%		
50-54		1.25% (1.03-1.55)	0.0614%
55-59	25.3%		
60-64		3.99% (3.41-4.55)	
65-69	52.5%		0.8315%
70-74		8.61% (7.48-9.99)	
75-79	69.6%		
≥80		13.4% (11.2-15.9)	

# Resources

- Droplet vs. airborne disease transmission nicely summarized by the WHO, including a refutation of experimental studies framing COVID-19 as an airborne transmitted disease: <https://www.who.int/news-room/commentaries/detail/modes-of-transmission-of-virus-causing-covid-19-implications-for-ipc-precaution-recommendations>
- Interactive COVID-19 case number tracker via JHU: <https://coronavirus.jhu.edu/map.html>
- CDC page re: COVID-19: <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>
- For the more scientifically minded, here is the New England Journal of Medicine page on COVID-19: <https://www.nejm.org/coronavirus>
  - Article detailing outcomes using remdesivir on ICU patients on basis of “compassionate use”: [https://www.nejm.org/doi/full/10.1056/NEJMoa2007016?query=featured\\_coronavirus](https://www.nejm.org/doi/full/10.1056/NEJMoa2007016?query=featured_coronavirus)