

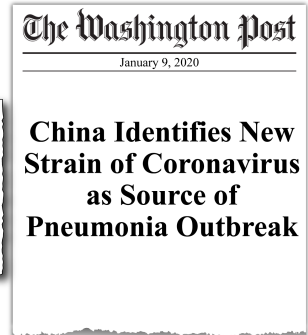
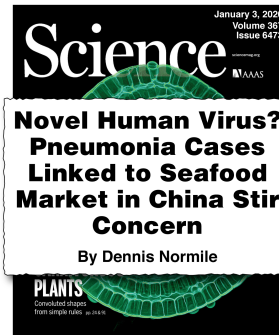
## Airborne Transmission of SARS-CoV-2: A Virtual Workshop

# COVID-19: Public Health and Scientific Challenges

Anthony S. Fauci, M.D.  
Director  
National Institute of Allergy and  
Infectious Diseases  
National Institutes of Health  
August 26, 2020

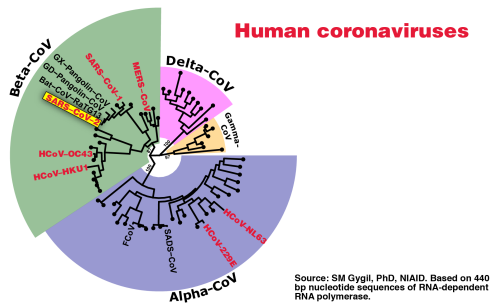


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## Coronavirus Phylogenetic Tree

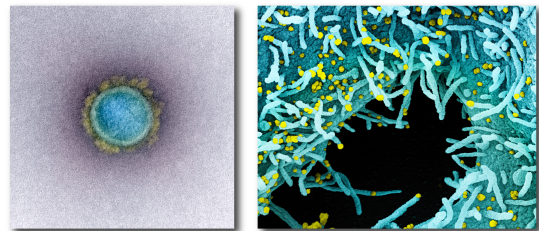


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## Coronavirus Disease 2019 (COVID-19)

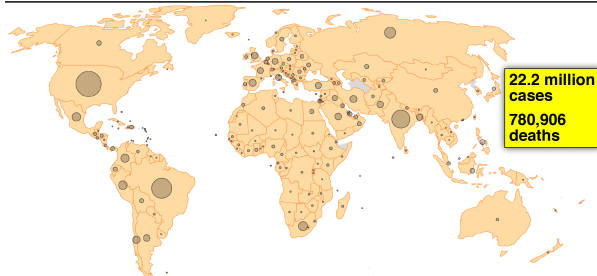
■ **COVID-19** is the disease caused by the novel coronavirus **SARS-CoV-2**



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## COVID-19 Globally: 22.2 Million Cases in 215 Countries and Territories

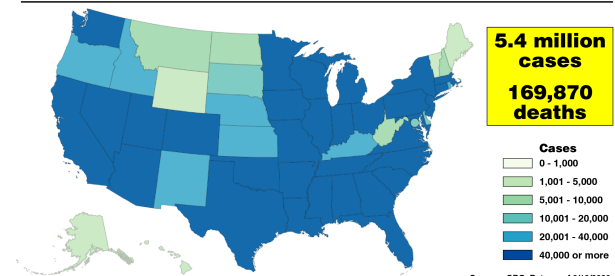


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Source: NPR.org; Worldometer. Data as of 8/18/2020, 4:30 pm.

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## Reported COVID-19 Cases and Deaths in the United States



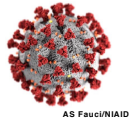
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Source: CDC. Data as of 8/18/2020.

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## SARS-CoV-2 Transmission

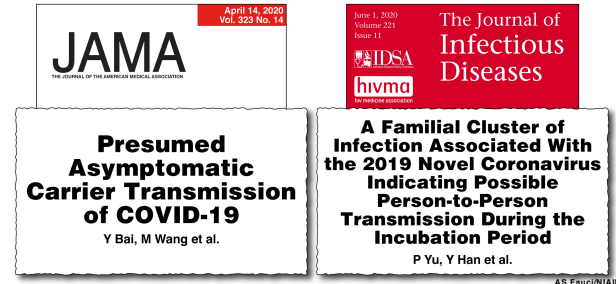
- Transmission between people in close contact
- Transmission via particles that remain in the air over time and distance
- Infected surfaces
- Virus found in stool, blood, semen and ocular secretions; role in transmission unknown
- Animals (including domesticated) not major source of human infection



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## Asymptomatic Transmission of SARS-CoV-2

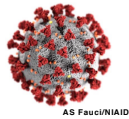


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## Risk of Transmission

- Varies by the type and duration of exposure, use of preventive measures, and individual factors (e.g., the amount of virus in respiratory secretions)
- Secondary infections most common among household contacts, in congregate or health care settings when personal protective equipment not used, and in closed settings (e.g., cruise ships)
- Numerous clusters of cases after social or work gatherings highlight the risk of transmission through close, non-household contact



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## Respiratory Particles: A Spectrum of Sizes and Properties



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Source: NEJM

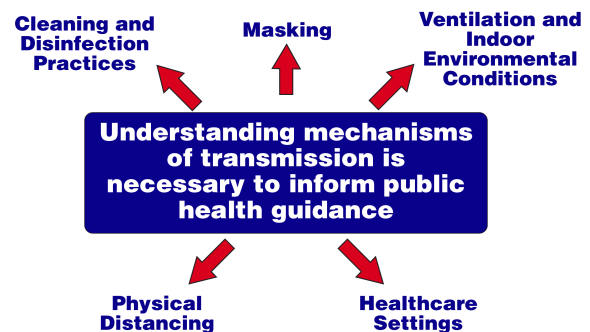
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## SARS-CoV-2 Transmission: Key Questions

- What is the role of various types of respiratory particles in SARS-CoV-2 transmission?
- At what concentration is infectious virus contained in various types of particles?
- How is the concentration of infectious virus affected by various environmental conditions?
- What is the dose of virus needed to establish infection at various anatomic sites?

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