

COVID-19

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SARS-COV-2 TIMELINE

WHO is informed of cases
of pneumonia of unknown
etiology detected in
Wuhan, China

December 31, 2019

January 11,
2020

Report of first known death
due to an illness caused by
novel coronavirus

The first known case of COVID 19 in
the US, a 35-year-old male in
Snohomish County, Washington,

January 19th,
2020

The WHO declares “public
health emergency of
international concern”

January 30th,
2020

U.S report first COVID-19
death

February 29,
2020

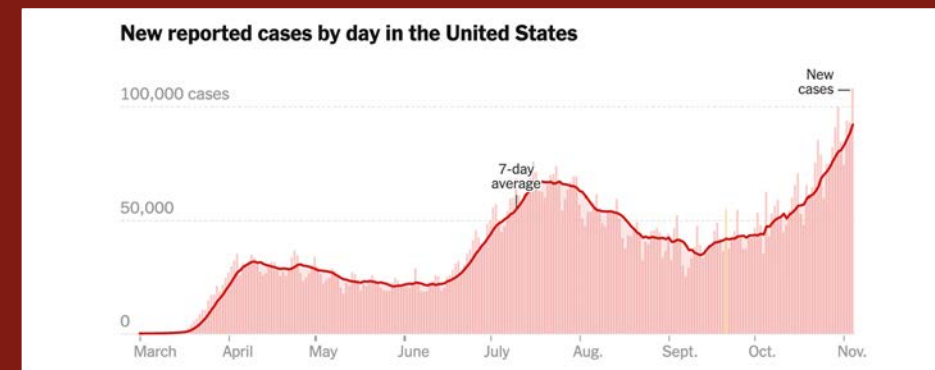
WHO declares COVID-19
a pandemic

March 11, 2020

CONFIRMED CASES BY COUNTRY/REGION/SOVEREIGNTY COVID DASHBOARD (JHU)



- For real time data go to:
<https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>



CORONAVIRUSES: SARS, MERS, AND COVID-19



SARS

ACTIVE 2002 – 2004

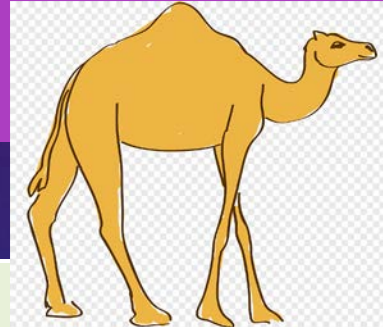
$R_0 = 2-4$ people

First reported in China

8098 Cases

774 Deaths

10% case fatality rate



MERS

Active 2012 – present

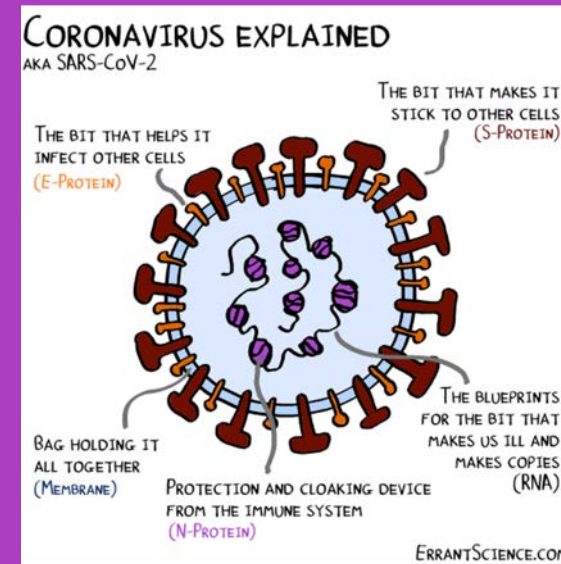
$R_0 < 1$ person

First reported in Saudi Arabia

2521 cases

866 deaths

High case fatality of 34.4%



SARS – 2 – COVID 19

Active 2019 – present

$R_0 = 2 - 2.5$ people

Incubation period: 2-14 days

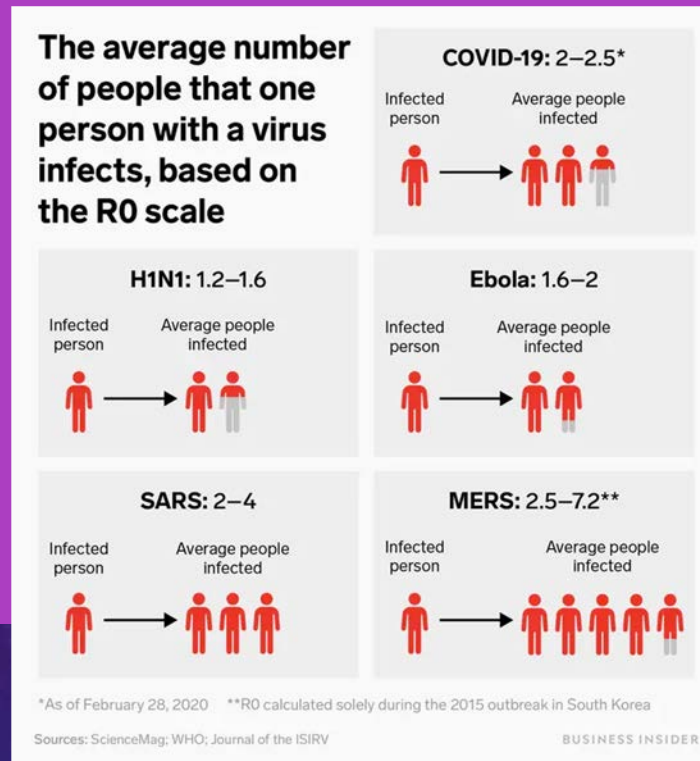
First reported in China

Cases 50M

Deaths 1.25M



TRANSMISSION - THE R0 SCALE



RESPIRATORY DROPLETS

CONTACT

AEROSOL/AIRBORNE

- Fever or chills (87% of symptomatic patients)
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea



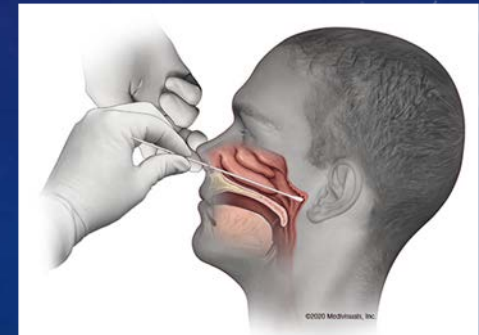
SYMPTOMS OF COVID 19 (CDC, 2020⁷)

CLINICAL FEATURES

- Mild to moderate (mild symptoms up to mild pneumonia): 81%
- Severe (dyspnea, hypoxia, or >50% lung involvement on imaging): 14%
- Critical (respiratory failure, shock, or multiorgan system dysfunction): 5%(CDC, 2020)
- Illness among pediatric patients with COVID-19 is typically milder than among adults.
- Most children present with symptoms of upper respiratory infection. However, severe outcomes have been reported in children, including deaths.
- Data suggest that infants (<12 months of age) may be at higher risk for severe illness from COVID-19 compared with older children (Lu et al., 2020).
- CDC and partners are also investigating reports of [multisystem inflammatory syndrome in children \(MIS-C\)](#) associated with COVID-19.

TESTING

- Viral Test - rRT-PCR Nasal Swab
- Rapid Test - Antigen tests are relatively inexpensive and can be used at the point-of-care. The currently authorized devices return results in approximately 15 minutes. Antigen tests for SARS-CoV-2 are generally less sensitive than viral tests that detect nucleic acid using reverse transcription polymerase chain reaction (RT-PCR) (CDC, 2020).
- Saliva Test – Saliva Direct developed by Yale University
- Antibody Test – indicates a past infection. May not show a current infection because it can take 1–3 weeks after infection for the body to make antibodies (CDC, 2020c)



TREATMENT

The NIH COVID-19 Treatment Guidelines Panel, as of November 3 recommended

- the antiviral agent Remdesivir for treatment of COVID-19 in hospitalized patients with $\text{SpO}_2 \leq 94\%$ or those who require supplemental oxygen or patients who are on mechanical ventilation or extracorporeal membrane oxygenation
- continuous renal replacement therapy (CRRT) in critically ill patients with COVID-19 who have acute kidney injury and who develop indications for renal replacement therapy
- awake prone positioning to improve oxygenation for patients with persistent hypoxemia despite increasing supplemental oxygen requirements in whom endotracheal intubation is not otherwise indicated (NIH, 2020)
- Steroids i.e. Dexamethasone - In patients hospitalized with Covid-19, the use of dexamethasone resulted in lower 28-day mortality among those who were receiving either invasive mechanical ventilation or oxygen alone at randomization but not among those receiving no respiratory support .

VACCINE DEVELOPMENT



- As of 02 October 2020 there are 42 COVID-19 candidate vaccines in clinical evaluation of which 10 in Phase III trials
- There are another 151 candidate vaccines in preclinical evaluation • Phase III trials usually require 30,000 or more participants •
- All top candidate vaccines are for intra-muscular injection and most are designed for a two-dose schedule
- Data appears positive showing all patients produced antibodies to the virus (WHO, 2020e)
- A group in China showed the vaccine was safe and led to protective antibodies being made. 3 vaccines have been made available to the Chinese military and private citizens (at a cost)
- WHO recommends front-line personnel (such as health workers) and seniors be the first priority to receive vaccine



Personal Protective Equipment



According to the CDC (2020d), healthcare providers HCP should continue to adhere to standard and transmission-based procedures including use of eye protection and/or an N95 or equivalent or higher-level respirator based on anticipated exposures and suspected or confirmed diagnoses



OCCUPATIONAL THERAPY AND COVID 19

Occupational Therapists on the Frontline

- As occupational therapists, we have been called to be front-line or essential workers in the pandemic [NYU article](#), [NPR article](#)
- Our nature has been as a “hand-on” profession and maintaining precautions has challenged us, but we have risen to the challenge
- Our unique perspective makes us the logical choice to consider clients’ occupations during a pandemic, lockdown, isolation, quarantine, and assessments/interventions
- Our profession is valuable as one-third of patients with “milder” bouts of Covid-19, often referred to as “long haulers,” have prolonged illness and persistent symptoms weeks after contracting Covid-19 (Washington, 2020) and will need our services.
- In addition, a recent study has shown patients who were positioned prone on ventilators can have residual upper quadrant nerve damage (Malik, Wolfe, Soriano et al., 2020)

Open access journal articles

- Doing It Right: OT Meeting Population Needs with COVID-19 (Balser, O'Brien, Wittman, 2020)
- Applying MOHO during the Pandemic Stay at Home Order article (Lin & Fisher, 2020)

OT IN ACUTE CARE

- Most important is MD appropriate orders and O2 levels with supplemental O2.
- Goals include- proper positioning, increasing functional endurance and strength, functional cognition and basic ADL care
- Treatment includes-EC techniques, written self HEP, bed mobility training and positioning, PLB and relaxation techniques, simple daily ADL routines, task modifications, and cognitive compensatory strategies
- Focused on hobbies and sense of self. Many patients felt isolated. Assisted with technology to communicate with loved ones and adapting patients' hobbies to their physical abilities.
- From the therapist perspective it can be overwhelming physically (with all the PPE), mentally (overcoming fear of COVID and providing appropriate care) and spiritually (seeing patients in pain and isolated). Recommend having a "buddy" that you can talk to about any feelings you have.

SKILLED NURSING FACILITIES AND COVID 19

In each facility there are different interpretations of guidelines from CDC, WHO, and the DPH:

1. Patient is positive for COVID, full PPE including N95, surgical mask, face shield, gown, gloves, hair covering
2. PUI (person under investigation) and new admission to the facility droplet precautions X 14 days
3. Recovering COVID with negative test, staff member to wear surgical or KN95 mask

Focus of intervention includes strengthening, endurance, self-care skills, and balance. In addition caregiver education on infection control and reducing the risk of exposure.

OUTPATIENT FOCUS

- Initially some outpatient settings completely shut down
- Some started with one therapist at a time or with staggered schedules
- Lots of patients have generalized weakness (even without COVID-19) due to limited activity
- Definitely challenging with PPE, less PPE used in outpatient when compared in the subacute settings, everything is sanitized after a patient or therapist touches it
- Goals focus on a broad range, but almost everyone who is recovering from COVID requires strength and endurance training and education on safe traveling in/out of homes and how to safely uses masks

HOME HEALTH CARE

- Initially there was a dip in home health census due to cancellation of elective surgeries
- Shortage of PPE for personnel
- Recovering COVID 19 patients began being admitted to home health in April
- Home health providers are still unable count them toward low utilization payment adjustment (LUPA) thresholds.
- A significant dip in visit volume in the short term but a more acute population to care for in the long term.
- Patients are deconditioned, even after several negative tests
- Co-morbidities include strokes, clots, kidney failure
- Focus is gradual return to their occupations, functional activities, strengthening, balance, psychological support

PEDIATRICS - DEANNA

- Originally a shift to telehealth
 - Some children managed better without “stress” of school, others demonstrated a regression from a decrease in supports and structures
 - Children home with parents managing COVID-19 in different ways (working from home, essential workers, unemployed), may be subject to household changes
 - OT goals shifted to functional goals within a COVID-19 structure
- Progressed to outdoor visits
- Progressed to 1:1 treatments in clinic
 - Helping children to understand purpose of masks, and tolerate texture
- Exacerbation of mental health concerns

PEDIATRICS

In new world constantly balancing between how to keep therapists and children safe, while providing the best services possible as addressing

- Therapeutically working on spatial awareness goals for social distancing for children with body awareness challenges
- Working on mask tolerance goals for children with ASD and tactile sensitivities
- Accommodations for children with auditory processing challenges to understand all what is being said in classroom settings with masks
- Accommodations for online learning (independently organizing work, keeping up with share screen, being seen if raising hand etc.)
- Accommodations for movement breaks since decreased opportunity for movement in schools w/o changing classes
- Supporting children through the ever-changing model of remote <-> in person services and classes

- Experiences of anxiety, fearfulness, sleep problems, irritability, and feelings of hopelessness are wide-spread (Patel, 2020).
- Elevation of anxiety among the general public as well as the heightening of symptoms among those who have a preexisting mental health or substance use disorder diagnosis (Auerbach, & Miller, 2020).
- Unemployment, acute poverty, and indebtedness are strongly associated with poor mental health (Patel, 2020).
- Tele-mental health care has been helpful but there is unequal access to care
- Also, 71% of private industry workers have paid sick leave benefits, but on average only receive seven paid sick days which does not cover need for extended sick leave due to quarantine and/or mental health issues (Auerbach, & Miller, 2020)

MENTAL HEALTH ISSUES – GENERAL POPULATION

- Initial shift to online learning was challenging for spring semester. Parents negotiating work from home and children's schedule
- Children reliant on structure demonstrated more behavioral and stress related challenges
- Children with social/school anxiety tended to show less symptoms
- Decreased access to IEP and therapeutic services
- Parents able to see learning and academic challenges more readily

MENTAL HEALTH IN PEDIATRICS

- Return to school children are seeing more of the precautions such as masks, distancing and face shields
- Prolonged stress of parents can impact parent/child relationship
- Increased family time can be a support
- Anxiety around contracting COVID-19
- Sudden school/classroom closures can be perceived as more of an “imminent threat” versus a plan to keep children safe as was in the spring
- Improved plan for distance learning improving quality of education
- IEP’s to accommodate distance learning challenges

MENTAL HEALTH IN PEDIATRICS – FALL 2020

- Physical activity to support your child's regulation even with change in weather
- Build a predictable family routine, and outlets as possible
- Articles with practical tips to support children and parents with COVID 19

Resources:

- Sasco River Center
<https://sascoriver.com/src/blog2/>
- Child Mind Institute
<https://childmind.org/coping-during-covid-19-resources-for-parents/>

RESOURCES TO SUPPORT PEDIATRIC MENTAL HEALTH

- The COVID-19 pandemic has the potential to significantly affect the mental health of healthcare workers(HCWs)
- A systematic search of literature databases was conducted up to April 17th, 2020
Thirteen studies were included with a combined total of 33,062 participants
- At least one in five healthcare professionals report symptoms of depression and anxiety
 - Almost four in ten healthcare workers experience sleeping difficulties and/or insomnia
 - Rates of anxiety and depression were higher for female healthcare workers and nursing staff
 - Milder mood symptoms are common and screening should aim to identify mild and sub-threshold syndromes (Pappa, Ntella, Giannakas, Giannakoulis, Papoutsis, & Katsaounou, 2020)

MENTAL HEALTH ISSUES FOR HEALTHCARE PRACTITIONERS

- increased workload
- physical exhaustion
- inadequate personal equipment
- nosocomial transmission
- ethically difficult decisions on the rationing of care
- isolation and loss of social support,
- risk or infections of friends and relatives
- drastic, often unsettling, changes in the ways of working.

CAUSES OF STRESS ON HCWs

- Apps that can help development of coping strategies. [Psycom.net](https://www.psychcom.net) has a list of suggestions
- Many providers have telehealth options. [Psychology Today](https://www.psychologytoday.com) is a good resource for finding a therapist
- The Centers for Disease Control and Prevention has suggestions and resources for managing COVID-related [stress and coping](#)

(McCarthy, 2020)

MENTAL HEALTH RESOURCES

STRESS RELIEF

- Meditation – walking, breathing, standing
- Aromatherapy – free courses
- Exercise
- Healthy eating
- Laughter
- Music

MENTAL HEALTH RESOURCES

US SAMHSA National Helpline: - 1-800-662-HELP (4357) - free, confidential, 24/7, 365-day-a-year treatment referral and information service (in English and Spanish) for individuals and families facing mental and/or substance use disorders

US Trevor Project: 1-866-488-7386 - an organization that provides a 24-hour phone hotline, as well as limited-hour webchat and text options, for lesbian, gay, bisexual, transgender and questioning youth within the US; text TREVOR to 1-202-304-1200 (available M-F from 3:00 pm to 10:00 pm ET)

US Veterans Crisis Line: 1-800-273-8255 - 24/7 hotline that provides phone, webchat, and text options available to military veterans and their families. It provides options for deaf and hard of hearing individuals

US National Alliance on Mental Illness (NAMI): 1-800-950-NAMI - nationwide network and search function for support and education; <https://www.nami.org/Support-Education/NAMI-HelpLine/Top-HelpLine-Resources>

US National Suicide Prevention Lifeline: 1-800-273-TALK (1-800-273-8255) or 988 - Languages: English, Spanish; <https://suicidepreventionlifeline.org/> (Deaf & Hard of Hearing Options): 1-800-799-4889

US Samaritans: 877-870-HOPE (4673) - registered charity aimed at providing emotional support to anyone in distress or at risk of suicide throughout the United States; <http://www.samaritansusa.org/>

- Maintain your own safety as a future or current Healthcare provider to protect ourselves, our families, and our clients
- Learn as much as you can about COVID 19 and other viruses that could cause pandemic
- Self Care!

CALL TO ACTION



Sacred Heart
UNIVERSITY

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