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Navigating Coronavirus Series

COVID-19: Clinical Considerations for Primary Care
July 28, 2020

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NORTH CAROLINA AHEC

COMMUNITY CARE PHYSICIAN NETWORK

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Community Care OF NORTH CAROLINA

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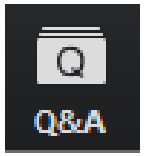
Logistics for today's COVID-19 Forum

Question during the live webinar



Technical assistance

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Today's Presenters

- **David Weber, MD, MPH,** Professor of Medicine, Pediatrics and Epidemiology at UNC, Associate Chief Medical Officer for UNC Health and Medical Director for UNC Hospitals' Departments of Hospital Epidemiology
- **Michael J. Smith, MD,** Associate Professor of Pediatrics at Duke University and a member of the Duke Antimicrobial Stewardship and Evaluation Team
- **Therese Garrett, MD,** Medical Director, Behavioral Health, WellCare of North Carolina, Co-Chair of the NC Psychiatric Association's Disaster Committee, and President of the NC Council on Child and Adolescent Psychiatry

COVID-19 (SARS Co-V-2): Focus on Issues Relevant to Primary Care Specialists

David Jay Weber, M.D., M.P.H., FSHEA, FIDSA, FRSM (London)

- Professor of Medicine, Pediatrics, Epidemiology
- Associate Chief Medical Officer, UNC Hospitals
- Medical Director, Hospital Epidemiology, University of North Carolina at Chapel Hill

Disclosures: Consultant-PDI, Germitec, Pfizer, Merck

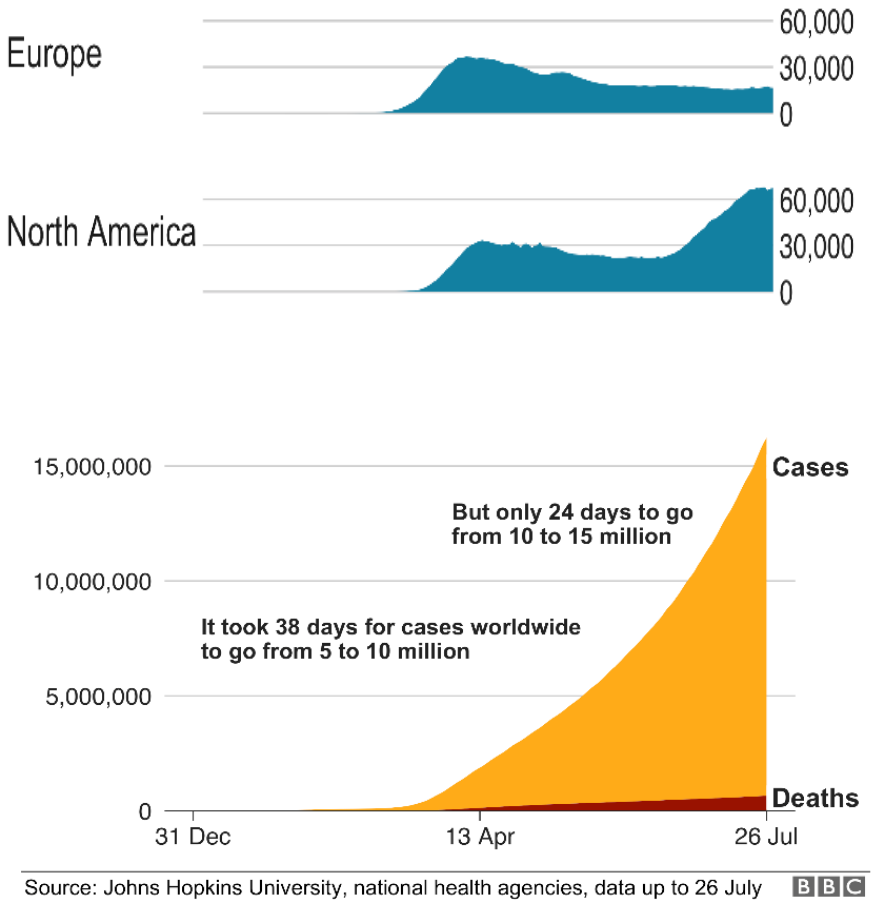
COVID-19: New Information

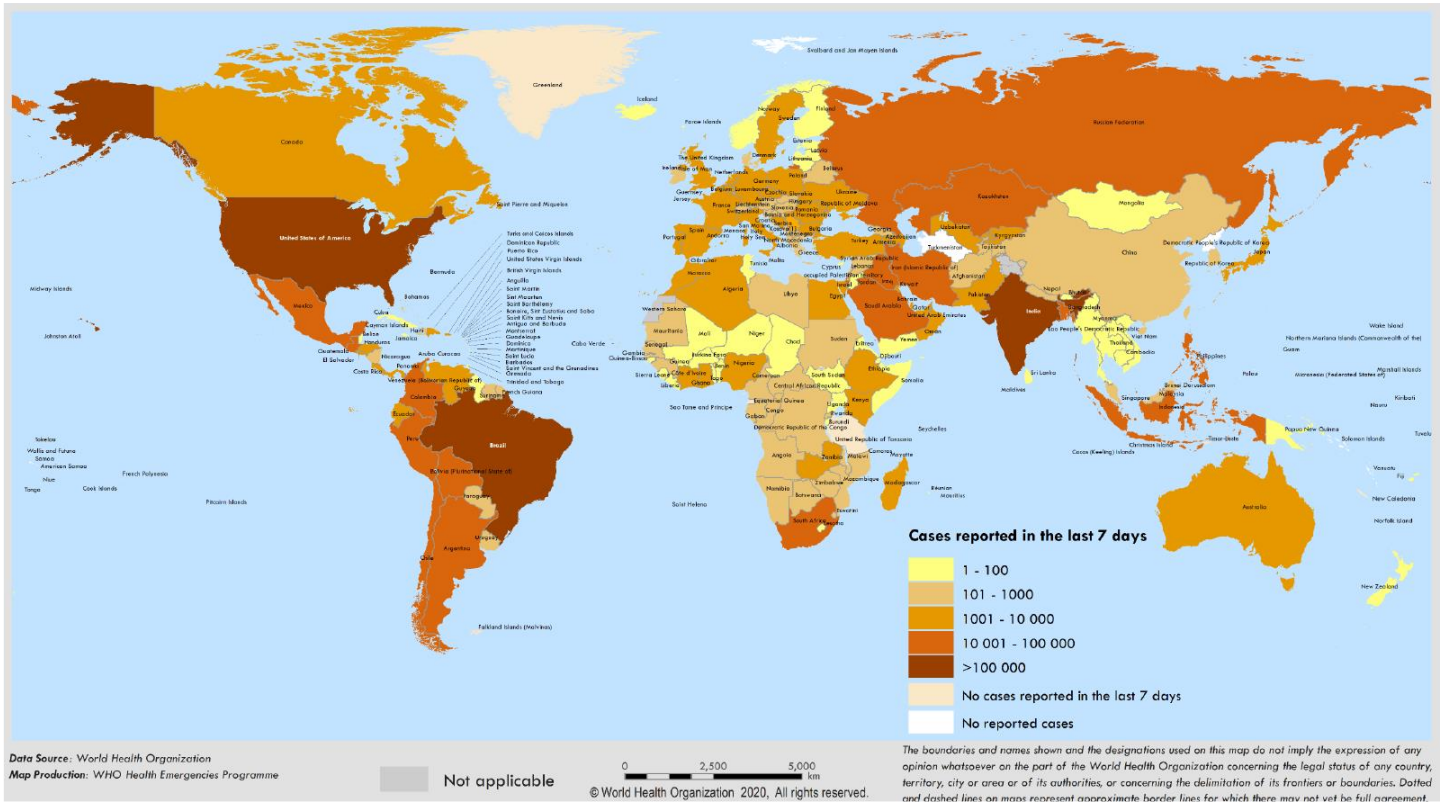
- Increasing cases in US; largest increase in the 18-45 year age range
- Percent of population that has had COVID-19 (CDC): 2% TO 5% (outlier, NYC = 23%)
- Percent of asymptomatic infections: 20% to 80% (depends on study population)
- Among symptomatic persons: mild disease, 80%; severe disease, 15%; critical disease, 5%
- Data suggests that airborne (>6 feet) transmission does NOT occur
- Duration of infectiousness: Ambulatory patients, <11 days (5 studies); hospitalized patients, <20 days (2 studies)

COVID-19: New Information

- Viral mutations: Mutations with increased transmissibility reported; but similar virulence
- Likely effective therapies: Remdesivir, Dexamethasone, prone ventilation
- Vaccine: Likely not available in 2020
- Masks very effective in preventing transmission when worn by infected persons, and in preventing acquisition when worn by uninfected persons
- COVID-19 case data now sent to US DHHS: Concerns = potential time delays, lack of transparency and manipulation
- Continued challenges: Limited testing capacity

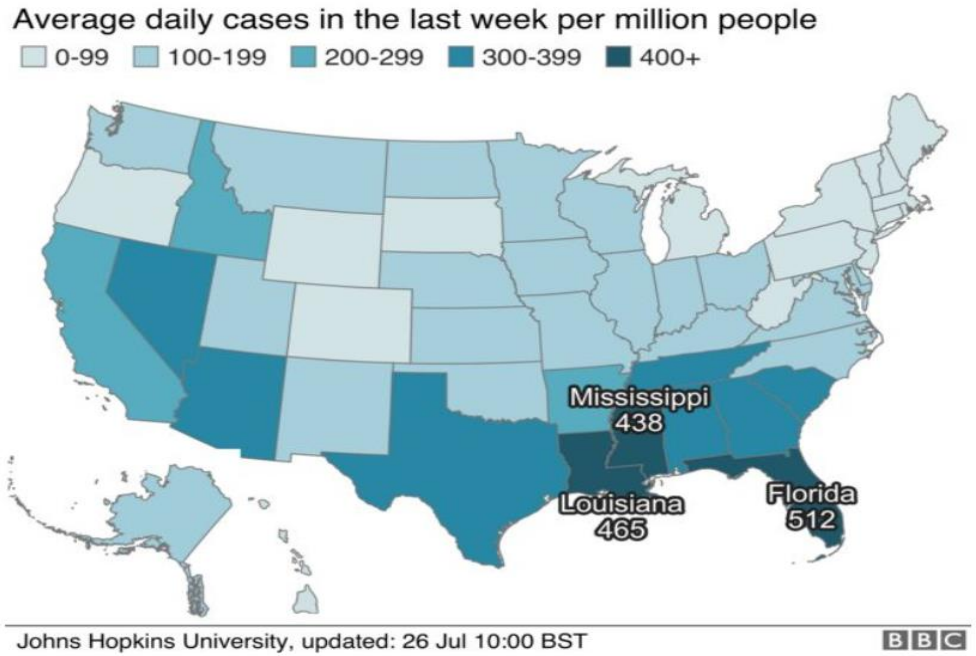
COVID-19: Worldwide Epidemiology

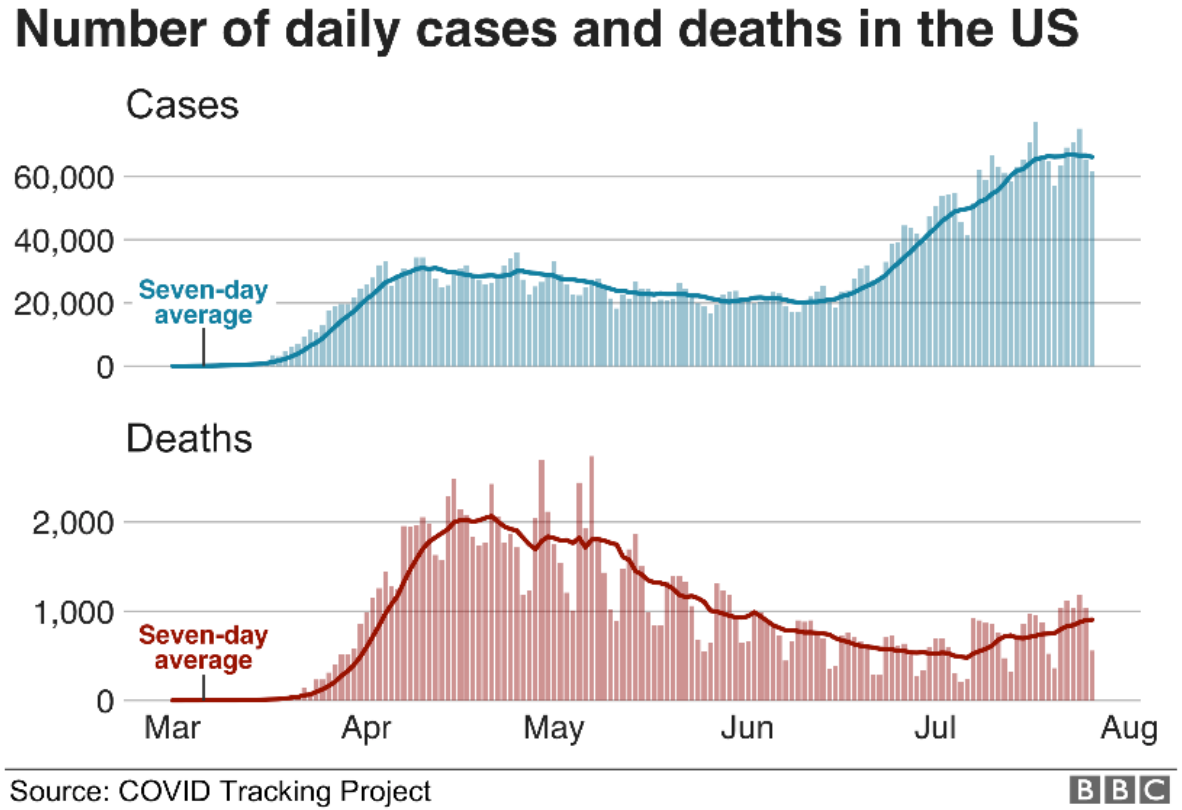




https://www.bbc.com/news/world-51235105
https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/

COVID-19, U.S.





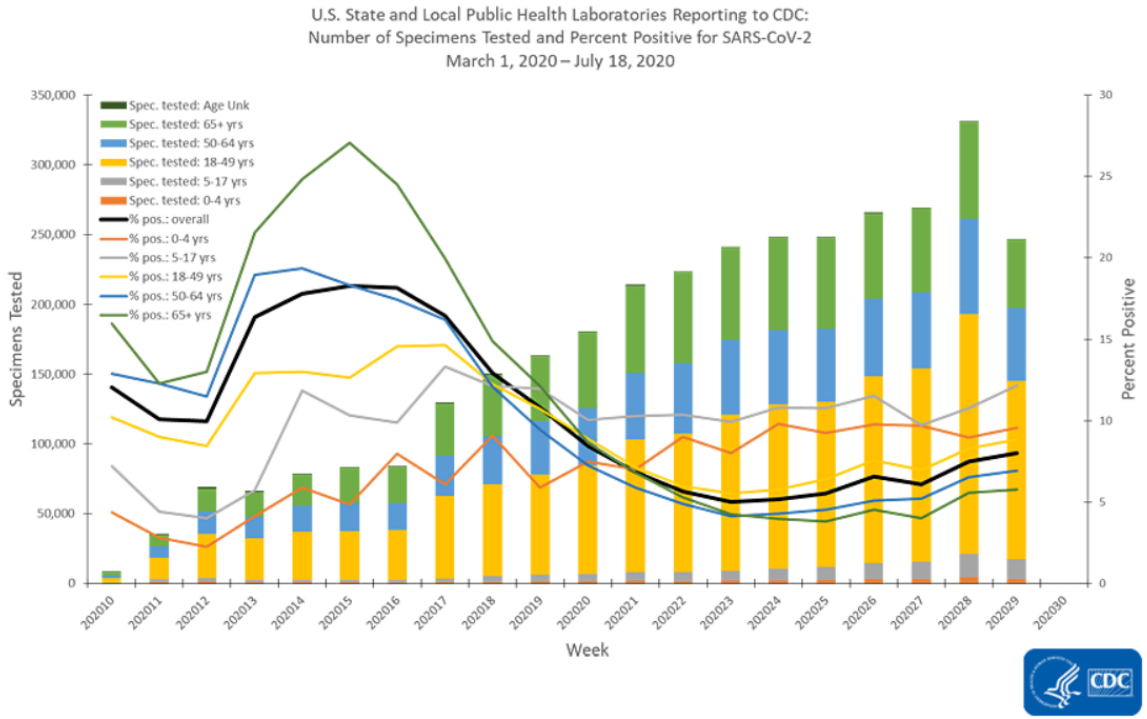
Worldwide >16,264,000 cases (>648,000 deaths)
US >4,234,000 cases, 25% of world's total (>147,000 deaths):
- deaths undercounted; a leading cause of death in the US

NC >101,000 cases (>1,670 deaths; 1,086 hospitalized)
NC >1,423,000 COVID-19 tests (~10% positive)

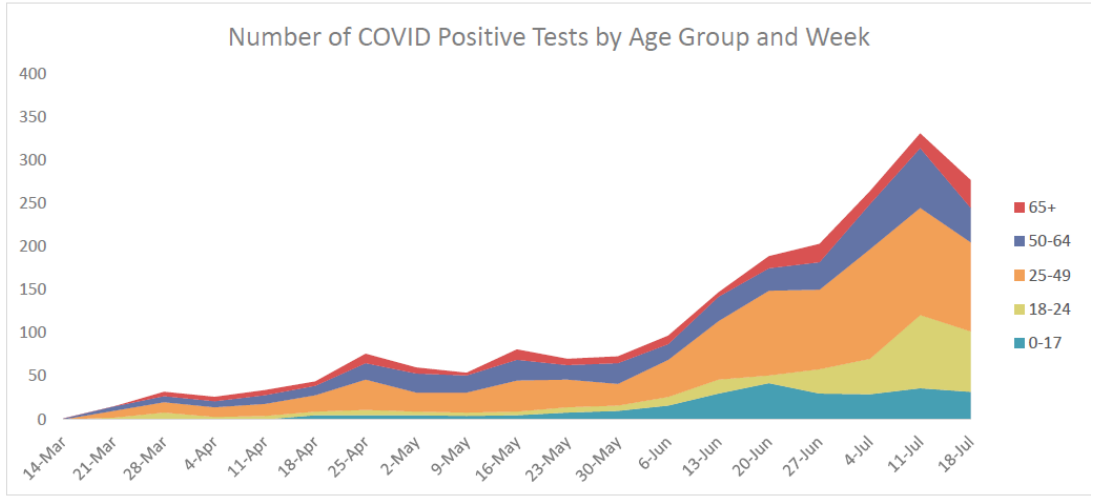
https://www.bbc.com/news/world-51235105
https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html

COVID-19 Epidemiology: Increasing Cases in Persons 18-49 Years of Age

US



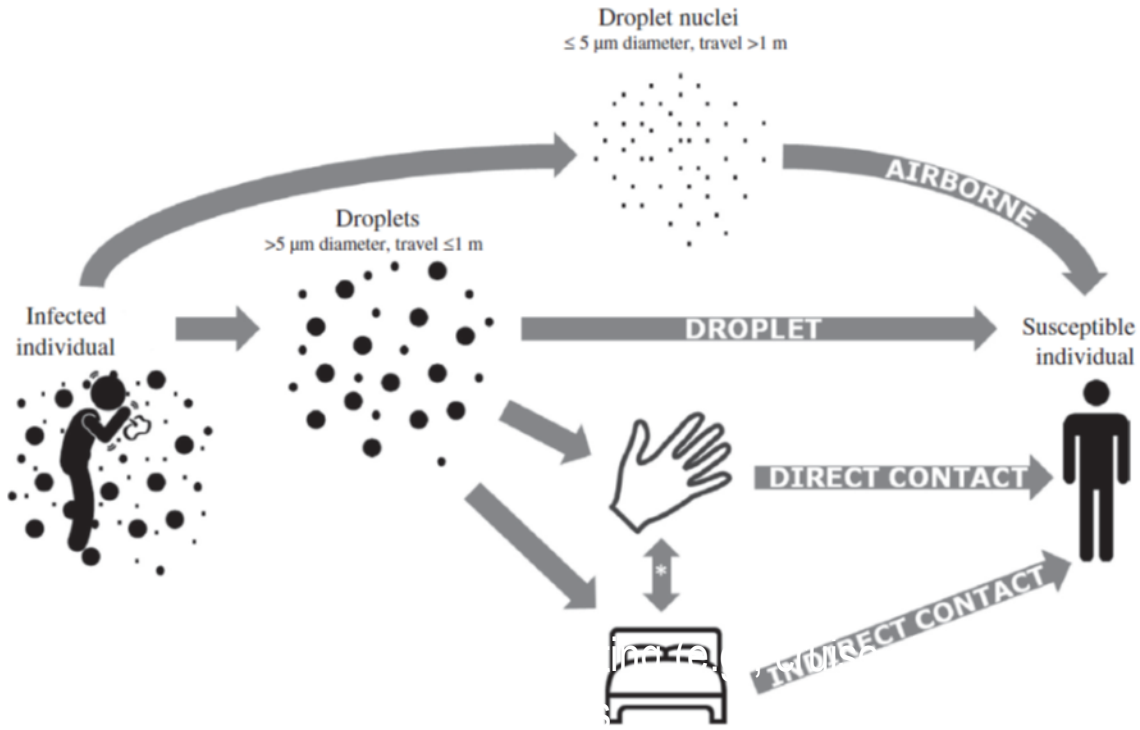
UNC MEDICAL CENTER



Age category of people who test positive for COVID-19 by week of specimen collection. Includes COVID-19 pcr tests completed by UNC McLendon labs with a parent location of UNC Hospitals (includes outpatient and Chapel Hill RDC).

https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html

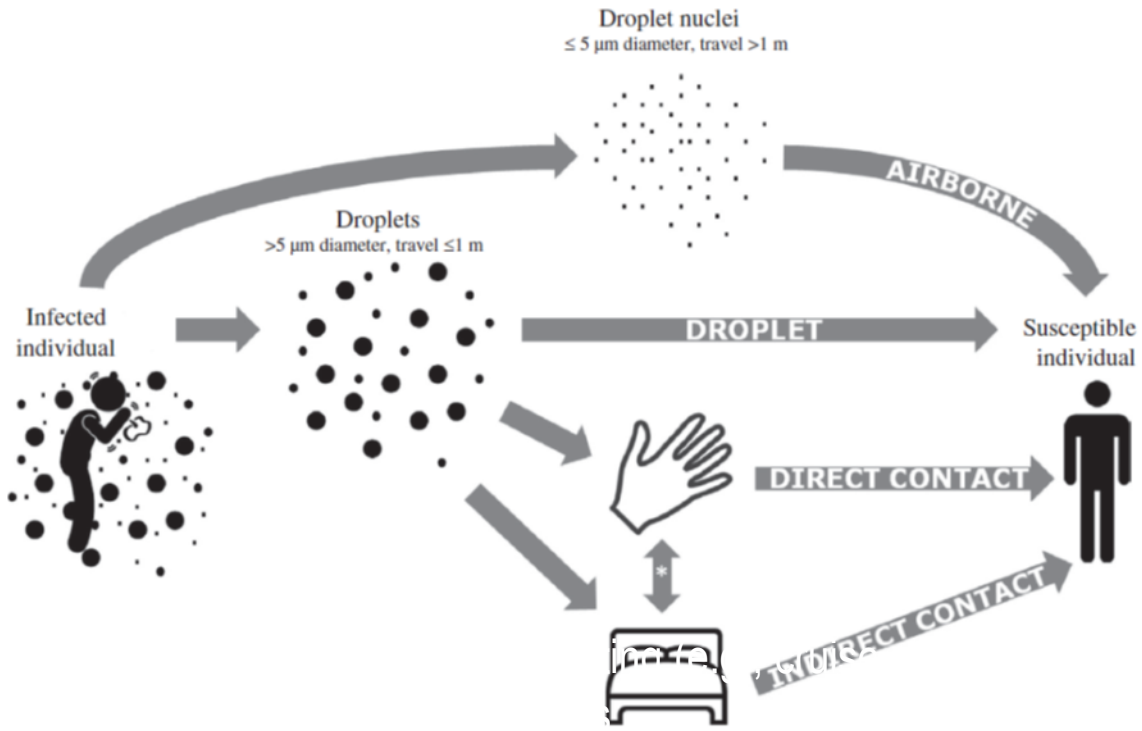
Transmission of SARS CoV-2



* Transmission routes involving a combination of hand & surface = indirect contact.

- Droplet (≤6 feet) and direct contact predominant modes of transmission: Household transmission major mode of spread in China
- Indirect (via the contaminated environment) – Important
- Evidence does not support airborne transmission (>6 feet)
- Pre-symptomatic – transmission well documented

Transmission of SARS CoV-2



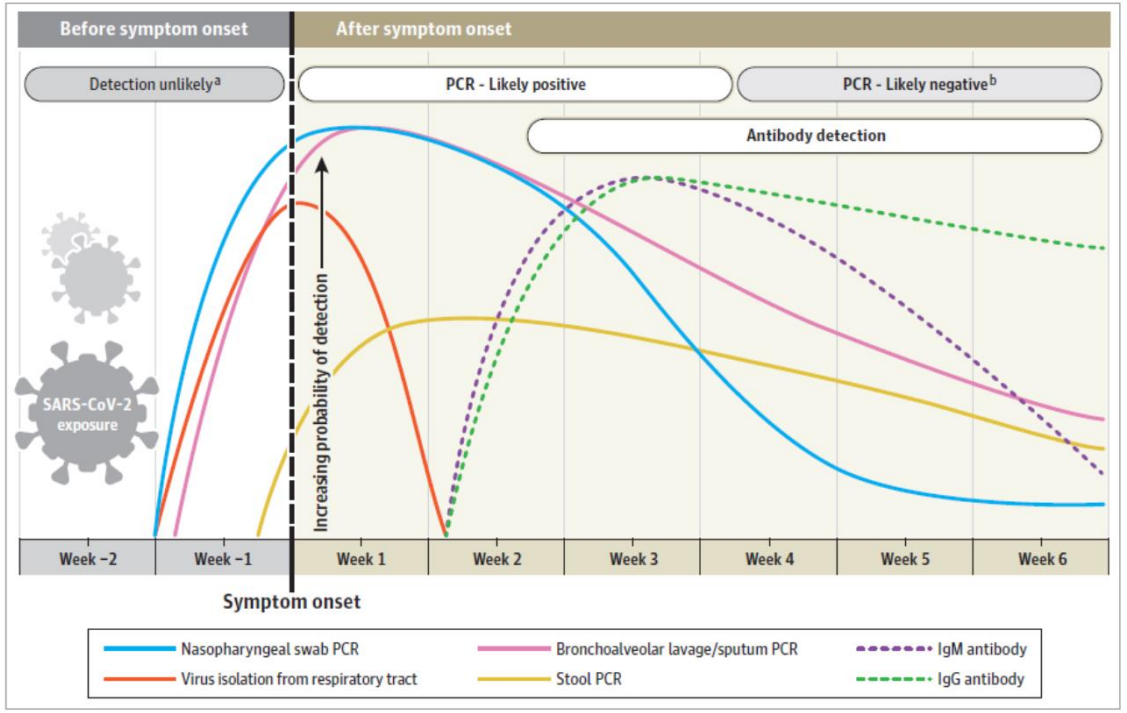
* Transmission routes involving a combination of hand & surface = indirect contact.

- Asymptomatic (infection demonstrated) – infectivity undefined
- Aerosolization of stool (viable virus occasionally demonstrated in stool) – no evidence for transmission
- Airborne – no evidence for transmission
- Transplacental/vertical – possible rare cases
- Companion animals – may develop mild symptoms (cats, dogs, tigers, minks) – possible mink-to-human transmission

COVID-19 Testing

- A negative COVID-19 RT-PCR test does NOT exclude COVID-19 infection if the person is within the 14-day incubation period
- A positive antibody test does NOT exclude infectious COVID-19 if the person is symptomatic
- A positive antibody test does not necessarily indicate immunity to re-infection
- The rapid point-of-care antigen test is only 80% sensitive and has NOT been validated for testing asymptomatic persons
- Current turnaround time for commercial tests is 5-10 days

Figure. Estimated Variation Over Time in Diagnostic Tests for Detection of SARS-CoV-2 Infection Relative to Symptom Onset



Estimated time intervals and rates of viral detection are based on data from several published reports. Because of variability in values among studies, estimated time intervals should be considered approximations and the probability of detection of SARS-CoV-2 infection is presented qualitatively. SARS-CoV-2 indicates severe acute respiratory syndrome coronavirus 2; PCR, polymerase chain reaction.

[a] Detection only occurs if patients are followed up proactively from the time of exposure.

[b] More likely to register a negative than a positive result by PCR of a nasopharyngeal swab.

CDC: Shedding of Infectious SARS-CoV-2, Key Findings I

- **Concentrations of SARS-CoV-2 RNA measured in upper respiratory specimens decline after onset of symptoms** (CDC, unpublished data, 2020; Midgley et al., 2020; Young et al., 2020; Zou et al., 2020; Wölfel et al., 2020; van Kampen et al., 2020).
- The likelihood of recovering replication-competent virus also declines after onset of symptoms. **For patients with mild to moderate COVID-19, replication-competent virus has not been recovered after 10 days following symptom onset** (CDC, unpublished data, 2020; Wölfel et al., 2020; Arons et al., 2020; Bullard et al., 2020; Lu et al., 2020; personal communication with Young et al., 2020; Korea CDC, 2020). **Recovery of replication-competent virus between 10 and 20 days after symptom onset has been documented in some persons with severe COVID-19 that, in some cases, was complicated by immunocompromised state** (van Kampen et al., 2020). However, in this series of patients, it was estimated that 88% and 95% of their specimens no longer yielded replication-competent virus after 10 and 15 days, respectively, following symptom onset.

https://www.cdc.gov/coronavirus/2019-ncov/community/strategy-discontinue-isolation.html

CDC: Shedding of Infectious SARS-CoV-2, Key Findings I

- A large contact tracing study demonstrated that high-risk household and hospital contacts did not develop infection if their exposure to a case patient started 6 days or more after the case patient's illness onset (Cheng et al., 2020).
- **Although replication-competent virus was not isolated 3 weeks after symptom onset, recovered patients can continue to have SARS-CoV-2 RNA detected in their upper respiratory specimens for up to 12 weeks** (Korea CDC, 2020; Li et al., 2020; Xiao et al, 2020). Investigation of 285 "persistently positive" persons, which included 126 persons who had developed recurrent symptoms, found no secondary infections among 790 contacts attributable to contact with these case patients. Efforts to isolate replication-competent virus from 108 of these case patients were unsuccessful (Korea CDC, 2020).

https://www.cdc.gov/coronavirus/2019-ncov/community/strategy-discontinue-isolation.html

CDC: Shedding of Infectious SARS-CoV-2, Key Findings II

- **Specimens from patients who recovered from an initial COVID-19 illness and subsequently developed new symptoms and retested positive by RT-PCR did not have replication-competent virus detected** (Korea CDC, 2020; Lu et al., 2020). **The risk of reinfection may be lower in the first 3 months after initial infection, based on limited evidence from another betacoronavirus (HCoV-OC43), the genus to which SARS-CoV-2 belongs** (Kiyuka et al, 2018).
- Currently, **6 months after the emergence of SARS-CoV-2, there have been no confirmed cases of SARS-CoV-2 reinfection**. However, the number of areas where sustained infection pressure has been maintained, and therefore reinfections would be most likely observed, remains limited.
- Serologic or other correlates of immunity have not yet been established.

https://www.cdc.gov/coronavirus/2019-ncov/community/strategy-discontinue-isolation.html

CDC: Shedding of Infectious SARS-CoV-2, Key Findings II

- Caveats:
  - In a recent study of skilled nursing facility workers followed prospectively for asymptomatic infection, one of 48 infected staff had a nasopharyngeal swab which was weakly positive on a single-passage plaque assay more than 20 days after initial diagnosis; however, the specimen was not subjected to serial passage to demonstrate the presence of replication-competent virus (Quicke et al., 2020).
  - In one case report, a person with mild illness provided specimens that yielded replication-competent virus for up to 18 days after symptom onset (Liu et al., 2020).
  - Data currently available are derived from adults; equivalent data from children and infants are not presently available.
  - More data are needed concerning viral shedding in some situations, including in immunocompromised persons.

Symptom Screening at Illness Onset; HCP with SARS-CoV-2, King County, WA

Table. Clinical Course and Outcomes of Health Care Personnel With Confirmed SARS-CoV-2 Infection–King County, Washington

	No. (%)		
	Total health care personnel (N = 48)	Onset with fever, cough, shortness of breath, or sore throat (n = 40 [83.3%])	Onset without fever, cough, shortness of breath, or sore throat (n = 8 [16.7%])
Initial symptoms			
Cough	24 (50.0)	24 (60.0)	0
Fever[a]	20 (41.7)	20 (50.0)	0
Myalgias	17 (35.4)	15 (37.5)	2 (25.0)
Headache	8 (16.7)	7 (17.5)	1 (12.5)
Chills	7 (14.6)	5 (12.5)	2 (25.0)
Sore throat	7 (14.6)	7 (17.5)	0
Coryza	6 (12.5)	4 (10.0)	2 (25.0)
Shortness of breath	5 (10.4)	5 (12.5)	0
Malaise	5 (10.4)	3 (7.5)	2 (25.0)
Diarrhea	3 (6.3)	3 (7.5)	0
Voice hoarseness	2 (4.2)	1 (2.5)	1 (12.5)
Anorexia	1 (2.1)	1 (2.5)	0
Nausea/vomiting	1 (2.1)	1 (2.5)	0
Abdominal pain	1 (2.1)	0	1 (12.5)

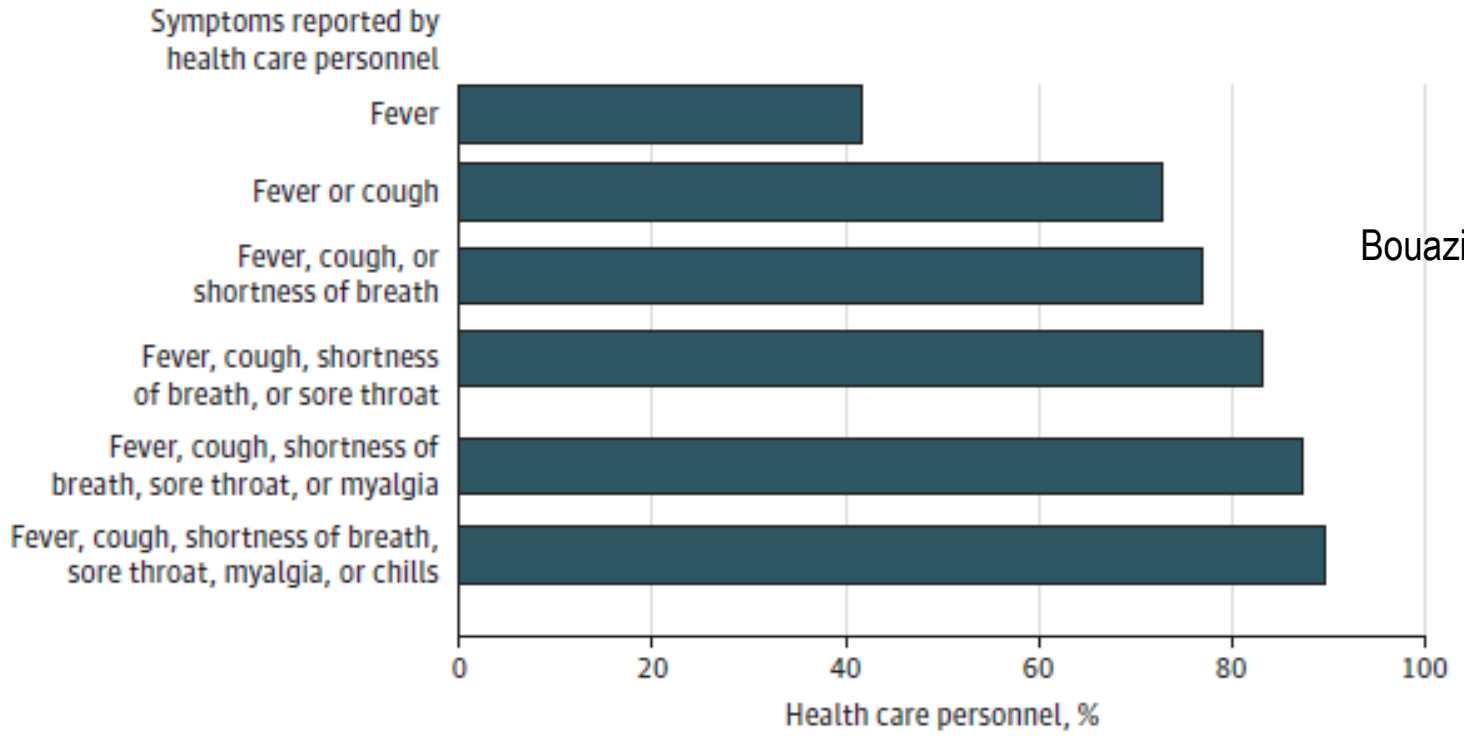
Other potential symptoms: Acute cardiovascular events, acute neurological events

Children: Skin lesions, 0.2% (erythematous rash, urticarial, vesicular lesions); toxic shock like presentation; Kowasaki disease; chilblains (acral lesions on hands/feet)

Chow EJ, et al. JAMA 2020;17 April

Symptom Screening at Illness Onset; HCP with SARS-CoV-2, King County, WA

Figure. Symptom Screening Combination for Health Care Personnel With Coronavirus Disease 2019 at Illness Onset (N = 48)



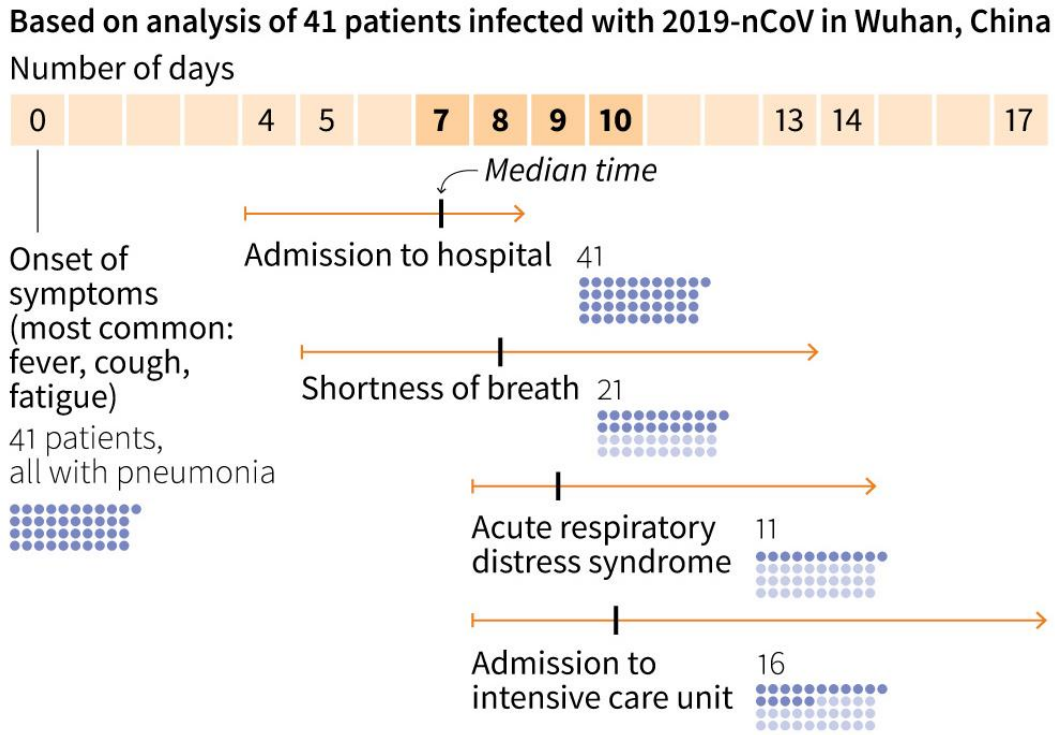
Bouaziz JD, et al. J Eur Acad Derm Ven 2020;27 April

COVID-19, Timeline of Infection Course

Symptoms begin

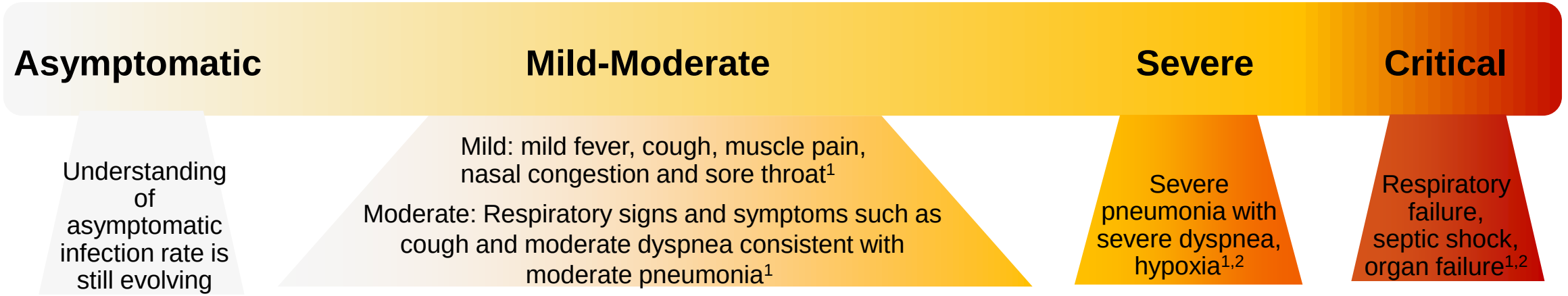
4-5 days

after exposure (range 2-14)



Li Q, et al. N Engl J Med. 2020 Jan 29. doi: 10.1056/NEJMoa2001316 Chan JF, et al. Lancet. 2020 Feb 15;395(10223):514-523
Guan WJ, et al. N Engl J Med. 2020 Feb 28. doi: 10.1056/NEJMoa2002032 **Huang C, et al. Lancet. 2020 Feb 15;395(10223):497-506**

Disease Spectrum Overview



- Individuals of all ages are at risk for infection and severe disease. However, the probability of fatal disease is highest in people aged ≥ 65 years and those living in a nursing home or long-term care facility. Other high risks population are those with underlying conditions including:[3]
  - Hypertension
  - Cardiovascular disease
  - Diabetes
  - Chronic respiratory disease
  - Cancer
  - Renal disease
  - Obesity
- Pediatric multisystem inflammatory syndrome: Syndrome characterized by persistent fever and features of Kawasaki disease and/or toxic shock syndrome in patients <21 years old with confirmed or suspected SARS-CoV-2 infection[4,5,6]

1. Cascella et al, Features, Evaluation and Treatment Coronavirus (COVID-19). StatPearls Publishing, Treasure Island, FL; 2020.
2. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19
3. NIH COVID-19 Treatment Guidelines https://www.covid19treatmentguidelines.nih.gov/overview/
4. Jones et al, Hosp Pediatr 2020
5. https://www.nytimes.com/2020/05/05/nyregion/children-Kawasaki-syndrome-coronavirus.htm
6. https://www1.nyc.gov/assets/doh/downloads/pdf/han/alert/2020/covid-19-pediatric-multi-system-inflammatory-syndrome.pdf

Persistent Symptoms in Patients After Acute COVID-19

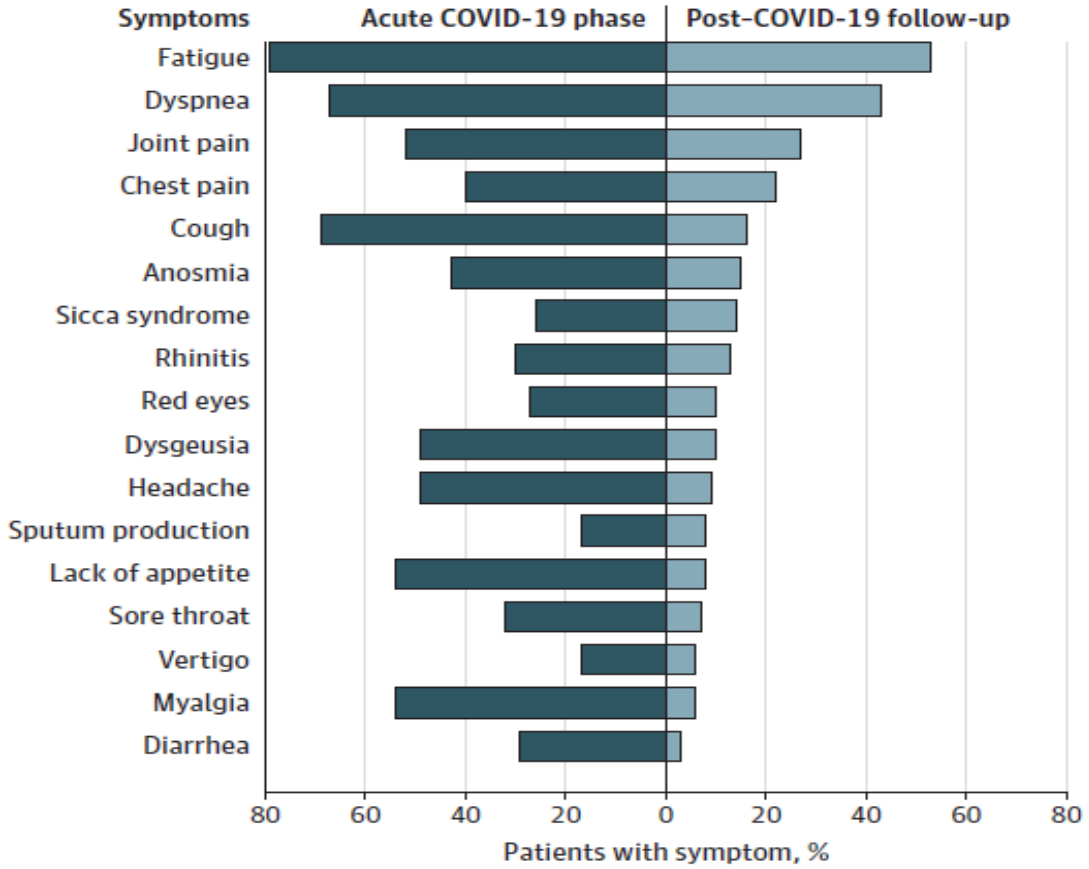
- Study goal: Post-care assessment of symptoms in patients who had had COVID-19
- Methods: Standard collection of symptoms
- Results (N=143):
  - Mean age, 56.5 (SD, 14.6); 53% female; 72.7% had evidence of interstitial pneumonia; mean LOS in hospital was 13.5 d (SD, 9.7); 21 (15%) non-invasive ventilation; 7 (5%) invasive ventilation
  - Mean time at assessment, 60.3d from first symptom; only 18 (12.6%) completely free on any COVID-related symptom
  - Common symptoms=fatigue, 53.1%; dyspnea, 43.4%; joint pain, 27.3%; chest pain, 21.7%

Persistent symptoms, No. (%)	
None	18 (12.6)
1 or 2	46 (32.2)
≥3	79 (55.2)
Worsened quality of life, No. (%)[b]	63 (44.1)

Carfi A, et al. JAMA 2020 July 9

Persistent Symptoms in Patients After Acute COVID-19

Figure. COVID-19–Related Symptoms

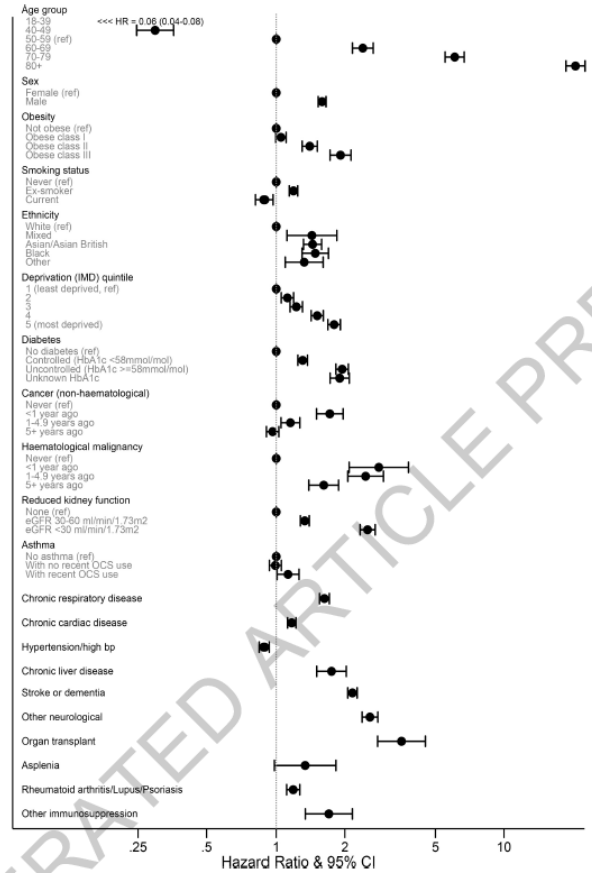


The figure shows percentages of patients presenting with specific Coronavirus disease 2019 (COVID-19)-related symptoms during the acute phase of the disease (left) and at the time of the follow up visit (right).

Carfi A, et al. JAMA 2020 July 9

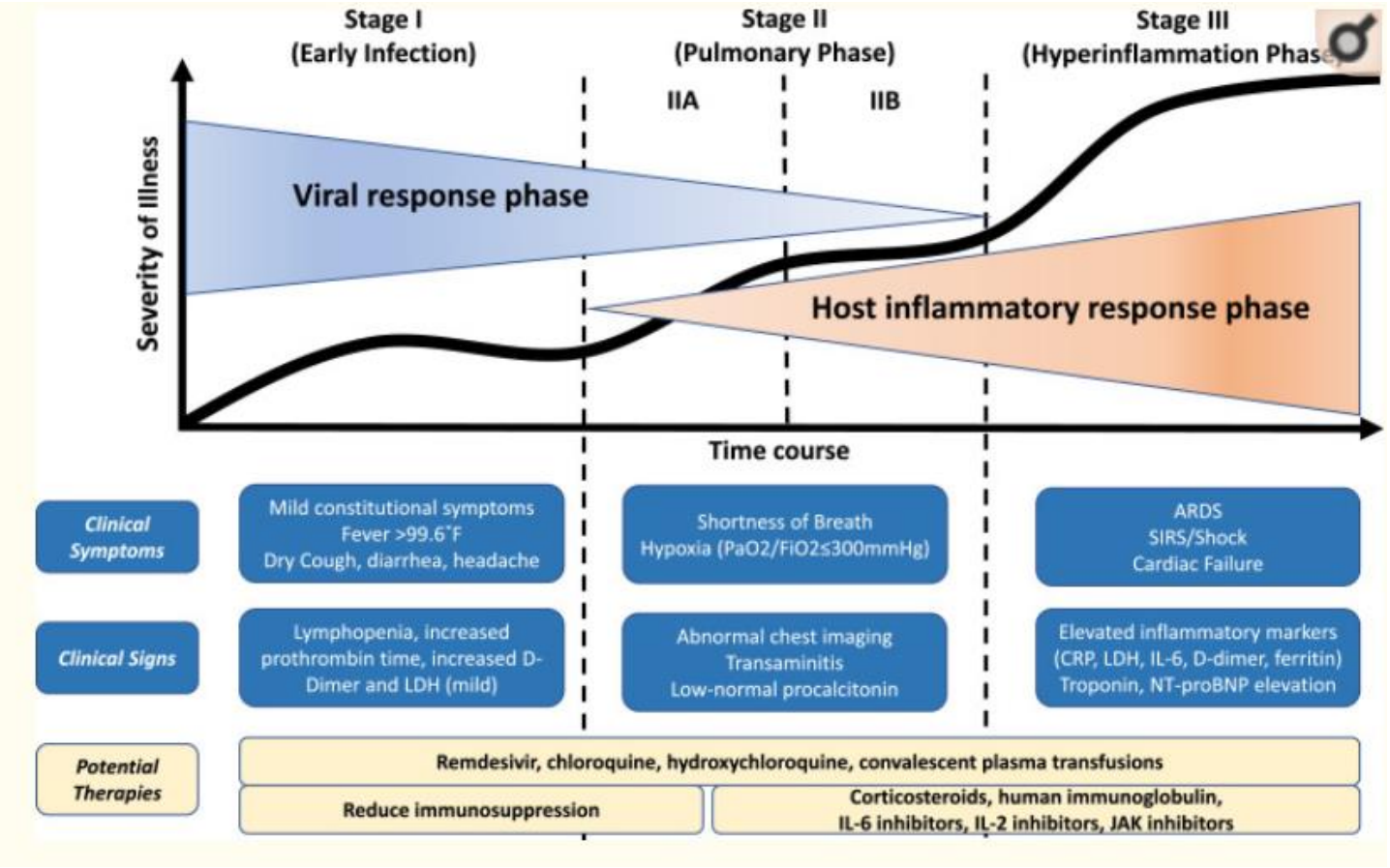
Risk Factors Associated with COVID-19 Deaths

- Goal: Assess factors associated with COVID-19 deaths in 17 million patients
- Methods:
  - Primary care records of 17,278,392 adults were linked to 10,926 COVID-19 related deaths
  - Death related to: male, HR 1.59 (CI, 1.53-1.65); older age and deprivation (both with a strong gradients; diabetes; severe asthma; and various other medical conditions
  - Black and South Asian people at higher risk even after adjustment for other factors, HR 1.48 (1.30-1.69), HR 1.44 (1.32-1.58) respectively



Williamson EJ, et al. Nature, 2020 May 15
https://doi.org/10.1038/s41586-020-2521-4

Potential Therapies for COVID-19



Therapies available at UNC:

- Remdesivir
- Convalescent plasma
- High titer mono-clonal antibodies
- Steroids
- Lopinavir-ritonavir
- Tocilizumab

Methods for providing

- FDA EUA
- IRB approved research
- Off label use

Siddiqi HK, et al. J Health Lung Transplant 2020;20 March

Thank you all – for what you do to support UNC during this pandemic

COVID-19 in Children

Michael J. Smith, M.D.

- Associate Professor of Pediatrics at Duke University
- Member of the Duke Antimicrobial Stewardship and Evaluation Team

COVID in Children (United States: 7/23/20)

- 288,287 cases in children
  - 8.4% of all cases
  - 380 cases per 100,000 children
- Children account for 0.8 – 2.9% of all hospitalizations
  - 0.6 – 9% of child COVID cases result in hospitalization
- Children account for 0 – 0.8% of all COVID deaths
  - 0 – 0.3% of cases result in death

Pediatric Cases Over Time

Date	Number of locations reporting age	Cumulative total cases (all ages)	Cumulative child cases^	Percent children of total cases	Cases per 100,000 children
7/23/20	49 states, NYC, DC, PR, and GU	3,416,630	288,287	8.4%	379.7
7/16/20	49 states, NYC, DC, PR, and GU	3,042,413	241,904	8.0%	318.6
7/9/20	49 states, NYC, DC, PR, and GU	2,651,066	200,184	7.6%	263.7
7/2/20	49 states, NYC, DC, PR, and GU	2,335,060	165,845	7.1%	218.4
6/25/20	49 states, NYC, DC, PR, and GU	2,073,387	138,213	6.7%	182.0
6/18/20	49 states, NYC, DC, PR, and GU	1,885,905	116,176	6.2%	153.0
6/11/20	49 states, NYC, DC, PR, and GU	1,750,240	98,246	5.6%	129.4
6/4/20	49 states, NYC, DC, PR, and GU	1,623,334	84,016	5.2%	110.7
5/28/20	47 states, NYC, DC, PR, and GU	1,425,154	66,513	4.7%	91.5
5/21/20	47 states, NYC, DC, PR, and GU	1,288,305	54,031	4.2%	74.4
5/14/20	47 states, NYC, DC, PR, and GU	1,159,407	42,370	3.7%	58.3
5/7/230	46 states, NYC, DC, PR, and GU	1,010,112	32,568	3.2%	45.0
4/30/20	47 states, NYC, DC, and PR	849,615	23,096	2.7%	31.8
4/23/20	48 states, NYC, DC, PR, and GU	710,953	15,911	2.2%	21.2
4/16/20	46 states, NYC, and DC	456,923	9,259	2.0%	13.3

COVID in Children (North Carolina: 7/23/20)

- 288,287 cases in children
  - 8.4% of all cases **(11%)**
  - 380 cases per 100,000 children **(504)**
- Children account for 0.8 – 2.9% of all hospitalizations
  - 0.6 – 9% of child COVID cases result in hospitalization
- Children account for 0 – 0.8% of all COVID deaths **(0.1%)**
  - 0 – 0.3% of cases result in death **(0)**

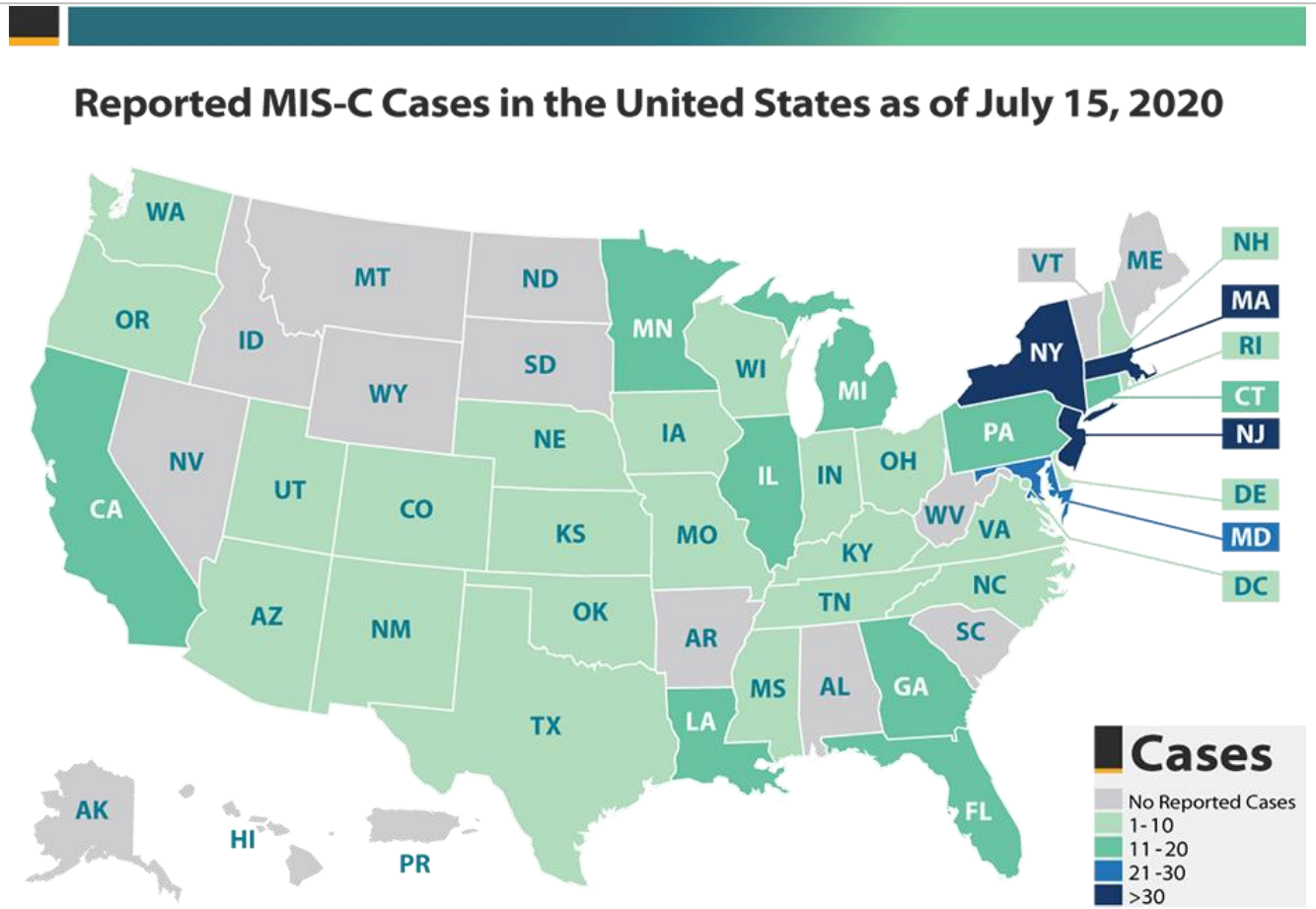
Multisystem Inflammatory Syndrome in Children (MISC)

- An individual aged <21 years presenting with fever*, laboratory evidence of inflammation, and evidence of clinically severe illness requiring hospitalization, with multisystem (>2) organ involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic or neurological); AND
- No alternative plausible diagnoses; AND
- Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or COVID-19 exposure within the 4 weeks prior to the onset of symptoms

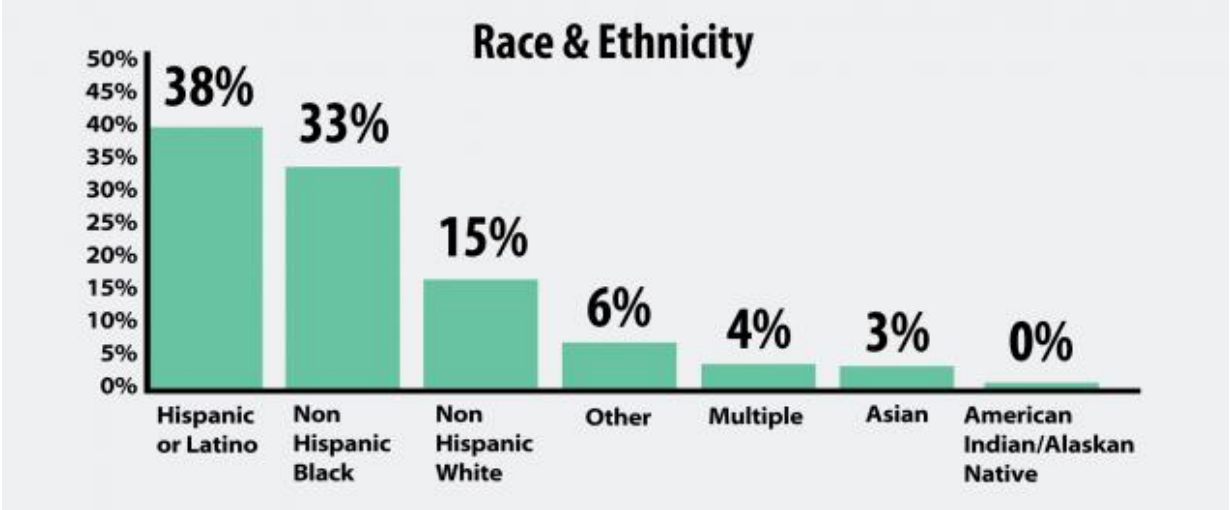
Multisystem Inflammatory Syndrome in Children (MISC)

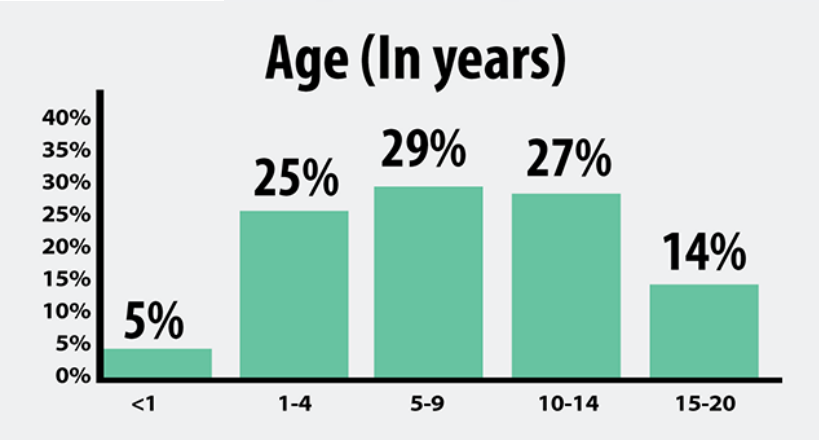
- An individual aged <21 years presenting with fever*, laboratory evidence of inflammation, and evidence of clinically severe illness requiring hospitalization, with multisystem (>2) organ involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic or neurological); AND
- No alternative plausible diagnoses; AND
- Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or COVID-19 exposure within the 4 weeks prior to the onset of symptoms
- ***Fever >38.0°C for ≥24 hours, or report of subjective fever lasting ≥24 hours**

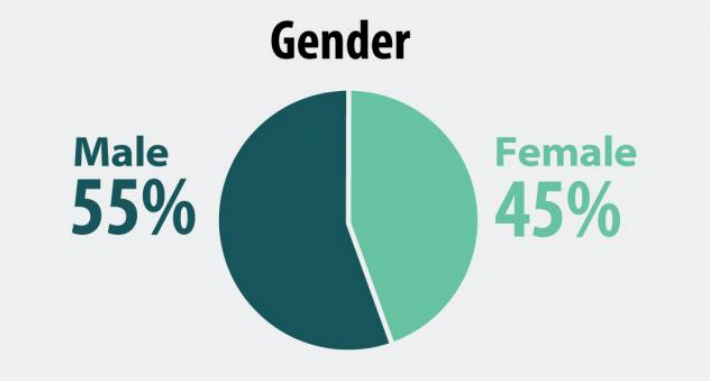
MISC: Geography



MISC: Demographics







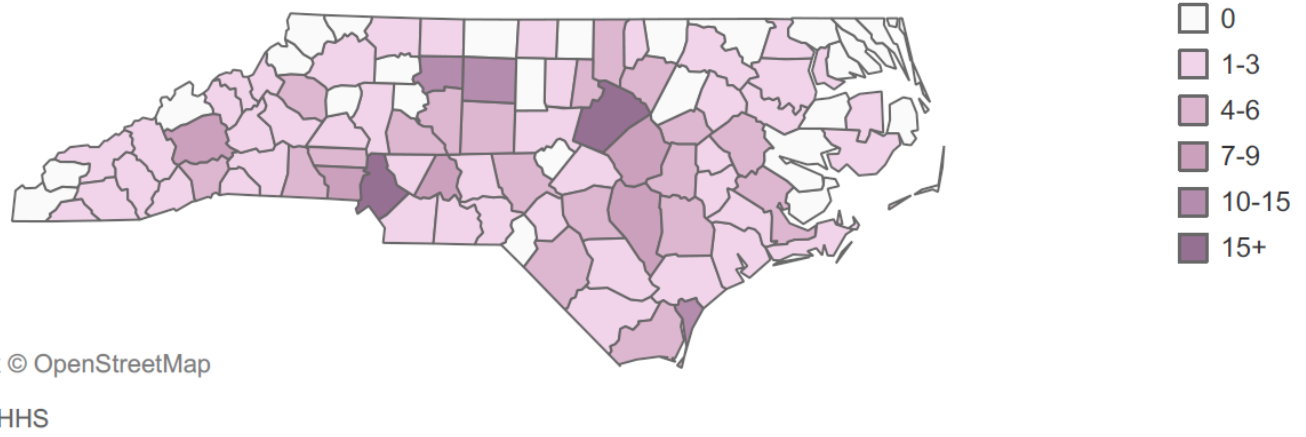
Returning to School

If a child's school is open for in-person learning, should they go back?

- Likelihood of acquiring infection
  - Local epidemiology
  - School mitigation strategies
- Likelihood of severe disease if they get infected
  - High-risk: Immunocompromised
  - Lower risk: Asthma, Diabetes, Obesity
- Family considerations

NCDHHS Outbreaks and Clusters

Ongoing Outbreaks and Clusters



Map Credit: NCDHHS

Child Care and School Settings and Clusters

	Clusters	Cluster-Associated Cases	Cluster-Associated Deaths
School	1	8	0
Child Care	13	98	0

https://covid19.ncdhhs.gov/dashboard/outbreaks-and-clusters

Childcare Clusters in North Carolina

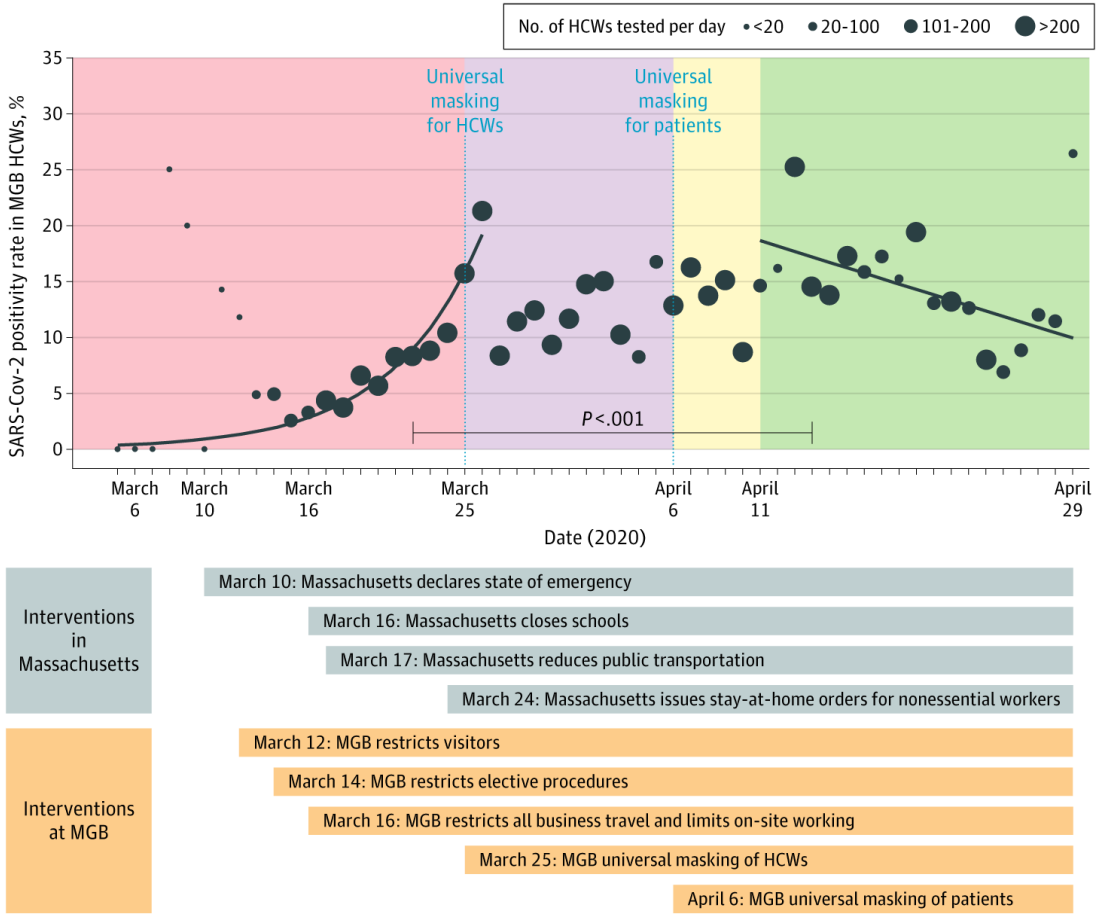
Child Care or School Setting with an Ongoing Cluster:

Setting Type	Setting County	Facility	Staff		Children		Total	
			Cases	Deaths	Cases	Deaths	Cases	Deaths
Child Care	Cumberland	Sunshine House Cliffdale Road	5	0	1	0	6	0
Child Care	Franklin	ABC Adventures Preschool and Childcare	0	0	6	0	6	0
Child Care	Guilford	YESS Learning Center	4	0	3	0	7	0
Child Care	Iredell	Primrose School of Lake Norman	3	0	2	0	5	0
Child Care	McDowell	Early Childhood Enrichment Center	0	0	2	0	2	0
Child Care	Mecklenburg	Heaven's Angels Childcare Facility	3	0	11	0	14	0
Child Care	Mecklenburg	Kindercare Providence	1	0	7	0	8	0
Child Care	Moore	Magic Years Childcare Center	2	0	4	0	6	0
Child Care	New Hanover	Milestone Learning Center	8	0	7	0	15	0
Child Care	New Hanover	Kiddie Academy	3	0	3	0	6	0
Child Care	Pitt	A Child's Place	7	0	2	0	9	0
Child Care	Randolph	It's A Kids World	4	0	2	0	6	0
School	Union	East Union Middle School	6	0	0	0	6	0

Questions from the Outpatient Setting

- Newborns with COVID+ parents/caretakers
- Reinfection
- Testing strategies for office staff/HCWs

Impact of universal masking



JAMA. Published online July 14, 2020. doi:10.1001/jama.2020.12897

Psychiatric Consequences of Coronavirus Infections

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Psychiatric Consequences of Coronavirus Infections

Acute

- Delirium/confusion occurred in 27.9% of patients
- Common: depression, anxiety
- Mania/psychosis- small minority (0.7%) – likely secondary to exogenous corticosteroids
- Lability, irritability, pressured speech, euphoria common- subthreshold mania

Long-term

- Sleep disorder, fatigue
- Frequent traumatic memory recall
- Lability
- Impaired concentration/ memory

High point prevalence-anxiety, depression, PTSD

- Difficult to separate infection effects from effects on population as a whole

Positive effects in terms of personal growth during adversity

Rogers et al, Lancet Psychiatry, 2020 May 18: Psychiatric and neuropsychiatric presentations associated with severe coronavirus infections: a systematic review and meta-analysis with comparison to the COVID-19 pandemic

Neurological Syndromes

- UK review: neuropsychiatric symptoms: 62% were CVA, with AMS in 31%, 'other' neurologic problems 9%
  - Majority of CVA- ischemic stroke
  - Neurocognitive syndromes, new onset psychosis
- Case reports - Guillain-Barre, acute myelitis, encephalopathies, post-viral syndrome resembling depression,
- MIS-C- AMS, seizures in children

Varatharaj, et al. Lancet Psychiatry. 2020 Jun 25: Neurological and Neuropsychiatric Complications of COVID-19 in 163 patients: A UK-wide surveillance study
Kwong, et al. J Clin Neurosci. 2020 Jul; 77:13-16: COVID-19, SARS and MERS: A neurological perspective
Ellul et al. Lancet Neurology 2020 July 02: Neurological Associations of Covid-19

Possible Etiologies of Neuro-Psychiatric Consequences of Coronavirus Infections

Multifactorial

- Immunologic response
- Cerebrovascular disease
- Direct effects- including brain infection
- Degree of physiological compromise (lack of oxygenation- hypoxia)
- Medical interventions
- Social isolation, stigma, fears about infecting others
- Psychological impact of novel, severe, potentially fatal illness

Rogers et al, Lancet Psychiatry, May 18, 2020: Psychiatric and neuropsychiatric presentations associated with severe coronavirus infections: a systematic review and meta-analysis with comparison to the COVID-19 pandemic

Mental Health Impacts of Critical Illness

- 1-year prevalence
  - Depression 29%
  - Anxiety 34%
  - PTSD 34%
- Acute Respiratory Distress Syndrome
  - Common - agitation, confusion, corticospinal tract signs
  - Prolonged mechanical ventilation associated with greater reductions in QOL than ICU admissions for other reasons
  - Majority at 1 year show impaired memory, attention, concentration, mental processing speed
- Dysexecutive syndrome
- Steroid induced mania/psychosis
- Cognitive decline/acceleration of dementia

Rogers et al, Lancet Psychiatry, May 18, 2020: Psychiatric and neuropsychiatric presentations associated with severe coronavirus infections: a systematic review and meta-analysis with comparison to the COVID-19 pandemic

Impact of Pandemic and Lockdown on Pre-existing Psychiatric Illness

- Case-control study in China- pre-COVID dx of F32.x, F33.x, F41.x
- Did not include bipolar or psychotic disorder diagnoses or < age 18
- Significant PTSD symptoms -43% of psychiatry patients, 27.5% controls
- ¼ of psychiatry patients reported moderate to severe anxiety, depression, insomnia
- Individuals with physical symptoms much more likely to report psychiatric symptoms
- Incorporation into delusional systems
- Out of proportion anxiety/obsessions

Hao, et al. Do psychiatric patients experience more psychiatric symptoms during COVID-19 pandemic and lockdown? A case-control student with service and research implications for immunopsychiatry. Brain, Behavior, and Immunity 87 (2020) 100-106

Impact on Family of COVID Patients

- Traumas related to separation and inability to be with their loved one
- Uncertainty and delays in information/updates
- Deaths- disruption of the grieving process
  - Saying goodbye
  - Altered grieving rituals
  - Increased risk of complicated grief, depressive and anxiety disorders
- Stigmatization by others
- Guilt about being vector of infection
- Challenges with COVID positive mother of newborn and separations- impact on hospital care and post-hospital newborn care

Prescriptions During Early COVID-19

- Starting 2/16, rates have climbed dramatically (2/16-3/15)
- Anti-anxiety prescriptions rose 34.1% (2/16-3/15)
- Antidepressant prescriptions filled increased 18.6%
- Anti-insomnia prescriptions increased 14.8%
- Majority of prescriptions were NEW prescriptions (78%)
- Why is this significant?
  - 2015-2019- decreased use of anti-anxiety (12%), decline in use of insomnia meds (11.3%)
  - 2015-2019- 15% increase in antidepressants

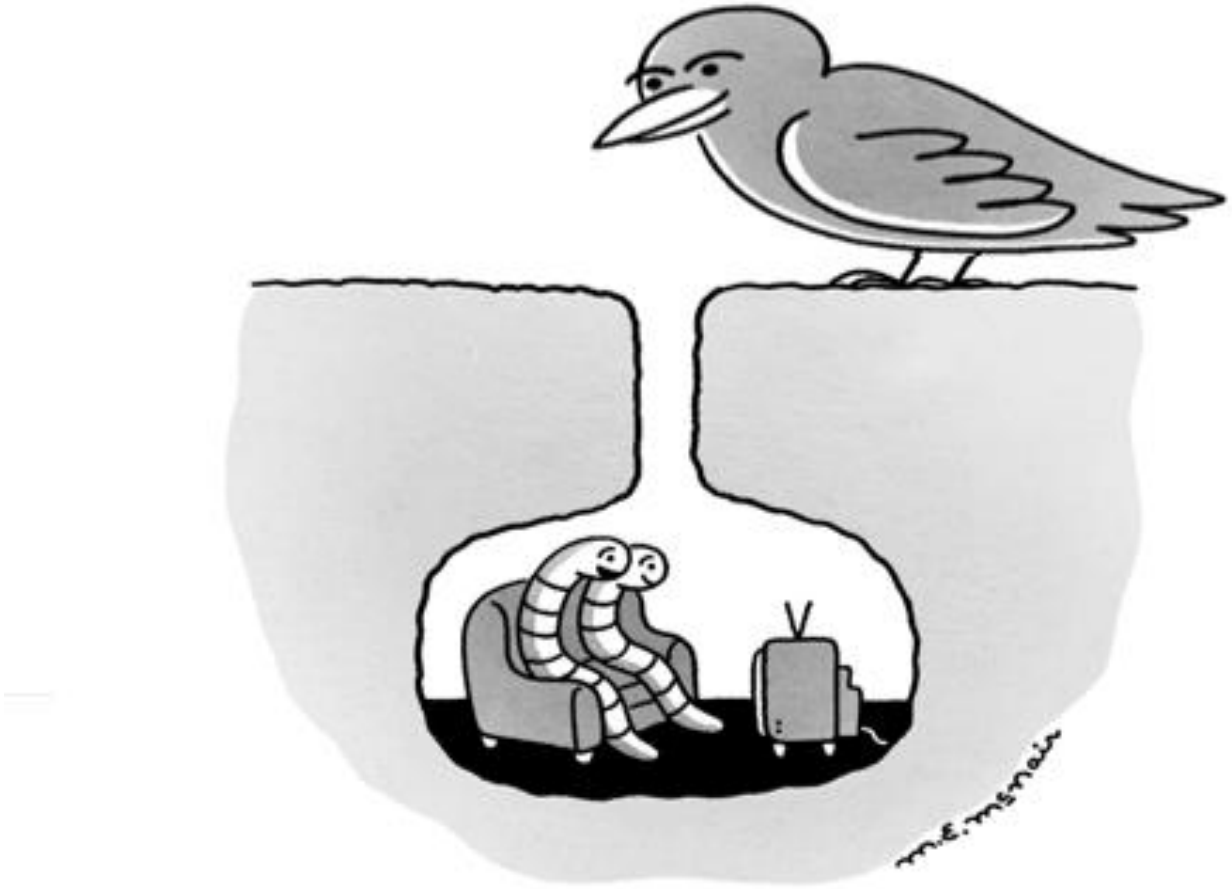
America's State of Mind Report: Express Scripts 2020, April 16: Retrieved 05/31/20: https://www.express-scripts.com/corporate/americas-state-of-mind-report/mind-search-online

Requests from Health Care Professionals

- **Hear Me -** Listen and act on HCP expert perspective, understand/address their concerns
- **Protect Me -** Reduce the risk of HCP acquiring COVID or being a portal of the virus to their families
- **Prepare Me -** Provide training/support that allows provision of high-quality care
- **Support Me -** Provide support that acknowledges human limitations during extreme work hours, uncertainty, increased exposures
- **Care for Me -** Provide holistic support for individual and family if they require quarantine/treatment

Shanafelt, Ripp and Trockel, JAMA, April 7, 2020: Understanding and Addressing Sources of Anxiety Among Health Care Professionals during the COVID-19 Pandemic

Returning to Life



"Hey! The experts are saying it's safe to go out again."