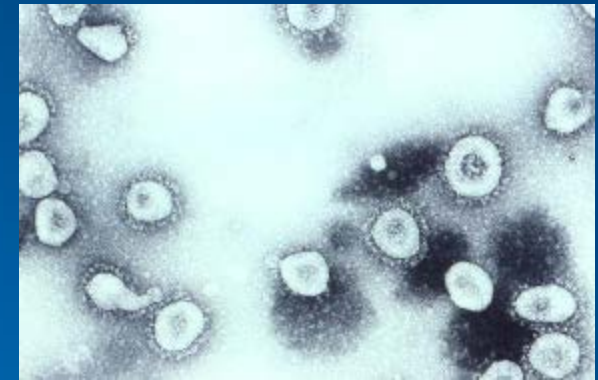
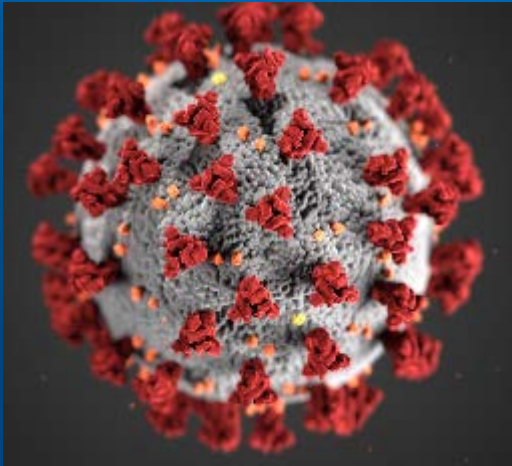


Coronavirus Disease 2019 [COVID-19] and People with Intellectual/Developmental Disabilities [IDD]



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MEDICINE of THE HIGHEST ORDER



Disclosures

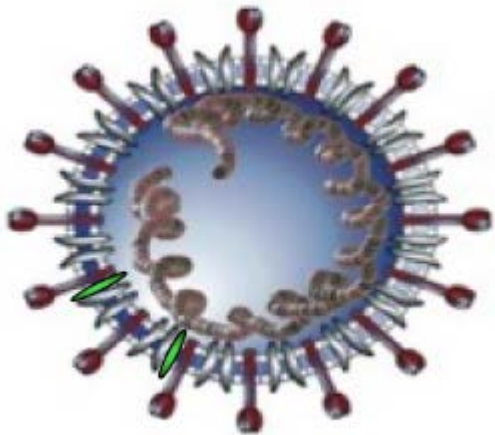
- **No financial Conflicts of Interest to declare**
- **My research is funded by the CDC, but nothing I say in this webinar is meant to represent the CDC, the PHS, or the DHHS**
- **Knowledge about COVID-19 is increasing so quickly that it may turn out that much I say in this webinar may be out of date or untrue next week/month/year!**

Outline

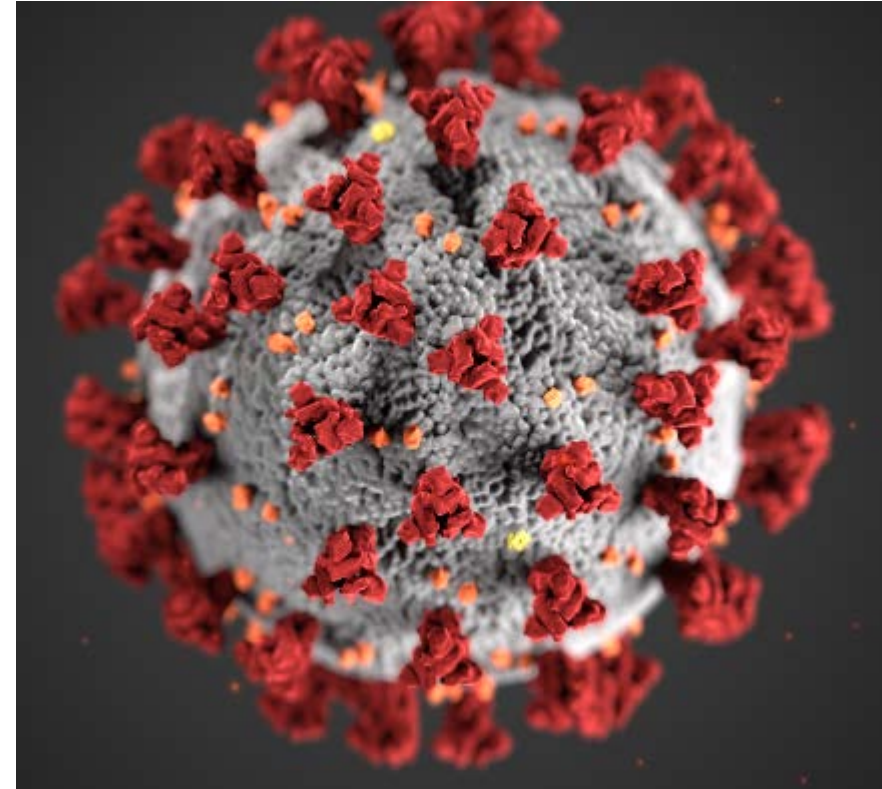
- **What is COVID-19 or SARS-CoV-2 infection?**
 - **A bit of virology and history**
 - **Disease in adults**
 - **Disease in children**
 - **Transmission, Prevention**
- **What is different about COVID-19 among those with IDD?**

Human Coronaviruses [HCoVs]—“Old”

- HCoVs 229E, OC43, NL63, HKU1
- Cause ~15-30% of common colds
- Immunity not durable, so can get again
- Mostly URIs; possibly LRIs in those with immunocompromised
- No known vaccines or antivirals
- Many CoVs appear to infect animals



- Large genome, RNA viruses



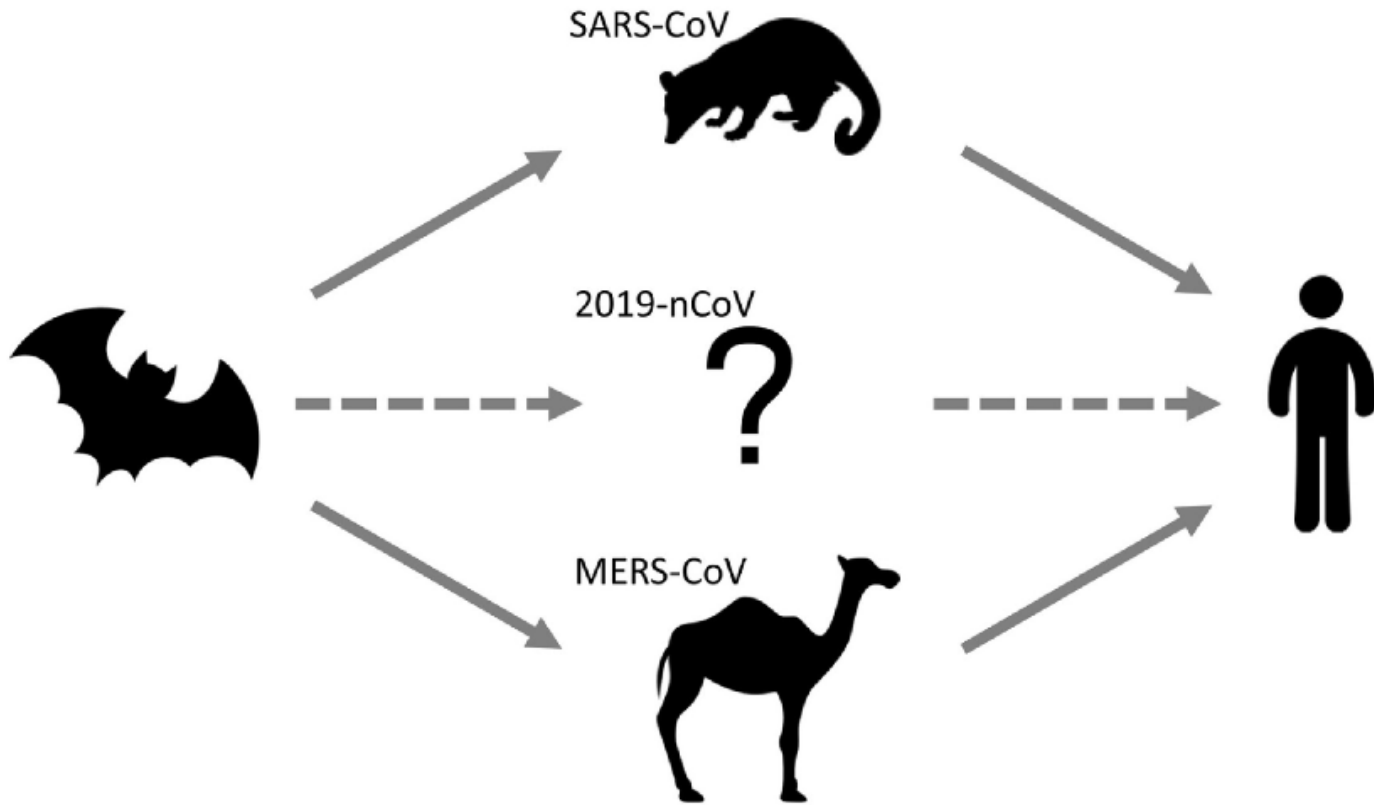
“Old” HCoV Disease

- **About 8% of lower respiratory tract infection [LRTI] in hospitalized young children**
- **Found globally, in tropical and temperate regions**
- **Can see year-round, although concentrated in winter and spring**
- **Most of us [up to 90% of adults] have evidence of past infection [seropositive for antibody]**
- **Can be asymptomatic in children <5 y**
- **Incubation period about 3 days**

Human Coronaviruses [HCoVs]—“NEW”

- **SARS-CoV (2002-2004) Severe Acute Respiratory Syndrome**
 - >8,000 cases with 10% mortality
 - From China to 32 countries over 3 mo
- **MERS-CoV (2012-present) Middle East Respiratory Syndrome**
 - From Middle Eastern countries →27 globally, mostly Middle East
 - >2,500 cases with 34% mortality
- **nCoV-19, SARS-CoV-2, COVID-19 (2019→ ??)**
 - Globally, 1.33 million cases, 184 countries [~all]
 - Mortality not firmly known—estimated ~2-3%

Origins of Epidemic-Pandemic HCoVs



COVID-19: one of many early studies coming out

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Clinical Characteristics of Coronavirus Disease 2019 in China

W. Guan, Z. Ni, Yu Hu, W. Liang, C. Ou, J. He, L. Liu, H. Shan, C. Lei, D.S.C. Hui, B. Du, L. Li, G. Zeng, K.-Y. Yuen, R. Chen, C. Tang, T. Wang, P. Chen, J. Xiang, S. Li, Jin-lin Wang, Z. Liang, Y. Peng, L. Wei, Y. Liu, Ya-hua Hu, P. Peng, Jian-ming Wang, J. Liu, Z. Chen, G. Li, Z. Zheng, S. Qiu, J. Luo, C. Ye, S. Zhu, and N. Zhong, for the China Medical Treatment Expert Group for Covid-19*

This article was published on February 28, 2020, and last updated on March 6, 2020, at NEJM.org.

DOI: 10.1056/NEJMoa2002032

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Characteristic	All Patients (N=1099)	Disease Severity	
		Nonsevere (N=926)	Severe (N=173)
Age			
Median (IQR) — yr	47.0 (35.0–58.0)	45.0 (34.0–57.0)	52.0 (40.0–65.0)
Distribution — no./total no. (%)			
0–14 yr	9/1011 (0.9)	8/848 (0.9)	1/163 (0.6)
15–49 yr	557/1011 (55.1)	490/848 (57.8)	67/163 (41.1)
50–64 yr	292/1011 (28.9)	241/848 (28.4)	51/163 (31.3)
≥65 yr	153/1011 (15.1)	109/848 (12.9)	44/163 (27.0)
Female sex — no./total no. (%)	459/1096 (41.9)	386/923 (41.8)	73/173 (42.2)
Smoking history — no./total no. (%)			
Never smoked	927/1085 (85.4)	793/913 (86.9)	134/172 (77.9)
Former smoker	21/1085 (1.9)	12/913 (1.3)	9/172 (5.2)
Current smoker	137/1085 (12.6)	108/913 (11.8)	29/172 (16.9)
Exposure to source of transmission within past 14 days — no./total no.			
Living in Wuhan	483/1099 (43.9)	400/926 (43.2)	83/173 (48.0)
Contact with wildlife	13/687 (1.9)	10/559 (1.8)	3/128 (2.3)
Recently visited Wuhan‡	193/616 (31.3)	166/526 (31.6)	27/90 (30.0)
Had contact with Wuhan residents‡	442/611 (72.3)	376/522 (72.0)	66/89 (74.2)
Median incubation period (IQR) — days§	4.0 (2.0–7.0)	4.0 (2.8–7.0)	4.0 (2.0–7.0)
Fever on admission			
Patients — no./total no. (%)	473/1081 (43.8)	391/910 (43.0)	82/171 (48.0)
Median temperature (IQR) — °C	37.3 (36.7–38.0)	37.3 (36.7–38.0)	37.4 (36.7–38.1)
Distribution of temperature — no./total no. (%)			
<37.5°C	608/1081 (56.2)	519/910 (57.0)	89/171 (52.0)
37.5–38.0°C	238/1081 (22.0)	201/910 (22.1)	37/171 (21.6)
38.1–39.0°C	197/1081 (18.2)	160/910 (17.6)	37/171 (21.6)
>39.0°C	38/1081 (3.5)	30/910 (3.3)	8/171 (4.7)

Important points:

- Virtually all >15 y
- Severe disease skewed to >50 y, esp. >65 y
- Mean incubation 4 d

Symptoms — no. (%)			
Conjunctival congestion	9 (0.8)	5 (0.5)	4 (2.3)
Nasal congestion	53 (4.8)	47 (5.1)	6 (3.5)
Headache	150 (13.6)	124 (13.4)	26 (15.0)
Cough	745 (67.8)	623 (67.3)	122 (70.5)
Sore throat	153 (13.9)	130 (14.0)	23 (13.3)
Sputum production	370 (33.7)	309 (33.4)	61 (35.3)
Fatigue	419 (38.1)	350 (37.8)	69 (39.9)
Hemoptysis	10 (0.9)	6 (0.6)	4 (2.3)
Shortness of breath	205 (18.7)	140 (15.1)	65 (37.6)
Nausea or vomiting	55 (5.0)	43 (4.6)	12 (6.9)
Diarrhea	42 (3.8)	32 (3.5)	10 (5.8)
Myalgia or arthralgia	164 (14.9)	134 (14.5)	30 (17.3)
Chills	126 (11.5)	100 (10.8)	26 (15.0)
Signs of infection — no. (%)			
Throat congestion	19 (1.7)	17 (1.8)	2 (1.2)
Tonsil swelling	23 (2.1)	17 (1.8)	6 (3.5)
Enlargement of lymph nodes	2 (0.2)	1 (0.1)	1 (0.6)
Rash	2 (0.2)	0	2 (1.2)
Coexisting disorder — no. (%)			
Any	261 (23.7)	194 (21.0)	67 (38.7)
Chronic obstructive pulmonary disease	12 (1.1)	6 (0.6)	6 (3.5)
Diabetes	81 (7.4)	53 (5.7)	28 (16.2)
Hypertension	165 (15.0)	124 (13.4)	41 (23.7)
Coronary heart disease	27 (2.5)	17 (1.8)	10 (5.8)
Cerebrovascular disease	15 (1.4)	11 (1.2)	4 (2.3)
Hepatitis B infection¶	23 (2.1)	22 (2.4)	1 (0.6)
Cancer	10 (0.9)	7 (0.8)	3 (1.7)
Chronic renal disease	8 (0.7)	5 (0.5)	3 (1.7)
Immunodeficiency	2 (0.2)	2 (0.2)	0

Important points:

- ~50% fever
- ~70% cough
- 40% fatigue
- 20-40% SOB
- <5% diarrhea
- Very few if any of these 1,099 patients said to have immunodeficiency or IDD [but whether/how questions asked is ?]

COVID-19 in Adults, continued

Guan et al, NEJM 2020, China

- Median age 47 y
- 60%/40% M/F distribution
- Most common S&Sx: fever, cough, fatigue
- CT scans: Ground glass opacities, infiltrates
- Lymphocytopenia

Arentz et al, JAMA 2020, Washington State

- Similar for first 21 cases in Seattle, although their average age was 70 y [many from skilled nursing facility]
- Fever 52%, Cough 48%, SOB 76% [higher than Guan et al, but older patients]
- Higher mortality, but again, from an older group

More recent data from China—JAMA Feb 24, 2020

- ~72,000 cases in China up to 2/11/20
- ~45,000 confirmed by PCR in the report
- Age distribution of the 45,000:

Age group	Number	Percent
≥80 y	1,408	3%
30-79 y	38,680	87%
20-29 y	3,619	8%
10-19 y	549	1%
<10 y	416	1%

- CFR 14.8% if >80 y; but 2.3% overall
- Disease: Mild 81%, Severe 14%, Critical 5%

Underlying Health Conditions in 7,100 Adults with COVID-19, US: MMWR April 3, 2020

TABLE 1. Reported outcomes among COVID-19 patients of all ages, by hospitalization status, underlying health condition, and risk factor for severe outcome from respiratory infection — United States, February 12–March 28, 2020

Underlying health condition/Risk factor for severe outcomes from respiratory infection (no., % with condition)	No. (%)			
	Not hospitalized	Hospitalized, non-ICU	ICU admission	Hospitalization status unknown
Total with case report form (N = 74,439)	12,217	5,285	1,069	55,868
Missing or unknown status for all conditions (67,277)	7,074	4,248	612	55,343
Total with completed information (7,162)	5,143	1,037	457	525
One or more conditions (2,692, 37.6%)	1,388 (27)	732 (71)	358 (78)	214 (41)
Diabetes mellitus (784, 10.9%)	331 (6)	251 (24)	148 (32)	54 (10)
Chronic lung disease* (656, 9.2%)	363 (7)	152 (15)	94 (21)	47 (9)
Cardiovascular disease (647, 9.0%)	239 (5)	242 (23)	132 (29)	34 (6)
Immunocompromised condition (264, 3.7%)	141 (3)	63 (6)	41 (9)	19 (4)
Chronic renal disease (213, 3.0%)	51 (1)	95 (9)	56 (12)	11 (2)
Pregnancy (143, 2.0%)	72 (1)	31 (3)	1 (1)	36 (7)
Neurologic disorder, neurodevelopmental, intellectual disability (52, 0.7%) [†]	17 (0.3)	25 (2)	7 (2)	3 (1)
Chronic liver disease (41, 0.6%)	24 (1)	9 (1)	7 (2)	1 (0.2)
Other chronic disease (1,182, 16.5%) [‡]	583 (11)	359 (35)	170 (37)	70 (13)
Former smoker (165, 2.3%)	80 (2)	45 (4)	33 (7)	7 (1)
Current smoker (96, 1.3%)	61 (1)	22 (2)	5 (1)	8 (2)
None of the above conditions [¶] (4,470, 62.4%)	3,755 (73)	305 (29)	99 (22)	311 (59)

Abbreviation: ICU = intensive care unit.

* Includes any of the following: asthma, chronic obstructive pulmonary disease, and emphysema.

[†] For neurologic disorder, neurodevelopmental, and intellectual disability, the following information was specified: dementia, memory loss, or Alzheimer's disease (17); seizure disorder (5); Parkinson's disease (4); migraine/headache (4); stroke (3); autism (2); aneurysm (2); multiple sclerosis (2); neuropathy (2); hereditary spastic paraplegia (1); myasthenia gravis (1); intracranial hemorrhage (1); and altered mental status (1).

[‡] For other chronic disease, the following information was specified: hypertension (113); thyroid disease (37); gastrointestinal disorder (32); hyperlipidemia (29); cancer or history of cancer (29); rheumatologic disorder (19); hematologic disorder (17); obesity (17); arthritis, nonrheumatoid, including not otherwise specified (16); musculoskeletal disorder other than arthritis (10); mental health condition (9); urologic disorder (7); cerebrovascular disease (7); obstructive sleep apnea (7); fibromyalgia (7); gynecologic disorder (6); embolism, pulmonary or venous (5); ophthalmic disorder (2); hypertriglyceridemia (1); endocrine (1); substance abuse disorder (1); dermatologic disorder (1); genetic disorder (1).

[¶] All listed chronic conditions, including other chronic disease, were marked as not present.

COVID-19 in Children Dong Y et al, China

Table 1 Characteristics of Children' COVID-19 Cases in China

Characteristics	All cases	Different Category		P Value
		Confirmed	Suspected	
Median age (Interquartile range)	7.00 (11.0)	10.00(11.0)	6.00(10.0)	<0.001
Age group				
<1	379(17.7)	86(11.8)	293(20.8)	
1-5	493(23.0)	137(18.7)	356(25.2)	
6-10	523(24.4)	171(23.4)	352(24.9)	<0.001
11-15	413(19.3)	180(24.6)	233(16.5)	
>15	335(15.6)	157(21.5)	178(12.6)	
Gender				
Boy	1213(56.6)	420(57.5)	793(56.2)	0.567
Girl	930(43.4)	311(42.5)	619(43.8)	
Severity of illness				
Asymptomatic	94(4.4)	94(12.9)	0(0.0)	
Mild	1091(50.9)	315(43.1)	776(54.9)	
Moderate	831(38.8)	300(41.0)	531(37.6)	
Severe	112(5.2)	18(2.5)	94(6.7)	<0.001
Critical	13(0.6)	3(0.4)	10(0.7)	
Missing	2(0.1)	1(0.1)	1(0.1)	
Days from symptom onset to diagnosis				
Median days (Interquartile range)	2(4.0)	3(4.0)	2(4.0)	<0.001
Range	0-42	0-42	0-36	
Province				
Hubei	984(45.9)	229(31.3)	755(53.5)	
Surrounding areas*	397(18.5)	155(21.2)	242(17.1)	<0.001
Others	762(35.6)	347(47.5)	415(29.4)	
Total	2143	731(34.1)	1412(65.9)	

Important points:

- **Not many—2,141 [731 confirmed]—but more than other reports to date**
- **Still almost 60/40 male**
- **Severe disease uncommon**
- **Median incubation 3 d**
- **Median age 10 y**

Data are presented with median (Interquartile range) and n (%).

Table 2 Different Severity of Illness by Age Group

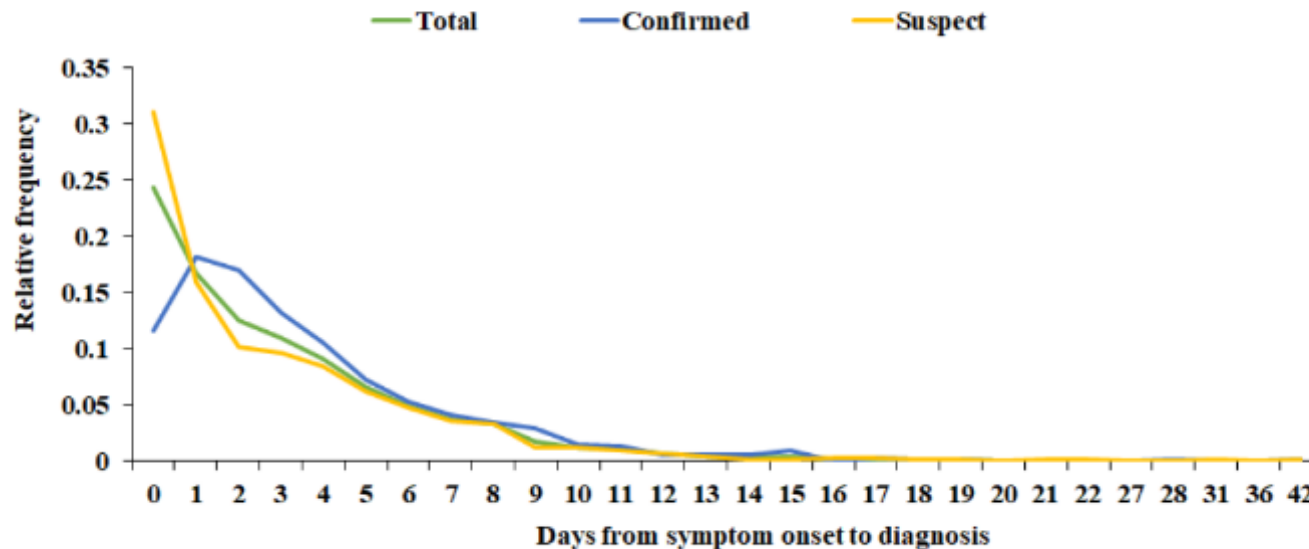
Age group*	Asymptomatic	Mild	Moderate	Severe	Critical	Total
<1	7(7.4)	205(18.8)	127(15.3)	33(29.5)	7(53.8)	379(17.7)
1-5	15(16.0)	245(22.5)	197(23.7)	34(30.4)	2(15.4)	493(23.0)
6-10	30(31.9)	278(25.5)	191(23.0)	22(19.6)	0(0)	521(24.3)
11-15	27(28.7)	199(18.2)	170(20.5)	14(12.5)	3(23.1)	413(19.3)
>15	15(16.0)	164(15.0)	146(17.5)	9(8.0)	1(7.7)	335(15.7)
Total	94	1091	831	112	13	2141(100)

Important points:

- **Severe disease skewed to those infants and toddlers**

Data were presented with number and percent (%);*Two cases had missing values.

Figure 4. Relative frequency of days from symptom onset to diagnosis

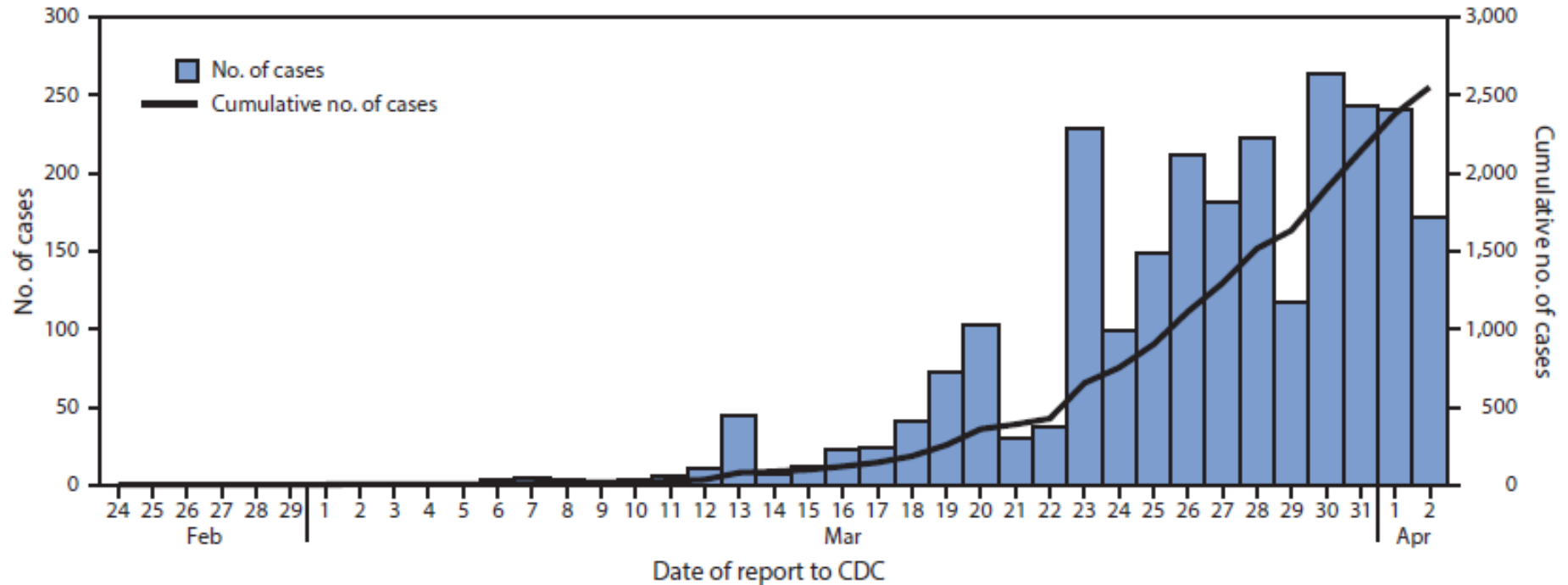


US Pediatric Data—April 6, 2020 MMWR Early Release

- As of April 2, 2020: 239,279 cases and 5,443 deaths in US
 - 149,082 cases with known age data
 - 2,572 (1.7%) were <18 y
 - Yet, 22% of the US population is <18 y of age
- Median age 11 y [range 0-17 y]
- 91% had exposure to a patient in household or in community
- 9% travel-associated
- Only 3 deaths reported to date

US Pediatric Data—April 6, 2020 MMWR Early Release

FIGURE 1. COVID-19 cases in children* aged <18 years, by date reported to CDC (N = 2,549)[†] — United States, February 24–April 2, 2020[§]



* Includes infants, children, and adolescents.

[†] Excludes 23 cases in children aged <18 years with missing report date.

[§] Date of report available starting February 24, 2020; reported cases include any with onset on or after February 12, 2020.

US Pediatric Data—April 6, 2020 MMWR Early Release

TABLE. Signs and symptoms among 291 pediatric (age <18 years) and 10,944 adult (age 18–64 years) patients* with laboratory-confirmed COVID-19 — United States, February 12–April 2, 2020

Sign/Symptom	No. (%) with sign/symptom	
	Pediatric	Adult
Fever, cough, or shortness of breath [†]	213 (73)	10,167 (93)
Fever [‡]	163 (56)	7,794 (71)
Cough	158 (54)	8,775 (80)
Shortness of breath	39 (13)	4,674 (43)
Myalgia	66 (23)	6,713 (61)
Runny nose [¶]	21 (7.2)	757 (6.9)
Sore throat	71 (24)	3,795 (35)
Headache	81 (28)	6,335 (58)
Nausea/Vomiting	31 (11)	1,746 (16)
Abdominal pain [¶]	17 (5.8)	1,329 (12)
Diarrhea	37 (13)	3,353 (31)

* Cases were included in the denominator if they had a known symptom status for fever, cough, shortness of breath, nausea/vomiting, and diarrhea. Total number of patients by age group: <18 years (N = 2,572), 18–64 years (N = 113,985).

[†] Includes all cases with one or more of these symptoms.

[‡] Patients were included if they had information for either measured or subjective fever variables and were considered to have a fever if “yes” was indicated for either variable.

[¶] Runny nose and abdominal pain were less frequently completed than other symptoms; therefore, percentages with these symptoms are likely underestimates.

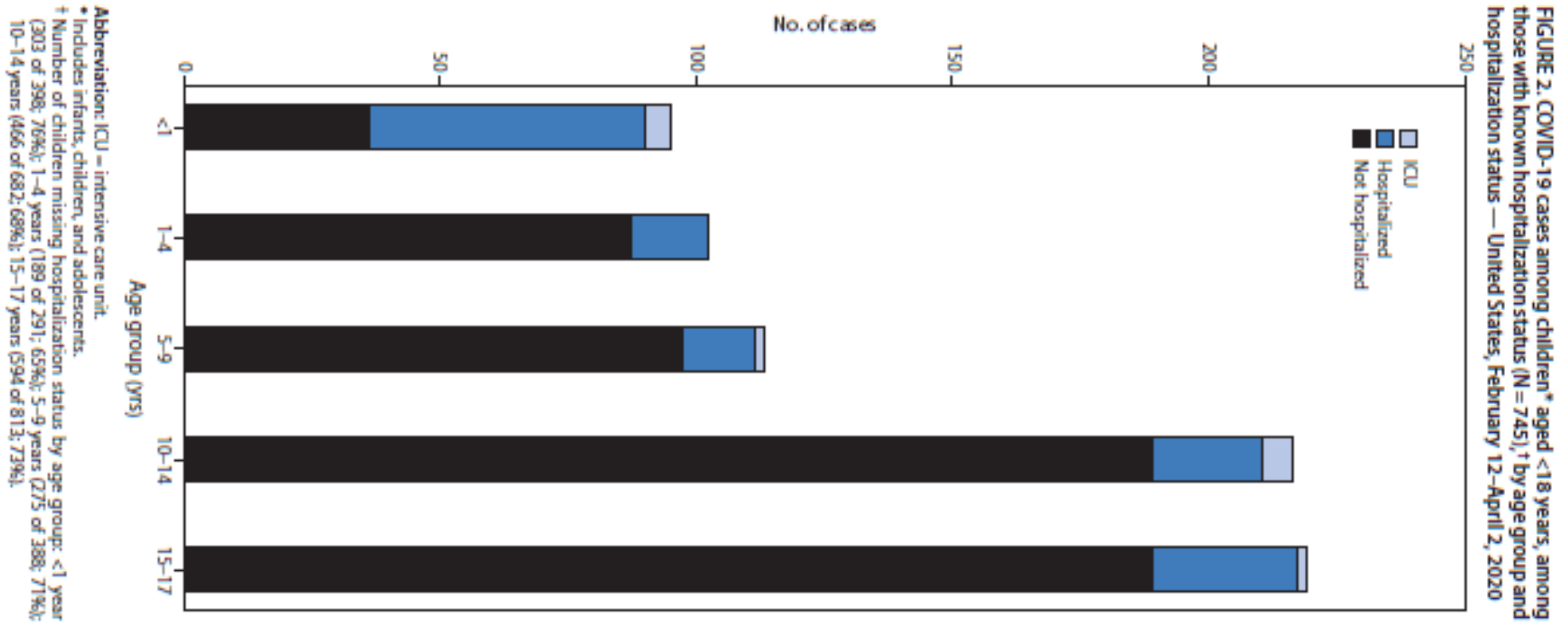
Important points:

- Children: less common than in adults, but still predominance of {Fever, cough, or shortness of breath} 73% vs 93%
- Less myalgia; less headache; still rare GI signs/symptoms

US Pediatric Data—April 6, 2020 MMWR Early Release

Children with known hosp status [n=745], grouped by age & hosp status

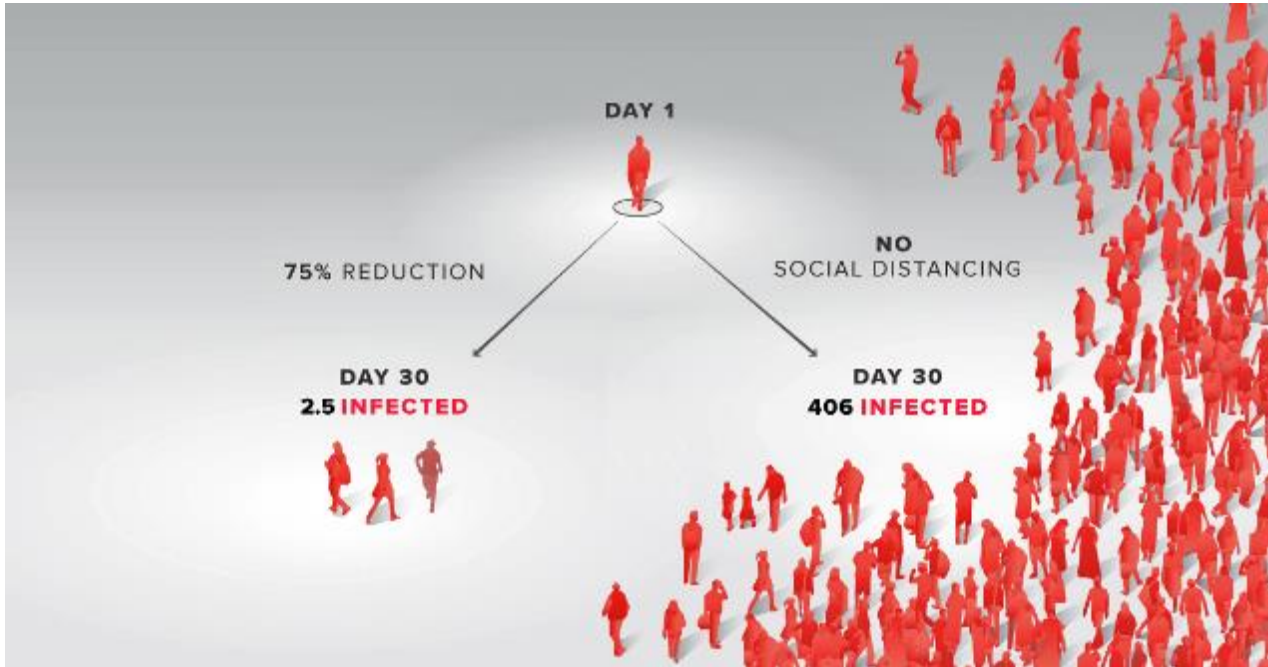
- Infants more likely hospitalized
- But ICU uncommon in all



Transmission & Prevention

- Transmission is by **DROPLET SPREAD** in community settings
 - 5-10 μM droplets such as those in cough or sneeze
 - They can move ~ 3 ft, and be on contaminated surfaces “fomites” for a few hours
- Hence, **SOCIAL DISTANCING 6 ft, HANDWASHING, & MASK** use should prevent transmission for the most part
 - Aerosol transmission [long distance through air, e.g., measles] is **ONLY** relevant with selected medical procedures

Social Distancing



Social distancing: What should I do?



Working from home

Advised

For anyone aged 0-69

Strongly advised

Anyone 70+
Those with an underlying health conditions
Pregnant women



Use less public transport

Advised

For anyone aged 0-69

Strongly advised

Anyone 70+
Those with an underlying health conditions
Pregnant women



Visits from friends and family

Advised against

For anyone aged 0-69

Strongly advised against

Anyone 70+
Those with an underlying health conditions
Pregnant women



Socialising outside home

Advised against

For anyone aged 0-69

Strongly advised against

Anyone 70+
Those with an underlying health conditions
Pregnant women

Those with serious underlying health conditions: as above but further guidance will be provided by the NHS

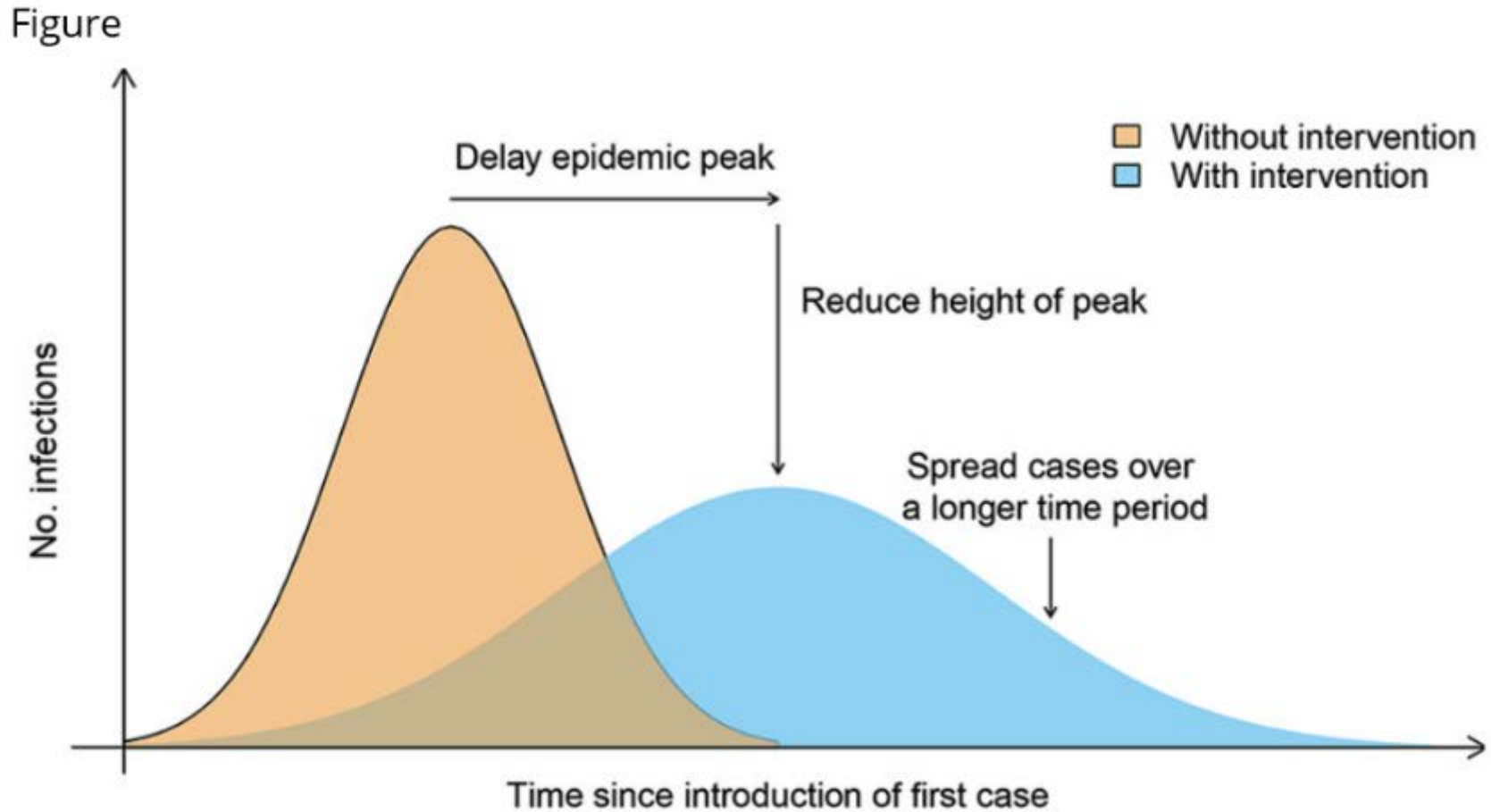
Source: Public Health England



Confused about social distancing?



“Flattening the Curve” to try to avoid high peak case loads



What is Different About COVID-19 Among Those with IDD?

??

[No data!]

What is Different About COVID-19 Among Those with IDD, continued

I. Medical Comorbidities

- A. Obesity, neurologic disease, respiratory disease, including tracheostomy, home ventilators
- B. Communication difficulties

II. Self-Care “Comorbidities”

- A. May be partly or entirely dependent on others for self-care—such that exposed to more people, perhaps lesser degrees of handwashing
- B. May be harder to socially distance in homes

What is Different About COVID-19 Among Those with IDD?

III. Intellectual “Comorbidities”

- A. All of this—social distancing, quarantine—is hard for anyone to grasp!
- B. Those living with IDD are not always facile with rapidly [and rather radically] changing routines

IV. Potential Ethical Issues with Pandemic Care

- A. Triage of ventilators, medical care **MUST** be allocated equitably, fairly, and rationally [American with Disabilities Act; American College of Physicians; many state governments incl. PA, MN, NY; many bioethicists]
- B. But some may judgmentally consider IDD as “excludable”

Pandemic Medical Resource Triage

- Originally developed for combat
- Over past 20y, modified for bioterrorism, chemical terrorism, and pandemic influenza planning
- First real test seems to be COVID-19; will we “get it right”?
- Inappropriate:
 - “first come, first serve”
 - “sickest first”
- APPROPRIATE: a balance of:
 - Patient need
 - Effectiveness [likelihood that tx will help pt recover]
 - Objective Prognosis [best clinical evidence—NOT simply “life-years” which are inherently biased against IDD and elderly]

One possible framework

- EL Daugherty Biddison et al, Chest 2019;155:848-54 [cited by White & Lo, JAMA 3/27/20 as basis for Univ of Pittsburgh policy]
- 4 principles each of which has a point system assigned:
 - Prognosis for short-term survival [SOFA or PELOD-2 scoring]
 - Prognosis for long-term survival [none vs severe comorbid conditions with life expectancy <1 y]
 - Life Cycle considerations [pregnancy with healthy fetus or children-49 y; then 50-69 y; 70-84 y; >85 y]
 - Fair chance for ties [response to previous tx, possibly tx order or lottery]
- Clinically experienced Triage team distinct from clinicians caring for the patients as decision-making AND communicating team

Other considerations

- Early fill Rx, 90 d overrides, etc. to help people with IDD avoid medication interruption
- Attention to continuing routine immunization!
- Telehealth & Telemedicine visits
- Infection Prevention to protect both HCW, caregivers
- Attention to food insecurity!
- Mental health assistance for people with IDD AND caregivers
 - SAMHSA.hhs.gov Talking with Children [Tips during outbreaks]
 - Disability Rights Education & Defense Fund [DREDF]
 - NASP/NASM Helping Children Cope...
 - AADMD <https://www.aadmd.org/coronavirus-center>

Thank you!

Made possible by
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COVID-19 & PEOPLE WITH IDD

What You Need to Know

TUESDAY APRIL 7TH | 8PM EST
Dr. Geoffrey Weinberg