



COVID-19 Overview

June 28, 2020

Daniel Johnson, MD

University of Chicago Medicine/Comer Children's Hospital

Director of ECHO-Chicago

Pediatric Infectious Diseases

Disclosures

- No financial disclosures
- The world has changed
- It continues to change, so what gets said here today may change based on new data and recommendations
 - Knowledge is moving rapidly, the fastest it has for any pandemic



Agenda

- Review of COVID-19
- Collateral damage
- Cases?
- Q&A?

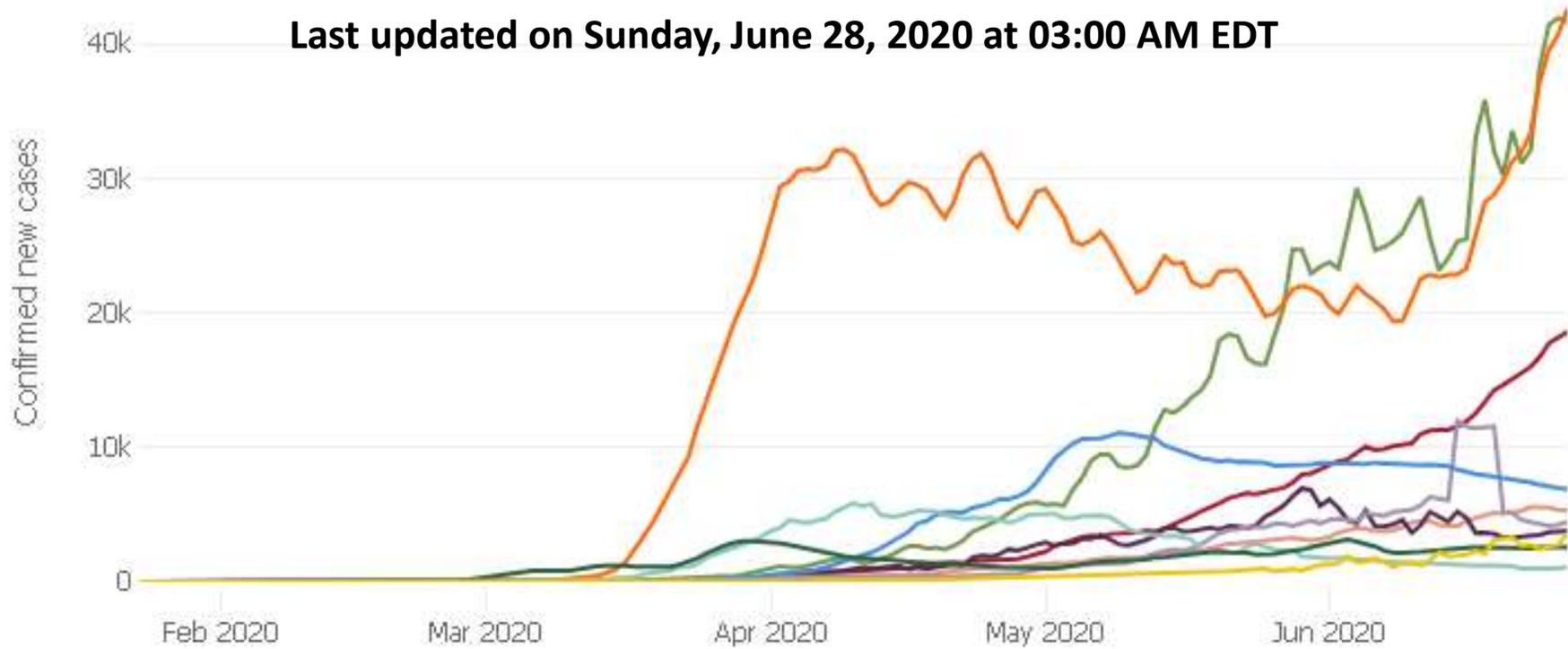
What will
SCHOOL
look like
this Fall?



Epidemiology

Current Trends

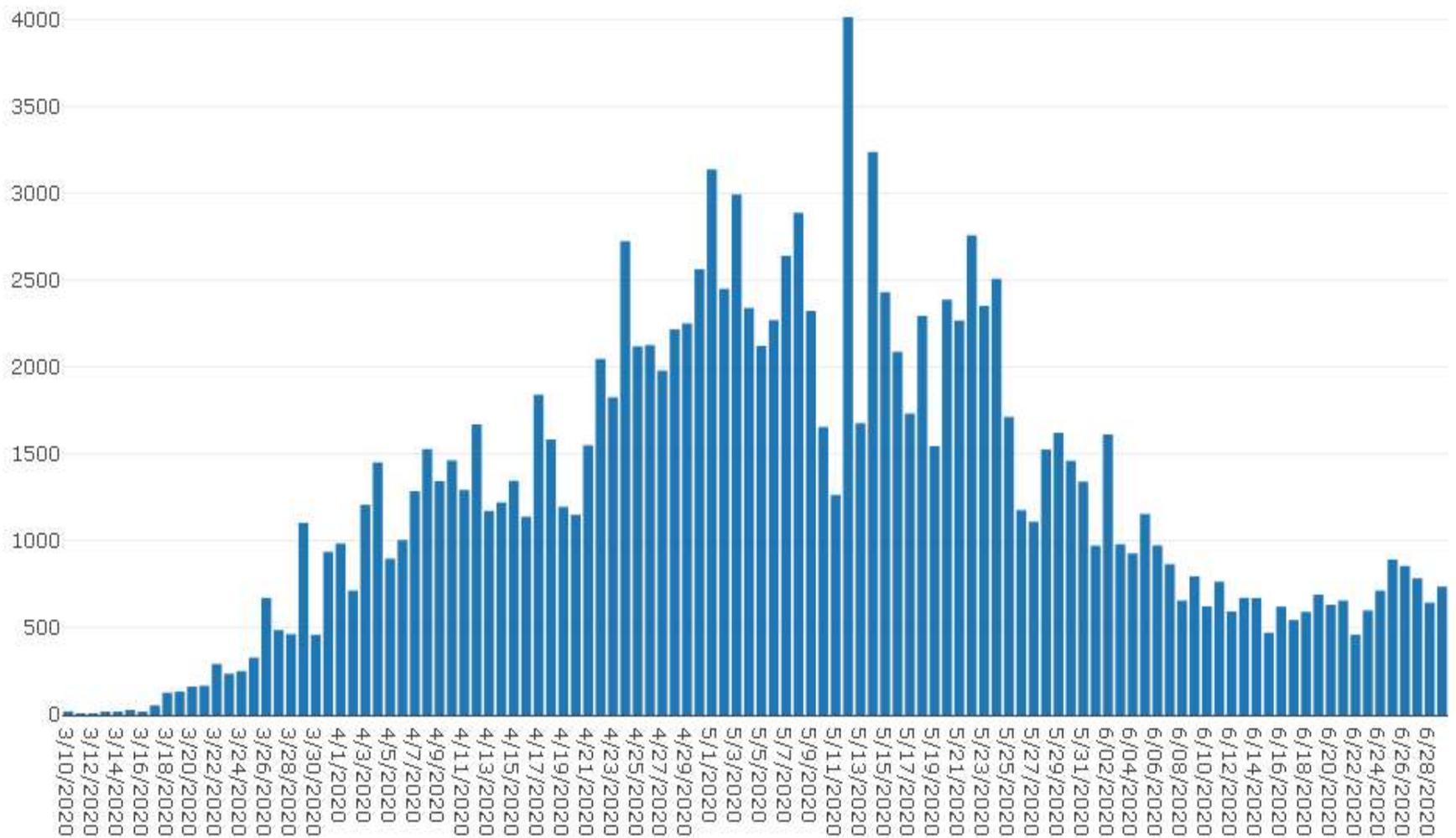
Last updated on Sunday, June 28, 2020 at 03:00 AM EDT



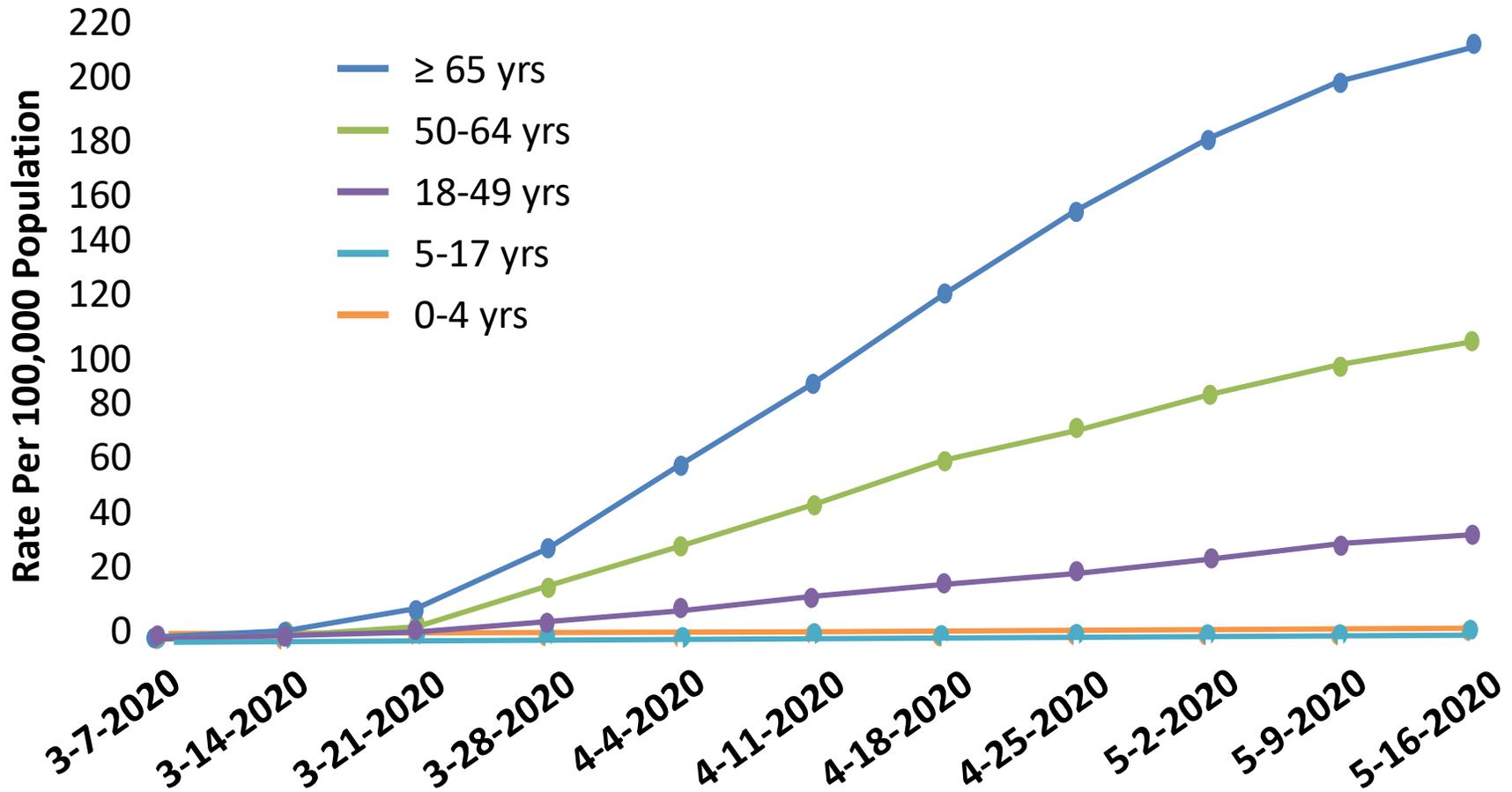
Click any country below to hide/show from the graph:

- | | | | |
|--|--|---|--|
|  Brazil |  US |  Mexico |  India |
|  Peru |  Chile |  Russia |  United Kingdom |
|  Iran |  Colombia | | |

Current Trends: Illinois

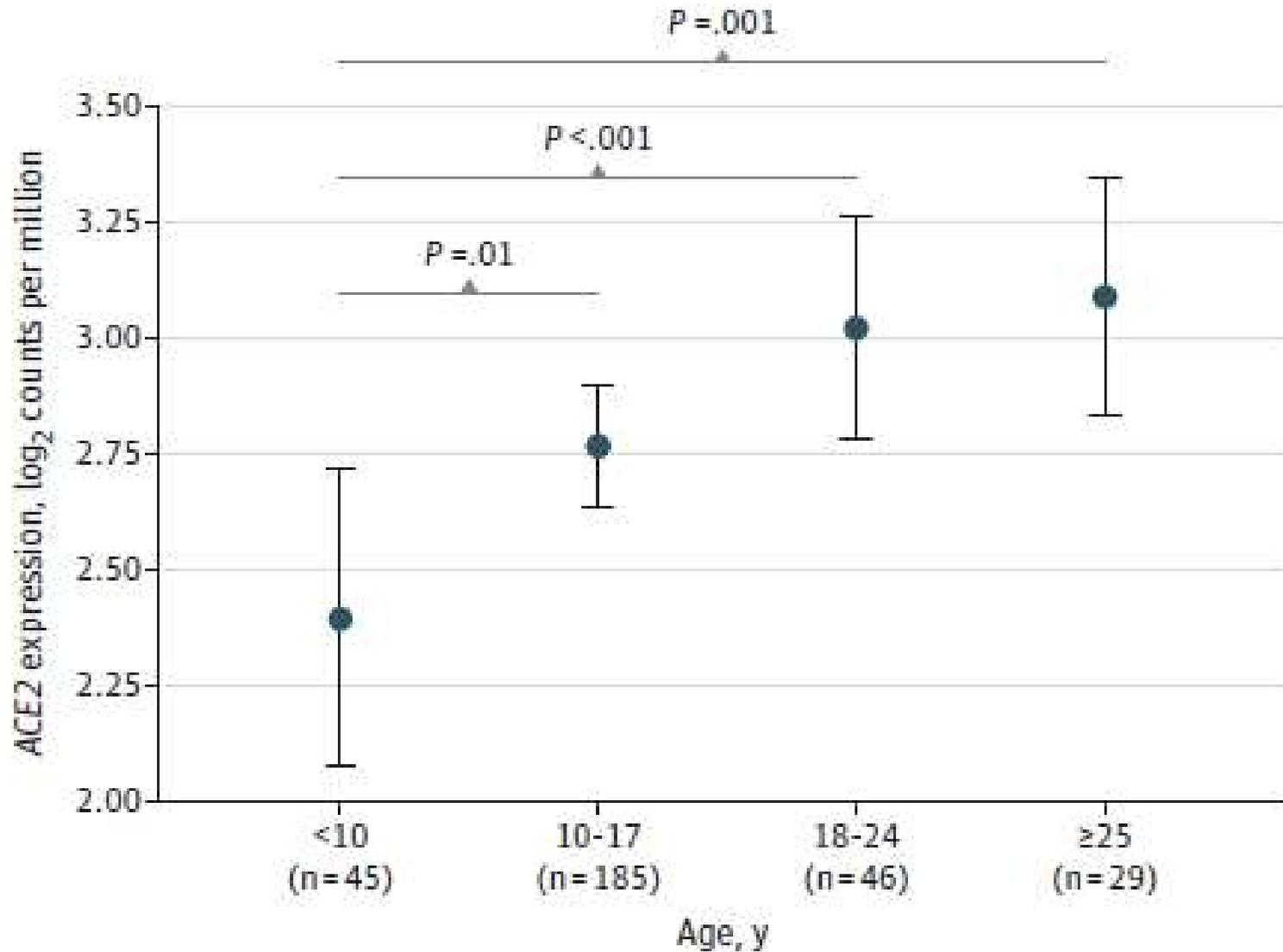


COVID-NET: Lab-Confirmed COVID-19– Associated Hospitalization Rates By Age in US

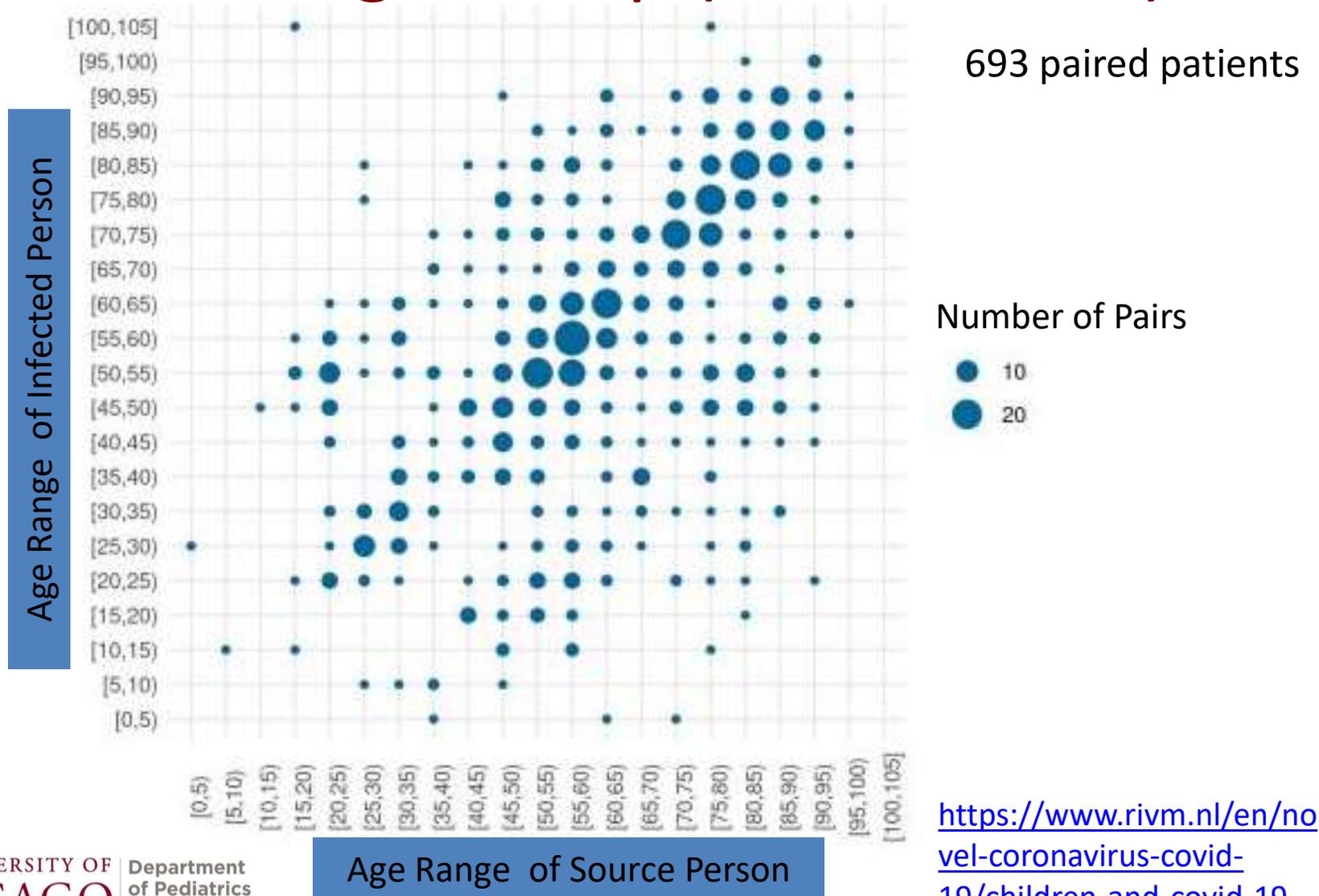


Covers ~ 10% of US population: 99 counties in 14 states (CA, CO, CT, GA, IA, MD, MI, MN, NM, NY, OH, OR, TN, UT)

Figure. Nasal Gene Expression of ACE2 in Different Age Groups



Spread of COVID-19 Between People in the Same Age Group (Netherlands)



Asymptomatic Spread of COVID-19 by 22 Y/O

- Cluster of people aged 16-23 years old with COVID-19 in Hefei China
- Before the index case developed symptoms, he closely (couple of hours together) contacted 22 people - 15 friends and 7 family members
 - Transmission occurred to 7 other people aged 16-23
- Provides evidence of a high rate of infection in a group of late teens and young adults that was caused by a person who was asymptomatic

Pregnancy and COVID-19



Pregnant women **may be at increased risk** for severe illness from COVID-19 compared with non-pregnant women

Pregnant women and their families should take steps to **stay healthy and reduce their risk** for getting COVID-19

CDC.GOV bit.ly/MMWR62520 MMWR

- No conclusive evidence of vertical transmission
 - Single case report under unusual circumstances

Prevention

Universal Masking and Distance Help

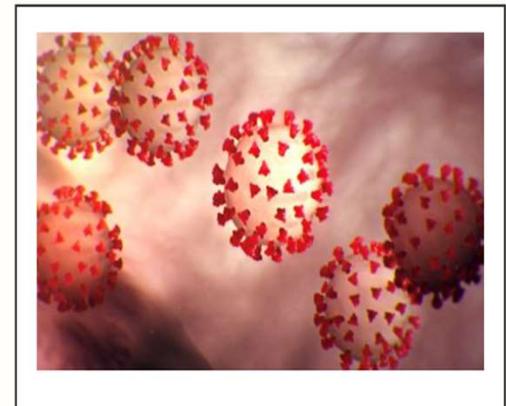
Springfield-Greene County Health Department News Releases

Posted on: June 8, 2020

June 8, 2020 - Incubation period closes: no clients contract COVID-19 from salon exposure

The Springfield-Greene County Health Department is encouraged to report that the incubation period has passed from those potentially exposed from Great Clips. No clients of either stylist nor additional coworkers contracted COVID-19 as a result.

“This is exciting news about the value of masking to prevent COVID-19,” said Director of Health Clay Goddard. “We are studying more closely the details of these exposures, including what types of face coverings were worn and what other precautions were taken to lead to this encouraging result. We never want an exposure like this to happen, but this situation will greatly expand our understanding of how this novel coronavirus spreads.”

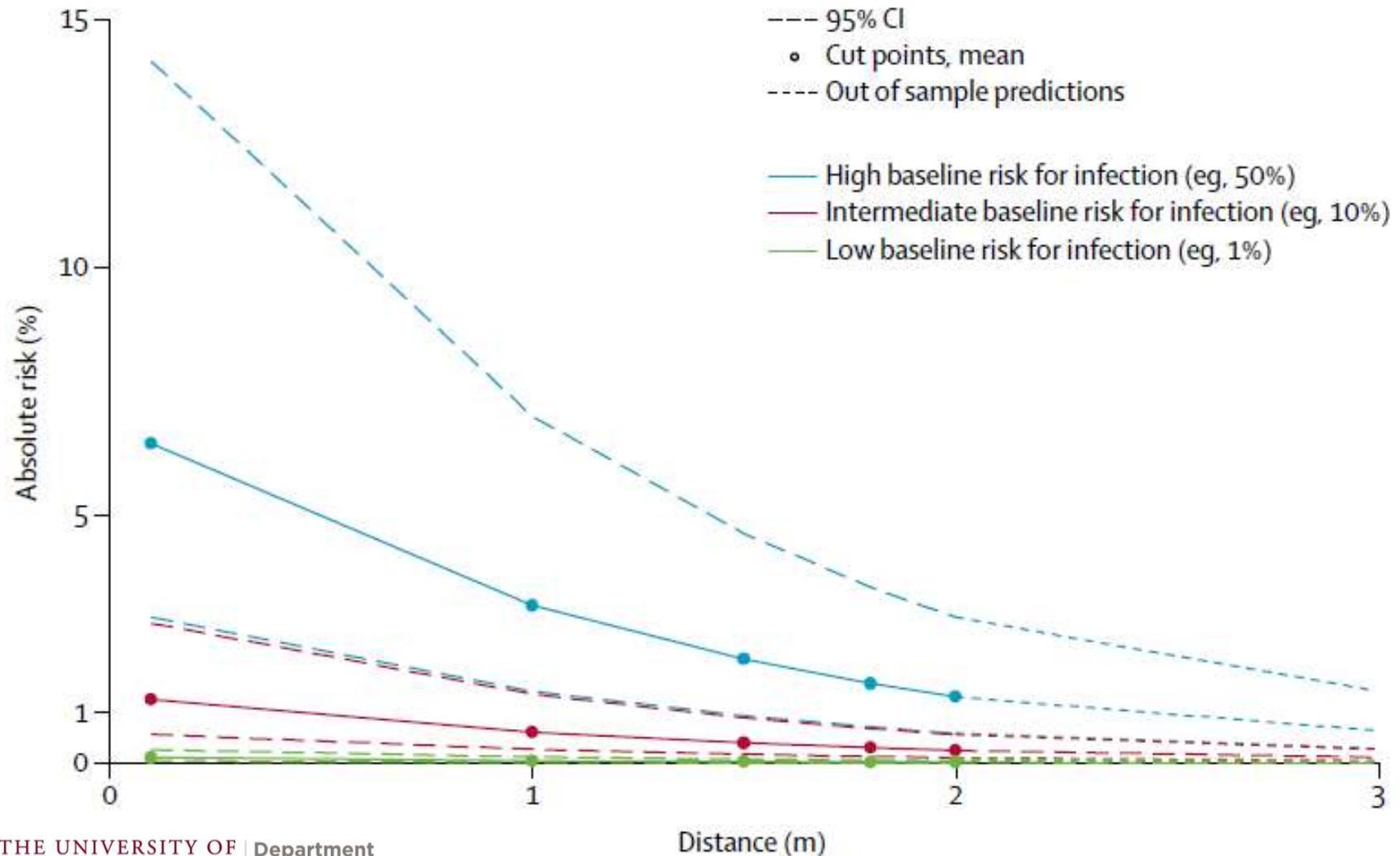


In addition to masking, Great Clips had policies in place that also likely prevented the spread of disease—such as distancing of salon chairs, staggering appointments and other measures that will also be studied, Goddard noted.

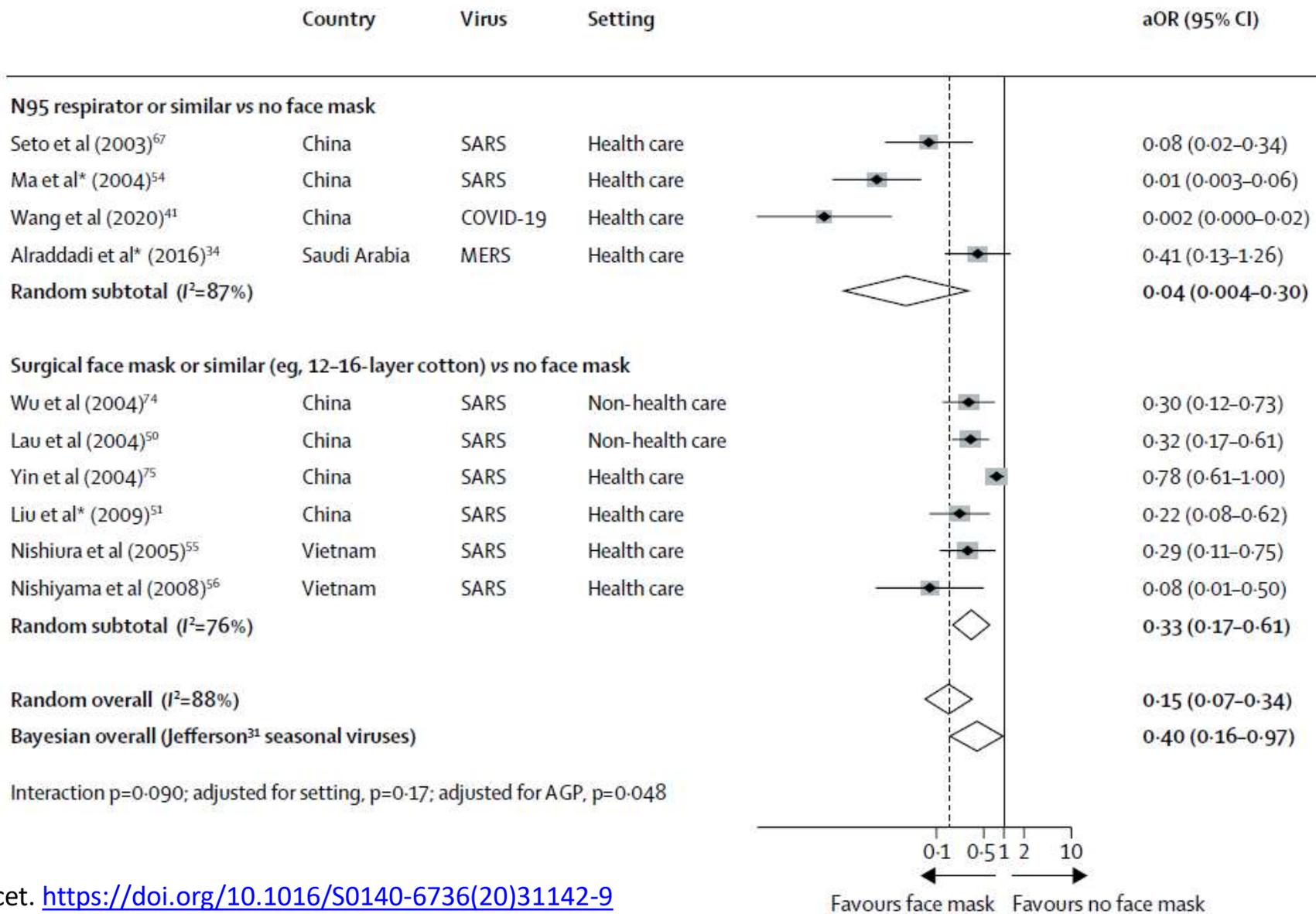
Two stylists had tested positive after working at the Great Clips at 1864 S. Glenstone Ave, potentially exposing 140 clients and six other coworkers. No additional clients or coworkers tested positive.

Testing was offered to all those potentially exposed, and 46 people pursued testing—all came back negative. Regardless of testing, all potentially exposed were quarantined for the duration of their exposure period.

Change In Absolute Risk With Increasing Distance (COVID-19, SARS, MERS)



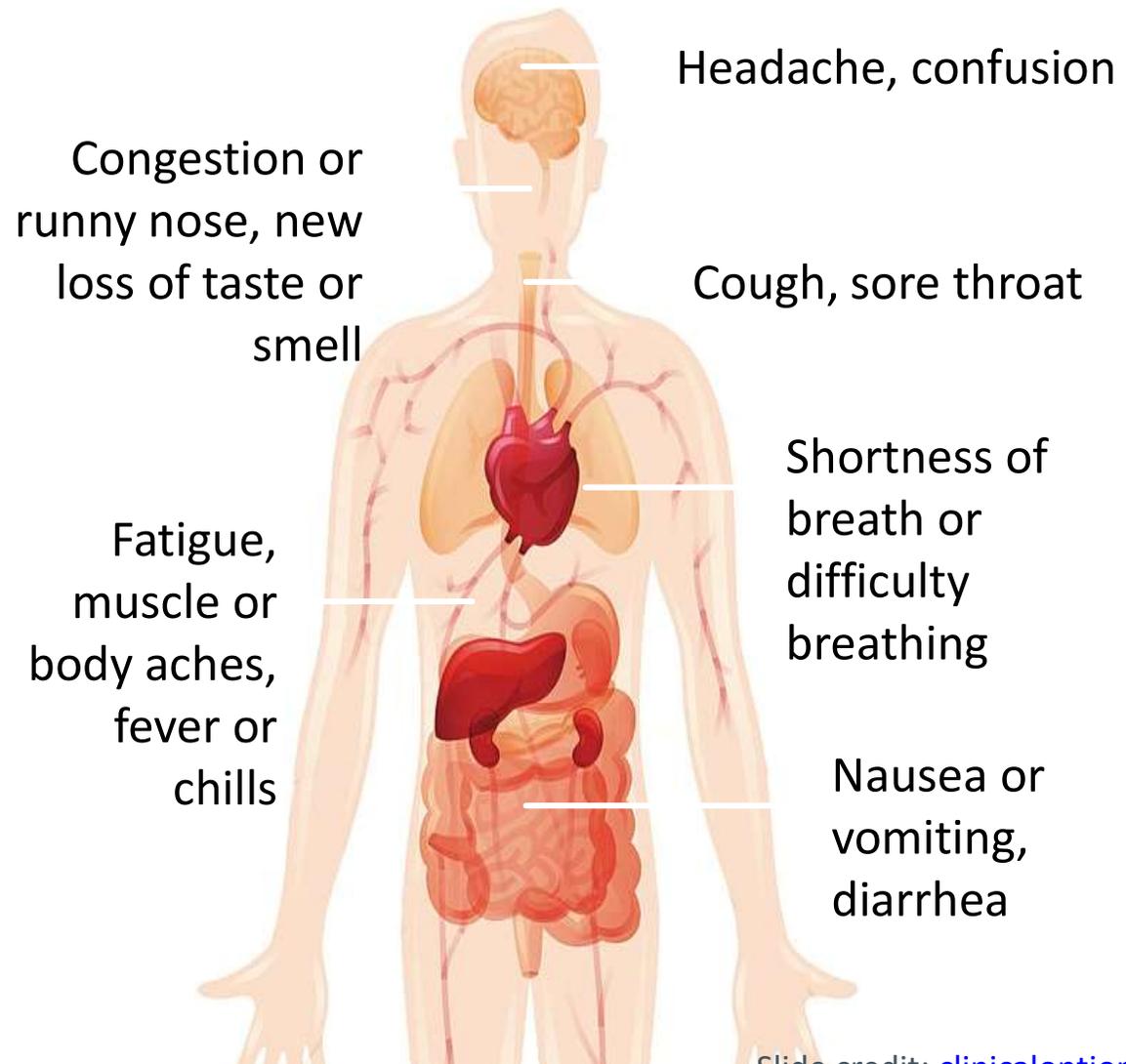
Adjusted Estimates For Association Of Face Mask Use With Infection (COVID-19, SARS, or MERS)



Clinical

Primary Symptoms of COVID-19

“Symptoms may appear **2-14 days after exposure to the virus.**”



Most Children Asymptomatic



<https://www.inquirer.com/family/kids-masks-facemask-coronavirus-covid19-mask-size-20200428.html>

<https://www.scmp.com/comment/letters/article/3076443/coronavirus-has-changed-life-hong-kongs-children-they-can-be>

Infants 0-90 Days Old

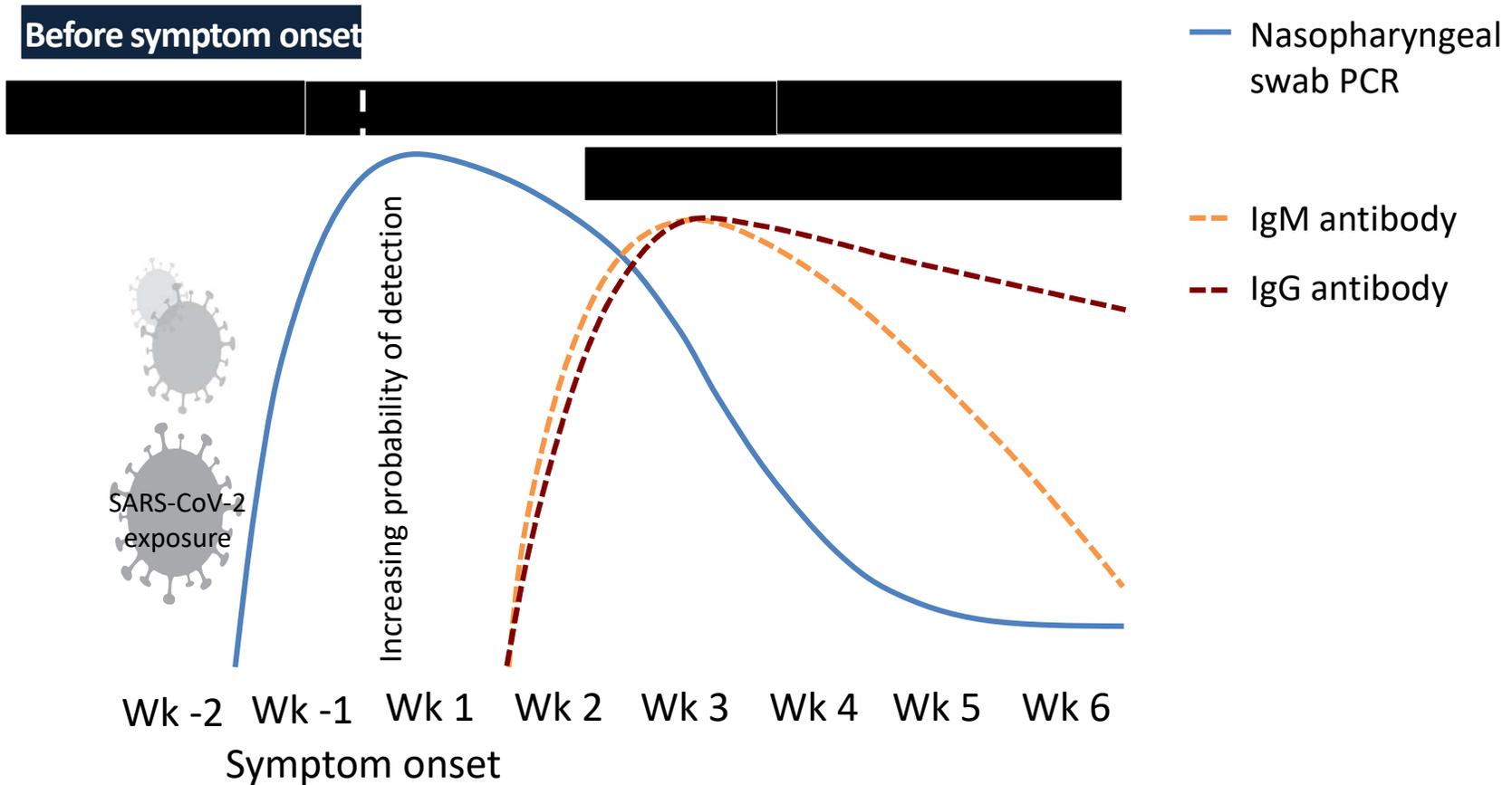
- Cohort of 18 infants with SARS-CoV-2
 - Aged 10-88 days, 83% from the ER
 - Latinx ethnicity was 78%
 - Latinx ethnicity ED was 49% in 2019 and running 52% in 2020
 - Mild to no disease
 - 78% had fever
 - None needed oxygen or respiratory support
 - Decision to admit to hospital was based on age, need to assess for bacterial infection, clinical assessment, feeding tolerance, and adequacy of follow up
 - High viral loads

Multiple Inflammatory Syndrome in Children (MIS-C): CDC Definition

- **Age** < 21 years old
- **Fever**
 - >38.0° C
 - Report of subjective Fever
- **Clinical Findings**
 - Multisystem Organ Involvement (>2)
 - Cardiac
 - Renal
 - Respiratory
 - Hematologic
 - Gastrointestinal
 - Dermatologic
 - Neurologic
- **Evidence of Positive SARS-CoV-2**
 - SARS-CoV-2 by RT-PCR, serology, or antigen
 - or confirmed exposure within 4 weeks prior to the symptom onset
- **Laboratory Markers** (including, but not limited to ≥ 1 of the following)
 - Increased c-reactive protein (CRP)
 - Increased erythrocyte sedimentation rate (ESR)
 - Increased fibrinogen
 - Increased D-dimer
 - Increased ferritin
 - Increased polys
 - Increased IL-6
 - Elevated Troponin
 - Increased BNP
 - Decreased lymphs
 - Decreased alb
 - Decreased plts
- No alternative plausible diagnoses
- May have findings consistent with KD
 - Different age group, more inflamed cv

IT IS A RARE DISORDER!

Temporal Considerations for Diagnosis



Treatment in Children

- As yet undetermined for children with COVID-19 lung and GI tract disease
- No treatment for kids generally speaking unless severe presentation
 - Remdesivir helps in adults
 - No data in kids
 - Convalescent sera helps in adults
 - No data in kids
 - Dexamethasone helps in adults with severe disease
 - No data in kids
 - Anticoagulation with ASA and/or heparin (LMW) helps in adults
 - No data in kids
- MIS-C
 - Unknown what is needed
 - Recommend the use of IVIG, steroids, anakinra, anticoagulation

<https://doi.org/10.1101/2020.06.22.20137273>

NEJM. 2020 May 22;NEJMoa2007764

J Clin Invest . 2020 Jun 1;130(6):2757-2765

Prog Pediatr Cardiol. 2020 May 23 : 10123

J Am Coll Cardiol. 2020 Jun 16;75(23):2950-2973



com- together + together

collateral damage

casualties or damage

military action: to m-

precision in bombing

Collateral Damage

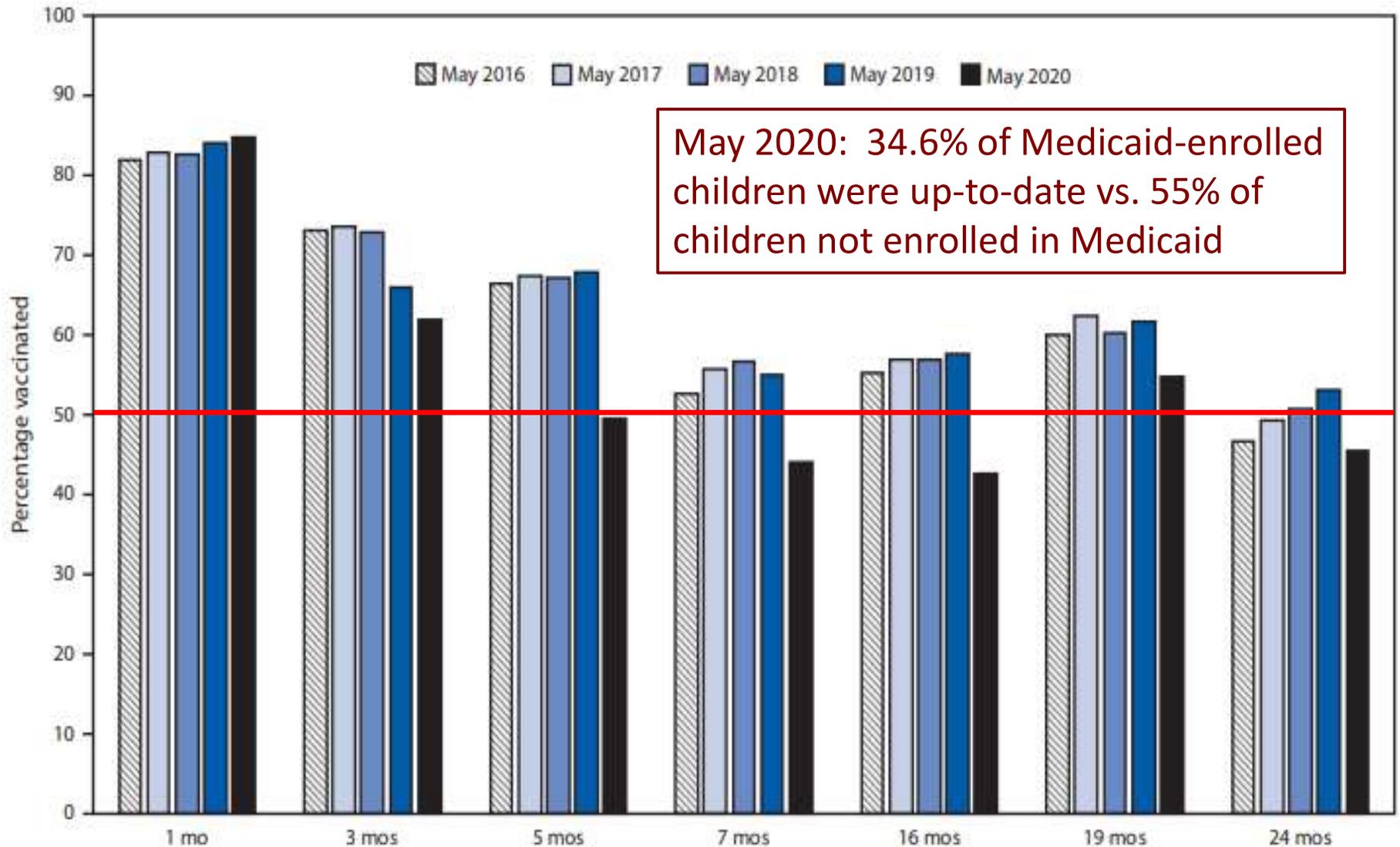
The New York Times

Slowing the Coronavirus Is Speeding the Spread of Other Diseases

Many mass immunization efforts worldwide were halted this spring to prevent spread of the virus at crowded inoculation sites. The consequences have been alarming.

- Well child care
 - Immunizations
 - Delays in care for
- Mental Health
 - Rising anxiety and depression
- Schools
 - Lost learning
- Missed abuse and neglect cases
- Lost wages which translates into poverty, eviction, hunger, food insecurity

Michigan Infants and Children Vaccinated at Milestone Ages (%): Michigan 2016-2020



Collateral Damage

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Recommendations

- **Work with families to keep or bring children up to date with their vaccinations.**
 - Scheduling sick visits and well-child visits during different times of the day
 - Reduce crowding in waiting rooms by asking patients to remain outside until they are called into the facility for their appointment, or use triage booths
- **Identify children who have missed well-child visits and/or recommended vaccinations** and contact them to schedule in person appointments
- **All newborns should be seen by a pediatric healthcare provider shortly after hospital discharge (3 to 5 days of age)**
 - **Newborn visits should be done in person** to evaluate for dehydration and jaundice, ensure all components of newborn screening were completed and appropriate confirmatory testing and follow-up is arranged, and evaluate mothers for postpartum depression
- **Developmental and mental health surveillance and screenings should continue**
 - Referrals for early intervention services and mental health as needed

Collateral Damage

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Schools Closure



Is There Evidence School Closures Help with COVID-19?

- Early introduction of school closure has been effective in reducing influenza incidence rates and related clinical, social, and economic problems during influenza outbreaks
 - But with influenza, attack rates are higher in children than in adults
- SARS-CoV-2, affects mainly adults and elderly individuals
 - Children younger than 10 years account for only 1% of COVID-19 cases
- In Taiwan, the risk of transmission of infection among children in a classroom was very low, with an $R_0 < 1$
- Data to date is not certain yet but most suggests closing schools isn't necessary
 - Could displace so many workers that it causes deaths rather than saves them

Proc Natl Acad Sci U S A. 2019;116(27):13174-13181

JAMA. 2020;323(14):1341-1342

Science 29 Apr 2020: abb8001

JAMA. 2020;323(13):1239-1242

Lancet Public Health 2020; 5: e271–78

Schools Must Reopen



School Recommendations

- Hands hygiene



- Face covering



- Social distancing



Collateral Damage

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 - Missed abuse and neglect cases
 - Further escalating the disparities in our society