

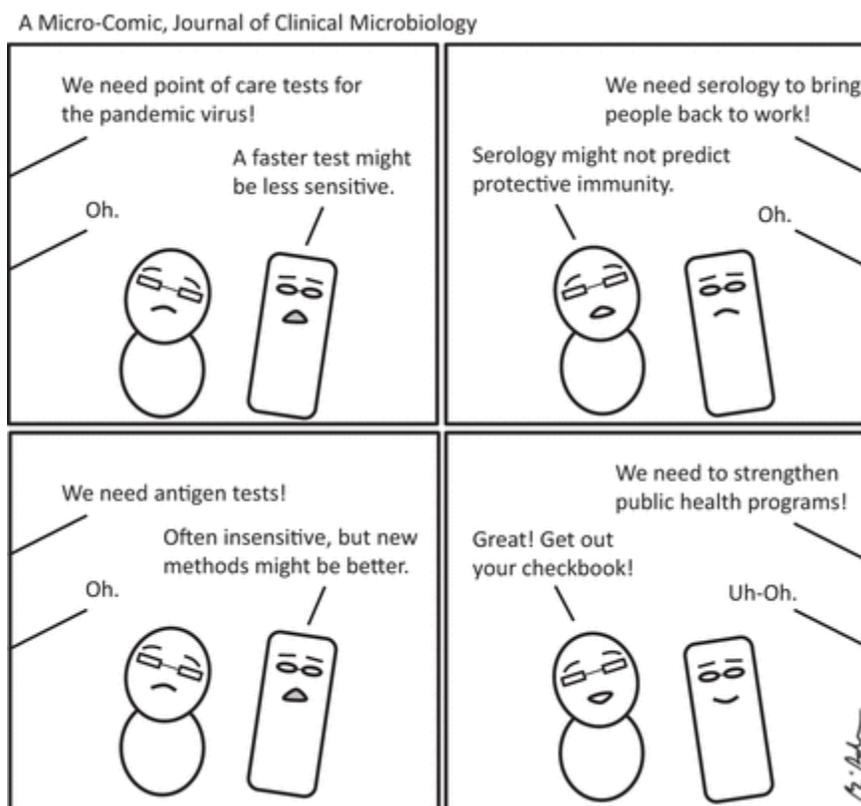


Reference of the Week

- Corbett KS. Evaluation of the mRNA-1273 Vaccine against SARS-CoV-2 in Nonhuman Primates. NEJM. 07.28.2020. <https://www.nejm.org/doi/full/10.1056/NEJMoa2024671?query=TOC> pdf
Methods: 1. Three 8 subject groups of rhesus macaques: group 1 received 10ug mRNA-1273, group 2 received 100ug, and group 3 received a placebo (each group had 2 doses). 2. Antibody and t-cell responses were assessed before upper and lower airway challenges of SARS-CoV-2. 3. Active viral replication and viral genomes in bronchoalveolar-lavage (BAL) fluid and nasal swab specimens were assessed by polymerase chain reaction, histopathological analysis, and viral quantification were performed on lung-tissue specimens. 4. The rhesus macaques normal response to SARS-CoV-2 is active replication and limited disease.
Findings: 1. This study showed early prevention of viral replication in the upper and lower airways after a high-dose challenge with SARSCoV-2. 2. mRNA-1273 induced antibody binding activity and neutralizing activity higher than other vaccine candidates. 3. The vaccine induced higher ACE2 binding inhibition and higher neutralizing activity (12 – 84 times as high) compared to COVID-19 convalescent serum. 4. A rapid reduction in viral replication (24 – 48 hrs) was observed which may have a significant impact on transmission.

Other References:

- McAdam AJ. What Is Needed for the Response to COVID-19? A Micro-Comic Strip. Journal of Clinical Microbiology. 07.23.2020. <https://jcm.asm.org/content/58/8/e01011-20>



- Auger KA. Association Between Statewide School Closure and COVID-19 Incidence and Mortality in the US. JAMA. 07.29.2020. <https://jamanetwork.com/journals/jama/fullarticle/2769034> pdf
Premise: 1. Children are prolific transmitters of common viral infections like influenza. 2. Schools and related school activities can serve as hotspots during respiratory viral season and school closure can theoretically mitigate transmission of non-SARS-CoV-2 disease. 3. Before closing schools it is important to know whether this problematic measure will reduce transmission of



SARS-CoV-2. **4.** The study was a population-based time series analysis of all 50 US states conducted between March 9, 2020, and May 7, 2020 to determine whether school closure resulted in a reduction of incidence and mortality of COVID-19.

Findings: **1.** Covid-19 cumulative incidence and mortality were associated with a significant reduction after school closure. **2.** This reduction was greatest in states with the lowest incidence of COVID-19 at the time of school closure but similar reductions of lesser magnitude were observed in states with a higher cumulative incidence. **3.** The earlier schools closed had the largest relative reduction in overall incidence and mortality especially in states where the cumulative incidence of disease was low. **4.** Although this investigation suggests that school closure is markedly associated with declines in incidence and mortality, other interventions were often performed at the same time and statistical attempts to account for the impact of school closure alone were made. Per the authors: "Completely isolating the effects of any single non-pharmaceutical intervention is impossible . . . "

- Walker D. Heald-Sargent T. Age-Related Differences in Nasopharyngeal Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Levels in Patients With Mild to Moderate Coronavirus Disease 2019 (COVID-19). *JAMA-pediatrics*. 07.30.2020
Methods: **1.** Children transmit gastrointestinal and respiratory diseases generously through communities. **2.** Nasopharyngeal PCR for SARS-CoV-2 was performed at inpatient, outpatient, and ED sites in Chicago. **3.** Cycle threshold (CT) values were recorded with lower values signifying higher amounts of viral nucleic acid. **4.** CT values of different age groups were compared.
Findings: **1.** 145 patient PCR CT values were compared: < 5 years, n=46; 5 to 17 years, n=51; 18 to 65 years, n=48. **2.** Children < 5 years had significantly higher viral nucleic acid as evidenced by lower CT values. **3.** Older children and adults had similar CT values. **4.** This study raises the concern that young children potentially can be potent transmitters of SARS-CoV-2 as CT values do reflect viral culture concentration. **5.** The authors suggest that day care centers and schools potentially harbor infectious children and that vaccine distribution should take into account these findings.
- Ding Y. Clinical characteristics of children with COVID-19: a meta-analysis. *Frontiers in Pediatrics*. 2020;8:431
<https://www.frontiersin.org/articles/10.3389/fped.2020.00431/full> pdf
Methods: **1.** This analysis spans the medical literature from January 1, 2020 thru April 1, 2020. **2.** All studies were peer-reviewed and recruited subjects within studies were SARS-CoV-2 positive. **3.** Key disease features were abstracted from qualifying studies and a meta-analysis performed.
Findings: **1.** 14 studies (371 patients) were included in the meta-analysis and 19 case reports (25 patients) summarized. **2.** 371 children: 6.1% of all the included children had underlying diseases; fever (51.2%) and cough (37%) were the most common symptoms; 17.4% were asymptomatic; and 10% of the children with COVID-19 tested positive for other pathogens, such as influenza virus types A and B and mycoplasma pneumoniae. **4.** Among 371 cases, five developed severe or critical illness and required intensive care and there were 2 deaths (10 mo and 14 years).
- Rodriguez-Diaz CE. Risk for COVID-19 infection and death among Latinos in the United States: Examining heterogeneity in transmission dynamics. *Annals of Epidemiology*. 07.23.2020.
<https://www.sciencedirect.com/science/article/pii/S1047279720302672> pdf
Methods: **1.** Publicly available data from diverse sources was accessed to determine how many US counties have a disproportionately large Latino population (17.8% is the national average) to compare demographic features of COVID within these counties with those with fewer Latinos (LatC vs Non-LatC). **2.** COVID-19 cases and deaths were compared between LatC vs Non-LatC with an additional focus regional differences. **3.** Co-morbidity data, social/environmental data, and language competency in the home were assessed.
Findings: **1.** Fourteen percent of U.S. counties (443/3143) are disproportionately Latino and COVID-19 cases increase with the proportion of Latino residents in all geographic regions. **2.** Higher rates of COVID-19 cases were associated with a greater proportion of monolingual Spanish speakers' higher heart disease death rates, and less social distancing. **3.** COVID-19 deaths were associated with the proportion of Latino residents in the Midwest region and in counties with crowded living conditions or elevated air pollution. **4.** In the Midwest, Latino counties account for only 4% of counties but account for 31.9% of cases and 22.6% of deaths in the region and only in the Midwest did COVID-19 deaths increase with the proportion of Latino residents a



phenomenon likely due to the well-publicized outbreaks in poultry and meat-processing plants where large number of Latinos are employed.

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