



Reference(s) of the Week

- Avari H. Quantitative Assessment of Viral Dispersion Associated with Respiratory Support Devices in a Simulated Critical Care Environment. *AJRCCM*. 05.01.2021;203(9):1112-1118. <https://www.atsjournals.org/doi/pdf/10.1164/rccm.202008-3070OC> pdf
Premise/Methods: 1. Respiratory support ranging from oxygen by nasal cannula through mechanical ventilation is required by more than 25% of hospitalized COVID-19 patients. 2. Bioaerosol dispersion in the environment may increase the risk of transmission of SARS-CoV-2 to providers and knowledge of risk depending on modality of respiratory support is incomplete. 3. A mock negative pressure ICU room with a patient simulator were used to model the dispersion of DNA bacteriophage during six respiratory support scenarios. 4. Air samples were obtained from six locations in the room and plaque assay for bacteriophage quantification was performed for each respiratory scenario.
Findings: 1. Across all locations, the lowest concentrations of the bacteriophage were achieved with closed circuit invasive ventilation and noninvasive helmet ventilation with a PEEP valve. 2. The highest bacteriophage concentrations were produced by high flow nasal oxygen. 3. The highest bacteriophage concentrations across the six locations were at the mouth and lowest at the end of the bed. 4. These findings highlight the potential differential risk of the aerosolizing virus among respiratory support devices and reinforces the importance of strict infection control measures

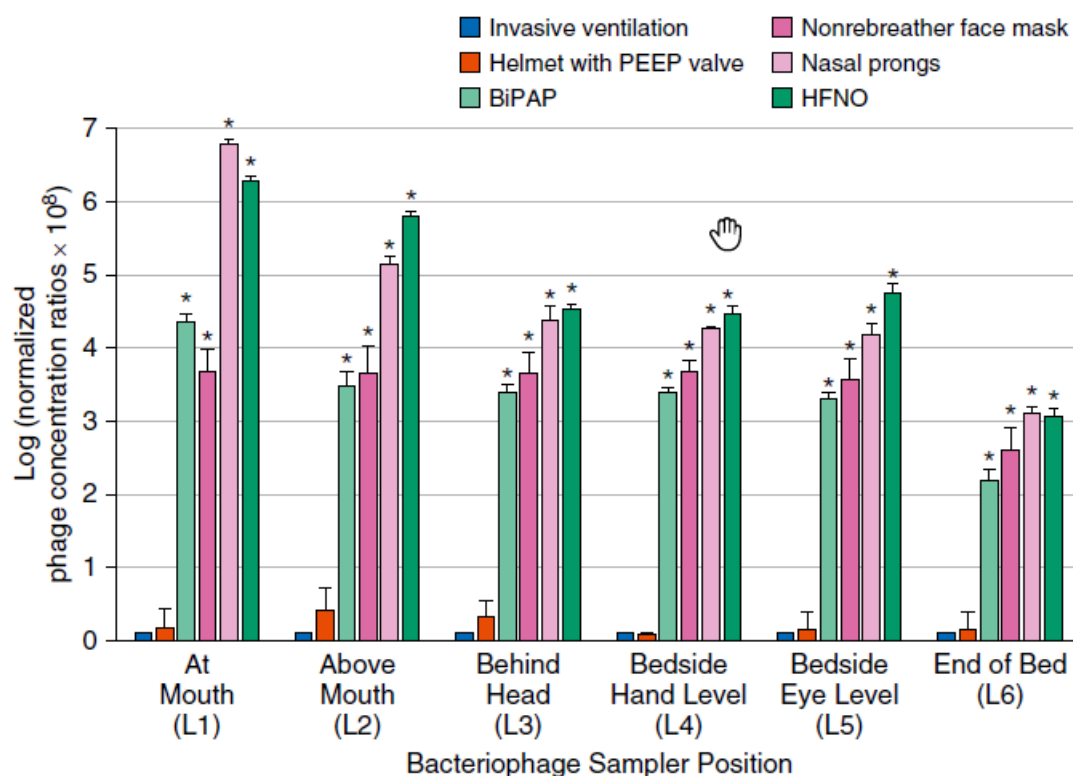


Figure. Logarithmic normalized bacteriophage concentration of six respiratory modalities at L1–L6. The asterisks represent the statistically significant modalities when compared with invasive ventilation at each location using the Kruskal-Wallis method ($P,0.05$; a summary of pairwise comparisons is presented in Table E3 of the online supplement). Each experiment was run in triplicate ($n = 3$), and the error bars represent the SDs. BiPAP = bilevel positive airway pressure; HFNO= high-flow nasal oxygen; L1–L6 = locations 1–6; PEEP = positive end-expiratory pressure.

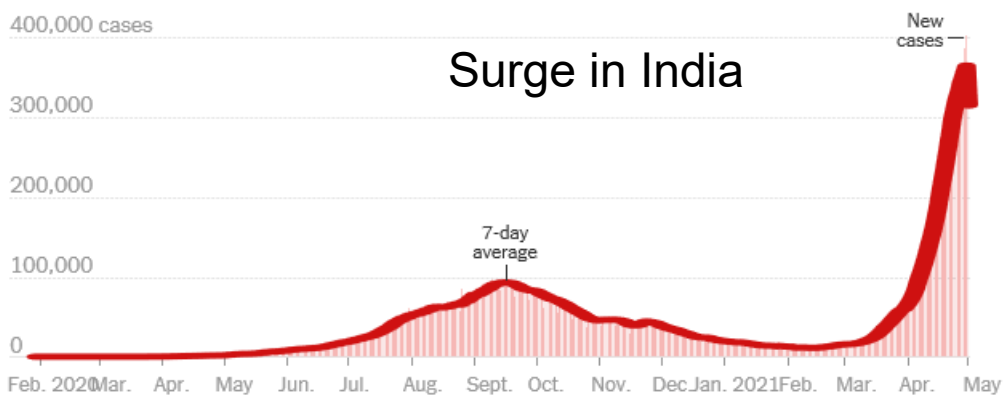
Other References:

- Thiagarajan K. Why is India having a COVID-19 surge? *British Medical Journal*. 04.30.2021. *News Analysis*. <https://www.bmj.com/content/373/bmj.n1124> pdf
Summary: 1. “Double mutant” variant (B.1.617) emerged in India in October 2020 and is becoming a dominant strain that has greater infectivity and may be responsible for re-infections now occurring at a rate of 4.5%. The B.1.617 has been found in 18 other countries including the US. 2. There is a shortage of health care providers, hospital beds, ICU beds, ventilators, oxygen,



vaccines, testing, and PPE. **3.** Media reports have blamed premature political optimism leading to lax social distancing and mask wearing, alongside mass political rallies for recent elections and religious events such as the Kumbh Mela, in which hundreds of thousands of Hindus gather at the Ganges River. **4.** This second wave is spreading in rural areas where there is a dearth of healthcare infrastructure; patients arrive at facilities with advanced symptoms; infections and deaths are shifting to the 30-50 year age group; and with greater than 300,000 positive tests per day (true infection number may be many multiples of positive test results) deaths and post-mortem arrangements are also in a critical state.

New reported cases by day



<https://www.nytimes.com/interactive/2020/world/asia/india-coronavirus-cases.html>

- Ortiz R. Assessing Child Abuse Hotline Inquiries in the Wake of COVID-19: Answering the Call. JAMA-pediatrics. 05.03.2021. <https://jamanetwork.com/journals/jamapediatrics/fullarticle/2779449> pdf

Premise/Methods: **1.** COVID-19 has resulted in additional stress to vulnerable populations: unemployment; threat of eviction; illness within families; closed daycare; and closed schools. **2.** Mandatory reporting agencies such as public employees, school personnel, medical clinics, and daycare providers have had their contact with children curtailed. **3.** Childhelp is a multilingual 24/7 hot line for child abuse reporting that can be accessed through direct calls or text messaging. **4.** This investigation compared calls/texts to Childhelp before and during the current pandemic.

Findings: **1.** There was a 13.75% increase in the total number of inquiries in 2020 compared to 2019: decrease in calls from school reporters and mandated reporters; and an increase in calls from neighbors or landlords, relatives, and friends. **2.** Calls initially increased after declaration of a health emergency on January 31, 2020 and then decreased with school closures. **3.** Text messaging, a child- and teenager-friendly modality, expanded during the post closure period, pointing to potential self-advocacy. **4.** Text-based access to hotlines or agencies maybe an effective strategy for promoting communication from victims of domestic and community-based trauma.

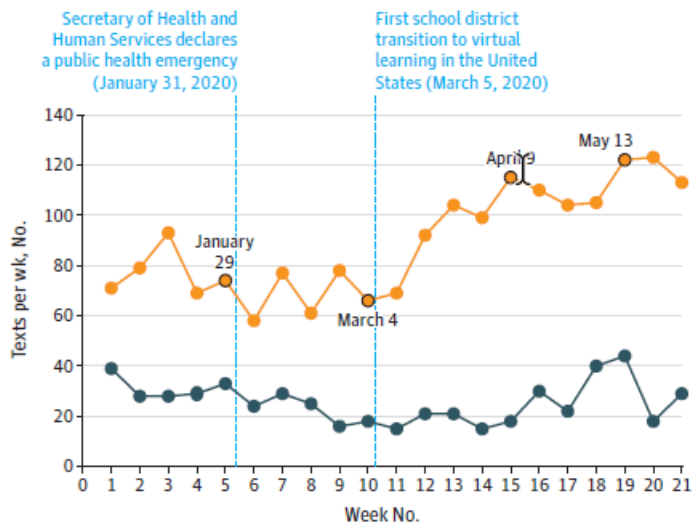


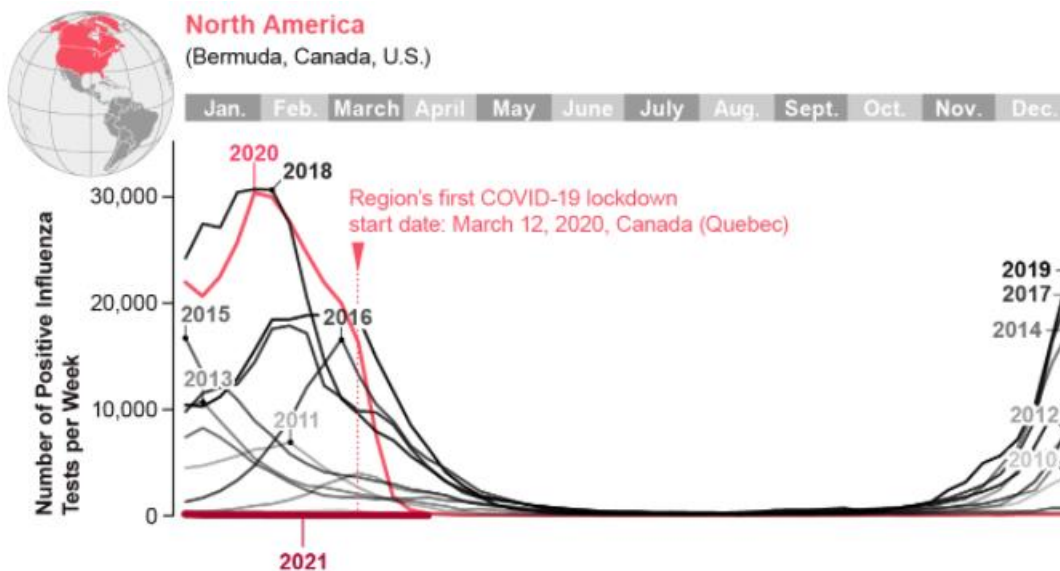
Figure. Text inquiries are plotted as number of inquiries per week between March 1, 2019, and May 27, 2019, and March 1, 2020, and May 26, 2020.



- Peek. K. Flu Has Disappeared Worldwide during the COVID Pandemic. Scientific American. 04.29.2021.

<https://www.scientificamerican.com/article/flu-has-disappeared-worldwide-during-the-covid-pandemic/>

Summary: **1.** Influenza is less transmissible than SARS-CoV-2 and mitigation measures directed at the pandemic have had the collateral benefit of reducing flu cases to “minuscule levels.” **2.** Look at recent yearly US flu deaths: 2020-2021, 600; 2019-2020, 22,000; 2018-2019, 34,000. **3.** The reduction in cases translates into less viral replication and therefore less novel mutations suggesting that this year’s flu vaccine may not need to be altered from last year’s product. **4.** No one is predicting unexpected consequences of this anomaly in influenza presence but there is concern that loss of exposure to young children may leave them less protected in the future.



FluNet/Global Influenza Surveillance and Response System, World Health Organization (*influenza rates*)