



Reference of the Week

- Opel DJ. Should We Mandate a COVID-19 Vaccine for Children? JAMA-pediatrics. 09.14.2020 (viewpoint). <https://jamanetwork.com/journals/jamapediatrics/fullarticle/2770123> pdf
Recommendations: 1. Pre-planning should be taking place to assess whether a COVID-19 vaccine should be mandated in children. 2. The authors suggest the following 5 criteria be used to support or refute a mandate: ① there must be evidence that a COVID-19 vaccine is safe for children with an acceptable level of risk; ② the burden of COVID-19 disease ought to be substantial in at least a subset of the population (and not necessarily in children); ③ the COVID-19 vaccine must also be effective in protecting a child from the disease; ④ the burden of adherence for the vaccine containing this antigen is reasonable for the parent/caregiver; and ⑤ vaccinating children should reduce the risk of transmission of disease.
At this stage, too little is known about COVID-19 vaccination to rule upon a mandate. For each criteria are caveats. Although the vaccine should be effective in preventing disease, for example, there is concern that a proposed vaccine might increase the risk of MIS-C. Additionally, children appear less susceptible to acquiring acute disease, exhibit less severity when infected, and appear less likely to transmit the virus once infected.

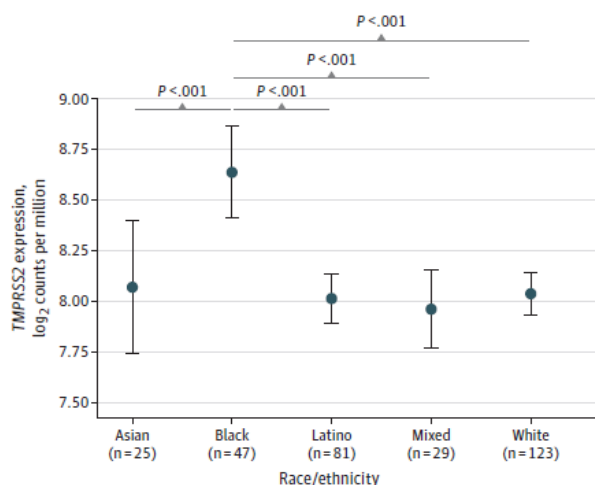
Other References:

- Ramani C. Post-Intensive Care Unit COVID-19 Outcomes-a Case Series. Chest. 2020 (pre-pub). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7442057/> pdf
Premise/Methods: 1. Pulmonary functions following severe COVID-19 requiring intensive care are unknown. 2. Prior studies suggest neuro-cognitive impairment following severe COVID-19 disease. 3. Lung functions including spirometry, lung volumes, diffusion, and 6 minute walk test were performed. 4. Multiple neuro-cognitive functions were tested by validated instruments.
Findings: 1. This was a single site F/U study of 28 severe COVID-19 adult patients most of whom were Black or Latino: median age 56 years, 24/28 patients required mechanical ventilation (MV); median MV days was 11; median ICU days was 14; median hospital days 22; and 75% (n=21) had delirium in the ICU. 2. Median days until clinic F/U was 39.5 days (IQR 36-41). 3. A low prevalence of pulmonary obstruction and/or restriction and diffusion capacity and the 6 minute walk test had many normals. 4. The patients had no or only mild cognitive impairment at six weeks after hospital discharge.
This is a preliminary study but is encouraging and not too dissimilar to non-COVID-19 ARDS patients who have well preserved pulmonary function and limited cognitive impairment as well.
- Dopfer C. COVID-19 related reduction in pediatric emergency healthcare utilization – a concerning trend. BMC-pediatrics. 09.07.2020:20. <https://bmcpediatr.biomedcentral.com/articles/10.1186/s12887-020-02303-6> pdf
Premise/Methods: 1. Increased adult and pediatric morbidity and mortality has been reported due to delayed healthcare utilization. 2. ED utilization at a single German tertiary care center was assessed to compare the rate and type of emergency department (ED) visits during lockdown in March and April of 2020 to the equivalent period in the spring of 2019.
Findings: 1. 5,424 healthcare visits during the pre- and current pandemic periods: mean age 7.1 years; 49.5% of cases female. 2. Case numbers decreased 63.8% during the lockdown pandemic period compared to the same period in 2019. 3. Daily visits for suspected or confirmed communicable diseases displayed a significant decrease (70.2%) in the four weeks after lockdown began. 4. Uncertainty and fear are posited as reasons for the decline in ED visits.
This study mirrors the reduction in ED utilization reported in adult studies with the major outcome difference being that delay in adult ED visits result in significant morbidity and mortality. It should be noted that a similar assessment of pediatric healthcare in Italy revealed an uptick in pediatric deaths associated with parental fear of seeking emergency healthcare.

SEE THE ARTICLE CABINET ON THE S: DRIVE, "COVID-19 ARTICLE RESOURCE CABINET" FOR CHILDREN'S FULL COLLECTION



- Bunyavanich S. Racial/Ethnic Variation in Nasal Gene Expression of Transmembrane Serine Protease 2 (TMPRSS2). JAMA. 09.10.2020. <https://jamanetwork.com/journals/jama/fullarticle/2770682> pdf



Premise/Methods: **1.** TMPRSS2 promotes SARS-CoV-2 cell entry by activating the viral spike protein. **2.** Racial differences in TMPRSS2 gene expression in prostate tissue may partially account for a higher incidence of prostate cancer in Black men versus White men. **3.** TMPRSS2 expression was measured in a racial/ethnically diverse population due to the disproportionate burden of COVID-19 in Black and Latino populations to ascertain whether differences exist between groups.

Findings: **1.** Nasal epithelium collected previously (2015-2018) during an asthma study was utilized for this investigation. **2.** Self-identified race/ethnicity was queried given prior associations between race/ethnicity and asthma. **3.** This study showed significantly higher expression of *TMPRSS2* in Black individuals compared with other self-identified races/ethnicities.

Figure. Nasal Gene Expression of TMPRSS2 in Racial/Ethnic Groups.

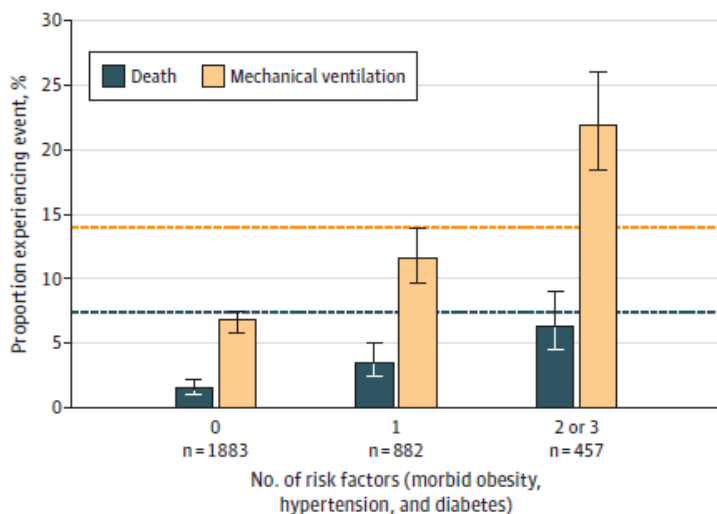
The data points indicate means and the error bars indicate 95% CIs for transmembrane serine protease 2 (TMPRSS2) gene expression in self-identified racial/ethnic groups. The P values were calculated using linear regression modeling in which TMPRSS2 gene expression was the dependent variable and race/ethnicity was the independent variable.

This provocative yet preliminary study suggests that another factor other than multiple social determinants of health may be contributing to the disproportionate burden of COVID-19 on the Black population. This factor appears not to explain the burden shouldered by Latinos suggesting that factors other than TMPRSS2 may be the predominate effect on epidemiology.

- Cunningham JW. Clinical Outcomes in Young US Adults Hospitalized with COVID-19. JAMA-internal medicine. 09.09.2020. <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2770542> pdf

Premise/Methods: **1.** The demographic with the most rapidly growing of COVID-19 cases is among young adults in the US. **2.** The clinical trajectory and outcome of COVID-19 in young adults is largely unknown. **3.** Young adults age 18 to 34 years who were hospitalized between 3/01 – 6/30/2020 were extracted from the Premier Healthcare Database covering all payers from 1,030 US hospitals. **4.** Demographic information and outcomes were analyzed.

Findings: **1.** 3,222 (5% of adults discharged with the diagnosis of COVID-19) non-pregnant young adults with COVID-19 were



identified in the dataset: mean age 28.3 years; 57.6% were male; 57% were Black or Hispanic; and many had co-morbidities. **2.** During hospitalization 21% required ICU; 10% mechanical ventilation; 7% vasopressors; and 2.7% died. **3.** More than half of patients were Black or Hispanic consistent with findings in other age groups. **4.** Adverse events increased with the number of comorbid conditions:

Figure. Death and Mechanical Ventilation in Young Adults with and without Morbid Obesity, Hypertension, and Diabetes

The rapidly growing infection rate among young adults is less severe than in the elderly population but exhibits the same characteristics: a predominance of Black and Latino patients and the same co-morbidity risk factors. Although not



emphasized in the paper, asthma was not associated with adverse outcomes in this population