COVID-19 Evidence Digest 01/15/21

[Open Schools, COVID-19, and Child and Teacher Morbidity in Sweden](#) (NEJM)

Bottom Line: This study found a low incidence of severe COVID-19 (i.e. admitted to the ICU) among school and pre-school aged children 1 to 16 years of age (1 per 130,000) from March 1st through June 30th, 2020. This includes children with COVID-19 and or MIS-C.

Details: This correspondence shares data from Sweden on severe COVID-19 in children age 1 to 16 years of age and Sweden's teachers. Sweden kept their schools open in the spring of 2020, encouraged social distancing, but not mask wearing, and COVID-19 was prevalent in the community. Severe COVID-19 was defined as patients admitted to the intensive care unit (ICU) between March 1 and June 30, 2020 with laboratory or clinically confirmed COVID-19. This included patients with multisystem inflammatory syndrome in children (MIS-C), believed to be related to COVID-19. Admissions were prospectively recorded in the Swedish intensive care registry. A total of 15 children (0.77 per 100,000 age 1-16) were admitted to the ICU with COVID-19 (including MIS-C). Of those admitted with COVID-19, 4 were age 1 to 6 (0.54 per 100,000) and 11 were age 7 to 16 (0.90 per 100,000). No child died of COVID-19. This analysis looked at data from Public Health Agency of Sweden to assess teacher outcomes. Less than 10 preschool teachers and 20 school teachers (19 per 100,000) were admitted to the ICU for COVID-19 through June 30, 2020. Study limitations included a lack of data on household transmission and data had very wide confidence intervals.

Key Takeaways:
- Low incidence of severe COVID-19 (i.e. admitted to the ICU) among school and pre-school aged children 1 to 16 years of age (1 per 130,000) from March 1st through June 30th, 2020. This includes children with COVID-19 and or MIS-C.
- Less than 10 preschool teachers and 20 school teachers (19 per 100,000) were admitted to the ICU for COVID-19 through June 30, 2020.
- Limitations: This study lacked data on household transmission and had very wide confidence intervals.

[6-month consequences of COVID-19 in patients discharged from hospital: a cohort study](#) (Lancet)

Bottom Line: Patients who have recovered from acute infection from COVID-19 may face long-term health effects including fatigue, sleep problems, anxiety, and impaired pulmonary diffusion.

Details: This cohort study aimed to understand long-term health consequences due to COVID-19. The study included 1,733 patients with confirmed COVID-19 who were discharged from a hospital in Wuhan, China between January 7, 2020 and May 19, 2020. Patients were followed up from June 16 till September 3, 2020. Patients were interviewed and given questionnaires to evaluate symptoms, health, and quality of life, in addition to physical exams, blood tests, and a 6-minute walking test. Patients were stratified by severity of COVID-19 on a 7-category scale and categorized into three groups: 3, 4, and 5-6. Of the 1,733 patients in this study, the median age was 57 years and 52% were male. The median follow up time for the study was 186 days (about 6 months). The most common long-term symptoms was fatigue/muscle weakness (63%, n=1038/1655) and difficulty with sleep (26%, n=437/1655). 23% of patients reported anxiety or depression (367/1617). Patients in the 5-6 severity group had higher odds of lung diffusion impairment (a condition that can affect the movement of oxygen in the lungs causing reduced

partial pressure of oxygen (hypoxemia); OR=4.60). Patients in the 5-6 severity group also had higher odds of anxiety/depression and fatigue/muscle weakness (OR=1.77 and 2.69, respectively). Median chest imaging scores were also higher in the higher severity groups along with 6-minute walking test scores lower than the normal range. Additionally, of the 94 patients who had their blood antibodies tested, patients had less median titres of antibodies at follow-up compared to during their acute Covid-19 illness (10 vs 19, respectively), which may increase risk of Covid-19 reinfection.

Key Takeaways:
- Most patients recovered from COVID-19 experienced fatigue/muscle weakness, difficulty with sleep, anxiety, and depression 6 months after discharge.
- Patients who had more severe COVID-19 had increased impaired pulmonary diffusion and abnormal CT imaging 6 months after discharge indicating the need for post-discharge care.
- Studies with longer follow-up periods are needed to fully understand the long-term health consequences of COVID-19.
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Early high titer plasma therapy to prevent severe COVID-19 in older adults (NEJM)

Bottom Line: In a randomized, double-blinded, placebo-controlled trial of convalescent plasma with high antibody titers given to older (65+) adults in the outpatient setting with mild COVID-19 disease, those who received plasma were less likely to develop severe respiratory disease.

Details: Patients 75 and older regardless of comorbidities or 65-74 with at least one co-existing condition with mild COVID-19 disease for less than 48 hours were included in the study. 160 patients were randomized to receive convalescent plasma with an IgG titer of > 1:1000 against the SARS-CoV-2 spike protein or placebo (normal saline). The study intervention was given within 72 hours of symptom onset. The trial was terminated early (after 76% target enrollment) due to local control of the pandemic and few patients to enroll. 16% of patients who received plasma and 31% who received placebo developed severe respiratory disease (relative risk 0.52, P = 0.03). The number needed to treat to prevent 1 episode of severe COVID-19 respiratory disease was 7 patients. 5% of patients receiving plasma and 12% who received placebo had life threatening respiratory disease. 6% of patients receiving plasma and 8% receiving placebo had critical systemic illness. 2 patients in the plasma group died and 4 patients in the placebo group died.

Key Takeaways:
- Giving a one time high titer (> 1:1000 anti-spike IgG) plasma infusion to older adults with mild COVID-19 disease within 72 hours of symptom onset was shown to reduce the risk of progressing to severe respiratory disease by 48%.
- There may be a role for high titer plasma treatment early in the course of COVID-19 disease at least for the subset of patients over 65.

[Mitigation Policies and COVID-19–Associated Mortality — 37 European Countries, January 23–June 30, 2020](#) (MMWR)

Bottom Line: European countries that implemented stricter COVID-19 mitigation measures earlier in the pandemic reported fewer deaths due to COVID-19 through June 2020 compared to those that implemented such measures later.

Details: This study sought to better understand when and how COVID-19 mitigation measures were effective in 37 European countries during the spring of 2020. To measure strictness of mitigation measures, the Oxford Stringency Index (OSI), a composite index ranging from 0-100 based on 9 policies, was used. Linear regression analysis was used to explore the relationship between the OSI on the day each country's mortality threshold was reached (a daily rate of 0.02 new COVID-19 deaths per 100,000 people) and overall mortality due to COVID-19 by 6/30. The most common mitigation policies implemented by the time the mortality threshold was reached were: public event bans (95%), school closures (89%), gathering bans (84%), workplace closures (84%), border closures (73%), internal movement restrictions (68%), and stay at home recommendations (38%). Countries with a higher OSI when the mortality threshold was reached had lower mortality due to COVID-19 by the end of June, which persisted after controlling for various factors. A 1-unit increase in the OSI when the mortality threshold was reached was associated with decrease of 0.55 deaths per 100,000 by June 30th; a 1-unit increase in the OSI standard deviation was associated with a decrease of 12.5 deaths per 100,000. Overall, 70% of countries (n=26) had an OSI of <80 when the mortality threshold was reached; regression analyses suggest that if OSI was 80, 74,139 fewer deaths would have been expected in those countries, with most potentially averted deaths in the UK, France, and Spain.

Key Takeaways:
- Findings suggest that earlier implementation of stricter COVID-19 mitigation measures may help prevent widespread transmission and save thousands of lives.

[COVID-19 Trends among Persons Aged 0-24 Years - United States, March 1-December 12, 2020](#) (MMWR)

Bottom Line: COVID-19 cases among 0 to 24 year olds have increased since the summer of 2020, with weekly new cases increasing with age; individuals 0-17 experienced similar time trends in weekly new cases as those observed among adults since June.

Details: This study examined the trends in the incidence (the number of new cases) of COVID-19 and COVID-19 testing between March 1, 2020 - December 12, 2020. Individuals between the ages of 0 to 24 were categorized into five age groups: 0–4 (preschool), 5–10 (elementary school), 11–13 (middle school), 14–17 (high school), and 18–24 (higher education). During this period there were a total of 2,871,828 confirmed COVID-19 cases among those aged 0-24 years. 57% of cases occurred among young adults aged 18-24 years, 16% among children and adolescents aged 14-17 years, 8% among children aged 11-13 years, 11% among children aged 5-10 years, and 7% among children aged 0-4 years. Majority of cases occurred among females (52%). Among those with race/ethnicity data (n=1,504,165) 50% were White, 27% were Hispanic/Latino, and

12% were Black. The proportion of cases decreased among Hispanics as age increased from 0-4 to 18-24 (34% to 25%, respectively). Among all age groups, incidence of COVID-19 increased every week, with the highest incidence of cases occurring during the last week of the study. From the week of May 31 to December 6, COVID-19 testing increased 423% among children, adolescents, and young adults. At the peak of testing during the week of November 25, 10% of tests were among those aged 0-17 and 15% among those aged 18-24. Among children and adolescents, the percent positive COVID-19 tests decreased between July and September and increased from September through December. Among those with available data, 3% of those 0-14 years of age were hospitalized, 1% admitted to the ICU, and <0.1% died. Children between the ages of 0-4 had the highest rates of hospitalizations and ICU admission (5% and 2%, respectively). Among 13% of children with available data, 30% had at least one underlying condition, compared to 60% among adults >24 years of age. One limitation of this study includes the possible underestimating of COVID-19 incidence among children and adolescents given that they had lower testing rates.

Key Takeaways:
- Consistently lower incidence of COVID-19 among younger children (0-10) compared to those in older age groups has been observed, which suggests that the risk of transmission may be lower in child care centers and elementary schools compared to high school.
- While CDC recommends that K-12 schools be the last settings to close after all other mitigation strategies have been implemented and the first to reopen when they can do so safely, in-person learning requires effectively managing community transmission with implementation and strict adherence to various mitigation strategies.

[Convalescent Plasma Antibody Levels and the Risk of Death from COVID-19](#) (NEJM)

Bottom Line: Among patients hospitalized with COVID-19 who did not receive mechanical ventilation, plasma transfusion with higher vs lower antibody levels against SARS-CoV-2 was associated with a lower risk of death.

Details: This clinical trial study sought to understand the association between receipt of convalescent plasma (blood from individuals recovered from COVID-19) with high versus low antibody levels and risk of death. Levels of immunoglobulin (IgG) antibodies against SARS-CoV-2 in convalescent plasma used to treat adults hospitalized with COVID-19 were ascertained from a national registry. The main outcome of interest was death within 30 days after plasma transfusion. 3082 patients were enrolled; of this group, death within 30 days post-plasma transfusion occurred in 22.3% of patients in the high antibody level group (115/515), 27.4% of patients in the medium antibody level group (549/2006) and 29.6% of patients in the low antibody level group (166/561). Lower risk of death within 30 days in the high antibody vs low antibody level group was seen in patients who had not received mechanical ventilation prior to plasma transfusion (relative risk, 0.66); there was no effect on risk of death in this group among those who had received mechanical ventilation (relative risk, 1.02).

Key Takeaways:

- While higher versus lower levels of immunoglobulin G (IgG) antibodies against SARS-CoV-2 in convalescent plasma transfusions was associated with a lower risk of death among patients hospitalized with COVID-19, having had mechanical ventilation prior to the transfusion moderated this relationship.