

Strikingly Decreased Community-acquired Pneumonia Admissions in Children Despite Open Schools and Day-care Facilities in Switzerland

To the Editors:

During the first wave of the coronavirus disease 2019 pandemic in Europe, several reports showed a distinct reduction in overall incidence of acute respiratory infections (ARIs) in all ages.¹ Strict physical distancing measures were introduced in most European countries in March 2020. These measures included school closures. Distancing measures and the concomitant decrease in ARI incidence is also reflected by an abrupt end of seasonal ARI and particularly influenza in European countries.

We are currently studying the effectiveness of oral corticosteroids for shortening time to clinical stabilization in pediatric patients who are hospitalized with community-acquired pneumonia (CAP) (ClinicalTrials.gov: NCT03474991²). The randomized controlled trial is conducted at 8 pediatric hospitals across Switzerland that provide care to a substantial proportion of Switzerland's pediatric population. All patients from 0 to 18 years of age admitted at the participating hospitals with a clinical diagnosis or differential diagnosis of CAP are documented as prescreened patients. Patients are also included in this documentation if they are identified retrospectively, that is, through review of admissions during times when research staff was not on duty. We are thereby able to monitor pediatric CAP admissions representative for included regions in real time.

All trial sites have been active since autumn 2019. We saw a typically shaped distribution of CAP admissions for the 2019/2020 ARI season (Fig. 1A). In March 2020, when strict distancing measures and school closures were implemented to counteract the pandemic (overview of all previous

and current measures listed online³), the number of admissions steeply declined. Based on observation of the previous year, an increase in admission would have been expected for October 2020. However, because of rising coronavirus disease 2019 case numbers,³ the Swiss federal government reintroduced stricter restrictions in mid to late October 2020 in a stepwise fashion, including advice to work from home and higher education moving to distance learning.³ Importantly, schools and day care providers did not close. While median CAP admission numbers from mid-September to mid-October did not differ between 2019 and 2020 (Fig. 1B, paired *t* test *P* = 0.299), we observe that the expected seasonal rise in admissions has not yet occurred, and in contrast, numbers have even shown some decline. Therefore, current 2020 admissions numbers are significantly lower (per site and week by about 67% on average) than in the respective period of 2019 (Fig. 1B, paired *t* test *P* < 0.001).

Pediatric CAP admission numbers are mainly driven by children of preschool and primary school age.⁴ CAP in this age group is rarely caused by severe acute respiratory syndrome coronavirus 2. Instead, other respiratory viruses with similar or higher secondary attack rates among children in schools or day-care facilities with infective index patients are the main driver of pediatric CAP admissions.⁵ The measures currently implemented in Switzerland, although not including school or day care closures, appear to lead to a considerable reduction in transmission of CAP causing pathogens within the pediatric population.

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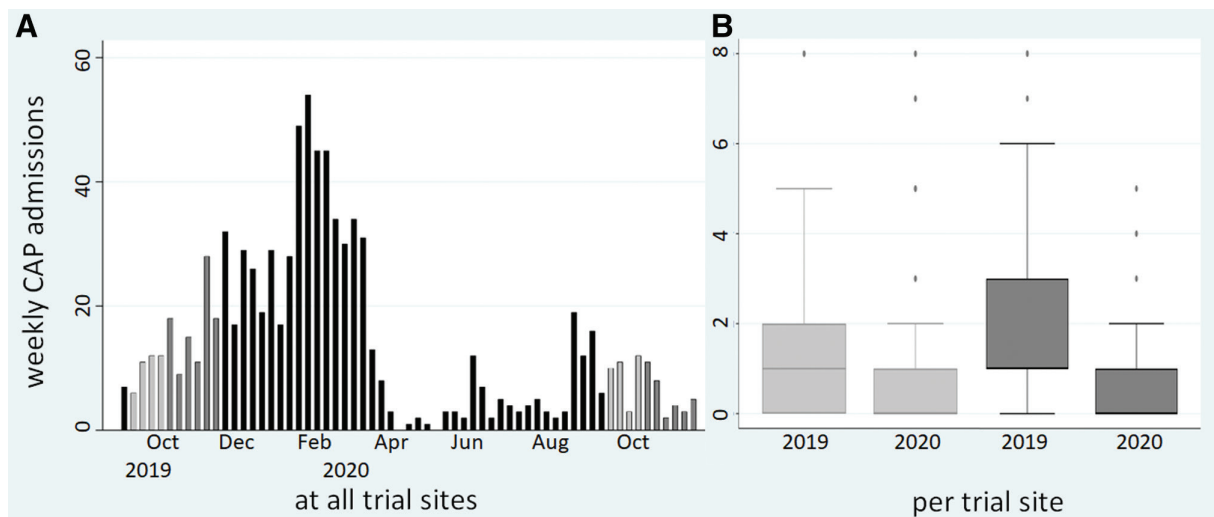


FIGURE 1. Weekly admission numbers for CAP. A: Total admissions at all study sites per calendar week. Light gray and dark gray bars represent the weeks compared in (B). B: CAP admissions per week and trial site in the 4 weeks from mid-September to mid-October (light gray boxes) and in the 6 weeks from mid-October to end of November (dark gray boxes), October 2019 to November 2019 on average 2.06 CAP admissions per week and site, 2020 0.67 per week and site, mean difference 1.40 (95% confidence interval: 0.76–2.03, $P < 0.001$).