



SCIENTIFIC LETTER

Reduction in the incidence of acute bronchiolitis and related hospital admissions during the COVID-19 pandemic[☆]



Reducción de la tasa de incidencia de bronquiolitis aguda y de las hospitalizaciones asociadas a la enfermedad, durante la pandemia de COVID-19

Dear Editor:

Acute bronchiolitis (AB) is the most frequent lower respiratory tract infection in children aged less than 2 years. It is the main reason for hospital admission in infants under 1 year,¹ constituting a significant health care burden with a substantial economic and social impact.² It has been hypothesized that public health measures against coronavirus disease 2019 (COVID-19) such as social distancing, lockdowns, and hygiene in the general population could also decrease the incidence of other infections, especially in children. In New South Wales, Australia, during the first wave of the COVID-19 pandemic, there was a 94% reduction in the number of detected cases of respiratory syncytial virus and a 85%–89% reduction in hospital admissions due to bronchiolitis compared to previous years (2015–19).³ Similarly, there was an observed 70% decrease in infant admissions due to AB in Brazil.⁴ In the northern hemisphere, several studies have estimated the reduction in AB cases during the 2020 winter bronchiolitis season (through the end of the year). In France, there were decreases of 82.1% and 82.5% in bronchiolitis-related medical visits and hospital admissions, respectively, during the epidemic season of winter 2020.⁵ In Belgium, bronchiolitis-related admissions decreased by 92.5% and cases of respiratory syncytial virus by 99% during the winter peak compared to the epidemic seasons of the 3 previous years.⁶ All these studies highlighted that the measures adopted to reduce the transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus responsible for COVID-19, were the most important contributor to this reduction.

Further evidence on the impact of the COVID-19 pandemic on AB is needed, especially data for the entire

bronchiolitis season in northern hemisphere. Seeking to fill this gap in the literature, we aimed to describe and measure any changes in the incidence of AB at the primary care, emergency department and inpatient care levels in a regional health system in the north of Spain (the Osakidetza-Public Health System of the Basque Country) in the first full bronchiolitis season after the start of the COVID-19 pandemic (October 2020–March 2021) compared to the previous 2 years.

To this end, we conducted a retrospective observational study of the incidence of AB in 3 cohorts of children aged 0–2 years, in three successive AB seasons (October 2018–March 2019, October 2019–March 2020, and October 2020–March 2021). For each season, we started by establishing the population at risk (children aged 0–2 years at some point during the observation period) and identifying all the diagnosed cases of AB, which allowed us to estimate the cumulative incidence. Then, we determined the specific time-at-risk for each individual during the observation period, which allowed us to calculate the rate ratio as the total number of events per person-time observed in 1000 person-months. We assessed for differences in incidence in the 2020–2021 season compared to previous seasons by mean of rate ratios. The study had a retrospective observational design and involved collection of information recorded in real-life clinical practice by health professionals, and was thus exempted from the need to obtain informed consent from patients. The data were kept confidential and anonymised, and we used them solely for the purpose of the study in adherence with Organic Law 15/1999 of December 13 on the protection of personal data.

In the 2020–21 season, the observed incidence and cumulative incidence of AB were substantially lower and associated with a sizeable decrease in the number of emergency visits and hospital admissions compared to previous years (Table 1 and Fig. 1). Notably, there were 89% and 88% fewer AB cases in the current season compared to 1 year and 2 years prior, with incidence rates dropping from 24.7 and 23.8 cases, respectively, to 2.7 cases per 1000 person-months. We also found a reduction of approximately 92% in the number of hospital admissions in the last season compared to admissions in the previous years.

Based on what has been observed to date in both hemispheres, public health measures for reducing COVID-19 transmission seem to have decreased the burden of communicable diseases such as AB. Specifically, we observed strong reductions in the number of AB cases and associated hospital admissions in our regional health system through the entire 2020–2021 season. These outcomes are probably due to the implementation

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Table 1 Incidence and rate ratios of acute bronchiolitis (AB) cases and hospital admissions in the last 3 bronchiolitis seasons in the health care system of the Basque Country.

Event	C1: Oct 2018–Mar 2019			C2: Oct 2019–Mar 2020			C3: Oct 2020–Mar 2021			C1 vs C3	C2 vs C3
	Events, <i>n</i>	Patients, <i>n</i>	Incidence ^a	Events, <i>n</i>	Patients, <i>n</i>	Incidence ^a	Events, <i>n</i>	Patients, <i>n</i>	Incidence ^a	% Reduc- tion in Inci- dence Rates	% Reduc- tion in Inci- dence Rates
<i>AB Cases</i>	5114	45	24.57	4622	42	23.83	505	39 017	2.71	88.9	88.6
<i>Hospital admis- sions</i>	489	286	2.25	467	483	2.3	34		0.18	92.0	92.0

C, cohort.

^a Expressed as cases/1000 inhabitants/month.

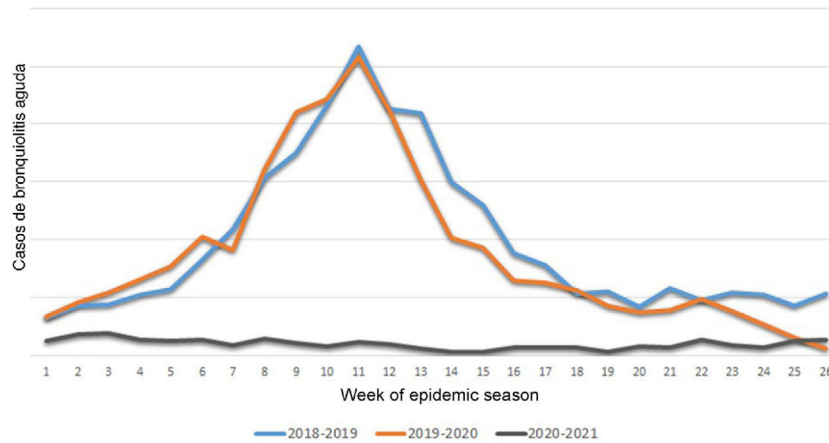


Figure 1 Weekly cumulative incidence of acute bronchiolitis in the last 3 bronchiolitis seasons in the Public Health System of the Basque Country.

of preventive strategies such as social distancing, use of masks, ventilation, handwashing and other hygiene measures. These findings should be taken into account to guide the development and evaluation of new initiatives for health promotion, especially when it comes to education and training on preventive measures aimed at future AB epidemics.

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