# Features of the transposed seasonality of the 2021 RSV epidemic in the UK and Ireland:

**analysis of the first 10,000 patients**

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# Collaborators

A list of collaborators can be found in table one.

# Competing Interests

No competing interests were disclosed.

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project planning stage. We thank the RESCEU investigators for their support.

# Data availability

Data from the BronchStart Study has been made openly available on a dashboard created

byMicroreact (https://tinyurl.com/Bronch-Start).

**Ethics**

This study has been registered with the NIHR (Research Ethics Committee number

21/HRA/1844)and clinicaltrials.gov (Identifier NCT04959734).

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# Main text

Non-pharmaceutical interventions (NPIs) introduced globally to limit the spread of severe

acute respiratory syndrome coronavirus 2 (SARS-CoV-2) led to disruption of the typical RSV

seasonality[1]. Studies examining the resurgence of RSV have been limited by sample size, and

lack of information on secondary care episodes and clinical features. The BronchStart study is

a prospective multi-centre cohort study. Paediatric emergency departments (PED) within

PERUKI (Paediatric Emergency Research in the UK and Ireland) submited data on all children

under 2 years of age who visit a PED with symptoms of an acute lower respiratory tract

infection (diagnosed as bronchiolitis, lower respiratory tract infection, or first episode of acute

wheeze). Follow-up information is submitted 7 days later, and study data is made available on

a live online dashboard hosted by Microreact [2].

We present initial data for 10,347 infants and children from 44 study sites for the period 1st

June to 5th December 2021. The 2021 RSV epidemic in the UK has finished with infections

having peaked in August (Figure 1A). Comparing the age distribution of hospitalised infants

<12 months to previous years at two large paediatric centres participating in BronchStart

(Leicester Children’s Hospital and Bristol Royal Hospital for Children), we observed a similar

age distribution (Figure 1B). This suggests either reduced community exposure to RSV during

the 15 months preceding the start of the season did not result in a clinically significant lack of

protective maternal antibody transfer to those <3 months of age, or the NPIs introduced didn’t

prevent low level transmission.

Unlike New Zealand, the overall hospital burden of bronchiolitis admissions in the UK and

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Ireland in 2021 was lower than previous seasons [3]. Disease severe enough to require

intensive care was 2.5% in our cohort (infants 6 weeks to one year), comparable to 4.2%

reported in the BIDS trial [4] (odds ratio using Fisher’s exact test 0.59, 95% confidence interval

0.31-1.18, p = 0.09). We noted a low probability of a SARS-CoV-2-positive RT-PCR test

(83/4,328 children tested,1.9%; of which 39 were co-infections with another virus) in children

presenting with acute lower respiratory tract infection.

We observed a frequent number of PED visits and admissions for RSV-positive 12-23 month

old children in BronchStart: 362 out of 1,468 (24.7%) admissions. This age group, when infants,

would have had lack of RSV exposure as a result of the delayed seasonal epidemic. Maternal

RSV vaccination may have a similar effect in future and this observation, if corroborated,

would support the future long-term follow-up of those children born to mothers who receive a

future RSV vaccination.

Our initial findings indicate that the 2021 summer infection peak in the UK and Ireland

predominantly affected younger age groups as in previous years. The trend for a lower burden

of disease in 2021 (as demonstrated by ICU admissions) suggests incomplete infection by RSV

of its usual susceptible population, potentially the result from some ongoing NPIs (such as

mask wearing and hand washing) over the study period. Incomplete penetrance raises the

possibility of a further wave of infection in the coming months; this has not yet occurred.

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PMC467

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# Table 1 List of Contributors

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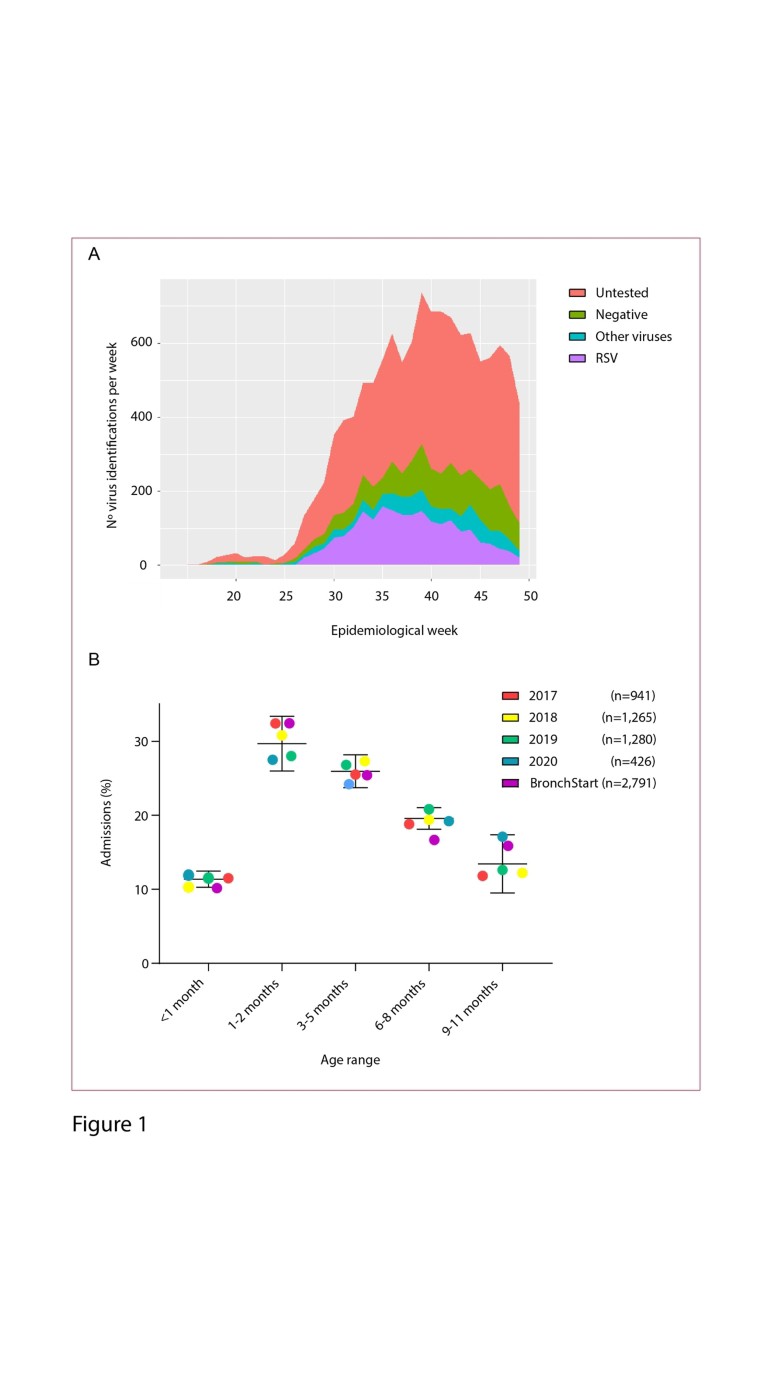
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Review Only

Figure 1 - Virus Indentifications over time

190x338mm (300 x 300 DPI)