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

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

 **Authors:** Roland D1,2, Williams T3, Lyttle D. M4,5, Marlow R5, Hardelid P6, Sinha I7,8, Swann O3,9,

 Maxwell-Hodkinson A7, Cunningham S10,11 on behalf of the REspiratory Syncytial virus

 Consortium in EUrope (RESCEU) investigators and the Paediatric Emergency Research United

 Kingdom and Ireland (PERUKI) network.

 1. Paediatric Emergency Medicine Leicester Academic (PEMLA) Group, Leicester Royal Infirmary

 2. Sapphire Group, Health Sciences, Leicester University, University of Leicester, UK

 3. Child Life and Health, University of Edinburgh, UK

 4. Faculty of Health and Applied Sciences, University of the West of England

 5. Emergency Department, Bristol Royal Hospital for Children, Bristol, UK

 6. Great Ormond Street Institute of Child Health, University College London, UK

 7. University of Liverpool, Liverpool, UK

 8. Alder Hey Children’s Hospital, Liverpool, UK

 9. Department of Paediatric Infectious Diseases and Immunology, Royal Hospital for Children,

 Glasgow, UK

 10. Centre for Inflammation Research, University of Edinburgh

 11. Department of Paediatric Respiratory and Sleep Medicine, Royal Hospital for Children and

 Young People, Edinburgh, UK

#  Corresponding Author:

 Damian Roland

 SAPPHIRE Group, Health Sciences, Leicester University, Leicester, UK

 Paediatric Emergency Medicine Leicester Academic (PEMLA) Group, Children’s Emergency

 Department, Leicester Royal Infirmary, Leicester, UK

 dr98@leicester.ac.uk

#  Contributions

 Thomas C. Williams: Conceptualization, Methodology, Writing – Original Draft Preparation,

 Writing – Review & Editing

Mark D. Lyttle: Conceptualization, Methodology, Project Administration, Software, Writing –

 Original Draft Preparation, Writing – Review & Editing

 Steve Cunningham: Conceptualization, Methodology, Project Administration, Writing – Original

 Draft Preparation, Writing – Review & Editing

 Ian Sinha: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review

 & Editing

 Olivia V. Swann: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing –

 Review & Editing

Abigail Maxwell-Hodkinson: Conceptualization, Methodology, Writing – Review & Editing

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 Pia Hardelid: Methodology, Writing – Review and Editing

 Robin Marlow: Methodology, Data Management

 Damian Roland: Conceptualization, Methodology, Project Administration, Writing – Original Draft

 Preparation, Writing – Review & Editing

#  Collaborators

 A list of collaborators can be found in table one.

#  Competing Interests

 No competing interests were disclosed.

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#  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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#  Table 1 List of Contributors

Alder Hey Children's Hospital NHS Foundation Trust England Liverpool Meriel Tolhurst-Cleaver

**Site Country City Site lead Co-lead**

 Birmingham Children's Hospital England Birmingham Stuart Hartshorn

Bolton NHS Foundation Trust England Bolton Jessica Watson

 Bristol Royal Hospital for Children England Bristol Roisin Begley

Chelsea and Westminster NHS Foundation Trust

England

London

Sakura Hingley

Manali Dutta,

Gemma Ramsden

 Children's Health Ireland at Crumlin Ireland Dublin Eleanor Ryan

Children's Health Ireland at Tallaght Ireland Dublin Sheena Durnin Stanley Koe

 Countess of Chester NHS Foundation Trust England Chester Steve Brearey

Croydon University Hospital England Croydon Darren Ranasinghe

 East Cheshire NHS Trust England Macclesfield Mudiyur Gopi

Frimley Park Hospital England London Patrick Aldridge Vicky Owens

 Hull Royal Infirmary England Hull Simon Richardson

Ipswich Hospital England Ipswich David Hartin

 John Radcliffe Hospital England Oxford Jiske Steensma Sahana Rao

Leicester Royal Infirmary England Leicester Damian Roland

 Leighton Hospital England Crewe Jo Tillett Simon Dowson

Medway Hospital NHS Foundation Trust England Gillingham Adebayo Da Costa Alfred Sime

 Newham University Hospital England Newham Claire Kirby

North Middlesex Hospital England London Adam Lawton

 Nottingham University Hospitals NHS Trust England Nottingham Ruth Wear Christopher Gough

Ormskirk & District General Hospital England Ormskirk Sharryn Gardner Craig Rimmer

 Poole Hospital England Poole Heather Deall

Queen Elizabeth Hospital, Woolwich England London Sharon Hall

Royal Aberdeen Children's Hospital Scotland Aberdeen Catriona Middleton

Royal Alexandra Children's Hospital

England

Brighton

Emily Walton

Friyana Dastur

Mackenzie

 Royal Berkshire NHS Foundation Trust England Reading Manish Thakker

Royal Derby Hospital England Derby Gisela Robinson Graham Johnson

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 Royal Hospital for Children, Glasgow Scotland Glasgow Steve Foster

Royal Hospital for Children & Young People, Edinburgh Scotland Edinburgh Jen Browning Lynsey Rooney

 Royal Wolverhampton NHS Trust England Wolverhampton Lorna Bagshaw

Salisbury NHS Foundation Trust England Salisbury Seb Gray

Sheffield Children's NHS Foundation Trust England Sheffield Sally Gibbs

South Tyneside & Sunderland NHS Foundation Trust England Sunderland Niall Mullen

 Southampton Children's Hospital England Southampton Jane Bayreuther

St George's Hospital, London England London Heather Jarman

 St Helens & Knowsley NHS Trust England Rainhill Clare O'Leary

The Royal London England London Raine Astin-Chamberlain

 University Hospital Crosshouse Scotland Kilmarnock Lawrence Armstrong Joanne Mulligan

University Hospital Lewisham England London Sophie Keers

 Watford General Hospital (West Herts NHS Trust) England Watford Richard Burridge

Wexham Park Hospital England Slough Sarah Wilson

 Whipps Cross Hospital England London Amutha Anpananthar

Wirral University NHSFT England Birkenhead David Lacy

Review Only

 Figure 1 - Virus Indentifications over time

 190x338mm (300 x 300 DPI)