

**Rebound in asthma exacerbations following relaxation of COVID-19 restrictions: a longitudinal population-based study (COVIDENCE UK)**

**Supplementary Material**

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**Table S1: Baseline questionnaire**

<b>Sociodemographic</b>	
Date of questionnaire (DD/MM/YYYY)	
Please state your <b>assigned sex at birth.</b>	-Male -Female
Date of birth (DD/MM/YYYY)	
What is your ethnic origin?	- White <ul style="list-style-type: none"> <li>- English / Welsh / Scottish / Northern Irish / British</li> <li>- Irish</li> <li>- Gypsy or Irish Traveller</li> <li>- Any other white background</li> </ul> - Mixed / Multiple ethnic groups <ul style="list-style-type: none"> <li>- White and Black Caribbean</li> <li>- White and Black African</li> <li>- White and Asian</li> <li>- Any other Mixed / Multiple ethnic backgrounds</li> </ul> - Asian / Asian British <ul style="list-style-type: none"> <li>- Indian</li> <li>- Pakistani</li> <li>- Bangladeshi</li> <li>- Chinese</li> <li>- Any other Asian background</li> </ul> - Black / African / Caribbean / Black British <ul style="list-style-type: none"> <li>- African</li> <li>- Caribbean</li> <li>- Any other Black / African / Caribbean background</li> </ul> - Arab - Other Ethnic Group
Which of these best describes your use of cigarettes?	- I have never smoked cigarettes - I used to smoke cigarettes occasionally but now not at all - I used to smoke cigarettes daily but now not at all - I smoke cigarettes occasionally but not every day - I smoke cigarettes daily
What is the highest level of education that you have completed?	- Primary school - Secondary school up to 16 years - Higher or secondary or further education (A-levels, BTEC, etc.) - College or university - Post-graduate degree
What is your current weight?	
What is your current height?	

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Have you ever been diagnosed with any of the following conditions by a doctor?	<ul style="list-style-type: none"><li>- Asthma</li><li>- Atopic Eczema or Atopic Dermatitis</li><li>- Autoimmune disease (e.g. rheumatoid arthritis, multiple sclerosis (MS), lupus (SLE), Crohn's disease, ulcerative colitis, psoriasis, Raynaud's disease, scleroderma)</li><li>- Cancer</li><li>- Cerebral Palsy</li><li>- COPD (including chronic bronchitis, and emphysema)</li><li>- Cystic Fibro</li><li>- Dementia</li><li>- Diabetes or pre-diabetes</li><li>- Hayfever or Allergic Rhinitis -</li><li>- Heart Attack, Angina or Coronary Artery Disease</li><li>- Heart Failure</li><li>- High Blood Pressure (Hypertension)</li><li>- HIV Infection</li><li>- Hyperparathyroidism (overactive parathyroid gland)</li><li>- Kidney stones</li><li>- Other kidney disease</li><li>- Leg Artery Disease (also known as 'peripheral vascular disease', 'peripheral arterial disease' or 'intermittent claudication')</li><li>- Mental health disorder</li><li>- Motor Neurone Disease</li><li>- Organ transplant</li><li>- Parkinson's Disease</li><li>- Primary immune deficiency (e.g. antibody deficiency, combined immunodeficiency)</li><li>- Sarcoidosis</li><li>- Sickle Cell Disease (i.e. two copies of altered gene, affected by anaemia and other complications)</li><li>- Sickle Cell Carrier (also known as 'sickle cell trait', with only one copy of altered gene: few symptoms if any) -</li><li>- Splenectomy (removal of spleen)</li><li>- Stroke or Mini-Stroke</li><li>- Tuberculosis</li><li>- None of the above</li></ul>
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If you have been diagnosed with Asthma, click as many as apply:	<ul style="list-style-type: none"> <li>- I sometimes use a reliever inhaler (e.g. ventolin, salbutamol) to control my asthma symptoms</li> <li>- I take a regular inhaler that includes a steroid preventer ONLY (e.g. Beclomethasone, Budesonide, Ciclesonide, Fluticasone or Mometasone)</li> <li>- I take a regular inhaler that includes a long-acting bronchodilator ONLY (e.g. salmeterol, formoterol)</li> <li>- I take a regular combination inhaler that contains BOTH a steroid preventer AND a long-acting bronchodilator (e.g. Seretide, Symbicort, Flutiform, Fostair)</li> <li>- My asthma is being treated with monoclonal antibody infusions at the hospital</li> <li>- In the last 12 months I have had one or more asthma attacks requiring treatment with steroid tablets (prednisolone)</li> <li>- In the last 12 months I have had one or more asthma attacks requiring hospital admission</li> </ul>
Postcode	
Over the last 12 months, would you say that on the whole, your health has been:	<ul style="list-style-type: none"> <li>- Excellent</li> <li>- Very good</li> <li>- Good</li> <li>- Fair</li> <li>- Poor</li> </ul>
Have you had one or more doses of a COVID-19 vaccine (immunisation)? First doses and booster doses both count.	<ul style="list-style-type: none"> <li>- Yes</li> <li>- No</li> <li>- Not sure</li> </ul>
Since February 1st 2020, have you had a nose/throat swab to test for COVID-19?	<ul style="list-style-type: none"> <li>- Yes</li> <li>- No</li> <li>- Not sure e.g. you took part in vaccine trial, but don't yet know whether or not you had the real vaccine or the placebo (dummy vaccine)</li> </ul>

**Table S2:** Monthly follow-up questionnaire

Questions asked at every monthly follow-up	
Since you last checked in with us, have you had an attack (b) of asthma or COPD (chronic bronchitis / emphysema)?	- Yes - No
Was this an attack of asthma or COPD	- Asthma attack - COPD attack
Did this asthma/COPD attack require treatment with steroid tablets (e.g. prednisolone)?	- Yes - No - Don't know / not sure
What did the hospital doctors diagnose? Select as many as apply.	- Suspected or proven COVID-19 - Pneumonia - 'Flu' (influenza) - Bronchitis - Tonsillitis or pharyngitis (sore throat) - Ear infection (otitis media) - Common cold - Another upper respiratory infection - Another lower respiratory infection - Asthma attack (flare-up or exacerbation of asthma symptoms) - COPD attack (flare-up or exacerbation of COPD symptoms) - Something else
Since you last checked in with us, have you had a nose or throat swab for COVID-19 or any other respiratory virus, or has a result from a previous swab test become newly available?(This question is about tests to detect the virus itself: they are usually done in somebody who has symptoms, but screening of asymptomatic people can also be done. It's usually a nose/throat swab, but saliva tests are also becoming available)	- Yes - No
On what date did you have this nose / throat swab? If you are not sure of the exact date, enter the approximate date (DD/MM/YYYY).	
What was the result? Click as many as apply.	- Positive for COVID-19 (SARS-CoV-2 coronavirus) - Positive for influenza virus - Positive for another respiratory virus - Negative for all/any viruses tested - Not Known
What did the GP diagnose? Tick as many as apply	- Suspected or proven COVID-19 - Pneumonia - 'Flu' (influenza) - Bronchitis - Tonsillitis or pharyngitis (sore throat) - Ear infection (otitis media) - Common cold - Another upper respiratory infection

	- Another lower respiratory infection - Something else
<sub>1</sub> How ill did you feel at your worst?	- Mildly unwell - I could do most of my usual activities - Moderately unwell - I couldn't do usual activities, but didn't need to go to bed in the daytime (2) - Very unwell – I had to go to bed in the daytime (3)
<sub>2</sub> Did you have a fever (high temperature)?	- Yes - No
<sub>3</sub> Did you have a persistent cough (coughing a lot for more than an hour, or 3 or more coughing episodes in 24 hours)?	- No - Persistent dry cough (i.e. producing little or no phlegm) - Persistent productive cough
<sub>4</sub> Did you have a headache?	- Yes - No
<sub>5</sub> Did you have muscle aches?	- Yes - No
<sub>6</sub> Did you experience unusual shortness of breath?	- No - Yes, mild symptoms - slight shortness of breath during ordinary activity - Yes, significant symptoms – breathing was comfortable only at rest - Yes, severe symptoms - breathing was difficult even at rest
<sub>7</sub> Please indicate any other symptoms you had	- Sore throat - Sneezing - Runny nose - Blocked nose - Unusually hoarse voice - Unusual chest pain - Unusual abdominal pain - Diarrhoea - Confusion, disorientation, or drowsiness - Raised, red itchy welts on the skin or sudden swelling of the face or lips - Red/purple sores or blisters on your feet or toes - Unusual soreness or discomfort of the eyes (e.g. light sensitivity, excessive tears, pink/red eyes) - Other symptom (please specify) - None of the above

**Table S3:** Algorithms for symptom-defined episodes of non-COVID-19 acute respiratory infection (ARI).

Episodes fulfilling the criteria below were defined as non-COVID-19 ARI if they were associated with at least one negative RT-PCR or antigen test results for SARS-CoV-2, and no positive RT-PCR or antigen test results for SARS-CoV-2.

Non-COVID-19 ARI	Contributing questionnaire question (see Table S2 for subscript numbering):	Responses:
Upper respiratory infection	<p>1. How ill did you feel at your worst?</p> <p>2. Did you have a fever (high temperature)?</p> <p>3. Did you have a persistent cough (coughing a lot for more than an hour, or 3 or more coughing episodes in 24 hours)?</p> <p>4. Did you have a headache?</p> <p>7. Please indicate any other symptoms you had:</p>	<p>At least one nasal symptom</p> <ul style="list-style-type: none"> <li>• 7. Sore throat OR Sneezing OR Runny nose <b>AND</b> at least one of the following symptoms:</li> <li>• 1. Moderately unwell - I couldn't do usual activities, but didn't need to go to bed in the daytime OR Very unwell – I had to go to bed in the daytime <b>OR</b></li> <li>• 2. Yes <b>OR</b></li> <li>• 3. Persistent productive cough (i.e., producing little or no phlegm) <b>OR</b></li> <li>• 4. Yes <b>OR</b></li> <li>• 7. Sore throat <b>OR</b> unusually hoarse voice</li> </ul>
Lower respiratory infection	<p>3. Did you have a persistent cough (coughing a lot for more than an hour, or 3 or more coughing episodes in 24 hours)?</p> <p>6. Did you experience unusual shortness of breath?</p> <p>7. Please indicate any other symptoms you had:</p>	<ul style="list-style-type: none"> <li>• 3. Persistent productive cough (i.e., producing little or no phlegm) <b>OR</b></li> <li>• 3. Persistent dry cough + 7. Unusual chest pain <b>OR</b></li> <li>• 3. Persistent dry cough + 6. Yes, mild symptoms - slight shortness of breath during ordinary activity <b>OR</b> yes, significant symptoms – breathing was comfortable only at rest <b>OR</b> Yes, severe symptoms - breathing was difficult even at rest</li> </ul>
Influenza like illness (ILI)	<p>2. Did you have a fever (high temperature)?</p> <p>3. Did you have a persistent cough (coughing a lot for more than an hour, or 3 or more coughing episodes in 24 hours)?</p> <p>5. Did you have muscle aches?</p>	<ul style="list-style-type: none"> <li>• 2. Yes + 3. Persistent dry cough (i.e., producing little or no phlegm) <b>OR</b> Persistent productive cough + 5. Yes</li> </ul>