

NEAR FATAL ASTHMA

Abstract

Near fatal asthma (NFA) is the most severe form of survivable asthma attack. Our aim is to describe the frequency, risks factors, clinical care and future asthma risk of children and young people (aged 5-15 years) experiencing a Delphi defined near fatal asthma attack. A greater understanding of the frequency and risk factors associated with NFA could help support the patient, parents and clinicians to identify and modify risk, both independently and through a resulting clinical care pathway and also develop future research to improve effectiveness of interventions.

We will explore both commonly identified clinical factors, but also for the first time describe in detail the variance in medical management (acute and intensive care) that could lead to future clinical trials and guideline development to standardise care. The study will also describe, through data-linkage, socio-demographic factors associated with NFA, to include pollution, pollen, weather, viral prevalence that could lead to better care for higher risk patients.

To encourage more consistent, less fragmented care following a near fatal asthma attack, the study team will consider how care is provided subsequent to an NFA attack using BPSU surveillance at 12 and 24 month follow up.

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Website

<https://www.rcpch.ac.uk/work-we-do/bpsu/near-fatal-asthma>

Background

Asthma guidelines categorise the severity of asthma attacks from mild to life threatening episodes with guidance provided for each. In those who experience a particularly severe asthma attack there is a penultimate event which could result in death without intervention⁽¹⁾. This is a Near Fatal Asthma event.

Currently we do not know how often these events occur or how they are managed. There is no standardised treatment or follow up care for Near Fatal Asthma.

We aim to describe these events in detail and report event frequency, management and any associated risk factors. We will report follow up at 12 and 24 months.

Coverage

United Kingdom and Republic of Ireland

Duration

September 2022 – February 2024 (18 months) with follow up of cases at 12 months and 24 months

Research Questions	<ol style="list-style-type: none"> 1. To describe the frequency of e-delphi defined Near Fatal Asthma attacks in children and young people in the UK and Ireland 2. Describe the clinical, social and environmental characteristics of Near Fatal Asthma attacks 3. To describe the emergency care, critical care and inpatient care of children and young people who experience Near Fatal Asthma attacks. 4. To describe the therapeutic approach by clinicians in emergency care, critical care and inpatient management of children and young people with Near Fatal Asthma. 5. To describe the follow up and healthcare provided at 12 and 24 months after a Near Fatal Asthma event.
Case definition	<p>Cases will be defined as (1) or (2) or (3)</p> <ol style="list-style-type: none"> (1) Any child aged 5-15 years surviving* an acute episode of asthma, who when presenting self-ventilating with severe dyspnoea (e.g. inability to speak) and all the following features: <ol style="list-style-type: none"> a) Pulse oxygen saturation below 92% despite maximal oxygen therapy (i.e. 10-15l/min oxygen flow via non-rebreather mask) during acute presentation and b) pH \leq 7.2 and/or pCO₂ \geq 60mmHg or 8kPa and c) Escalation to use of intravenous bronchodilator infusion (2) Any child aged 5-15 years surviving* an acute episode of asthma, who had a respiratory arrest and/or required cardiopulmonary resuscitation as part of their presentation. (3) Any child age 5-15 years surviving* an acute episode of asthma for which he/she was invasively ventilated. <p>*surviving to hospital discharge</p>
Reporting instructions	Please report any case that meets the above definition. Clinicians are encouraged to report the event even if final outcome is not yet known or the patient is still receiving ongoing care in hospital.
Methods	<p>Paediatricians and clinicians who report a case of Near Fatal Asthma will be asked to complete an online questionnaire. Questionnaires will be stored within a safe haven. Reporting clinicians will be contacted at 12 months and 24 months post event to fill out a follow up questionnaire.</p> <p>Throughout the study, all patient data will be dealt with in strict confidence, and the families of affected children and young people will not be contacted directly by the study team at any stage.</p>
Ethics approval	<p>This study has gained favourable ethical opinion from the following panels:</p> <p>South East Scotland Research Ethics Committee (Reference 22/SS/0030) Confidential Advisory Group (Reference 22/CAG/0055) Privacy Benefit and Privacy Panel (Reference 2122-0172 Cunningham)</p>
Support group	<p>Asthma UK Centre for Applied Research https://www.ed.ac.uk/usher/aukcar Asthma UK https://www.asthma.org.uk/ British Lung Foundation https://www.blf.org.uk/</p>
Funding	Chief Scientists Office, Scotland (Reference HIPS/20/21)
References	<ol style="list-style-type: none"> 1. McMurray A, Cunningham S, Fleming L. Defining Near Fatal asthma – an international eDelphi study. Eur Respir J [Internet]. 2019 Sep 28 [cited 2022 Jan 18];54(suppl 63). Available from: https://erj.ersjournals.com/content/54/suppl_63/PA949