

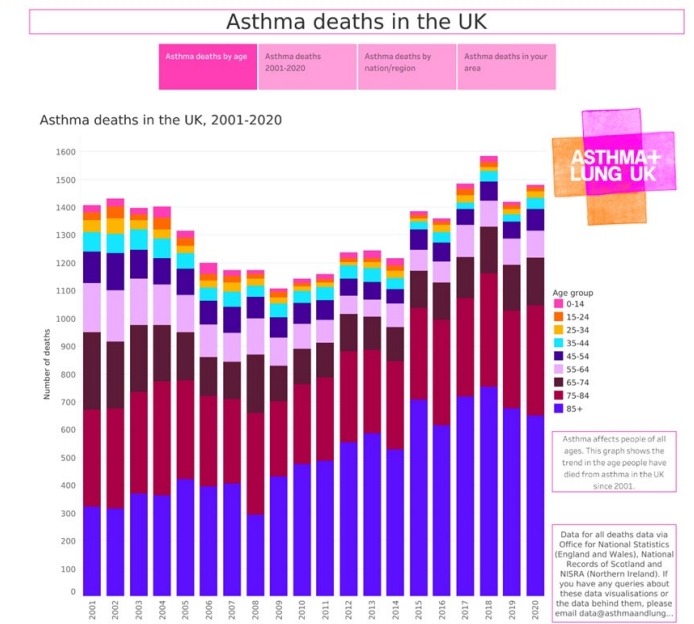
Near Fatal Asthma in Children and Young People

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Background

The UK has one of the highest death rates from asthma in Europe¹. Asthma is a common and well recognised condition with 1 in 11 children currently diagnosed with asthma in the UK, despite this the mortality from asthma in children and young people (CYP) is the highest in Europe². It is not yet clear why the death rates from asthma are so high.



What is Near Fatal Asthma?

- Near Fatal Asthma (NFA) is a severe form of asthma attack. It is considered the penultimate level of attack prior to death. It is not yet clear if there is a pattern/common theme or risk factors for these attacks.
- The management of NFA is also not yet standardised. Pre hospital, in hospital and outpatient care has not been clearly described.

What do we need to know about NFA?

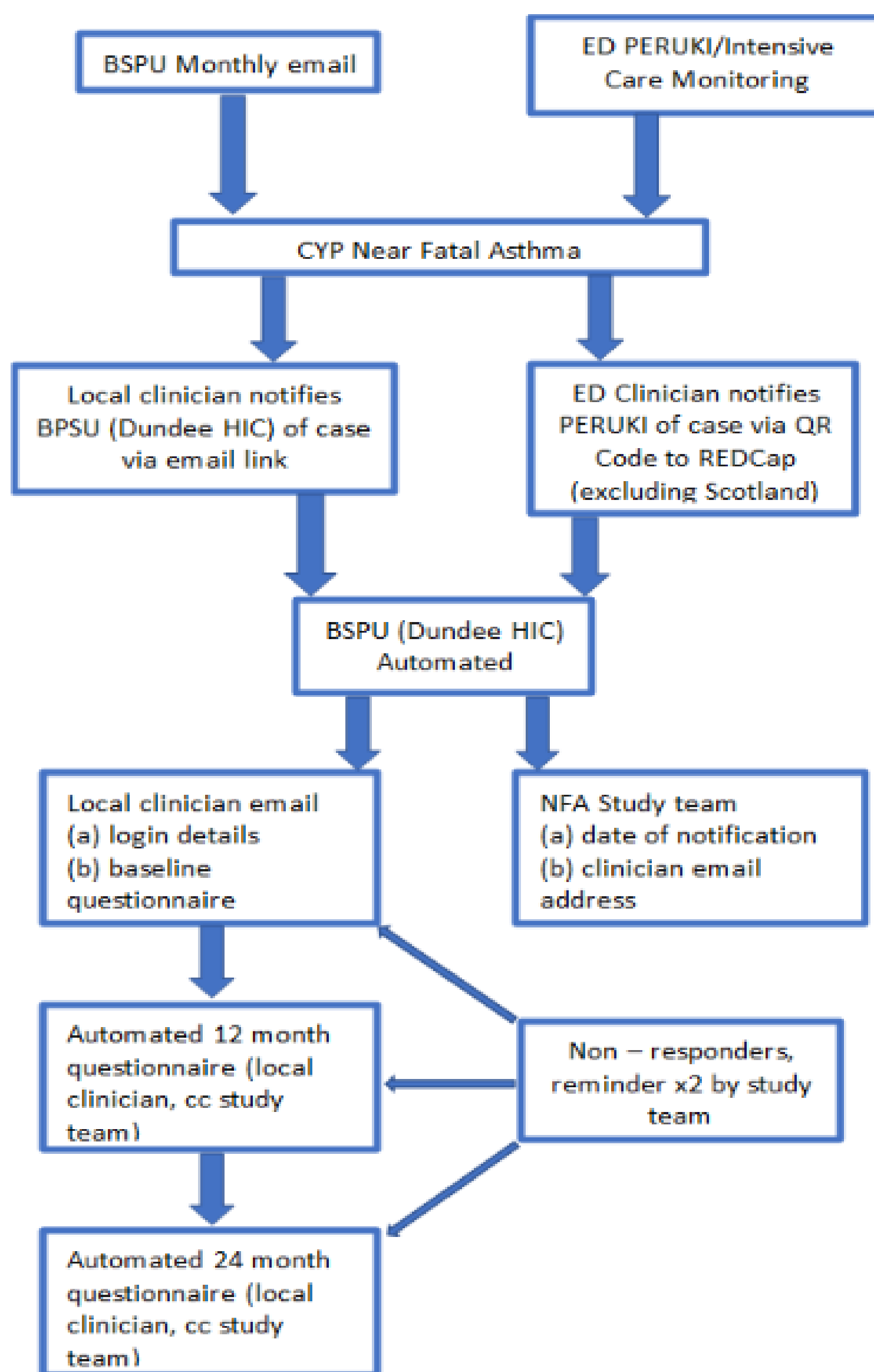
- How frequent is NFA?
- Is there a phenotype for NFA?
- Are there risk factors for NFA?
- How do different hospitals manage NFA?
- How are cases of NFA followed up?
- Do NFA cases have further attacks?

Study Aim

To determine the frequency, phenotype and management of Near Fatal Asthma events in CYP in the UK and Ireland using British Paediatric Surveillance Unit (BPSU) methodology.

Methods

- This is an observational surveillance study over 18 months of (e-delphi defined) NFA
- Baseline, 12 and 24 months data collected via safe haven electronic reporting (HIC, Dundee).
- Information on pre-hospital, inpatient, discharge and follow up care will be submitted by reporting clinicians.
- Reporting data will include ethnicity, triggers, allergens and smoke exposure. Through safe haven data linkage, full postcode will enable deprivation status, weather, pollen, viral and pollution exposures to be determined.
- Follow up, future risk and patient focus group data will enable a bundle of care to be developed.



Case Definition

A child/young person is considered to have experienced an episode of near fatal asthma if they meeting any one of the following:

- (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:
 - a. Pulse oxygen saturation below 92% despite maximal oxygen therapy (i.e. 10-15l/min oxygen flow via non-rebreather mask) during acute presentation
 - b. pH \leq 7.2 and/or pCO₂ \geq 60mmHg or 8kPa
 - 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.
- *surviving to hospital discharge.

Data collection/Analysis

- New online system for data collection
- BPSU Methodology – monthly emails to paediatric consultants in UK and Ireland. QR code for non-BPSU member in England, Wales, Northern Ireland and Republic of Ireland
- Data storage and linkage within Safe Haven

What else could we learn?

We know asthma attacks are linked to

- Viral triggers
- Air allergens
- Household smoking
- Food allergy

Does NFA follow this? Are there other factors that influence NFA?

- Air pollution
- Deprivation indices
- Weather
- Ethnicity

References

1. Global Asthma Network. The Global Asthma Report 2018: Global Asthma Network; 2018 [Available from: <http://globalasthmareport.org>].
 2. Wolfe I, Thompson M, Gill P, et al. (2013) Health services for children in western Europe. Lancet 381(9873):1224–1234
- Figure 1 <https://www.asthma.org.uk/>