Royal College of Physicians | NACAP

National Asthma and Chronic Obstructive Pulmonary Disease Audit Programme (NACAP)

Children and young people asthma clinical and organisational audits 2019/20

Clinical (children and young people with asthma attacks admitted to hospital from 1 June 2019 and discharged by 31 January 2020) and organisational audits of children and young people asthma services in England, Scotland and Wales 2019/20

Children and young people asthma 2019/20 audit report

Published May 2021

In association with:

ARNS Association of Respiratory Nurse Specialists

asthma UK | British Lung Foundation

THE ASTHMA UK AND BRITISH LUNG FOUNDATION PARTNERSHIP

British Thoracic Society

Imperial College London

PCRS The Primary Care Respiratory Society

RCGP Royal College of General Practitioners

RCPCH Royal College of Paediatrics and Child Health

Commissioned by:

HQIP Healthcare Quality Improvement Partnership

The Royal College of Physicians

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Healthcare Quality Improvement Partnership

The National Asthma and Chronic Obstructive Pulmonary Disease (COPD) Audit Programme (NACAP) is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit Patient Outcomes Programme (NCAPOP). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP), comprising around 40 projects covering care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh government and, with some individual projects, other devolved administrations and crown dependencies **www.hqip.org.uk/national-programmes.**

NACAP

NACAP is a programme of work that aims to improve the quality of care, services and clinical outcomes for patients with asthma and COPD in England, Scotland and Wales. Spanning the entire patient care pathway, NACAP includes strong collaboration with asthma and COPD patients, as well as healthcare professionals, and aspires to set out a vision for a service which puts patient needs first. To find out more about NACAP visit: **www.rcplondon.ac.uk/nacap.**

Children and young people (CYP) asthma combined clinical and organisational audit 2019/20 report

This report was prepared by the following people, on behalf of the NACAP asthma advisory group. The full list of members can be found on the NACAP resources page: **www.rcplondon.ac.uk/nacap-paediatric-asthma-resources**

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Contents

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Report at a glance

Participant information

8,506
hospital admissions for asthma attacks between June 2019 and January 2020.

152/181 hospitals participated in the clinical audit **84%**

136 in England, **7** in Scotland and **9** in Wales

142/181 hospitals participated in the organisational audit **78%**

119 provided a full organisational audit record. **110** in England, **2** in Scotland and **7** in Wales

23 provided a partially complete organisational audit record. **18** in England, **3** in Scotland and **2** in Wales

C1 Recording smoking status*and exposure to second-hand smoke

*smoking status is only recorded for children and young people aged over 11 years old

46.9% of children and young people did have their smoking status recorded.

57.7% of children and young people did have their exposure to second-hand smoke recorded..

QI priority: Record smoking status and exposure to second-hand smoke for **95%** of children and young people.

C2 Systemic steroids

Over 6 years

38.7%
of children and young people aged 6 years or older received systemic steroids within 1 hour of arrival at hospital.

QI priority: Administer systemic steroids within 1 hour of arrival at hospital to **95%** of children and young people aged 6 years old or over, who have not received systemic steroids as part of pre-hospital care.

C3 Discharge bundle

QI priority: Provide **95%** of children and young people with the following as part of their discharge bundle:

1. review or issue of a personalised asthma action plan (PAAP)
2. check of their inhaler technique
3. request a follow-up appointment in a paediatric asthma clinic within 4 weeks

45.5%
of children were in receipt of an up-to-date PAAP at discharge.

61.9%
had their inhaler technique checked before discharge.

28.8%
request of a follow-up appointment in a paediatric asthma clinic within 4 weeks

The rationale for each priority and its associated guidelines and standards are included with the key findings at relevant points throughout the report.

Organisational QI priorities

O1 Respiratory nurse specialist

QI priority: 85% of hospitals should have a respiratory nurse specialist trained in the care of children and young people with asthma.

58.8% of hospitals have a respiratory nurse specialist

O2 Diagnostic tools

QI priority: 80% of hospitals should have access to fractional exhaled nitric oxide (FeNO), as a diagnostic tool for paediatric asthma services.

41.2% of hospitals have access to FeNO as a diagnostic tool for paediatric asthma patients.

The rationale for each priority and its associated guidelines and standards are included with the key findings at relevant points throughout the report.

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How to use this report

1. Scope and data collection

The children and young people (CYP) asthma audit, a component of the National Asthma and COPD Audit Programme (NACAP), is a continuous clinical audit with an episodic organisational audit component. It launched in June 2019 and captures the processes of care, clinical outcomes of treatment for CYP admitted to hospital with asthma attacks, and the structure and resourcing of CYP services, in England, Scotland and Wales.

This report, which is the first combined clinical and organisational report following the launch of the CYP audit, presents data describing:

- CYP admitted with asthma attacks from 1 June 2019 and discharged by 31 January 2020 (8,506).
- The structure and resourcing of CYP asthma hospital services between 2 December 2019 – 13 March 2020.

Contributing to the overarching national quality improvement (QI) objectives of the NACAP, it serves to empower stakeholders to use audit data to facilitate improvements in the quality of care.

The report highlights areas for QI that were identified in 2019/20. Providers and commissioners should consider how these can be delivered locally for the benefit of patients and the healthcare system. A selection of case studies provided by participating hospitals are included in the report to showcase good practice. In addition, tips to achieving the QI priorities are included in the relevant sections of the report. For more information about the delivery of QI within the NACAP please view the programme's QI strategy available at: **www.rcplondon.ac.uk/nacap-quality-improvement-resources**.

2. Report coverage and data validation

The data presented in this report are based on the first 8 months of continuous clinical audit data collection from hospitals in England, Scotland and Wales which participated in the audit and entered data into the NACAP web tool.

Because of the truncated size of this cohort, caution must be taken in interpreting analyses where the sample size is small as analyses may be underpowered and associations seen may occur by chance. Other potential sources of bias exist as CYP do not represent a random sample and no case mix adjustment has been undertaken.

National breakdowns in this round of reporting do not account for Scotland. Scottish audit data are included in the 'All' figures but are not presented separately in this report like England and Wales.

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The low rate of recruitment to the audit in Scotland provided small numbers (105 cases) that cannot be meaningfully analysed as a representative sample of the care received by Scottish CYP. Scottish participation in the NACAP CYP ceased in March 2020 following the discontinuation of commissioning for some major elements of the **National Clinical Audit and Patient Outcomes Programme (NCAPOP).**

The NACAP follows rules on suppression of small numbers (any number less than 5) in national reporting where it may be possible to identify an individual CYP in the data presented. Any numerators between 1–4 have been replaced with <5 and the corresponding percentage also removed. This approach has also been used in the hospital level benchmarking table presented in **Section 6**.

Data validation

The publication of this report was delayed after we identified some anomalies in the numbers of CYP included in the audit when compared with Hospital Episodes Statistics (HES), National Records of Scotland and Information Services Division (ISD) Scotland and NHS Wales Informatics Service (NWIS) data. Specifically, the numbers of CYP entered into the audit were higher than those recorded by HES.

After conducting some internal validation, we are confident that this does not compromise the validity of the audit or affect our main findings. We have explored this both with clinical teams who we have asked to re-audit cases for diagnostic accuracy and with HES, National Records of Scotland and ISD Scotland and NWIS to validate the extraction codes used. The main issues that have led to the discrepancy relate to coding and diagnoses written in the notes – particularly in pre-school children with wheeze. We anticipated this might be a problem because we know that defining diagnosis in this age group is an issue in clinical practice.

Following consultation and extensive discussion we have decided to take a pragmatic approach to this situation. In effect as an audit of clinical practice against guideline recommendations, if a senior clinician makes an admission diagnosis of asthma and enters the case into the audit then the clinical practice associated with that case should be compared with the asthma guideline recommended practice (**www.nice.org.uk/guidance/ng80/chapter/Recommendations#diagnosing-asthma-in-young-children**).

We accept that within this cohort there will be some cases that will later not meet the diagnostic criteria for asthma but were treated for this condition. An audit does not require the same case inclusion rigour as a research project might and given the audit sample size this is unlikely to have a significant impact on the findings that relate to standards of care.

We are aware there is nationwide diagnostic uncertainty in the under 6s and we want to do what we can to capture this by adding wheeze diagnoses in the inclusion criteria for under 6s discharged from 1 April 2021.

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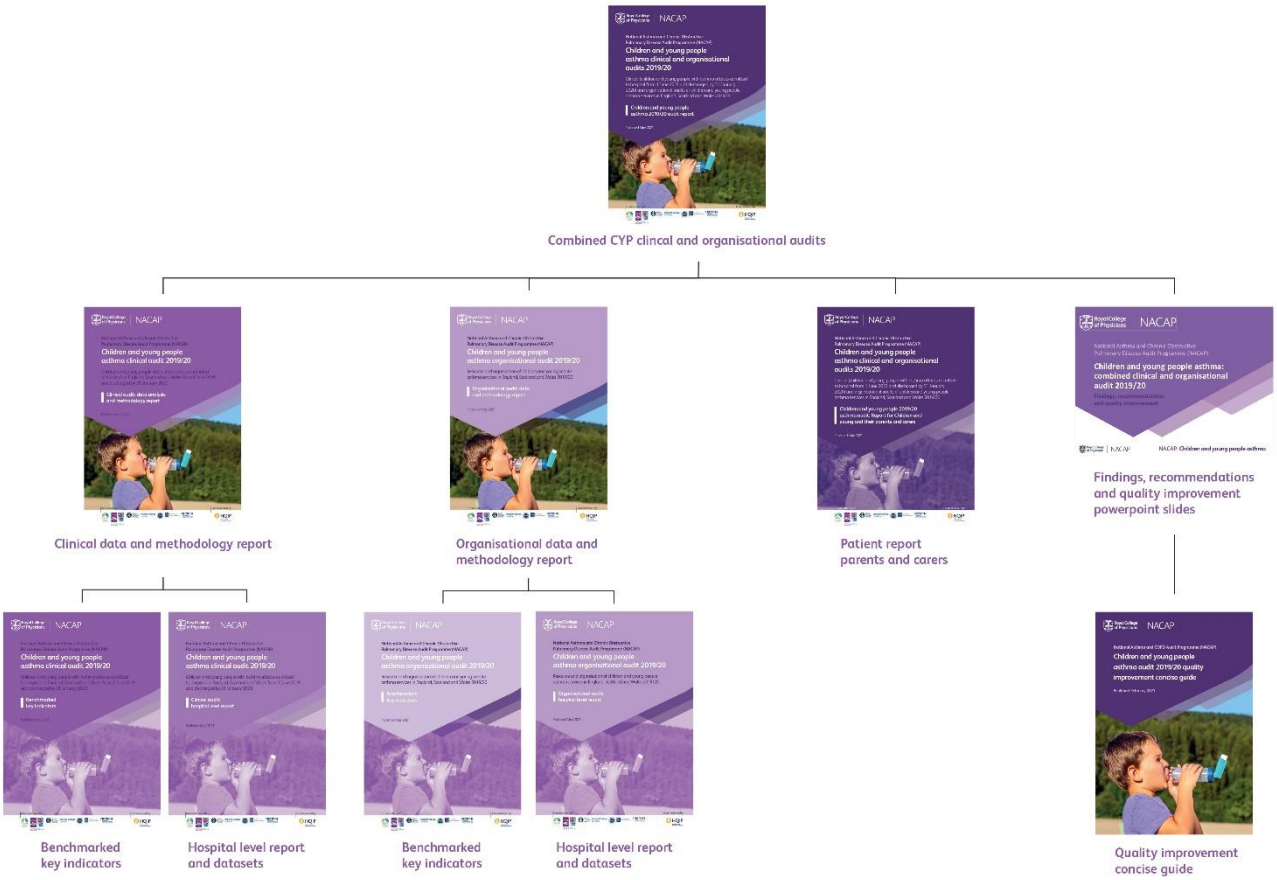
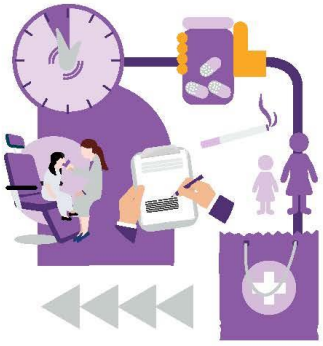
In addition, for all CYP patients discharged from 1 April 2021 the inclusion criteria will be updated to include patients with a secondary diagnosis of asthma attack. We urge all audit participants of the need to include only cases with a primary or secondary diagnosis of an asthma attack. We also recommend that all clinical teams establish regular meetings with their coding teams to explore anomalies between clinical notes recording in asthma cases and its interpretation by coders that is used to inform HES, ISD Scotland and NWIS and data capture. Rather than shy away from this methodological problem, we intend to use NACAP as a way of stimulating better and clearer diagnosis in the notes. We continue to work with other national agencies to develop better diagnosis and coding strategies as a further benefit of this audit programme.

3. CYP asthma clinical and organisational audit reporting outputs

A suite of reporting outputs has been produced for CYP clinical and organisational 2019/20 audit to ensure results and key messages are accessible to a variety of audiences, including children, young people and their parents/carers. These outputs are shown below and are all available at **www.rcplondon.ac.uk/nacap-cyp-asthma-2019/20.**



4. Indicators included



Key process measures included in this report

- review by a member of the multidisciplinary team (MDT)
- recording of exposure to second-hand smoke
- administration of systemic steroids and beta-agonists

Outcome measures included in this report include

- community follow up requested within 48 hours
- referral to asthma clinic requested within 4 weeks

An addendum to the clinical audit aspect of this report will be published later in 2021, detailing 30- and 90-day mortality and hospital readmission rates. The two reports together are designed to provide a picture of the care provided to the cohort of patients admitted to hospital with an asthma attack who were included in the audit, as well as their outcomes post-discharge. In each future round of reporting, the NACAP aims to provide an increasingly comprehensive picture of asthma care provided across the country as case ascertainment builds over the length of the continuous audit.

5. Report structure

This report brings together the key findings, recommendations and national QI priorities from the 2019/20 CYP clinical and organisational audits. Separate data analysis and methodology reports are available for the clinical and organisational audits at **www.rcplondon.ac.uk/nacap-cyp-asthma-2019/20**. They provide the following information:

- The full data analyses, presented with England and Wales results, as well as combined results for all three countries denoted as 'All' (England, Scotland and Wales) in tables and figures, with explanatory notes throughout.
- Nationally benchmarked results for participating hospitals, using variables based on national guidelines and standards.
- Appendices, including the methodology for the audit.

This short report can be read as a standalone document, with additional information available in the full report.

Alongside the publication of this report, participating hospitals will also be provided with site-level reports, presenting their own service-level data against both the national and country average. These reports are provided directly to the hospital responsible for participation in the NACAP children and young people asthma audit via the NACAP web tool (**www.nacap.org.uk)**. Run charts for key clinical dataset metrics are also accessible for authorised service web tool users to access; these display audit data in real time at provider- and national-level to support local QI. In addition, hospital-level audit data will be made publicly available on **www.data.gov.uk,** in line with the government's transparency agenda. Copies of our datasets, our good practice repository and all other resources can be found via our website: **www.rcplondon.ac.uk/nacap-cyp-asthma-resources**.

Information provided includes data for England, Scotland and Wales as well as 'All' figures.

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6. Audience and links to relevant guidelines and standards

The report is intended to be read by healthcare professionals; NHS managers, chief executives and NHS board members; as well as service commissioners, policymakers, voluntary organisations and service users. Separate reporting outputs will be produced for patients and the public. They will be available at: **www.rcplondon.ac.uk/nacap-cyp-asthma-2019/20**. Where an area of care or service provision has been highlighted as a patient priority (something of particular importance to patients) by the NACAP patient panel this is shown with the patient priority icon displayed below.

References to the appropriate British Thoracic Society (BTS) / Scottish Intercollegiate Guidelines Network (SIGN) guideline on the management of asthma, National Institute for Health and Care Excellence (NICE) quality standards, Royal College of Emergency Medicine (RCEM); moderate and severe asthma, clinical audit 2016/17 and the Royal College of Physicians (RCP), Why asthma still kills: National Review of Asthma Deaths (NRAD) 2014 report recommendations are inserted throughout the key findings.

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Foreword by Ian Sinha, children and young people's asthma audit clinical lead

This report describes the quality of care given to children and young people (CYP) admitted to hospitals in England, Scotland and Wales with acute asthma attacks. With data for over 8,000 CYP, this is the largest prospective audit of its kind and we have supplemented it with data from an organisational audit of the structure and resourcing of the CYP services providing this care.

The need to improve outcomes for CYP with asthma in the UK is well recognised. Deaths from acute asthma in this age group still happen, and these are universally associated with modifiable risk factors. International comparisons are unfavourable, with our mortality and admission rates significantly higher among CYP than in other European countries[*], and within the UK, we consistently observed stark inequalities[†]. Although these are in part driven by socio-economic factors, we must address the drivers for poor outcomes that are directly in our hands as healthcare professionals, commissioners, trusts, and health boards within the NHS.

Our data shows that asthma in children should be considered an illness with life-threatening consequences. 66.8% of CYP admitted to hospital with asthma attacks presented with severe or life-threatening features of acute asthma, and 19.5% were so severely ill they required intravenous therapy. These findings suggest that CYP with asthma and the people around them are not able to manage their acute attacks safely and effectively, are seeking help late in the episode and/or have uncontrolled or severe illness.

The goal should be to empower CYP and their parents/carers to appropriately manage their asthma. Unfortunately, we are falling short with regards to achieving this, with only 61.9% having an inhaler technique check, and 45.5% being given a personalised asthma action plan before discharge. We also need to be better at asking whether CYP are exposed to second-hand smoke (this was recorded in 57.7% of cases) and acting on what we find (only 36.6% of parents/carers who smoked had this addressed). Initial management of asthma attacks was better but there are still areas which can be improved. Bronchodilators are given quickly, with a median administration time of under an hour, but systemic corticosteroids were given less quickly – these were only administered within an hour of arrival to 38.7% of CYP aged 6 or older who had not received it before presentation.

More high-quality research is needed in acute asthma in CYP and there are existing networks such as Paediatric Emergency Research in the United Kingdom & Ireland (PERUKI) through which this can be conducted. This is relevant to NACAP because the evidence base for much of the assessment and management of acute asthma in children and young people is weak, and some of it is transposed from adult medicine. This might explain some of the variation between centres that participated in the audit. One example of this is peak expiratory flow (PEF) rate. This has been recommended by BTS/SIGN in national guidance but not mandated and only recommended for some children, but no high-quality studies have ever examined the use of PEF in acute asthma in children. There are concerns as to how valid results are in children who have difficulty breathing who have had no test before. 19.5% of CYP included in this audit had a PEF measurement taken.

[*] https://stateofchildhealth.rcpch.ac.uk/evidence/long-term-conditions/asthma/
[†] http://tools.england.nhs.uk/images/RespiratoryAtlas/atlas.html

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The discrepancies between centres with regard to PEF have only been identified because of a process of national audit across so many centres. The difference in viewpoint about this test between paediatric and adult services is striking. The usefulness and validity of tests are important – we do not want to promote care that may be unhelpful or imprecise. The NACAP CYP audit will help track this aspect of care. Monitoring is a hot topic at the moment, with COVID-19 restrictions impacting on physiology services, and more technological advances being utilised in various centres. The role PEF plays in this remains to be seen. The other area of interest, which maps to NACAP priorities, is better transition of CYP to adult services. There may be a place for PEF monitoring in older children and adolescents, but in order for this to be useful there needs to be both a robust approach to testing at home, and rapid, good quality testing when children present acutely. NACAP is well placed to track changes and advances in this aspect of acute care in CYP asthma.

Our organisational audit demonstrates the need for multidisciplinary resources around asthma in CYP. In particular, 58.8% of hospitals have a paediatric respiratory nurse specialist in post. Given the need for surveillance and education of asthma in CYP, investment in specialist nurses must be seen as a priority. Developing strategic groups[‡] for paediatric asthma services within trusts and ensuring that hospitals are part of regional paediatric asthma networks[§] would help advocate for service specifications that lead to meaningful change.

Audit and quality improvement are iterative processes and the NACAP CYP asthma audit is in its early stages. We need to use these data not as a stick with which to beat ourselves with, but as a tool to prospectively drive change. I must pass on my sincere gratitude to all past and current members of the NACAP team who have worked tirelessly to keep this mammoth task on track, and to healthcare professionals and audit staff who contributed data despite being busy. When outcomes improve, and we see children and young people with asthma living their best lives, we hope you will think that your efforts have been worthwhile.

[‡] For further information about strategic groups for paediatric asthma services please refer to table 5.1 in the organisational audit data and methodology report

[§] For further information about regional paediatric asthma services please refer to table 3.4 in the organisational audit data and methodology report.

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Recommendations

This section brings together recommendations and national quality improvement (QI) priorities from both the CYP clinical and organisational 2019/20 audits. The reference numbers given for these are split between recommendations (CA1/OA1) and national QI priorities (C1/O1). The same reference numbers are used for the recommendations/QI priorities in the full data analysis and methodology reports for each audit. Supporting standards/guidelines for recommendations, where applicable, are also presented in the full data analysis and methodology reports.

Clinical audit recommendations (CA)	Organisational audit recommendations (OA)
Audience	
National	OA1 Nationally there should be a collaborative focus on developing functional regional paediatric asthma networks to facilitate: > best practice > partnership approaches to the provision of care with appropriate input from different healthcare sectors and non-healthcare agencies > the involvement of children and young people, parents and carers to support the development of regional strategies. These networks should have representation from professional groups, patients and relevant services, including: > primary care > community asthma services > district general hospitals > tertiary specialist services > local area authorities > other non-health agencies.

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	Clinical audit recommendations (CA)	Organisational audit recommendations (OA)
Audience		
Providers of children and young people services	C1 **National QI priority C1:** Record smoking status and exposure to second-hand smoke for ***95%*** of children and young people. C2 **National QI priority C2:** Administer systemic steroids within 1 hour of arrival at hospital to ***95%*** of children and young people aged 6 years old or over, who have not received systemic steroids as part of pre-hospital care. C3 **National QI priority C3:** Provide ***95%*** of children and young people with the following as part of their discharge bundle: > Review or issue of a personalised asthma action plan (PAAP). > Check of their inhaler technique. > A follow-up appointment in a paediatric asthma clinic requested within 4 weeks. **CA1** Clinical teams should work with colleagues in their hospitals to ensure correct diagnosis and coding of children and young people being admitted with asthma attack. This is particularly important for the pre-school age group where diagnosis of asthma is more challenging.	O1 **National QI priority O1:** ***85%*** of hospitals should have a respiratory nurse specialist trained in the care of children and young people with asthma. O2 **National QI priority O2:** ***80%*** of hospitals should have access to fractional exhaled nitric oxide (FeNO) as a diagnostic tool for paediatric asthma services.

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	Clinical audit recommendations (CA)	Organisational audit recommendations (OA)
Audience		
	Clinical teams should ensure that the following patients are entered into the audit: ** > Children aged 1–5 who have a primary or secondary diagnosis of asthma or a primary diagnosis of wheeze as a reason for admission > CYPs aged 6–18 who have a primary or secondary diagnosis of asthma as a reason for admission	
Primary care providers	CA2 Record smoking status and exposure to second-hand smoke in every child and young person's notes and ensure this becomes a routine question whenever they attend their GP about their asthma. CA3 Complete personalised asthma action plan (PAAP) reviews and inhaler technique checks for all children and young people as part of their annual review and/or on issue of new inhalers.	
For commissioners, health boards, sustainability and transformation partnerships and integrated care services	-	OA2 Provide secondary care services with adequate resources to ensure they have a multidisciplinary team (MDT) for children and young people with asthma. This must include at least: > A paediatric asthma clinical lead. > A respiratory nurse specialist with responsibility for inpatient and outpatient management of children and young people with asthma.

** For information on the changes that will be made to the inclusion criteria for CYP asthma patients discharged from 1 April 2021 see the recommendations section of the 2019/2020 CYP asthma data analysis and methodology report available at **www.rcplondon.ac.uk/nacap-cyp-asthma-2019/20**

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	Clinical audit recommendations (CA)	Organisational audit recommendations (OA)
Audience		
For children and young people living with asthma and their families and carers	CA4 If you are admitted to hospital with an asthma attack, there are some important things that you should know – you may want to discuss these with the team looking after you: > You should have a high dose of oral steroids within 1 hour of arriving at hospital (unless you had them before you came). > Someone should check that you know how to use your inhaler before you go home. > You should go home with an up-to-date personalised asthma action plan (PAAP). This might be a new plan, or someone checking your old plan to make sure it is right. > If you are admitted to hospital with an asthma attack, you should be seen in a few weeks in a hospital asthma clinic. There should be an expert involved in your care in this clinic, such as a specialist nurse. *In some instances, you may not be able to ask for this yourself. If this is the case, we recommend your parent or carer does this for you.*	OA3 Children and young people and their parents and carers should advocate for the universal implementation of national quality standards across all hospitals. OA4 Children and young people and their parents and carers should consider participating in strategic groups, including those set up at network level, for paediatric asthma.

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Section 1: Audit participation

Key findings

NACAP CYP clinical audit

- **84%** of hospitals have entered data for the first continuous CYP asthma clinical audit.
- **16%** of hospitals either did not register or were registered but did not submit any data.[††]

Patient numbers included in the audit (case ascertainment)[‡‡]

- The **overall case ascertainment figure** for the period 1 June 2019 to 31 January 2020 was **69.2% (8,506/12,289 admissions)**.
- The **case ascertainment figure in under 5s** for the period 1 June 2019 to 31 January 2020 was **34.1% (2,664/7,815 admissions)**.*
- The **case ascertainment figure in 5–18 year** olds for the period 1 June 2019 to 31 January 2020 was **130.6% (5,842/4,474 admissions)**.

Case ascertainment was variable across participating hospitals.**

Data presented in the report should be interpreted taking into account that results are based on a non-random sample of eligible patients, rather than the full cohort of eligible individuals.

** Due to diagnostic uncertainty around whether children presenting with acute wheeze had 'asthma' or an episodic wheeze associated with a viral illness, the following wheeze codes were included to the denominator when calculating the case ascertainment for under 5s.:*

R06.2 Wheezing (only for children aged 1–4)
B34.9 Viral infection, unspecified – viral-induced wheeze (only for children aged 1–4)

***'The denominator used in the case ascertainment calculation for the over 5s is based on a primary or secondary (first and second position) asthma diagnosis as the reason for admission to hospital. Although the inclusion criteria for the audit states that patients should only be included if the patient has a **primary diagnosis** of asthma, we are aware that this was not always the case.*
Asthma attacks may occur later during an inpatient stay and we believe a possible reason for the 130.6% case ascertainment figure may be that clinicians are including these cases (asthma attack in the third and fourth position of diagnosis) in the audit for completeness despite the fact that their initial admission was not for asthma.
There is also a possibility that some of the younger children in the 5–18 group who had a primary diagnosis of wheeze were also included in the audit. Wheeze codes were however not included in the denominator for this age group.
Wheeze codes will therefore be added to the inclusion criteria for the audit for patients 1–5 years of age who have been discharged from 1 April 2021. In addition to this, all CYP asthma patients discharged from 1 April 2021 with a primary OR secondary diagnosis of asthma will be included in the audit. See recommendation CA1.
Note that in children over 6 years of age, regardless of their underlying phenotype, it is good practice to make a diagnosis of asthma and then record it as such.

NACAP CYP organisational audit

- **66%** of hospitals fully participated and were included in the final analysis.
- **13%** of hospitals partially participated and were not included in the final analysis.
- **22%*** either did not register or registered but did not enter data.[§§]

*This figure has been rounded, therefore the sum of these percentages does not equate to 100%

†† For the full list of non-participating hospitals, please refer to section 6 of the children and young people asthma clinical audit data and methodology report 2019/20.

‡‡ These percentages were calculated using admission figures as recorded by Hospital Episode Statistics (HES) for England, the Patient Episode Database for Wales (PEDW) and the electronic Data Research and Innovation Service (eDRIS) for Scotland. For more information on the methodology used to calculate this figure, please review appendix A in the data analysis and methodology report **www.rcplondon.ac.uk/nacap-cyp-asthma-2019/20** .

§§ For the full list of non-participating hospitals, please refer to section 8 of the children and young people asthma organisational audit data and methodology report 2019/20.

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Section 2: Demographic details and risk factors

30.1%

of children and young people were regularly exposed to second-hand smoke

Key standards

> BTS/SIGN 2019 [6.2.3]: People with asthma and parents/carers of children with asthma should be advised about the dangers of smoking and second-hand tobacco smoke exposure and should be offered appropriate support to stop smoking.[1]

> NICE 2013 QS43 [QS2] People who smoke are offered referral to an evidence-based smoking cessation service.[5]

Key findings

Admission and demographics

> The **median age** at admission was **6 years** (interquartile range [IQR] 4–10 years).

> **More male children and young people (CYP) (60.1%)** were admitted for asthma attacks than female.

> The majority of CYP presented to hospital in the afternoon and early evening. However, **22%** presented at night and in the early hours of the morning (22:00 to 06:00).

Socio-economic status

> **30.8%** of admissions were of CYP living in the most socio-economically deprived areas, whereas **10.8%** were from the least deprived areas.

Risk factors

> Exposure to second-hand smoke was recorded in **57.7%** of admissions. Where it was recorded, **30.1% of CYP** were regularly exposed to second-hand smoke in the home.[***]

> Recent history of rescue oral corticosteroid use (two or more in the past 12 months) was not recorded in **34.9**% of admissions; where it was recorded, **30.4%** of CYP had two or more courses of rescue oral corticosteroids in the previous 12 months.

[***] For further information of the effects of exposure to second-hand smoke, please refer to the Inside story: health effects of indoor air quality on children and young people report: **https://www.rcpch.ac.uk/resources/inside-story-health-effects-indoor-air-quality-children-young-people**

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C1 **National QI priority C1:** Record smoking status and exposure to second-hand smoke for ***95%*** of children and young people.

Rationale	Tips to achieve this priority
Smoking and exposure to second-hand smoke is a big risk factor for acute asthma attacks and also for accelerated lung function decline and development of COPD later in life. Nicotine is one of the most addictive substances in the world[†††] and specialist services are shown to improve rates of smoking cessation. BTS/SIGN 2019 [6.2.3], NICE 2013 QS43 [QS2]	> Survey staff working in the emergency department to understand the barriers to asking about smoking habits of CYP and parents on admission. > Develop tailored support and systems to overcome identified barriers. > Provide education and training to all staff on the importance of smoking or second-hand exposure as a risk for acute asthma attacks.

[†††] Pontieri FE, Tanda G, Orzi F, DiChiara G. Effects of nicotine on the nucleus accumbens and similarity to those of addictive drugs. *Nature* 1996, 382255-7 DOI: 10.1038/382255a0. https://www.nature.com/articles/382255a0

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Case study: Queen's Hospital, Barking, Havering and Redbridge University Hospitals NHS Trust

Addressing parental tobacco use of parents/carers of CYP asthma patients

Clinical nurse specialists and doctors at Queen's Hospital responsible for providing care to CYP with asthma have worked collaboratively to ensure 100% of parents/carers of CYP with asthma had their tobacco dependency addressed during this audit period. This was achieved by employing the following stepped approach:

> **At trust level:**

Barking Havering and Redbridge University Hospitals NHS Trust ratified a Smoke-Free Policy. This policy was made available in various formats and languages. It Included information on general principles, staff training, engaging trust users and staff changes in admission and assessment procedures. It included support for pregnant smokers, changes in staff induction, pharmacotherapy behavioural support and information about what could be done to protect patients, staff and visitors from second-hand smoke and the use of e-cigarettes.

> **At paediatric department level:**

In their paediatric department, they have trained frontline staff, including nurses, junior doctors and consultants, to provide detailed histories about smoking in parents/carers – (active or passive) of children presenting with asthma symptoms. All parents/carers identified as smokers (active or passive) were given appropriate anti-smoking advice. This advice included a verbal description about the hazards and harms of smoking and referral to anti-smoking clinics in primary care.

> **At both clinical commissioning group (CCG) and trust level:**

A significant expansion of their paediatric asthma management team across primary and secondary care took place. Three clinical nurse specialists were employed 2 months before the national CYP asthma secondary care audit. The trust's approach to paediatric asthma management was revised and it led to a reorganisation of the delivery of care, in line with the national standards, and guidelines and policies across both primary care and secondary care (ED, ambulatory unit, wards and clinics).

A local audit to raise awareness of anti-smoking was also carried out by a junior doctor in the department in November 2019.

The poster that was produced as part of the local audit can be found at **www.rcplondon.ac.uk/nacap-cyp-asthma-2019/20**.

100% of parents/carers at Queen's Hospital had their tobacco dependency addressed during this audit period.

Information provided by contributors from Queen's Hospital (September 2020). Minor edits by the NACAP team.

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Section 3: Acute presentation

66.8%

of children and young people who were admitted to hospital with an asthma attack presented with severe or life-threatening features

Key standards

- BTS/SIGN 2019 [9.7.3]: PEF measurements can be of benefit in assessing children who are familiar with the use of such devices. The best three PEF measurements, ideally expressed as a percentage of a personal best, can be useful in assessing the response to treatment. A measurement of <50% predicted PEF or FEV_1 with poor improvement after initial bronchodilator treatment is predictive of a more prolonged asthma attack.[1]
- BTS/SIGN 2019 [9.8.2]: Inhaled beta agonists are the first-line treatment for acute asthma in children.[1]
- BTS/SIGN 2019 [9.8.4]: Give oral steroids early in treatment of acute asthma attacks in children.[1]
- BTS/SIGN 2019 [9.9]: Children with continuing severe asthma despite optimal first-line treatments, frequent nebulised beta agonists and ipratropium bromide plus oral steroids and those with life-threatening features, need urgent review by a specialist with a view to management in an appropriate high-dependency area or transfer to a paediatric intensive care unit to receive second-line intravenous therapies.[1]
- NICE 2013 QS25 [QS8]: People aged 5 years or older presenting to a healthcare professional with a severe or life-threatening acute exacerbation of asthma receive oral or intravenous steroids within 1 hour of presentation.[2]
- NICE 2013 QS25 [QS9]: People admitted to hospital with an acute exacerbation of asthma have a structured review by a member of a specialist respiratory team before discharge.[2]
- NRAD 2014 why asthma still kills: organisation of NHS services [Recommendation 2]: Patients with asthma must be referred to a specialist asthma service if they have required more than two courses of systemic corticosteroids, oral or injected, in the previous 12 months or require management using British Thoracic Society (BTS) stepwise treatment 4 or 5 to achieve control.[7]

- **Administration of steroids:**
  if not already given before arrival:
- RCEM asthma guidance [standard 5a]: Within 60 minutes of arrival (acute severe).[6]
- RCEM asthma guidance [standard 5b]: Within 4 hours (moderate).[6]

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Key findings

Severity of the asthma attack

- **66.8%** of CYP who were admitted to hospital with an asthma attack **presented with severe or life-threatening** features according to physiological variables and (where measured) peak expiratory flow rate (PEFR).
- PEFR was recorded in **19.5%** of admissions.

Review by a member of the multidisciplinary team (MDT) trained in asthma care

- **80.8%** of CYP admitted were reviewed by a member of the MDT trained in asthma care.

Systemic steroids

- **88.0%** of CYP received systemic corticosteroids during their admission, but these were not given early: only **38.7%** of CYP aged 6 years or older who had not received systemic corticosteroids before arrival at hospital, **received them within 1 hour of arrival**.
- The **median time** to administration of systemic corticosteroids was **1 hour** (IQR 1–3 hours).

Beta agonists

- **95.2%** of CYP received beta agonist bronchodilators during their admission, with the majority receiving them within 1 hour (median time to administration 40 minutes, IQR 19–88 minutes).

Intravenous medications and need for critical care admission

- **19.5%** of CYP presented with refractory, life-threatening acute asthma requiring intravenous medication.
- **9.7%** of CYP required admission to critical care (high dependency and/or intensive care).

Management of care

Of participating hospitals:

- **52.9%** have a paediatric oxygen policy.
- **74.8%** have ward-based paediatric medication charts with a designated space to record the prescription of oxygen.
- **99.2%** use a paediatric early warning system (PEWS).
- **72%** utilise a PEWS which incorporates space to record subjective nursing concerns about a patient's clinical status.

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C2

National QI priority C2: Administer systemic steroids within 1 hour of arrival at hospital to ***95%*** of children and young people aged 6 years old or over, who have not received systemic steroids as part of pre-hospital care.

Rationale	**Tips to achieve this priority**
Early administration of systemic steroids prevents hospital admission. BTS/SIGN 2016 [9.8.4] NICE 2013 QS25 [QS8]:, RCEM asthma guidance [standards 5a and 5b]	> Staff should undertake reviews of cases where steroids were not given within 1 hour, to better understand the barriers to effective care and then to implement an improvement change. > Provide education and training to staff on when to administer oral steroids, and the evidence behind early administration. > Build prompts into electronic and other systems to encourage delivery of oral steroids at triage.

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Section 4: Discharge planning

45.5%

of children and young people had a personalised asthma action plan (PAAP) issued or reviewed

Key standards

A discharge bundle is a structured way of improving discharge processes and care which leads to improved patient outcomes. It is based on evidence-based clinical interventions or actions BTS care bundle for asthma.[1]

- BTS/SIGN 2019 [2.4]: People with asthma and parents of children with asthma should be advised about the dangers of smoking and second-hand tobacco smoke exposure and be offered appropriate support to stop smoking.[1]
- BTS/SIGN 2019 [2.5]: Inhaled corticosteroids are the recommended preventer drug for adults and children for achieving overall treatment goals.[1]
- BTS/SIGN 2019 [2.6]: Inhalers should only be prescribed after patients have received training in the use of the device and have demonstrated satisfactory technique.[1]
- BTS/SIGN 2019 [9.6.3]: It is essential that the patient's primary care practice is informed within 24 hours of discharge from emergency department or hospital following an asthma attack. Ideally this communication should be directly with a named individual responsible for asthma care within the practice.[1]
- NICE 2013, updated 2018 QS25 [QS2]: People aged 5 years and over with asthma should discuss and agree a written personalised action plan.[2]
- NICE 2013 QS25 [QS4] (updated 2018): People who receive treatment in an emergency care setting for an asthma attack are followed up by their general practice within 2 working days of discharge.[2]

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- NRAD 2014 why asthma still kills: medical and professional care [Recommendation 1]: All people with asthma should be provided with written guidance in the form of a personal asthma action plan (PAAP) that details their own triggers and current treatment, and specifies how to prevent relapse and when and how to seek help in an emergency.[7]
- NRAD 2014 why asthma still kills: medical and professional care [Recommendation 3]: Factors that trigger or exacerbate asthma must be elicited routinely and documented in the medical records and personal asthma action plans (PAAPs) of all people with asthma, so that measures can be taken to reduce impact.[7]
- NRAD 2014 why asthma still kills: prescribing and medicines use [Recommendation 3]: Non-adherence to preventer inhaled corticosteroids is associated with increased risk of poor asthma control and should be continually monitored.[7]
- NRAD 2014 why asthma still kills: patient factors and perception of risk [Recommendation 2]: A history of smoking and/or exposure to second-hand smoke should be documented in the medical records of all people with asthma. Current smokers should be offered referral to a smoking cessation service.[7]

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Key findings

Discharge bundle

- **52.2%** of CYP received some form of discharge bundle before discharge, but the components are likely to vary between hospitals.
- **89.6%** received at least one element of good practice care, but the proportions receiving each individual element of good practice were low.

Education to empower better self-care by CYP and families

- **61.9%** had inhaler technique checked.
- **45.5%** had a PAAP given or reviewed.

Reducing the risk of future asthma attacks

- **70.9%** of children were discharged with inhaled corticosteroids.
- **68.6%** had a review of their maintenance medication.
- **41.4%** had a discussion about triggers.
- **78.1%** of CYP who were smokers had tobacco dependency addressed.
- **36.6%** of parents/carers who smoked had this addressed.

Follow-up

- **41.5%** had a community follow-up requested to take place within 48 hours of discharge.
- **57.7%** were either already in a secondary care clinic or were referred to one.[‡‡‡]
- **28.0%** had secondary care follow-up requested to take place within 4 weeks.

Review before discharge by a member of a paediatric asthma MDT was associated with a higher likelihood of good practice care with CYP being:

- Nearly three times more likely to receive a discharge bundle than those who did not receive an MDT review (adjusted odds ratio [OR] = 2.83, 95% confidence interval [CI] 2.33 to 3.42).
- Nearly three times more likely to have their inhaler technique checked than those who did not receive an MDT review (adj-OR = 2.97, 95% CI 2.46 to 3.58).
- Nearly two and a half times more likely to receive a PAAP than those who did not receive an MDT review (adj-OR = 2.42, 95% CI 1.98 to 2.95).

[‡‡‡] This is the sum of the first two responses in the 'All' column for question 4.3.3 – Was the patient referred for hospital assessment or follow-up for asthma?

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National QI priority C3: Provide ***95%*** of children and young people with the following as part of their discharge bundle:

1. Review or issue of a personalised asthma action plan (PAAP).
2. Check of their inhaler technique.
3. A follow-up appointment in a paediatric asthma clinic requested within 4 weeks.

Rationale

As highlighted in the National Review of Asthma Deaths report, one key factor in CYP who died from asthma was a lack of understanding of the basic elements of self-management and this is the same for many CYP admitted to hospital with severe life-threatening asthma. Given that the most consistent risk factor for having an asthma attack is a recent history of an acute exacerbation, it is important to focus on these elements of education using a PAAP before discharge.

Tips to achieve this priority

- Survey staff to understand the challenges to administering this education to CYP in the emergency department and on the wards.
- Develop tailored support and systems to overcome identified challenges.
- Develop standardised written information.
- Provide education and training to staff on inhaler technique and personalised asthma action plans.
- Encourage these actions by mandating they be recorded in electronic systems.

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Case study: Harrogate District Hospital, Harrogate and District NHS Foundation Trust

Providing personalised asthma action plans (PAAPs)

General audit preparation

A PAAP education programme, which was led by the asthma team (consultant and respiratory specialist nurse), was set up at the start of the national CYP audit, for medical and nursing staff. The programme was designed to educate staff about the national audit, review questions that could be easily missed, and make sure staff were aware of how to clearly record that a PAAP had been issued on the patient's discharge summary.

A designated clinical effectiveness facilitator was also assigned to input, support and work closely with the asthma team to deliver the education programme.

100% of the patients for whom audited data was submitted received a personalised asthma action plan

PAAP work

The team worked on the PAAP following feedback from medical and nursing teams from previous audits and a Picker (patient) survey. They stopped printing their own plans and switched to pre-printed ones. The PAAPS were rewritten and now include the following:

- A clearer traffic light system to illustrate escalation of treatment [§§§].
- Pre-populated sections, which have reduced the workload of the discharging staff.
- A list on the back page of discharge plan and asthma bundle that is to be completed at discharge to provide consistent information during the discharge process.
- Trial of a joint wheeze and asthma action plan. Consultations were held with the nurses and junior medical staff who provide the patients with the discharge plans, to decide if it was better to have a single template discharge plan that could be adapted for management of wheeze and management of asthma or two separate templates. The consensus after a trial of single plan was that it worked better to have two separate template plans with guidance on which to use.

PAAP documentation

Work on the PAAP document being given to patients was carried out – this document had been deemed poor in previous local audits. The initial plan was to photocopy the PAAP and place a copy of in the patient's notes, before it was issued to families, however this was not happening reliably enough. An asthma section has now been added to the electronic discharge summary. In addition, text within this section such as 'inhaler technique checked', 'asthma/wheeze plan issued/reviewed' has been added, so the author can easily click to add to the letter.

The asthma section of the discharge summary can be found at **www.rcplondon.ac.uk/nacap-cyp-asthma-2019/20.**

[§§§] Acknowledgement – Leeds Teaching Hospitals NHS Trust Wheeze leaflet:Harrogate District Hospital sought permission from Leeds Teaching Hospitals NHS Trust to use their traffic light system as the basis for their leaflet.

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Implementation of PAAP

- Education around the implementation of the PAAP was led by a nursing sister. The issuing of PAAPs to children and young people was encouraged and parents and carers were advised to read them prior to discharge.
- Nursing and medical handovers included the use of PAAP as learning points.
- The asthma discharge bundle has been listed on the back page of the document for consistency of information and the plan is issued by all staff as they work through the PAAP booklet together with the patient.

Information provided by contributors from Harrogate District Hospital (August 2020). Minor edits by the NACAP team.

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Case study: Royal Glamorgan Hospital, Cwm Taf Morgannwg University Local Health Board

Correctly checking inhaler technique for all CYP prior to discharge

Paediatric nurses at the Royal Glamorgan Hospital worked collaboratively to ensure that all children achieved correct inhaler technique prior to discharge as part of an asthma care bundle. The whole team approach, led by respiratory nurse specialists, ensured that even in their absence high-quality discharge advice was maintained.

By doing this, the paediatric respiratory nursing team empowered the paediatric ward nurses, with the support of the ward manager, to deliver appropriate discharge advice and education to children. Prior to this, discharge advice and inhaler device instruction was inconsistent.

98% of the patients who audited data was submitted for had their inhaler technique checked

The steps taken to ensure all CYP admitted with asthma attacks received the correct discharge advice and education were as follows:

- The implementation of a discharge checklist provided a framework for nurses to follow which created standardisation. Inhaler technique review and demonstration was included.
- The provision of personal management plans and inhaler device instruction leaflets.
- Having the completed checklist signed by the discharging nurse and filed in the child's notes which provided clear documentation.
- The discharge nurse had the responsibility of ensuring that the child had either been reviewed by the paediatric respiratory nurse or had completed the discharge checklist.
- The respiratory nurses reviewed the notes of all children admitted with a respiratory illness weekly to monitor compliance and identify children needing additional support.
- Respiratory nurses provided frequent updates for paediatric ward staff including practical inhaler technique training and assessment for groups and individuals.
- Respiratory nurses provided encouragement and feedback to staff relating to performance reflected in audit results, including local audits, a BTS audit and a South Wales Respiratory Network audit completed in 2018. This provided motivation and greater understanding of its importance.

This approach helped the Royal Glamorgan Hospital achieve the high level of compliance with this measure by maintaining asthma awareness and increasing the knowledge of paediatric ward nurses.

The discharge checklist can be found at **www.rcplondon.ac.uk/nacap-cyp-asthma-2019/20.**

Information provided by contributors from Royal Glamorgan Hospital (August 2020). Minor edits by the NACAP team.

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Section 5: Access to specialist staff and services

49.9%

of admitted children and young people have access to a paediatric respiratory nurse

Key standards

- BTS/SIGN 2019 [3.3.4]: In adults and children with an intermediate probability of asthma and normal spirometry results, undertake challenge tests and/or measurement of FeNO to identify eosinophilic inflammation.[1]
- BTS/SIGN 2019 [10.1]: Patients with difficult asthma should be systematically evaluated, including: confirmation of the diagnosis of asthma and identification of the mechanism of persisting symptoms and assessment of adherence to therapy.
  This assessment should be facilitated through dedicated multidisciplinary difficult asthma service, by a team experienced in assessment and management of difficult asthma.[1]
- BTS/SIGN 2019 [11.11.3]: In the initial period after transition to adult services in secondary care, adolescents are best seen by one consultant to build their confidence and encourage attendance.[1]
- BTS/SIGN 2019 [11.11.4]: Transition should be seen as a process and not just the event of transfer to adult services. It should begin early, be planned, involve the young person and be both age and developmentally appropriate.
  - Young people should be given the opportunity to be seen without their parents/carers.
  - Transition services must address the needs of parents/carers whose role in their child's life is evolving at this time.
  - Transition services must be multidisciplinary and multiagency. Optimal care requires a cooperative working relationship between adult and paediatric services, particularly where the young person has complex needs with multiple specialty involvement.
  - Coordination of transitional care is critical. There should be an identified coordinator who supports the young person until he or she is settled within the adult system.
  - Young people should be encouraged to take part in transition/support programmes and/or put in contact with other appropriate youth support groups.
  - The involvement of adult physicians prior to transfer supports attendance and adherence to treatment.
  - Transition services must undergo continued evaluation.[1]
- BTS/SIGN 2019 [11.12.1]: Design of individual or group education sessions delivered by healthcare professionals should address the needs of adolescents with asthma.[1]

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- NICE 2017 Asthma: diagnosis monitoring and chronic asthma management NG80 [1.3.3] Consider a FeNO test in children and young people (aged 5–16) if there is diagnostic uncertainty after initial assessment and they have either: normal spirometry or obstructive spirometry with a negative bronchodilator reversibility (BDR) test.[3]
- NICE 2013 Smoking: acute, maternity and mental health services PH48 [Recommendation 5] Provide information and advice for carers, family, other household members and hospital visitors.[4]
- NRAD 2014 why asthma still kills: organisation of NHS services [Recommendation 1] Every hospital and general practice should have a designated, named clinical lead for asthma services, responsible for formal training in the management of acute asthma.[7]
- NRAD 2014 why asthma still kills: organisation of NHS services [Recommendation 2]: Patients with asthma must be referred to a specialist asthma service if they have required more than two courses of systemic corticosteroids, oral or injected, in the previous 12 months or require management using British Thoracic Society (BTS) stepwise treatment 4 or 5 to achieve control.[7]

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Key findings

Multidisciplinary staffing

There is a lack of key health professionals in post who can contribute to the care of CYP with asthma.
Of participating hospitals:

- **58.8%** have a respiratory nurse specialist.
- **48.7%** have a paediatric physiotherapist.
- **29.4%** have a paediatric psychologist.
- **76.5%** have a paediatric pharmacist.

- **49.9%** of admitted CYP asthma patients have access to a paediatric respiratory nurse. However, at weekends only **5.2%** of centres have a respiratory nurse available for CYP.

Local and network asthma care and leadership

Of participating hospitals:

- **69.8%** are part of a regional paediatric asthma network.[****]
- **80.7%** have a designated lead for paediatric asthma services (either as a designated paediatric lead or lead for both adult and paediatric services).
- **68.9%** have a specific service for paediatric asthma.

Access to services to address socio-economic, environmental, and lifestyle factors that affect asthma in CYP

Of participating hospitals:

- **72.3%** have a smoking cessation service to which they signpost parents, carers or CYP asthma patients as required.
- **52.1%** have a smoking cessation service to which they can refer CYP asthma patients.
- **30.3%** have a dedicated service for childhood obesity to which they can refer patients.

Access to physiology services

Of participating hospitals:

- **89.9%** have access to spirometry.
- **41.2%** have access to fractional exhaled nitric oxide (FeNO), as a diagnostic tool for CYP asthma patients.

Access to transitional planning

- **52.1%** of hospitals have formal transitioning processes in place for young people transitioning from paediatric to adult services.

[****]For further information on paediatric networks, please refer to section 3 (3.45, 3.46, 3.47 and 3.5) of the NHS Long Term Plan: www.longtermplan.nhs.uk/publication/nhs-long-term-plan

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O1 **National QI priority O1: *85%*** of hospitals should have a respiratory nurse specialist trained in the care of children and young people with asthma.

Rationale

Involvement of a respiratory nurse specialist as part of an MDT was associated with improvements in care. These improvements are noted on page 23 of this report. Further evidence of improvements in care led by specialist nurses can be seen in the case studies in this report on page 17 , page 25 and page 27.

Respiratory nurses can improve the care of CYP with asthma in several ways.

- In the inpatient setting they can be involved in the acute management and discharge planning of CYP with asthma.
- In clinics, they can provide education for CYP and families to empower self-management, conduct physiological testing where needed and with appropriate training can function as independent practitioners. This is important because general paediatric clinics are often busy, and these elements of care can be time-consuming for doctors to do thoroughly.
- They can fulfil wider roles such as training ward, emergency department, and primary care healthcare professionals, and contributing to local governance tasks such as audit.
- They have a pivotal role in arranging transition to adult services.

Other types of healthcare professional (eg physiotherapists, pharmacists, physician associates, and psychologists) can of course be beneficial for CYP with asthma but they are unlikely to be a protected resource for CYP with asthma in district general hospital settings, and may be better utilised in the management of uncontrolled and severe asthma.

Tips to achieve this priority

The main step in this process is to develop a business case for a respiratory specialist nurse.

- Developing a business case for an asthma specialist nurse could initially focus on clinical benefits: improving the quality of care given to CYP may reduce length of stay, and better education before discharge will reduce the rates of readmission. Centres without asthma specialist nurses could work with their local business intelligence team to identify the rates of reattendance and readmission, which can be a useful baseline for calculating cost savings.
- Use NACAP benchmarking data from the clinical and organisational audit to highlight the need for an asthma specialist nurse. The data suggest that developing an MDT improves the quality of care for CYP.
- Involve CYP and their parents and carers in identifying the benefits of having an asthma specialist nurse in your department.

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National QI priority O2: ***80%*** of hospitals should have access to fractional exhaled nitric oxide (FeNO) as a diagnostic tool for paediatric asthma services.

Rationale

Markers of inflamation are more likely to be useful in cases of equivocal diagnosis of asthma than measures of airway obstruction (such as PEFR). In the largest UK cohort study evaluating different physiological tests for asthma in CYP, FeNO emerged as the most useful first thing to measure[††††]. FeNO is mandated in the NICE guidelines as a necessary test in the asthma diagnosis pathway, and recommended as a useful test in the BTS guidelines, BTS/SIGN 2019 [3.3.4].The accurate identification of asthma in children is important, and the NICE guidelines evaluation has shown that despite an initial investment it is a cost-effective approach to diagnosis.

Tips to achieve this priority

- Work with existing adult physiology departments to identify if this is a service they can offer. If not, use successful business cases from neighbouring centres in your network for ideas.
- Refer to NICE guidelines which advocate the use of FeNO in the diagnosis of asthma. NICE NG80 [1.3.3]
- Ensure that whoever carries out the tests has appropriate training in the conduct of the test and maintenance of the machines.

[††††] https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(17)30008-1/fulltext

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Section 6: Patient and carer engagement

17.7%

of hospitals have a strategic group for paediatric asthma services

Key findings

Patient and carer engagement

Of participating hospitals:

- **17.7%** have a strategic group for paediatric asthma services.
- **23.8%** have strategic groups that include a CYP or a parent/carer of a CYP with asthma.
- **87.4%** routinely conduct surveys of parent/carer views on paediatric services. Of these, **35.3%** of hospitals **conduct this on a continuous basis** with all patients.

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Section 7: Reimbursement of costs

do not have a CQUIN or LIP for paediatric asthma care

Key findings

Of participating hospitals:

- **52.9%** receive reimbursement of costs for CYP asthma patients through block contracts.
- **95.8%** do not have a CQUIN (Commissioning for Quality Innovation) or LIP (Local Incentive Payment) for CYP asthma care.[‡‡‡‡]

[‡‡‡‡] There is a severe asthma CQUIN in place. This is not applicable to all hospitals. Please refer to https://www.england.nhs.uk/publication/pss8-severe-asthma-flat-final-pss-cquin-indicator for further information.

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Section 8: Closing remarks

This first report of the NACAP CYP workstream offers a comprehensive opportunity to evaluate how well we manage paediatric acute asthma. Moving forward, we must use what we have found as a starting point to drive real, meaningful improvements in care. The input from clinicians and audit teams around the country has been fantastic, particularly when people are busy.

The NHS faces unprecedented challenges in 2021 and there is uncertainty around the long-term impacts of COVID-19. We don't, for example, know how paediatric services will evolve after the pandemic. Without continued drive and support from healthcare professionals who look after children, there is always the possibility that paediatric services could get left behind. In relation to reconfigured services and shifts towards video consultations, we need to make sure that the basic priorities we have identified in this report are addressed. We must focus on the clear messages of timely treatment, empowerment and education, and appropriate follow-up.

We want NACAP to roll with the times – moving forward we will be constantly considering how to use data, how to link with other national initiatives as they arise, and how to ensure the priorities of CYP are integrated into national improvement. We hope the resources we have provided after the first step of the audit have been useful, and look forward to working towards better care for CYP with asthma.

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Appendix A: Glossary

Beta agonists	Beta adrenergic agonists or beta agonists are medications that relax muscles in your airways, which allow them to expand resulting in easier breathing.
Bronchodilators	A bronchodilator is a something that expands the bronchi and bronchioles (parts of your lungs), making it easier for your airway and increasing airflow to the lungs.
Fractional exhaled nitric oxide (FeNO)	FeNO is a type of gas which can be measured in the human breath test when your airway gets smaller making it harder to breathe (inflamed). This test is one of many used to diagnose asthma.
Inhaled corticosteroids	Inhaled (breathed in) corticosteroids are medications used to treat asthma. They are taken by using an inhaler. This medication should be taken frequently so that it stops your airway getting smaller (inflamed) and prevents asthma flare-ups.
Intravenous medication	Intravenous therapy delivers a liquid directly into a person's vein. The intravenous route is used for patients who cannot have medications by mouth.
Multidisciplinary team (MDT)	A multidisciplinary team involves a range of health professionals, from one or more organisations, working together to provide good patient care.
Systemic corticosteroids	Systemic corticosteroids are corticosteroids (medicines) that are given orally (in your mouth) or by injection and move the medicine around the body. They do not include corticosteroids used in the eyes, ears, or nose, on the skin or that are inhaled, although small amounts of these corticosteroids can be absorbed into the body.

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Appendix B: References

1 British Thoracic Society (BTS) / Scottish Intercollegiate Guidelines Network (SIGN). *SIGN 158: British guideline on the management of asthma – A national clinical guideline.* [Revised edition published July 2019]. www.brit-thoracic.org.uk/quality-improvement/guidelines/asthma/

2 National Institute for Health and Care Excellence. *Asthma. NICE Quality standard 25 (QS25).* London: NICE, 2013, updated 2018. www.nice.org.uk/guidance/qs25

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