




Royal College
of Physicians

National Respiratory Audit
Programme (NRAP)

A photograph of a healthcare professional, likely a nurse or doctor, sitting at a desk and talking to a young girl. The professional is smiling and has her hands clasped. The girl is looking at the professional. In the background, another person is partially visible. The image is overlaid with a dark blue diagonal shape containing text.

Wales primary care clinical audit report 2021–23

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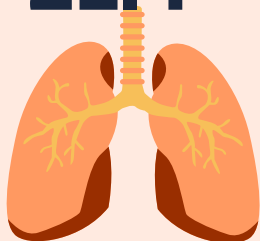
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Report at a glance

COPD

21.4% of patients with COPD had any post-bronchodilator spirometry code available in the last 2 years.



13.9% of patients with COPD with an MRC* score of 3–5 have been referred to PR in the last 3 years.

73.8% of patients with COPD had their smoking status recorded.



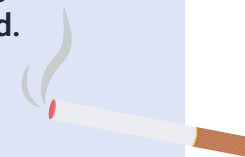
Adult asthma

54.4% of adults with asthma had a record of any objective measurement.



27.9% of adults with asthma had a personalised asthma action plan in the last 15 months.

66.3% of adults with asthma had their smoking status recorded.



CYP asthma

39.8% of children with asthma had a record of any objective measurement.

24.1% of children with asthma had a personalised asthma action plan in the last 15 months.



0.7% of parents/carers of children with asthma were asked about their second-hand smoke exposure.

40.8% of children with asthma had their smoking status recorded.



* Medical Research Council (MRC) Dyspnoea [score](#).

How to use this report

1. Scope and data collection

This report presents results from an analysis of asthma and chronic obstructive pulmonary disease (COPD) primary care data in Wales from the Welsh primary care audit component of the National Respiratory Audit Programme (NRAP). Data were obtained from 359 general practices in Wales in February 2024 and capture activity between 1 August 2021 and 31 July 2023. Patient activity in this cohort is defined using validated codes. The code list for all variables defined in this report is available [here](#).

The audit builds upon the learning from the previous primary care reports. Contributing to the overarching healthcare improvement objectives of NRAP, this report aims to empower stakeholders to use audit data to facilitate improvements in the quality of care for people diagnosed with asthma and COPD.

2. Report structure

This report brings together the key findings and national recommendations, from the 2021–23 Welsh primary care audit. Embedded within this report are QR codes that link to webpages which include video content about the audit data, the vision for improvement and ideas for taking small steps toward change.

3. Data interpretation

In total, 96 % of Welsh practices participated in this audit. We advise caution when comparing the results with previous reports and making assumptions about the quality of care provided nationally. This is because previous audit periods were impacted significantly by the COVID-19 pandemic. Younger children aged 1–5 have not been included in this round of the audit.

A separate data analysis and methodology report is available at [here](#).

National and LHB level results are available [here](#). Participating practices can view individualised practice-level results via the Data Health and Care Wales (DHCW) primary care information portal [here](#). These reports will include benchmarking against national and health board results to support practices in improving the quality of patient care.

4. Audience and links to guidelines and standards

This report is for healthcare professionals in primary care, NHS managers, local health boards (LHBs) and policymakers, as well as voluntary organisations and people with asthma and COPD. References to the appropriate National Institute for Health and Care Excellence (NICE) clinical guidelines and quality statements, and British Thoracic Society (BTS) guidelines relevant to asthma and COPD care are inserted throughout. We strongly advise that primary care clinicians and managers discuss these findings at the new professional collaboratives and pan-cluster planning groups being implemented as part of Accelerated Cluster Development so that concerns are shared as a basis for service development.

Summary data table

	COPD		Adult asthma		Children and young people asthma	
	n	%	n	%	n	%
All Wales	83,529	–	175,752	–	24,214	–
Gender						
Male	40,886	48.9	72,115	41	13,999	57.8
Female	42,643	51.1	103,637	59	10,215	42.2
Age						
Median	71	–	54	–	12	–
Lower quartile	63	–	38	–	9	–
Upper quartile	78	–	67	–	15	–
IMD quintile						
1	11,430	13.7	17,175	9.8	3,151	13
2	10,556	12.6	18,024	10.3	2,774	11.5
3	9,695	11.6	17,068	9.7	2,267	9.4
4	9,184	11	17,610	10	2,489	10.3
5	8,242	9.9	17,103	9.7	2,214	9.1
6	8,859	10.6	18,080	10.3	2,302	9.5
7	7,757	9.3	17,814	10.1	2,204	9.1
8	6,856	8.2	17,013	9.7	2,216	9.2
9	5,855	7	16,392	9.3	1,952	8.1
10	4,260	5.1	16,483	9.4	2,168	9
Not recorded	835	1	2,990	1.7	477	2
Ethnicity						
Asian, Asian British, Asian Welsh	150	0.1	1,259	0.7	312	1.3
Black, Black British, Black Welsh, Caribbean or African	64	0.1	398	0.2	92	0.4
Mixed or multiple	65	0.1	477	0.3	181	0.7
White	28,573	34.2	61,703	35.1	8,791	36.3
Other ethnic group	90	0.1	498	0.2	123	0.5
Not recorded	54,587	65.4	111,417	63.4	14,715	60.8

Table 1: Patient activity for patients with COPD and asthma (adults, children and young people) between 1 August 2021 and 31 July 2023 by socio-demographic characteristics.

Summary of national recommendations



Local health boards **should implement a strategy to ensure that all patients have access to trained clinicians within primary care settings who can accurately diagnose COPD and asthma.** This should ensure that 70% of patients with COPD have undergone quality-assured post-bronchodilator spirometry to confirm obstruction, and 70% of individuals diagnosed with asthma within the past 2 years should have documented at least one objective measurement by July 2025.



Local health boards **should ensure that tobacco dependency pathways are embedded in primary care,** so that all children and young people with asthma have **second-hand smoke exposure** recorded, and parents/carers of children with asthma who smoke receive Very Brief Advice and are offered support to quit by July 2025. This will further support the Welsh government's ambition to be smoke-free by 2030.



Local health boards **should provide training resources** and increase **engagement** between providers and primary healthcare practitioners to reduce the identified barriers and **increase referral to pulmonary rehabilitation (PR)** for appropriate patients with COPD to 70% by July 2025.



Local health boards should **prioritise and promote the development and use of personalised asthma action plans** within primary care settings to ensure that, by July 2025, 75% of patients diagnosed with asthma have the essential tools to help manage their condition.



Local health boards and Digital Health and Care Wales (DHCW) should **promote the use of preferred respiratory SNOMED CT codes** as used within the NRAP audit to ensure accurate coding for patients with asthma and/or COPD, thereby improving the quality of data available for services by the next data extraction in the NRAP audit in August 2025.

Delivering earlier, accurate diagnosis

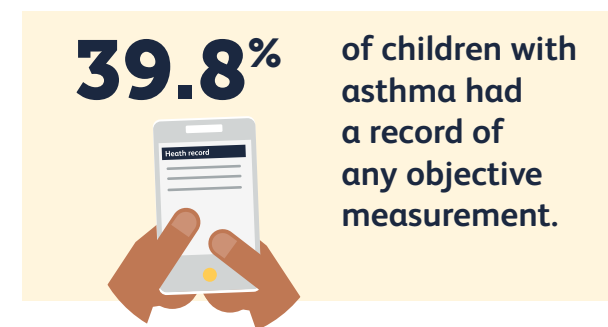
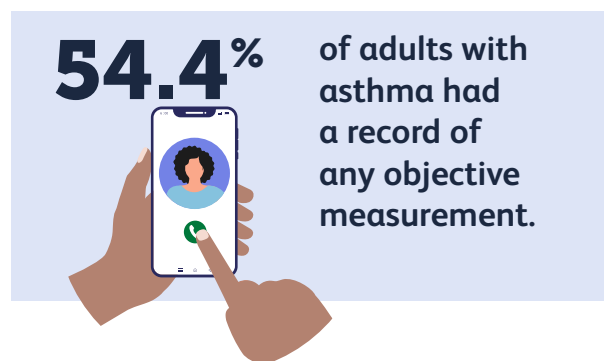
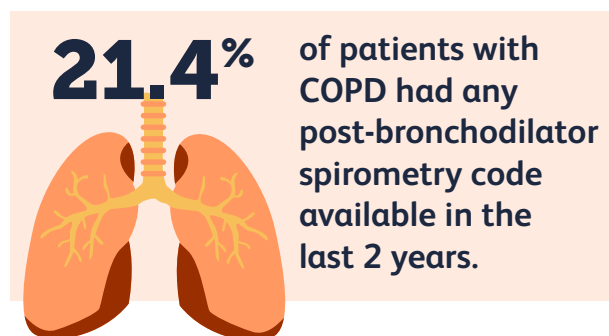
Recommendation 1

Local health boards should implement a strategy to ensure that all patients have access to trained clinicians within primary care settings who can accurately diagnose COPD and asthma. This should ensure that 70% of patients with COPD have undergone quality-assured post-bronchodilator spirometry to confirm obstruction, and 70% of individuals diagnosed with asthma within the past 2 years should have documented at least one objective measurement by July 2025.

Key standards

- > **Welsh government:** Quality statement for respiratory disease.
- > **NICE 2023 QS10 (QS1):** People aged over 35 years who present with a risk factor and one or more symptoms of COPD have post-bronchodilator spirometry.
- > **NICE 2018 QS25 (QS1):** People aged 5 years and over with suspected asthma have objective tests to support diagnosis

Results summary



Why is this important to healthcare services?

Guaranteeing an early and accurate diagnosis of respiratory conditions ensures that people can access the right treatments and care they need.¹ An accurate diagnosis of asthma or COPD made by a skilled and trained clinician² ensures that the patient's journey starts with the appropriate management and treatment is tailored to their needs.

Late COPD diagnosis is associated with a higher exacerbation rate and increased comorbidities and costs compared with early diagnosis. The ARCTIC observational cohort study³ indicates that late diagnosis results in a 15.7% increase in direct costs per patient over the 2 years following the COPD diagnosis. Additionally, accurate diagnosis is crucial to prevent inappropriate and potentially harmful treatment, which can exacerbate symptoms, increase healthcare use, and decrease quality of life. This is particularly relevant for patients erroneously placed on an asthma or COPD register due to inaccurate spirometry, incorrect coding from secondary care, or assumptions based solely on symptoms or smoking history. Early and accurate diagnosis allows for the timely implementation of preventive measures, potentially slowing disease progression and reducing exacerbations and attacks.

Reducing exposure to second-hand smoke in children and young people with asthma (6–18 years)

Recommendation 2

Local health boards should ensure that tobacco dependency pathways are embedded in primary care, so that all children and young people with asthma have second-hand smoke exposure recorded, and parents/carers of children with asthma who smoke receive Very Brief Advice and are offered support to quit by July 2025. This will further support the Welsh government's ambition to be smoke-free by 2030.⁵

Key standards

- > **Welsh government:** Quality statement for respiratory care.
- > **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.

Results summary

0.7% of parents/carers of children with asthma were asked about their second-hand smoke exposure.

73.8% of patients with COPD had their smoking status recorded.

66.3% of adults with asthma had their smoking status recorded.

40.8% of children with asthma had their smoking status recorded.



Why is this important to healthcare services?

Smoking doesn't only harm the smoker. Exposure to second-hand smoke is particularly harmful to children, and can lead to conditions including middle-ear disease, asthma and allergies.⁴ Second-hand smoke exacerbates asthma symptoms and increases the frequency and severity of asthma attacks in children and young people already living with the condition. This can lead to more frequent hospital admissions, emergency department and GP visits, placing a strain on healthcare facilities.

The finding that less than 1% of parents/carers in the audit were asked about their child's second-hand smoke exposure at their child's review is alarming but also raises concerns over whether these data are being correctly coded at review. NICE guidance outlines a care pathway for supporting smoking cessation that can be used with parents or carers. The care pathway incorporates a very brief intervention using the Very Brief Advice model. This conversation should happen regardless of whether the parent/carer is a patient at the surgery.

Why is this important to patients?

It's essential to support parents to quit smoking and to ensure that people are not stigmatised for a long-term relapsing condition that usually starts in childhood.⁵ Very Brief Advice⁶ involves three simple steps: ask, advise and act.

Healthcare practitioners should: ask about smoking habits at home and in cars, advise on the benefits of reducing children's exposure to second-hand smoke, and act by providing available support and offering practical assistance in establishing and maintaining smoke-free environments. While parents may recognise the importance of not smoking around children, they may lack knowledge on how to initiate changes. Clinicians need to engage in these discussions, assist in smoking cessation and mitigate the risks associated with second-hand smoke exposure.

Ensuring timely access to pulmonary rehabilitation (PR)

Recommendation 3

Local health boards should provide training resources and increase engagement between providers and primary healthcare practitioners to reduce the identified barriers and increase referral to pulmonary rehabilitation (PR) for appropriate patients with COPD to 70% by July 2025.

Key standards

- > **Welsh government:** Quality statement for respiratory care.
- > **NICE 2019 NG115, [1.2.81]:** Make PR available to all appropriate people with COPD, including those who have had a recent hospitalisation for an acute exacerbation.
- > **NICE 2019 NG115, [1.2.82]:** Offer PR to all people who view themselves as functionally disabled by COPD (usually MRC grade 3 and above).
- > **BTS quality statement 1:** People with COPD and self-reported exercise limitation (MRC dyspnoea 3–5) are offered PR.

Results summary

13.9%

of patients with COPD with an MRC score of 3–5 have been referred to PR in the last 3 years.



Why is this important to healthcare services?

There is a need for improved engagement between providers and primary health care practitioners in order to enhance awareness of PR benefits, consider financial incentives and alternative referral pathways to boost PR uptake among patients with COPD. Jane Watson *et al*⁷ investigated the barriers and enablers in referring patients with COPD to PR by primary healthcare practitioners, revealing barriers such as limited awareness of PR benefits, knowledge gaps regarding local PR providers, time constraints during consultations, and assumptions about patient motivation and suitability based on social and disease-specific factors rather than clinical benefits. Despite practice nurses displaying better knowledge, they still struggled to promote PR effectively.

Additionally, PR plays a crucial role in reducing healthcare use and costs associated with respiratory exacerbations and hospitalisations.⁸ By giving patients agency to self-manage their condition and adhere to treatment plans, PR helps prevent disease progression, recognise exacerbations, and may reduce the need for emergency department visits and hospital admissions.⁹

Why it is important for patients to access PR?

PR aims to offer a standardised, structured approach delivering individualised exercise programmes, education, and self-management advice on disease and symptom management.¹⁰ PR has been consistently linked to improvements in exercise tolerance, a reduced symptom burden (including breathlessness and psychological wellbeing), improved quality of life, and improved levels of independence. It creates a supportive environment where patients can connect with others facing similar challenges, provide a sense of community, and reduce feelings of isolation and stigma often associated with COPD.¹⁰ PR delivered after an acute exacerbation has also been shown to have benefits in hospital readmissions.

Promoting the use of personalised asthma action plans (PAAPs)

Recommendation 4

Local health boards should prioritise and promote the development and use of personalised asthma action plans within primary care settings to ensure that, by July 2025, 75% of patients diagnosed with asthma have the essential tools to help manage their condition.

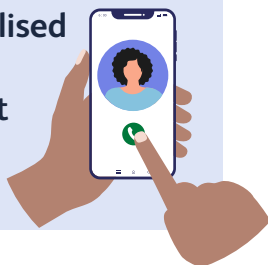
Key standards

- > **Welsh government:** Quality statement for respiratory care.
- > **NICE 2017 NG80:** Offer an asthma self-management programme, comprising a written personalised action plan and education, to adults, young people, and children aged 5 years and over with a diagnosis of asthma (and their families or carers if appropriate).

Results summary

27.9%

of adults with asthma had a personalised asthma action plan in the last 15 months.



24.1%

of children with asthma had a personalised asthma action plan in the last 15 months.



Why is this important to healthcare services?

It is important to remember that for the majority of the year, patients and their parents/carers are already self-managing. Patients and their parents/carers know themselves and their condition better than anyone, but it is the role of clinicians to support that self-management. PAAPs should ideally provide clear, individual guidance to patients on how to monitor their symptoms, recognise when symptoms are worsening, and take appropriate actions, accordingly. By tailoring instructions based on each patient's specific triggers, symptoms, and medications, PAAPs give patients the tools to proactively manage their condition, reducing the likelihood of exacerbations and emergency healthcare use. PAAPs contribute to improved patient outcomes and quality of life by facilitating timely interventions and preventing avoidable hospital admissions, emergency department and GP visits.

Use of self-management apps

Although data for the audit is not collected through the NHS Wales' Astmahub and Astmahub for Parents apps, there is widespread use of the apps across Wales. With over 20,000 downloads and widespread GP adoption, these apps have proven successful in enhancing condition management and reducing healthcare utilisation, including GP visits and hospital admissions, particularly among long-term users.

Users consistently report improved condition management. Specifically, evaluations show an improvement in condition management post-app use, with a significant proportion of users reporting decreased GP visits and hospital admissions for respiratory conditions, especially among those who have used the app for over 6 months. If app use is recorded in future rounds of the audit, it has the potential to significantly increase the percentage of patients with a PAAP in Wales.¹¹

Optimising SNOMED CT codes used for respiratory patients

Recommendation 5

Local health boards and DHCW should promote the use of preferred respiratory SNOMED CT codes as used within the NRAP audit to ensure accurate coding for patients with asthma and/or COPD thereby improving the quality of data available for services by the next data extraction in the NRAP audit in August 2025.

Background

- > Clinical coding is the translation of medical information into standardised codes, which can be used for clinical and data purposes. Accurate clinical coding is important as the data from clinical coding is used in decision-making and policy implementation. Multiple types of clinical codes are used.
- > Historically, Read codes have been used in primary care in Wales. There are 2 versions of Read codes. Read v2 was last updated in April 2016 and v3 was last updated in April 2018. There will be no further updates to Read codes in the future. This is an issue as new codes cannot be submitted therefore any updates in respiratory care since April 2018 cannot be coded using Read codes. For example, vaping cannot be coded using Read codes.
- > It is anticipated that EMIS Web practices will be natively capturing data using SNOMED-CT during 2024/25 with a period of transition between Read/SNOMED for those practices that will be migrating from Vision to EMIS. This applies to Welsh practices only.

Key standards

- > **Welsh government:** Quality statement for respiratory care.
- > New COPD patients, and those already on a COPD register, have coded evidence in the clinical record of spirometry, performed by an appropriately trained healthcare professional.

- > New asthma patients, and those already on an asthma register, have coded evidence of disease according to the national guideline.

Why is this important to healthcare services?

The recording and coding of information underpins all of the clinical themes in this audit. While clinical acumen is fundamentally at the heart of a diagnosis, how something is coded and recorded in a medical record is vital to future clinical decision-making, financial reimbursement, wider population-level service provision, planning, benchmarking and healthcare improvement.

Currently, in primary care alone, there are over 50 Read codes that can be used to record that someone has an asthma diagnosis. There are also variations in practice at a local and national level as to how codes are used and when, fundamentally complicating feasibility and interpretation of data for subsequent use. For example, within the current data, there is a large percentage of patients who do not have their ethnicity recorded. Simplifying how we code events across healthcare both in terms of coding structures/ontologies used and the thinking behind what we code are essential for improvement in healthcare.

Alongside this report, NRAP has published a list of preferred respiratory SNOMED CT codes for use. These codes can be found [here](#). The SNOMED CT codes used in this audit and the subset recommended have been chosen as they have been validated in research studies using various methods to determine how best to identify the variable of interest in primary care data. While a large number of codes were used for the audit, going forward we would recommend a much smaller subset to encourage best practice for each variable.

The Royal College of Physicians (RCP)

The RCP plays a leading role in the delivery of high-quality patient care by setting standards of medical practice and promoting clinical excellence. The RCP provides physicians in over 30 medical specialties with education, training and support throughout their careers. As an independent charity representing 40,000 fellows and members worldwide, the RCP advises and works with the government, patients, allied healthcare professionals and the public to improve health and healthcare.

Healthcare Quality Improvement Partnership (HQIP)

The National Respiratory Audit Programme (NRAP) 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 and the Royal College of Nursing. Its aim is to promote quality improvement in patient outcomes, 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.

National Respiratory Audit Programme (NRAP)

The National Respiratory Audit Programme (NRAP) aims to improve the quality of the care, services and clinical outcomes for patients with respiratory disease across England and Wales. It does this by using data to support and train clinicians, empowering people living with respiratory disease, and their carers, and informing national and local policy. NRAP has a track record of delivery and is critical in assessing progress against the NHS Long Term Plan. Find out more about the NRAP visit our [website](#).

Acknowledgements

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