Asthma Biologics Programme

End of Programme Report

August 2024

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Health Innovation
Oxford & Thames Valley

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1. Executive Summary

1.1. Background and ambition

The NHS England Accelerated Access Collaborative (AAC) supports the **NHS to more quickly adopt clinically and cost-effective innovations** enabling patients access to the best new treatments and technologies.

As part of the AAC's work to support stronger adoption and spread of proven innovations, the AAC has selected a range of late-stage innovations (post-NICE appraisal) to accelerate uptake in the NHS - '**Rapid Uptake Products**' (RUPs). This programme has been designed to identify and support products with NICE approval that support the **NHS Long Term Plan's key clinical priorities** but have lower than expected uptake to date.

The national **Asthma Biologics programme is part of the AAC RUP programme** and ran from April 2021 to March 2023 (2-year programme).
The **Health Innovation Network* delivered this programme** as part of its commission from the NHS England Innovation Research and Life Sciences (IRLS) team. Health Innovation Oxford & Thames Valley (the new name for the Oxford Academic Health Science Network) acted as the lead health innovation network, providing national leadership and strategic direction to the programme, with all 15 health innovation networks in England actively delivering this programme in their local geography.

Asthma biologics are an innovative group of medicines that offer an important treatment option for people with severe asthma. Severe asthma is a specific type of asthma which is difficult to control, even with optimised inhaled asthma medication. It is a complex condition which may be driven by different inflammatory pathways, but typically severe asthma patients face a substantial burden of illness, marked reductions in quality of life and require a significant amount of health resource.
The **programme set a goal of improving care and outcomes** for people with asthma through improved and optimised clinical pathways across primary, secondary and tertiary care.

The programme **supported the NHS to reduce inequalities and increase access to the biologic treatment for all eligible adult patients**. It also helped spread clinical knowledge and build capability through the creation of dedicated set of resources to support early identification of people with uncontrolled asthma, appropriate referral of patients needing further specialist input and increasing access to asthma biologics. The programmes greatest legacy is improving the lives of people with severe asthma as a result.

The national **Asthma Biologics programme was delivered in partnership with the FeNO RUP**, a non-invasive breathing test that improves patient care by contributing to a faster and more effective asthma diagnosis when used alongside a detailed clinical history and other tests. Health Innovation Oxford & Thames Valley took an implementation science led approach to this adoption and transformation programme.

This report provide a summary of the national **Asthma Biologics programme's impact over the lifecycle of the programme**. Each health innovation network (HIN) may individually develop an impact report for their geography in addition to this report.

* The Health Innovation Network was known as the Academic Health Science Network (AHSN) at the time when Asthma Biologic programme was commenced.

Acronyms:
NICE – National Institute for Health and Care Excellence

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1.2. Headline impacts (April 2021-March 2023)

Biologics Access

4,695 new patients now receiving life changing biologics

Homecare Prescribing

Increase in biologics prescribed for self-administration/ homecare

Toolkit Users

21,685 unique users for the Asthma Biologics toolkit

Impacts observed since programme initiation

Oral Steroid Prescribing

3,195 Fewer patients being prescribed 3g or more of prednisolone each month

Engagement with Events

Over **1000 HCPs** attending live webinars, **449 HCP** completed e-modules and with many more accessing online

Primary Care Quality Improvement

497 practices using the SPECTRA clinical audit tools .

MyAsthmaBiologics App

6 Severe Asthma Centres implementing, with more adopters in preparation

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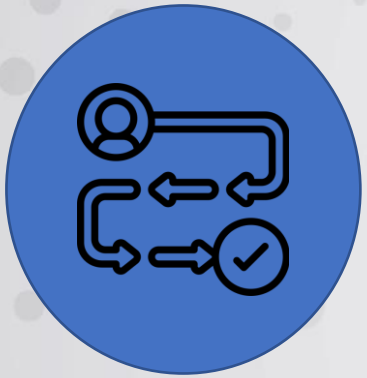
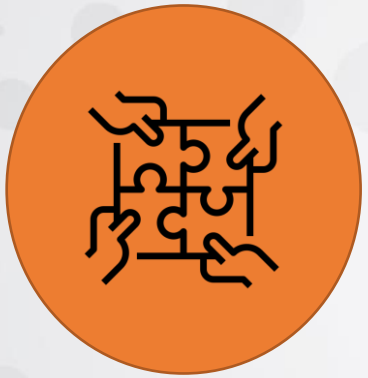
1.3. Critical success factors

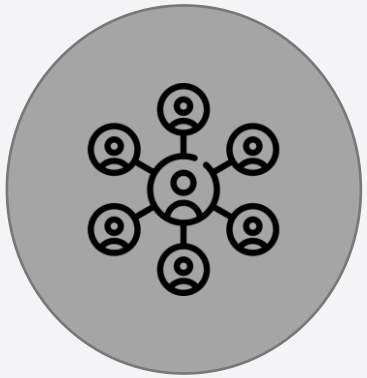
We have identified a number of critical success factors that have helped contribute to the success of this programme, comprising:



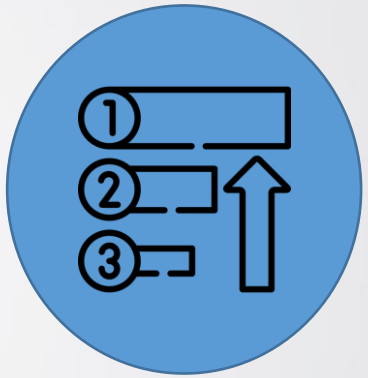
Pathways
Focus on the pathway, not the product



Partnerships
Collaborative multi-agency working



People
Effective and engaged leads at every HIN owning and leading change



Priorities
Clear priorities to address clearly evidenced areas of need

Process
A clear process and stages, underpinned by implementation science

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2. Introduction and Context

2.1. Introduction and background

It is estimated that in England **over 60,000[1] patients currently suffering with severe asthma would benefit from an asthma biologic**. However, prescribing data suggests that **only ~11,000 (NHS BlueTeq Data 2021)[2] of these patients are being treated** with biologic therapies.

For this reason, Asthma Biologics (AB) were selected as part of the Accelerated Access Collaborative (AAC) Rapid Uptake Products (RUP) programme in September 2020.

The programme set an **ambition to improve outcomes for people with asthma by reducing inequalities and increasing access to biologics for all eligible adult patients**.

This programme covered four high-cost biologic treatments approved for patients with Severe Asthma from the start. These treatments are, Reslizumab, Benralizumab, Mepolizumab and Omalizumab. From December 2021, the programme also included NICE recommended Dupilumab.

The advent of biologic therapies for severe asthma and the formalisation of specialised severe asthma services and networks ("Severe Asthma Services in Adults" - commissioning document A14/S/B) has hugely improved outcomes for patients who are able to access these services.

Aligned with clinical priorities in the NHS Long Term plan on improving outcomes for patients with respiratory disease, the Asthma Biologics programme was aimed to support improvements in pathways and practices to ensure more patients receive timely specialist care for their severe asthma and access asthma biologics.

1. Asthma Biologics Toolkit. Oxford Academic Health Science Network. https://www.healthinnovationoxford.org/our-work/respiratory/asthma-biologics-toolkit/asthma-biologics-overview/
2. Rapid Uptake Products Asthma Biologics AAC Consensus Pathway: Management of Uncontrolled Asthma in Adults. Oxford Academic Health Science Network. 2022. https://www.healthinnovationoxford.org/our-work/respiratory/asthma-biologics-toolkit/aac-consensus-pathway-for-management-of-uncontrolled-asthma-in-adults/

Acronyms:
NICE – National Institute for Health and Care Excellence

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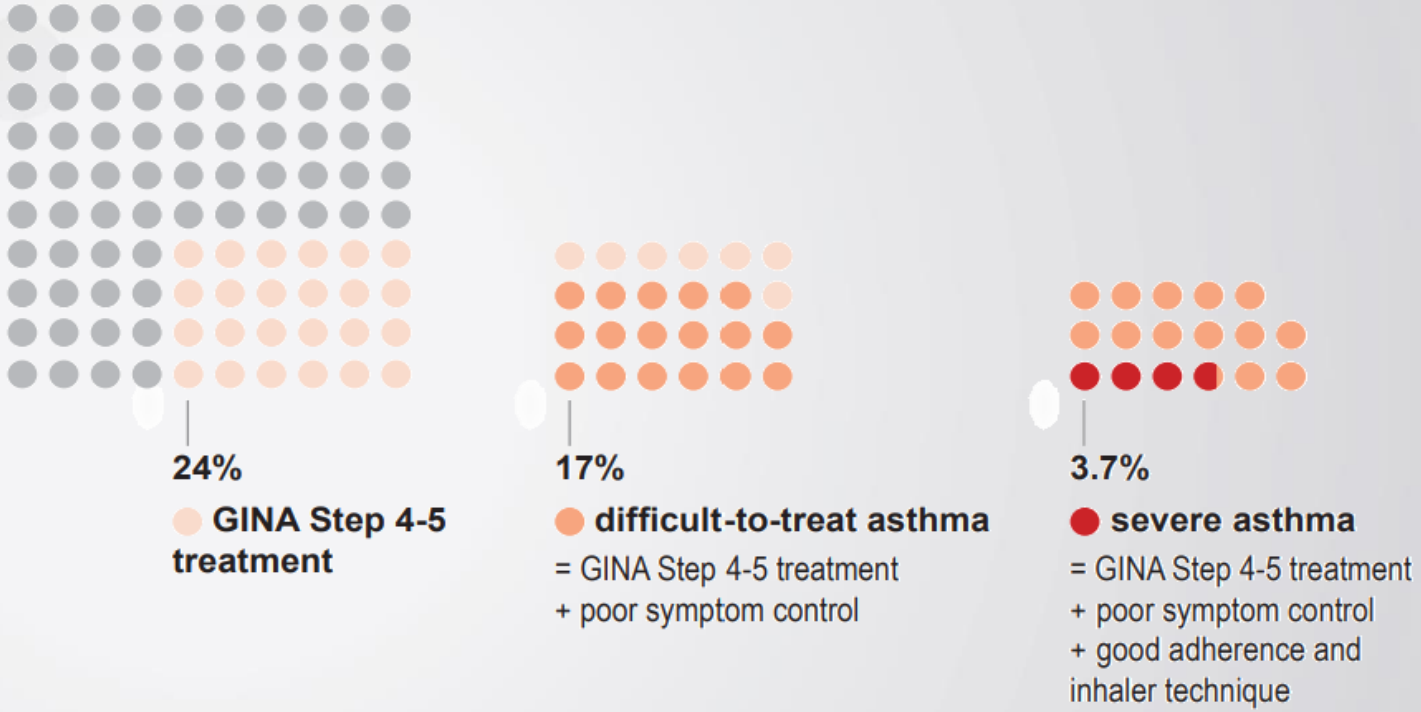
2.2 What is Severe Asthma and Biologic Therapies

- Type of asthma that does not respond to regular asthma treatment
- Distinct from ‘difficult asthma’
- Steroids are often lifesaving, and necessary, for severe asthma but increase risks of other health issues
- Biologic treatments can be life-changing for these patients:



Clinical and Patient Benefits
✓ Improve asthma control
✓ Improve lung function
✓ Improve quality of life
✓ Reduce reliance on OCS
✓ Reduce exacerbations

1. Hekking et al, The prevalence of severe refractory asthma J Allergy Clin Immunol; 2015 135 89,902;
2. Edris, A., De Feyter, S., Maes, T. *et al.* Monoclonal antibodies in type 2 asthma: a systematic review and network meta-analysis. *Respir Res* **20,** 179 (2019). https://doi.org/10.1186/s12931-019-1138-3

Acronyms:
OCS – Oral corticosteroid

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2.3. Asthma in the UK

Asthma is a common lung condition. In the UK, 5.4 million people have asthma[1]. This is about 8 in every 100 people. Misdiagnosis, late diagnosis and inappropriate long-term management of airways disease continue to pose challenges (Patel, 2021).

Over **5.4 million people in the UK suffer from asthma** with the NHS spending £1.1 billion on asthma annually

Estimated **over 200k patients with Severe Asthma** in the UK

Modelling suggests between **50k to 60k patients eligible for biologic therapy**

Prior to starting programme **only 10k patients (20%) accessing biologics**

Only around 30% of severe asthma patients known to secondary or tertiary care

Significant variation in asthma outcomes nationally, evidenced by

- Oral steroid prescribing
- Patient journey times to specialist care and biologics
- Variation in practice and pathways

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1. Asthma UK. Slipping through the net. 2018. Available at: https://www.asthma.org.uk/globalassets/get-involved/external-affairs-campaigns/publications/severe-asthma-report/auk-severe-asthma-gh-final.pdf

2.4. The Burden of severe asthma in the UK

The burden of severe asthma in the UK presented huge opportunity to reassess the process of asthma care through redefining pathways, improving efficiencies and capitalising on the innovations like asthma biologics.

Severe asthma patients have poorer outcomes[1,2]

Uncontrolled **severe asthma** patients:

8x risk of death

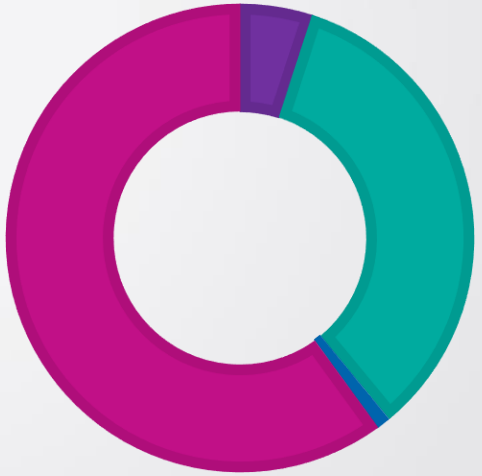
10x risk of hospital stays

Effect on patients

- Can't undertake daily activities[3]
- Anxiety, depression and anger[3]
- Time off work/study[3]
- Exacerbations[4]

Severe asthma accounts for majority of asthma costs[6,7]

Share of total direct cost of asthma for different levels of severity



- Controlled, Mild/Moderate
- Uncontrolled, Mild/Moderate
- Controlled, Severe
- Uncontrolled, Severe

Effect on cost

50X more cost

Cost of treating severe uncontrolled asthma compared to mild controlled asthma[5]

1. Price D et al. NPJ Prim Care Respir Med 2014; 12; 24: 14009., 2. Fernandes AG et al, J Bras Pneumol. 2014; 40(4): 364-372, 3. http://www.asthma.org.uk/News/asthma-experts-form-new-partnership-to-halve-european-asthma-deaths [Accessed September 2020] 3. Boston Scientific. Uncovering Asthma. 2015. 4. Foster JM et al. Eur Respir J 2017; 50: 1700765 5. NHS England. Service specifications: Specialist respiratory services (adult) – severe asthma. 2017. Available at: https://www.england.nhs.uk/publication/specialised-respiratory-services-adult-severe-asthma/ 6. Sadatsafavi M et al. Can Respir J 2010; 17: 74-80. 7. Sullivan SD, Rasouliyan L, Russo PA, et al. Extent, patterns, and burden of uncontrolled disease in severe or difficult-to-treat asthma. Allergy 2007;62:126–33

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2.4.1. Undiagnosed potential severe asthma: why does it matter?

Patients with uncontrolled severe asthma can become caught in a vicious cycle of emergency trips to hospital, intensive care and regular doses of strong oral corticosteroids (OCS). Whilst OCS can stop the symptoms, they have devastating side effects on physical and mental health, from organ and bone damage to anxiety, depression and insomnia.

- 93% of patients with severe asthma have at least one condition related to OCS exposure[1]
- 60% of patients had received ≥4 courses in previous year[1]
- almost 50% on maintenance steroids[1]

Patients prescribed long-term OCS have higher rates of:

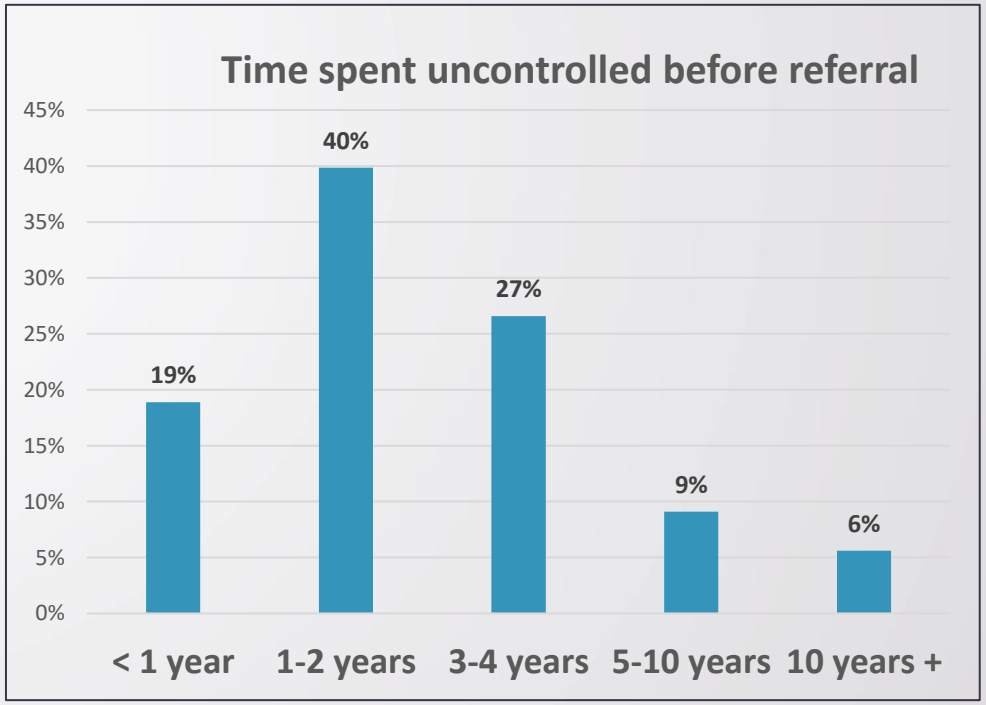
Pneumonia	2.92
Fractures	2.84
Cataracts	1.91
Hypertension	1.52
Type 2 diabetes	1.70
Depression/anxiety/ low mood	1.16
Dyspeptic disorders	1.45
Osteoporosis	2.29

Even short-term OCS courses can have adverse effects

Within 30 days of a course, patients have higher risk of:

Fractures · VTE · Sepsis

Patients referred to UK Severe Asthma Centres 2019/2020



Anonymised data was collected on 422 patients across 17 severe asthma centres

1. Jackson et al, Thorax 2021; Price et al Eur Resp Reviews; Rupani et al. Thorax 2022;77(suppl 1)

2.5. AAC RUP Asthma Biologics programme – aim and objectives

The **aim** of the AAC RUP Asthma Biologics programme was to:

- **Improve severe asthma care and patient outcomes** through access to biologic therapies in England
- **Increase the number of appropriate new initiations of biologics** for the treatment of severe asthma

Identifying patients with poorly controlled asthma

Referring appropriate patients needing further input

Treatment escalation to biologics for appropriate patients

Improved care for severe asthma patients

Focusing on improving patient access

The challenge

- Complex patient pathway
- Significant variation in identification, referral, triage and prescribing.
- Estimated it can take up to 12 years to identify and initiate an eligible patient onto a biologic in one of 13 Severe Asthma Centres
- Current uptake is around 20% of the eligible population

The scope

- Reduce variation in care for uncontrolled and severe asthma patients
- Improve patient access to life-changing NICE-approved biologics
- Rethink how severe asthma care fits into existing pathways

Project objectives

- **Optimise the pathway for the treatment of uncontrolled asthma**
- **Increase the number of cumulative patients receiving biologics** for the treatment of severe asthma
- **To reduce the number of patients on steroids** (and the associated side-effects)

Acronyms:
NICE – National Institute for Health and Care Excellence

2.5.1. Delivery structure

The Asthma Biologics programme began in September 2020 and was a collaboration among clinical experts, the Health Innovation Oxford & Thames Valley and NHS England AAC.

The programme was delivered over two years, from April 2021 to March 2023. The Health Innovation Network delivered this programme: the Health Innovation Oxford & Thames Valley acted as the lead health innovation network, providing national leadership and strategic direction to the programme, with all 15 HINs in England actively delivering this programme in their local geography.

Exceptional leadership with collaboration at every level

Clinical Leadership

Dr Hitasha Rupani
Consultant Respiratory Physician, University Hospital Southampton NHS FT

Asthma Biologics Clinical Champion

Gráinne d'Ancona
Consultant Pharmacist, Guy's and St Thomas' NHS FT

Asthma Biologics Clinical Champion

Beverley Bostock
Advanced Nurse Practitioner, Mann Surgery, Gloucestershire

Asthma Biologics Clinical Champion

The AHSN Network ACCELERATED ACCESS COLLABORATIVE

National Asthma Biologics Product Working Group

Health Innovation Network Asthma Working Group

Local Networks and Projects

NHS England

NICE National Institute for Health and Care Excellence

ASTHMA+ LUNG UK

PCRS

ARNS Association of Respiratory Nurse Specialists

British Thoracic Society

SANOFI

gsk

AstraZeneca

teva

NOVARTIS

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2.5.2. Priority areas

Eleven priority areas for the programme were identified through the national Asthma Biologics working group.

The group included the programme clinical champions for respiratory medicine (a consultant asthma physician, a consultant respiratory pharmacist and an advanced nurse practitioner) and two public partners, representatives from NHS England, the Health Innovation Network, Asthma and Lung UK, National Institute for Health and Care Excellence (NICE), Primary Care Respiratory Society, the Association of Respiratory Nurses, and Martin Allen, the national clinical director for respiratory medicine, all who were actively engaged with the programme throughout.

These eleven priority areas were the focus for delivery of the programme.

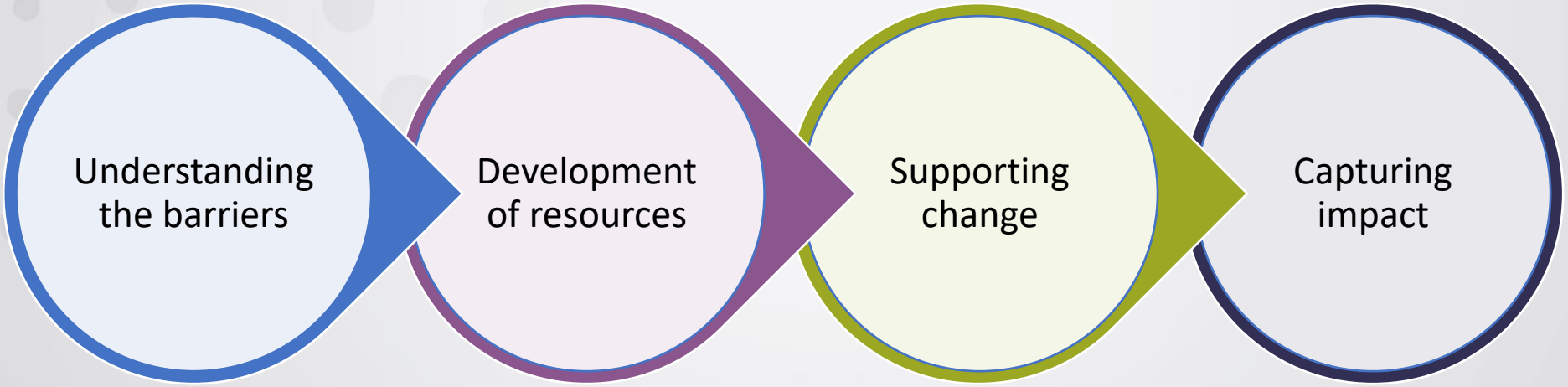
Priorities Areas		
Understanding the current picture and potential barriers to adoption	**1)**	Development of an adoption scoping report to investigate barriers in prescribing biologics
	2)	Modelling on variation in prescribing and referral practices across Trusts and regions as a tool to engage and discuss changes in practice
	3)	Attempt audit of wait times for initiating biologics
Early identification and Enhanced Roles	**4)**	Early identification and healthcare professional training Pharmacy enhanced roles
Pathway Improvement	**5)**	Development of a consensus pathway/algorithm
	6)	Grow home/self-administration
	7)	Grow home monitoring
Capturing great practice and looking at how we disseminate	**8)**	Partner with specialist centres, acute trusts and primary care (via Health Innovation Network) and gather best practice and utilise case studies
	9)	Develop Spread and Adoption Toolkit
Reimbursement and coding mechanisms	**10)**	Development of a code for severe asthma
	11)	Identify potential levers and incentives

3. Approach

3.1. The Approach - what's been delivered

To successfully deliver identified eleven priority areas of the programme, the Health Innovation Oxford & Thames Valley took an implementation science led approach to the adoption and transformation programme.

Key challenge of any pathway improvement project is fully understanding the barriers and challenges to improvement from different stakeholder perspectives, developing the resources to support the change and capturing the impact, all these became the **core part of the programme delivery**.



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3.2. What's been delivered – the "discovery work"

Priority Area Objective

Understanding the current picture and potential barriers to adoption

As part of the scoping work and to help identify solution to improve severe asthma cere and access to biologic therapies in England with a focus on reducing inequalities, the programme explored the barriers to the prescribing of asthma biologics and assess the variation in severe asthma pathways and practices across England.

An early focus of the programme was to deliver **three key pieces of "discovery" work to fully understand the barriers and challenges to improvement from different stakeholder perspectives**.

NICE Adoption Scoping Report[1]

- NICE-led
- Interviews with Expert Stakeholders
- Identifying key policy and delivery hurdles

HIN-led Benchmarking[2]

- HIN-led
- Interviews with representatives from 220 NHS organisations
- Looked at variation in practice, pathways and service-level barriers

Patient Journey time Audit[3]

- Asthma UK + Severe Asthma Centre-led
- 400 patient cases audited from 2019-2021 at all centres
- Audited key intervals to understand bottlenecks to access

Insight from each – was pivotal to shaping the focus, prioritization and scope of the wider programme

1. Asthma Biologics Adoption Barriers and Suggested Solutions. National Institute for Health and Care Excellence. 2021. https://www.healthinnovationoxford.org/wpcontent/uploads/2021/11/Asthma-Biologics-Adoption-Report-final.pdf
2. Understanding opportunities to improve Severe Asthma Care in England. Oxford Academic Health Science Network. 2022. https://www.healthinnovationoxford.org/wpcontent/uploads/2022/03/Severe-Asthma-Benchmarking-Summary-of-Findings-1.pdf
3. A review of the patient journey to biologic initiation in UK severe asthma centres, written by Lottie Renwick, Asthma UK and the British Lung Foundation, Dr Hitasha Rupani, University Hospital Southampton NHS Foundation Trust and Andrew Cumella, Asthma UK and the British Lung Foundation, December 2021.

3.2.1. Key findings – NICE Adoption Scoping Report

NICE Adoption Scoping report was published in April 2021. 27 semi-structured interviews with clinicians working in primary care, secondary care and in specialist asthma biologics prescribing teams in specialist centres were conducted. A number of barriers to prescribing were identified [1]. These are summarised in the themes below.

NICE Adoption Scoping Report

Primary Care

- Lack of awareness around severe asthma, treatment, management and referral criteria
- Large variation in appropriateness of referrals and adherence management

Secondary Care

- Lack of awareness of biologics in secondary care
- Delays around assessment and referral
- Variation around secondary care devolved biologic prescribing

Tertiary Care/ SA Networks

- Newly formed networks/systems are still in their infancy
- Patients who have not been worked up return to system
- Cross network MDTs can be a challenge
- Resource and staffing limiting capacity
- Capacity shifts with COVID and homecare services
- No severe asthma tariff

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1. Asthma Biologics Adoption Barriers and Suggested Solutions. National Institute for Health and Care Excellence. 2021. https://www.healthinnovationoxford.org/wp-content/uploads/2021/11/Asthma-Biologics-Adoption-Report-final.pdf

3.2.2. Key findings – National Benchmarking Exercise

A **National Benchmarking Exercise** took place in March 2022. The findings revealed that the **identification of potential severe asthma cases in primary care was variable** and, in most cases, only following patient's crisis (e.g. following an admission to hospital or an exacerbation requiring OCS)[1]. It also revealed that **over a third of GP practices in England reported not having a method to identify high-risk patients**, as shown in Figure 1. Responses were received from 63 GP practices [1].

National Benchmarking Exercise

Patient Identification

- Identification of people with difficult-to-control asthma in primary care varied. In most cases, it was reactive (e.g., after an exacerbation or at annual review) rather than proactively (using the patient's history as a guide to future risk)
- Referrals to specialist asthma services varied. Most originated from acute hospitals or from GPs located in close proximity to severe asthma centres
- Few primary care respondents had received formal education or training in severe asthma

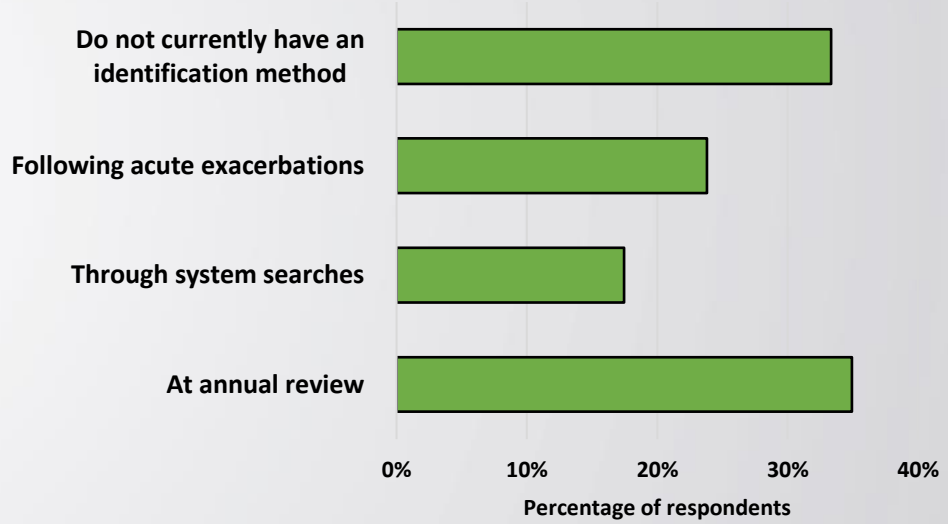
Resource

- Primary care teams report a lack of funding for clinicians support for people with asthma
- 25% of responding Acute Trusts did not have a dedicated asthma clinic. Trusts report a paucity of specialist nurse, pharmacist and consultant time and in some cases, a lack of physical space
- Despite adherence assessment and support being a key component of asthma care, over 30% of severe asthma centres (SACs) do not have a designated adherence lead

Capacity

- Two thirds of responding SACs reported capacity as the most significant service barrier in the context of improving access. This was reported as being limited by staffing levels (Pharmacists, Specialist Nurses and Medical staff), access to appropriate professionals (Physiotherapists and Psychologists) and in some case even clinic space
- Respondents from 9 SACs reported a lack of access to essential psychology support. This is a mandatory MDT provision

Figure 1. Variation in approaches used for identification of uncontrolled and potential severe asthma patients (n=63)



1. Understanding opportunities to improve Severe Asthma Care in England. Oxford Academic Health Science Network. 2022. https://www.healthinnovationoxford.org/wpcontent/uploads/2022/03/Severe-Asthma-Benchmarking-Summary-of-Findings-1.pdf

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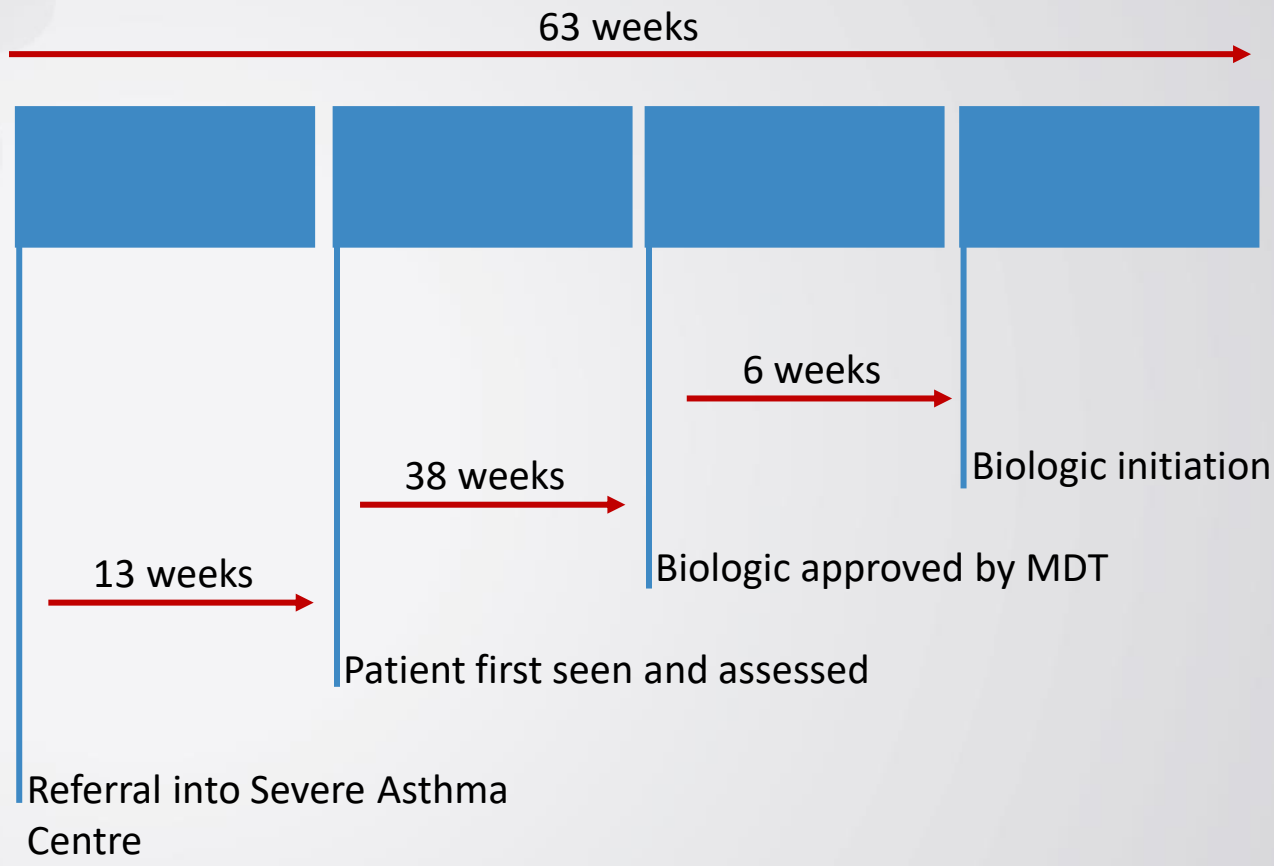
3.2.3. Key findings – Patient Journey Time Audit

Patient Journey Time Audit

In March 2022, the British Lung Foundation undertook a data collection exercise to better understand the patient journey to biologic initiation in UK severe asthma centres. This is a landmark piece of research which has not been conducted previously and it sets the foundations for the development of an asthma pathway that speeds up appropriate referrals and access to biologic treatments for severe asthma. Not unexpectantly, the audit found delays early in the pathway with **almost half of people (41%) living with uncontrolled asthma for three or more years before referral to a specialist**. It also found that **a third of people are waiting more than the national target of 18 weeks from referral to first review** at a severe asthma service and that two thirds wait over four weeks from biologic approval to initiation [1].

Journey time through a UK severe asthma centre



Data is from 17 centres and includes 422 patients; combined date for 2019-2020

1. A review of the patient journey to biologic initiation in UK severe asthma centres, written by Lottie Renwick, Asthma UK and the British Lung Foundation, Dr Hitasha Rupani, University Hospital Southampton NHS Foundation Trust and Andrew Cumella, Asthma UK and the British Lung Foundation, December 2021.

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3.3. What's been delivered – pathway centric approach

The key aspect of the approach to the Programme was to **focus on the pathway**, not the product. A pathway-centric approach was taken to develop Asthma Biologic Toolkit – a comprehensive suite of transformation resources, to help facilitate pathway improvement across England. These included: evaluation approach to mapping existing pathways, suite of educational resources, primary care case-finding tool and consensus pathway endorsed by key clinicians.

ASHN networks deployed resources across England, supporting pathway improvement and transformation, to accelerate patient access to asthma biologics

Developing a model consensus pathway for Severe Asthma

Establishing dashboards for measures of improvement

Creating clinical decision and support tools

Focussing in education and upskilling the clinical workforce

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3.4. What's been delivered - Pathway Transformation Fund

To help NHS organisations integrate the rapid uptake products into everyday practice the AAC and Office for Life Sciences (OLS) **funded 9 national Asthma Biologics projects through their Pathway Transformation Fund (PTF) at a value of £984,000.**

Between February and April 2021, the AAC ran a competitive process to award the PTF projects, with project teams across England required to submit a written application describing their ambitions and project which was formally assessed. The Health Innovation Oxford & Thames Valley subsequently participated in a series of workshops to help iterate and develop the award process further, learning from our experiences on the Asthma Biologics programme.

PTF site	Health Innovation Network (HIN)
Oxford University Hospitals NHS Foundation Trust (OUH)	Health Innovation Oxford & Thames Valley
University Hospital Southampton NHS Foundation Trust (UHS)	Health Innovation Wessex
Guy's and St Thomas' NHS Foundation Trust (GSTT)	Health Innovation Network South London
Guy's and St Thomas' NHS Foundation Trust (GSTT)	Health Innovation Network South London
Mid Yorkshire Hospitals NHS Trust (Mid York's Hospitals)	Health Innovation Yorkshire and Humber
University Hospitals of North Midlands NHS Trust (UHNM)	Health Innovation West Midlands
Nottingham University Hospitals NHS Trust (NUH)	Health Innovation East Midlands
Somerset NHS Foundation Trust (SFT) and Bristol Royal Hospital for Children (BRHC)	Health Innovation South West and West of England
Liverpool University Hospitals NHS Foundation Trust (LUH)	Health Innovation North West Coast

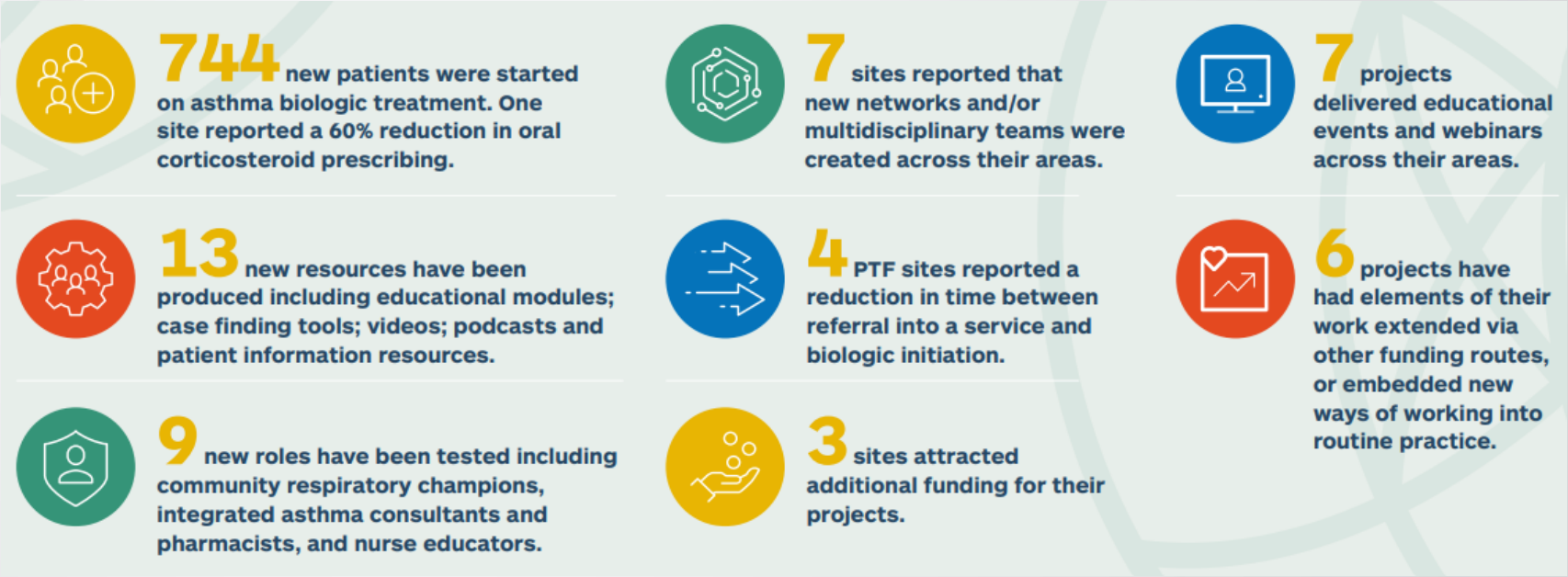
3.4.1. Pathway Transformation Fund – themes and impact

9 sites received AAC investment funding amounting to £984,000 to deliver and improve uptake of Asthma Biologics RUPs through helping providers overcome practical obstacles to introducing these products.

Themes include:

- ✓ support set-up costs such as training of staff
- ✓ pathway redesign and/or business support expertise
- ✓ providing funding for specialist nurses and clinical staff needed to implement a new part of the procedure
- ✓ covering double running costs
- ✓ address health inequalities
- ✓ support early identification in the primary care
- ✓ improve population health

Headline impacts:



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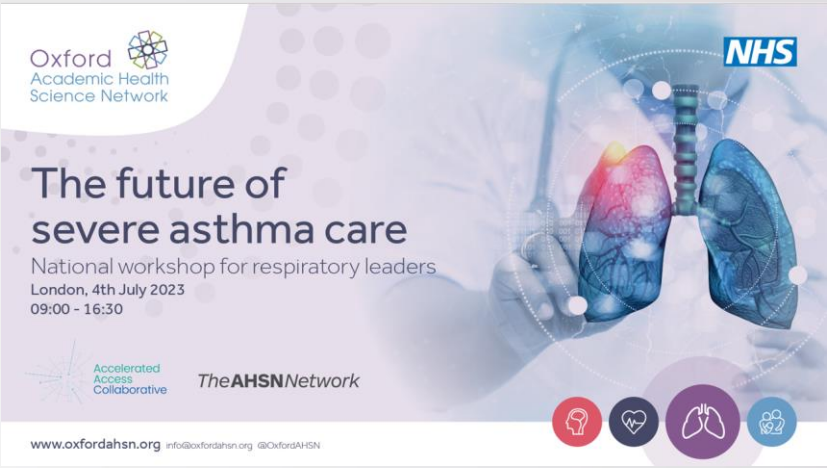
3.4.2. Pathway Transformation Fund – 'The Future of Severe Asthma Care' workshop



In July 2023 the Health Innovation Oxford & Thames Valley hosted '**The Future of Severe Asthma Care**' – a national workshop for respiratory leaders. More than 100 people from across primary, secondary, tertiary care, specialised commissioning, industry partners and innovators attended the event to share improvements in uncontrolled and severe asthma pathways and start planning the future of severe asthma care.

There were expert presentations from respiratory leaders at NHS England:

- **Dr Jonathan Fuld**, Interim National Clinical Director for Respiratory about the future of respiratory services
- **Sarah Elkin**, Lead for Respiratory Integrated Care about the role of integrated care in improving outcomes for patients with respiratory disease
- **Kathy Blacker**, National Specialised Commissioning Team, Lead Commissioner for Specialised Respiratory Services, about the future commissioning of severe asthma services – integrating with integrated care systems.

Frontline respiratory teams from across England highlighted success stories from the HINs' two-year asthma biologics programme which has improved care for more than 5,000 patients through enhanced access to diagnostics and innovative treatment. It was led by the Health Innovation Oxford & Thames Valley for the NHS Accelerated Access Collaborative.

The day concluded with highlights from the chair, **Dr Hitasha Rupani**, AAC Asthma Biologics Programme Clinical Champion, Consultant Respiratory Physician, University Hospital Southampton NHS Foundation Trust, about the Consensus Pathway – a pragmatic guide to help reduce variation and support services to redesign and expand.

The day told a great story about the tremendous achievements of the Pathway Transformation Fund projects. It also provided an excellent networking platform bringing together people enthusiastic about improving severe asthma care.

4. Core Delivery

4.1. Core delivery - tools and resources developed

Priority Area Objective

Develop Spread and Adoption Toolkit

Conducted **landmark pieces of "discovery" work** also **set the foundations for the delivery of the outputs of the key priority areas** of the Asthma Biologics programme. The development of **consensus pathway** and **a suite of resources for patients, clinicians and HIN leads** to help facilitate pathway improvements that speed up appropriate referrals and access to biologic treatments for severe asthma across England.

Asthma Biologic Toolkit – an extensive online deployment kit was created.

Purpose: One stop shop to enable and support implementation and embedding into everyday clinical practice. The toolkit was designed in a practical way to support teams adopting and sustaining the use of asthma biologics

Activity to deliver the priorities focused on developing:

- A **consensus pathway**
- **Tools for early identification** of patients (SPECTRA and oral corticosteroid metric for respiratory dashboard)
- **Spreading knowledge** (educational webinars, podcasts, e-learning modules and patient information leaflets)
- **Integrating the workforce** (an integrated model for the pharmacy workforce and an Asthma Structured Medication Review template)
- **Building capacity** (tools to increase homecare and to support home monitoring)

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4.1.1 Asthma Biologics Toolkit. Resources summary

SPECTRA Search

Is available here through this website. A Data Protection Impact Assessment DPIA Template is also available here.

ePACT2 Prednisolone Dashboard

Working with NHSBSA a prednisolone dashboard has been developed - accessible here

myAsthma Biologics App

Remote monitoring tool to support clinicians and patients

Consensus pathway

Guidance document supporting an end to end pathway for severe asthma care –accessible here

Case Studies

5 case studies around improving asthma pathways featured here on the toolkit

Homecare Dashboard

A tool to support specialists to maximise resource. Available via your local HIN leads through FutureNHS Collaboration Workspace.

Asthma Structured Medication Review Template

Clinical tool to support medication reviews with asthma patients – accessible here

Pathway improvement Resources

Pharmacy Enhanced Roles Toolkit

Which includes business case and job description templates. Will be available here once published

Uncontrolled Asthma Training Package

Focussing on upskilling primary care. Educational modules on uncontrolled asthma and adherence available here on the Asthma Biologics toolkit

Clinical Education Resources

HASTE Resources and Podcast

Selection of clinical education resources for primary and secondary care. Haste resources and podcast published here

Patient Resources

Supporting patients to understand and engage with their care. Can be accessed on the AAC website here.

Toolkit available at: https://www.healthinnovationoxford.org/our-work/respiratory/asthma-biologics-toolkit/

4.2. Core delivery - developing a consensus pathway for uncontrolled asthma

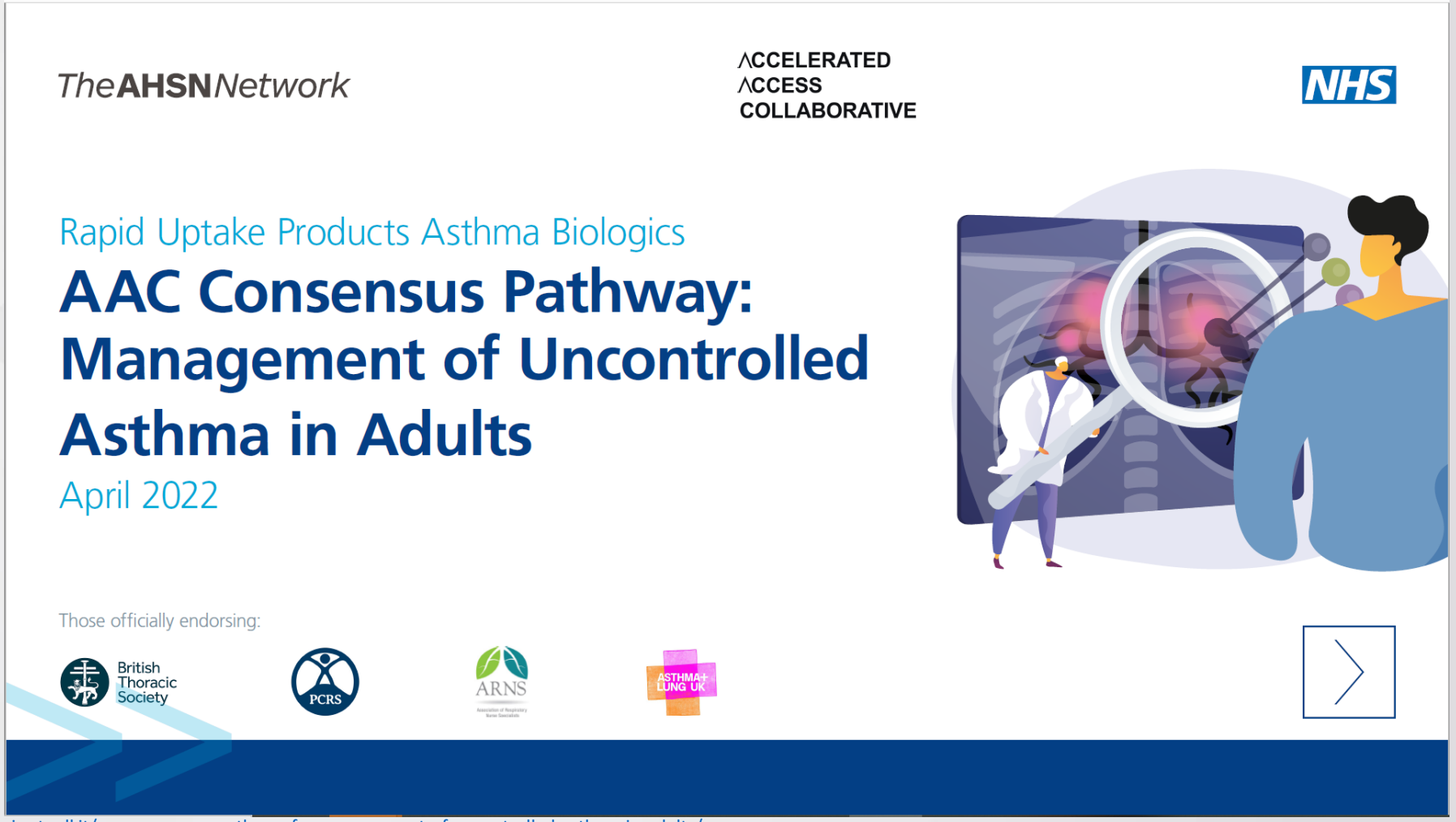
Priority Area Objective

Develop Consensus Pathway

- First of its kind pathway for clinicians, commissioners and everyone involved in asthma care
- Developed through collaborative partnerships with a huge range of stakeholder organisations

Earlier identification of uncontrolled and potentially severe asthma

Streamline patient journey to biologic (and other treatments)



https://www.healthinnovationoxford.org/our-work/respiratory/asthma-biologics-toolkit/aac-consensus-pathway-for-management-of-uncontrolled-asthma-in-adults/

4.2.1.Developing a consensus pathway for uncontrolled asthma

A key workstream of the Programme focused on the development of a “Consensus Pathway” for uncontrolled asthma.

The rationale for this was that Severe Asthma fell outside of NICE guidelines, and whilst there was guidance and service criteria for elements of the pathway (i.e primary care or tertiary care), there was no single guidance document that looked to bring together all parts of the pathway and offer guidance on acceptable timeframes at each stage.

The consensus pathway would act not as a formal set of guidelines, but as a tool to inform and raise awareness of consensus best practice and to start conversations locally and regionally about redefining asthma pathways with uncontrolled and severe asthma in mind.

Pragmatic guide

Shift away from reactive identification, to **proactive models**

Clearer guidance on when to refer to Secondary care/Severe Asthma Centre

Clarity on roles and responsibilities

Inform and raise awareness of **consensus best practice**

Provide **timeframes** to help guide best practice and **reduce variations** in care

For some patients this involves **earlier identification** of potentially severe asthma while for other patients **streamlined biologic initiation** will have the biggest impact on outcomes

Shape local discussions and redefine asthma pathways

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https://www.healthinnovationoxford.org/our-work/respiratory/asthma-biologics-toolkit/aac-consensus-pathway-for-management-of-uncontrolled-asthma-in-adults/

4.2.2. Developing a consensus pathway for uncontrolled asthma

Indicators of Uncontrolled asthma

1. Over previous 12 months (any of):
- ≥2 courses OCS for asthma
- ≥1 hospital admission/ED attendance for asthma
- ≥6 SABA prescribed
- Poor symptom control (as assessed by validated questionnaire)

2. On maintenance OCS for asthma

Primary care

- Identification of patients with uncontrolled asthma
  - Consider proactive identification using search tools e.g. SPECTRA or similar
- Diagnostic confirmation
- Clinical optimisation
  - Review and optimise inhaler technique and adherence
  - Review biomarkers: blood eosinophil count + FeNO
  - Step up treatment according to national guidelines
  - Consider other factors that may impact on symptoms including smoking, mental health disease, physical activity and social influences
  - Start to identify and manage co-morbidities including rhinitis and gastroeosophageal reflux disease

Recommended maximum time for attempting optimisation: 6 months
To refer patients by 6 months (or sooner) if remain uncontrolled

Secondary care

Patients to be reviewed and treatment initiated within 18 weeks of referral
- Diagnostic confirmation and pheynotyping
- Treatment optimisation
- Additional investigations as needed
- Identification and management of comorbidities
- Agreed referral pathway and diagnostics required pre-referral to SAC

3 levels of secondary care services for severe asthma patients based on resource, capability and local agreements:
- **Tier 1**: all patients referred to and managed by SAC
- **Tier 2**: patients referred to SAC; accept patients back after biologic initiation at SAC
- **Tier 3:** local initiation of biologics after approval by SAC MDT

Severe asthma centre

Patients to be reviewed within 8 weeks of referral
- Diagnostic confirmation and phenotyping
- Comorbidity management through MDT input
- Additional investigations as needed
- Adherence and Treatment optimisation

Severe asthma multi-disciplinary team meeting

Other treatments, research opportunities

Other specialist input: Psychology, Physiotherapy etc.

Initiation of biologic in Tier 3 sites — **4 weeks**

Initiation of biologic treatment in SAC — **4 weeks**

Home administration of biologic (within 6 months unless clinical contraindications)

Annual MDT to review ongoing biologic response

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https://www.healthinnovationoxford.org/our-work/respiratory/asthma-biologics-toolkit/aac-consensus-pathway-for-management-of-uncontrolled-asthma-in-adults/

4.3. Core delivery - early identification: SPECTRA Clinical Audit Tool

Priority Area Objective

Improve the early identification, optimisation and referral of uncontrolled asthma patients in primary care and in turn reduce reliance of asthma related OCS use and increase the number of eligible patients able to access biologic therapies

- **Collaborative working with Accelerated Access Collaborative, AstraZeneca and Oberoi**
- **Available for EMIS, SystmOne and Vision**
- **Search criteria aligned with future severe asthma pathway**
- **Includes clinical system alerts and referral templates**
- **Available for any site, PCN or CCG to download and use**

https://suspected-severe-asthma.co.uk/

SPECTRA GP Clinical System Resources

AstraZeneca have worked in collaboration with the **Accelerated Access Collaborative** for input into the development of **SPECTRA**.

Searches & Alerts*

* *EMIS, SystmOne & Vision*

Patients with:

- Serious exacerbations[6]
- 2 or more issues of systemic corticosteroids[6]
- 6 or more reliever inhalers in the last 12 months[7,8]
- Poor symptom control[6]

Referral Extract Template

A referral extract template to facilitate the automatic collection of data and medication as part of the referral process

Impact Reporting

Practice level and local health economy dashboards.

Downloadable baseline and follow-up PDF reports *(if required)* to measure continual review and impact of the service

4.3.1. Early identification - respiratory dashboard NHS BSA

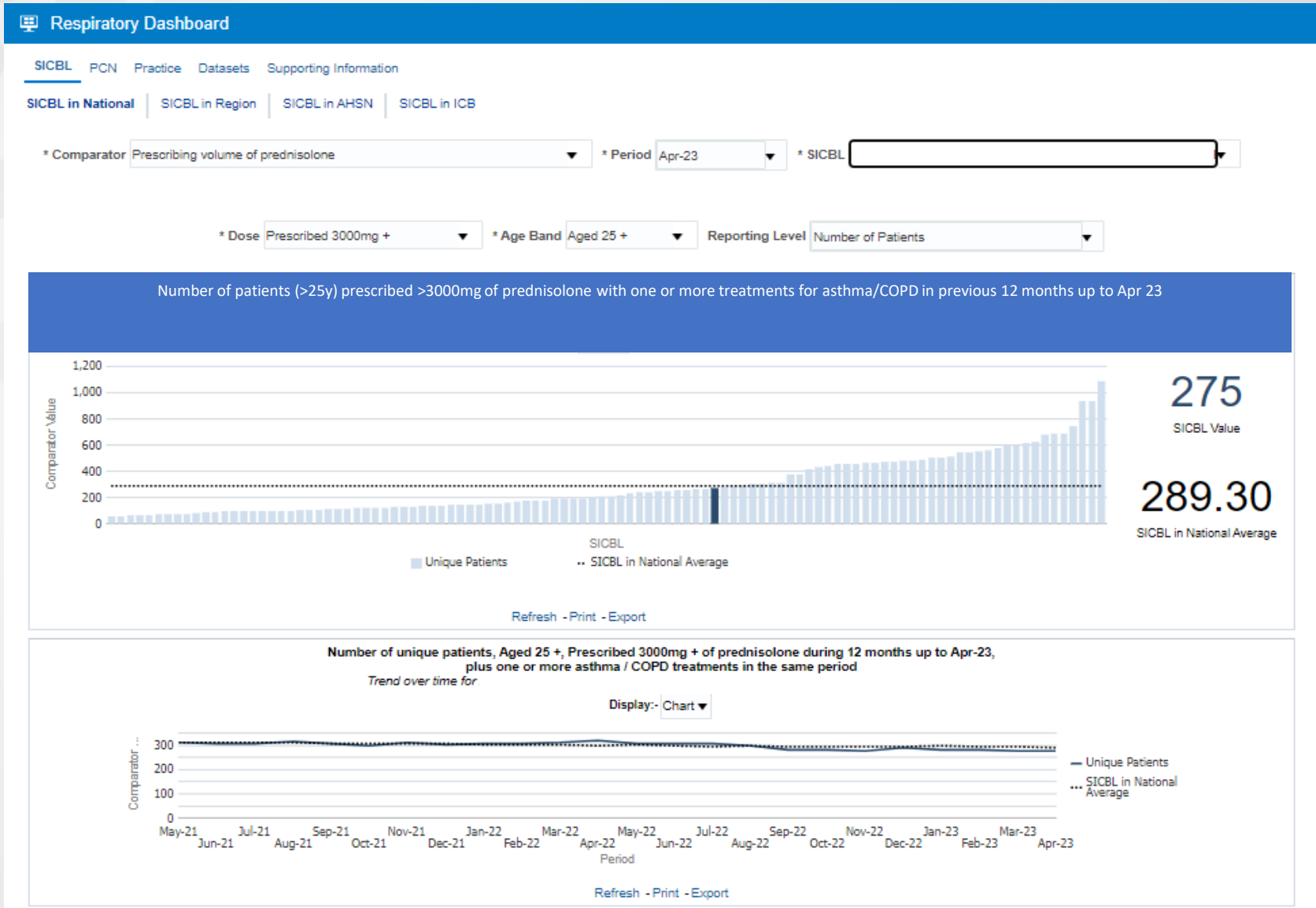
Collaborative working with the NHS Business Services Authority National prescribing database. Free to use for NHS organisations through ePACT2

Setup in part to assess impact of programme on OCS use in primary care

Cumulative prednisolone dose

Patients on inhaled steroids (but not LAMA) to try and capture patients with asthma (on 1g, 2g and 3g Prednisolone + an inhaler in last 12 months)

Results can be viewed by CCG, PCN and also practice level



https://www.nhsbsa.nhs.uk/access-our-data-products/catalyst

4.4. Core delivery - spreading knowledge: educational resources

In partnership with Cogora

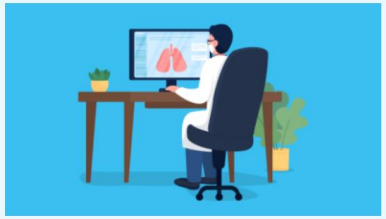
Priority Area Objective

Improve the early identification and healthcare professional training, optimisation and referral of uncontrolled asthma patients in primary care and in turn reduce reliance of asthma related OCS use and increase the number of eligible patients able to access biologic therapies

The programme developed a bundle of educational resources, funded by the NHS England AAC, to support primary care clinicians to identify uncontrolled asthma, non-adherence, take appropriate steps to optimise drug management and refer only the truly refractory cases. The educational package was a groundwork of Clinical Experts, AAC, Health Innovation Oxford & Thames Valley and Cogora. It was hosted and promoted on GP PULSE.

2 Learning modules:

Module on uncontrolled asthma



Module on treatment adherence

1. **Identifying and managing uncontrolled asthma**
- Early identification of uncontrolled asthma
- What do we mean by uncontrolled asthma
- What can be done for patients before referral
- Introduction into treatment escalation, inhaler technique and common comorbidities

2**. Management of non-adherence**
- Measuring adherence
- Evidence-based frameworks
- Personalising interventions and improving medication adherence

3 Live webinars:

Identifying and managing uncontrolled asthma

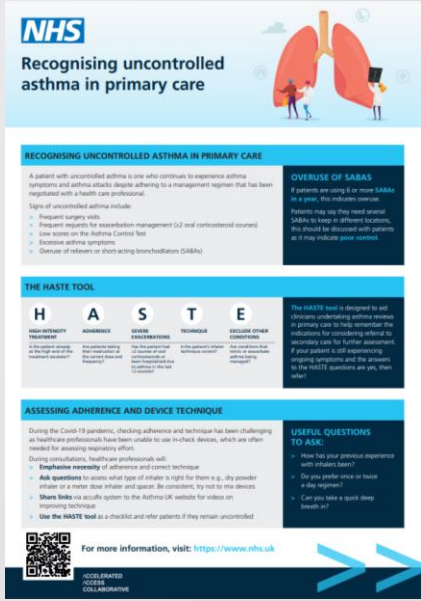
Improving adherence to asthma treatments

Consensus pathway for uncontrolled asthma

- Uncontrolled asthma
- Identification and managing barriers to asthma medication adherence
- Masterclass

2 Podcasts:

- Real world practice: practical tips for treating and understanding uncontrolled asthma
- The HASTE tool

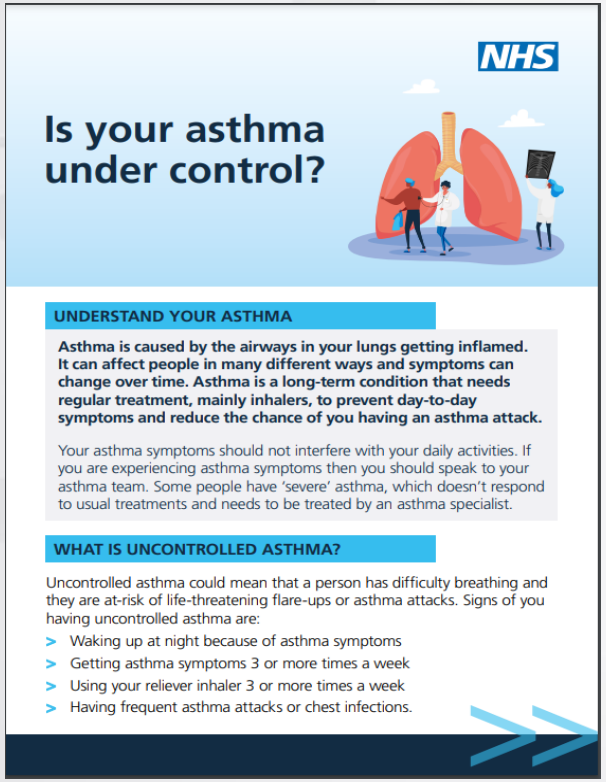


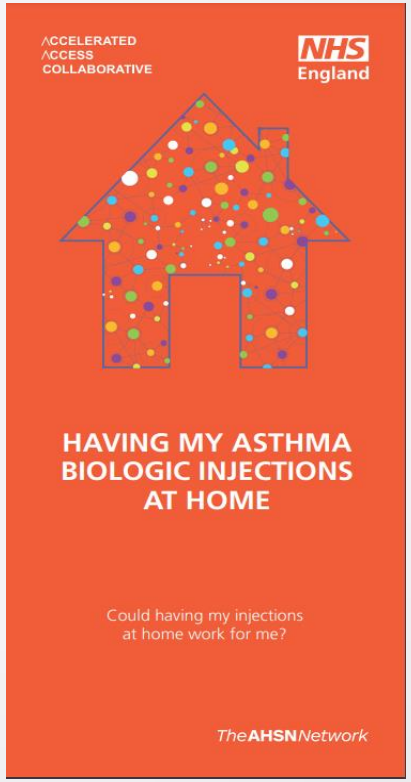
https://www.healthinnovationoxford.org/our-work/respiratory/asthma-biologics-toolkit/clinical-resources/educational-resources/

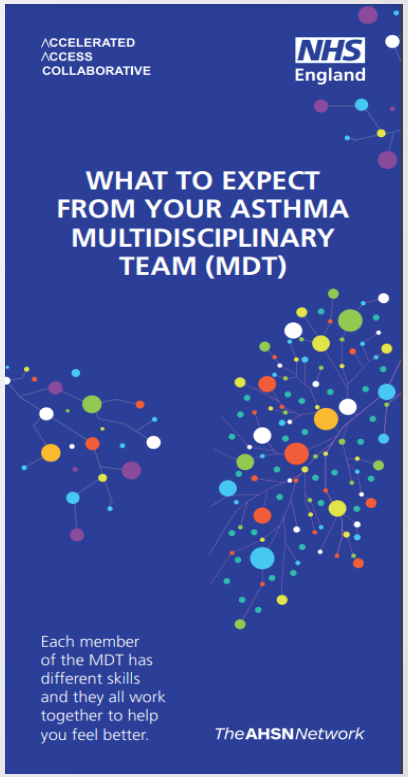
4.4.1. Spreading knowledge - patient information

A range of **patient educational resources** which support early identification, informed conversations and helping patients to get the most from their asthma medication were developed. These were co-produced with patients and clinical experts and available in:

- **7 languages**!
  - Polish
  - Panjabi
  - Urdu
  - Bengali
  - Gujarati
  - Arabic
  - Somali
- **Audio versions**
- **Hosted on the AAC website**
- **accuRx template links to the English version of leaflet**
  - Possibly to explore non-English accuRx versions too







https://www.healthinnovationoxford.org/our-work/respiratory/asthma-biologics-toolkit/patient-information/

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4.5. Core delivery - Integrating the workforce: developing the role of pharmacy

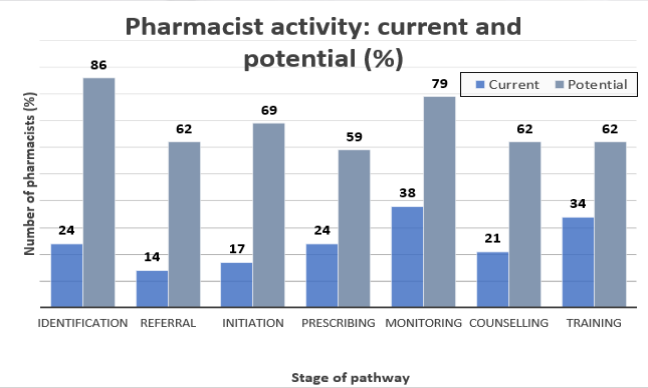
Priority Area Objective

Improve the early identification and pharmacy enhanced roles, optimisation and referral of uncontrolled asthma patients in primary care and in turn reduce reliance of asthma related OCS use and increase the number of eligible patients able to access biologic therapies

In October 2020, a survey was sent to pharmacists asking questions around current and future roles of pharmacists in supporting the severe asthma pathway. Pharmacists fed back that they could further contribute to the pathway by supporting identification and referral of at-risk patients, screening in-patients and establishing pharmacist-led clinics and training.
The role of the pharmacist survey results .

In March 2021, a **Pharmacy Clinical Sub-group**, comprising pharmacists from all sectors, was established. The sub-group has developed and presented a paper to the Working Group in June 2021 on the **Pharmacy Role in Supporting Medicines Optimisation in Respiratory Medicine** . This proposed a standardised integrated role for pharmacists where they lead on medicines optimisation and adherence for people with asthma. This was supported by the Working Group.
The work in this area has been published in the Pharmaceutical Journal: Improving the management of uncontrolled astham for Adults in England: where do pharmacists fit?

Pharmacy Survey

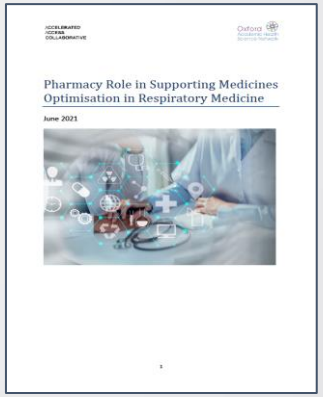


- Responses from 29 pharmacists
- Most current involvement in monitoring and training
- Potential to contribute more particularly supporting identification, monitoring and referral of patients

Pharmacy Clinical Subgroup

- Developed integrated model and resources
- Aim agreed: 'To foster an integrated role for the pharmacist where they lead on medicines optimisation and adherence support for people with asthma.'

Pharmacy Role in supporting Medicines Optimisation in Respiratory Medicine



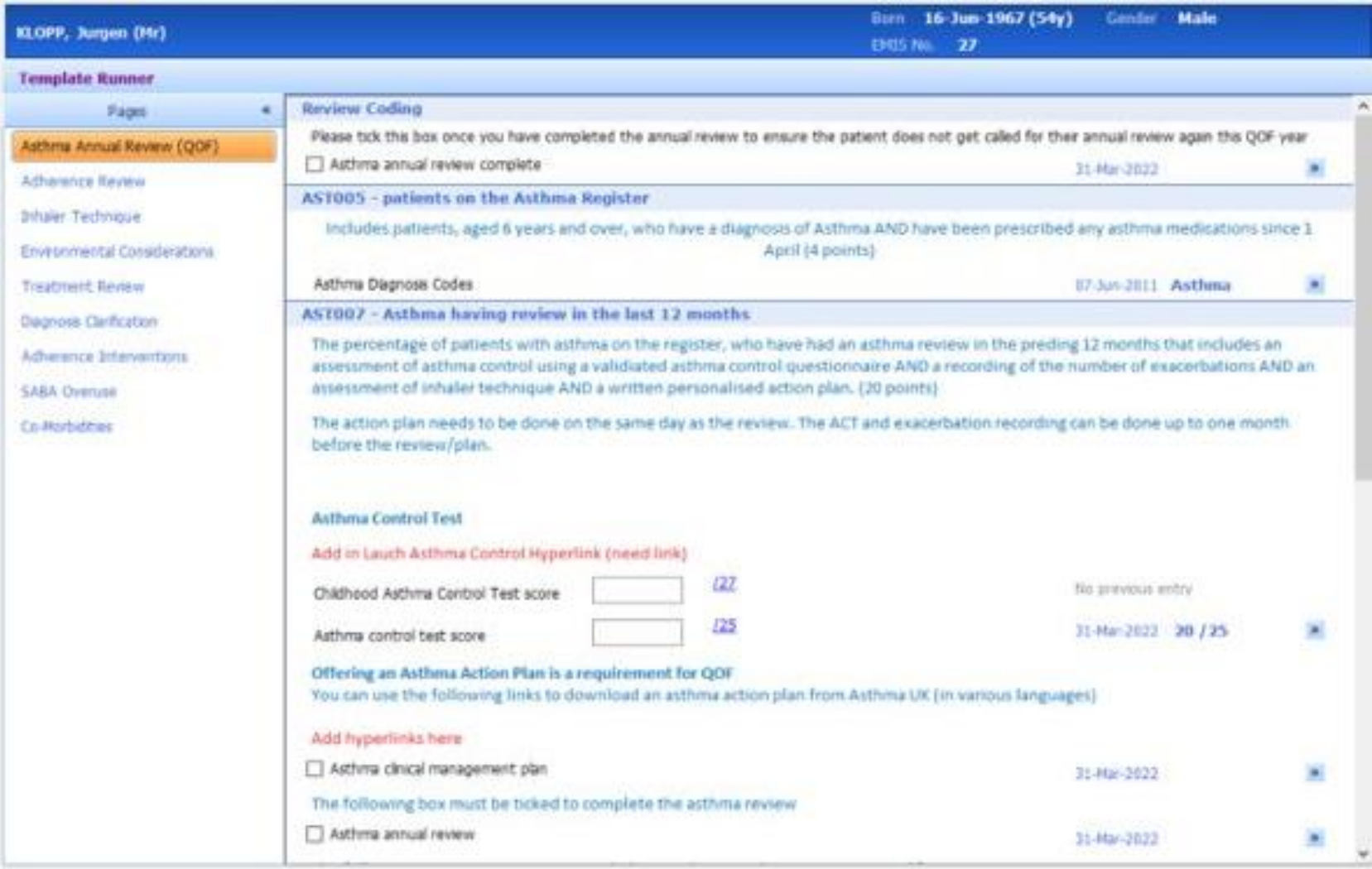
- National enablers for pharmacists to contribute to respiratory care
- Integrated care model to maximise clinical contribution pharmacists can make to asthma care
- Core elements to embed a system-wide adherence role for pharmacists

https://www.healthinnovationoxford.org/our-work/respiratory/asthma-biologics-toolkit/clinical-resources/pharmacy-enhanced-roles/

4.5.1. Integrating the workforce - asthma Structured Medication Review

The Health Innovation Oxford & Thames Valley and the Guy's and St Thomas' NHS Foundation Trust respiratory pharmacy team in collaboration with Oberoi have launched a new and evidence-based Asthma Structured Medication Review template for use with asthma patients. It can be imported free of charge into GP prescribing systems (EMISweb and SystmOne) to support standardised, high-quality care.

- Free to import into GP prescribing systems (EMIS and SystmOne)
- Includes use of Medicines Possession Ratio calculation and Test of Adherence to Inhalers (TAI) questionnaire to confirm inhaled corticosteroid adherence
- Supports minimising the environmental impact of inhalers by choosing the most appropriate device type
- With aligned educational module on medication adherence
- A short video was produced on how to use the Asthma Structured Medication Review template



4.6. Core delivery - building capacity: Asthma Biologics Homecare Medicines Dashboard

Priority Area Objective

Grow home/self-administration and grow home monitoring

Increasing the use of homecare services for asthma biologic treatment can increase the capacity for centres to see new patients and, improve patient access to treatment by reducing the need for patients to travel.

[An introduction to asthma biologics homecare](#) has been developed by the Health Innovation Oxford & Thames Valley.
To support centres and systems to understand variation in homecare utilisation for asthma biologics, a homecare dashboard has been developed. This was made available through local HIN leads.

AHSN: National

Trust

	National	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
	All Drugs Homecare %	50.6%	46.0%	53.2%	55.0%	48.8%	43.3%	52.5%	55.0%	57.1%	51.6%	54.0%	52.7%	56.3%	51.1%
	Mepolizumab & Benralizumab Homecare %	*64.5%*	*65.1%*	*69.1%*	*71.2%*	*63.3%*	*61.6%*	*69.1%*	*70.7%*	*72.1%*	*68.4%*	*69.4%*	*66.7%*	*70.5%*	*67.6%*
	*	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Homecare as proportion of all	***All Drugs***	***50.6%***	***46.0%***	***53.2%***	***55.0%***	***48.8%***	***43.3%***	***52.5%***	***55.0%***	***57.1%***	***51.6%***	***54.0%***	***52.7%***	***56.3%***	***51.1%***
	Mepolizumab	70.2%	74.5%	75.3%	78.0%	70.0%	68.5%	75.3%	78.0%	78.2%	74.5%	75.8%	72.3%	74.7%	74.1%
	Omalizumab	43.3%	36.0%	45.1%	44.8%	43.6%	35.8%	45.2%	47.0%	50.7%	43.3%	46.7%	47.0%	48.2%	43.4%
	Benralizumab	55.4%	47.8%	58.7%	59.6%	53.1%	0.0%	60.3%	58.2%	62.8%	58.2%	59.6%	58.4%	64.3%	56.7%
	Dupilumab	74.5%	66.7%	75.6%	82.0%	5.7%	0.0%	3.2%	20.6%	27.8%	38.3%	50.1%	50.1%	60.4%	53.5%

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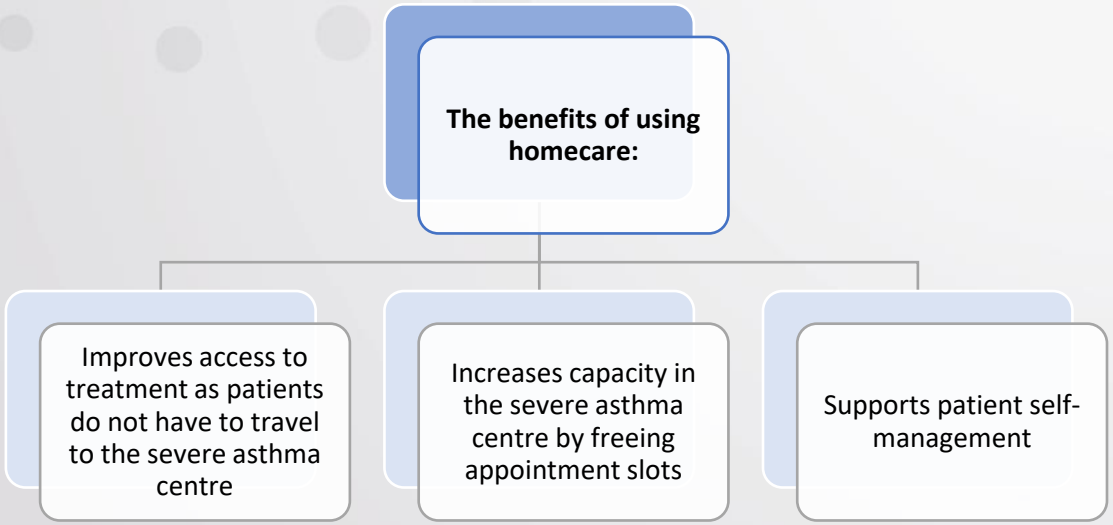
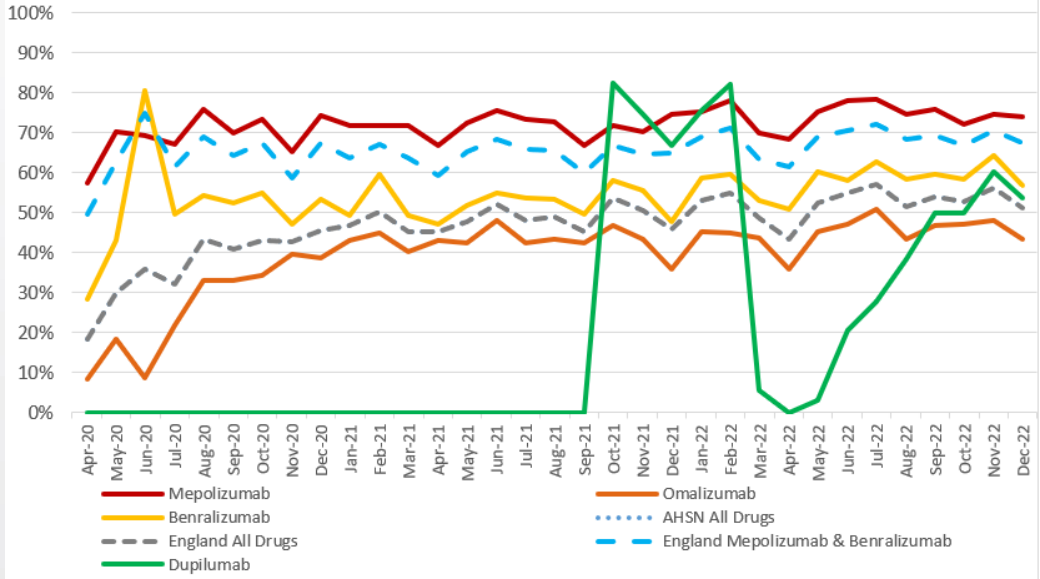




4.6.1. Building capacity - supporting the monitoring of patients on biologics (homecare)

The AAC, the Health Innovation Network and University Hospitals Southampton have worked in partnership with my mhealth to design an app to support the management of patients under the care of Severe Asthma Centres. Industry partners provided funding support for App development, site set up and use for 2-3 years (depending on when site is set up).

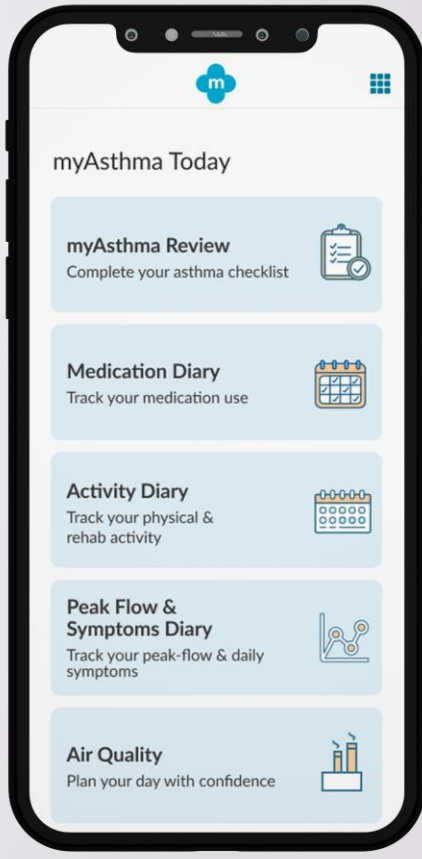
myAsthma Biologic was developed to facilitate standardised and timely collection of clinical data with automated entry into the national severe asthma registry and to assist patients in the management of their condition.

Monitoring of patients on homecare:

Previous pathway: patients would attend regularly for their biologic injection; clinical assessment of asthma control during visit

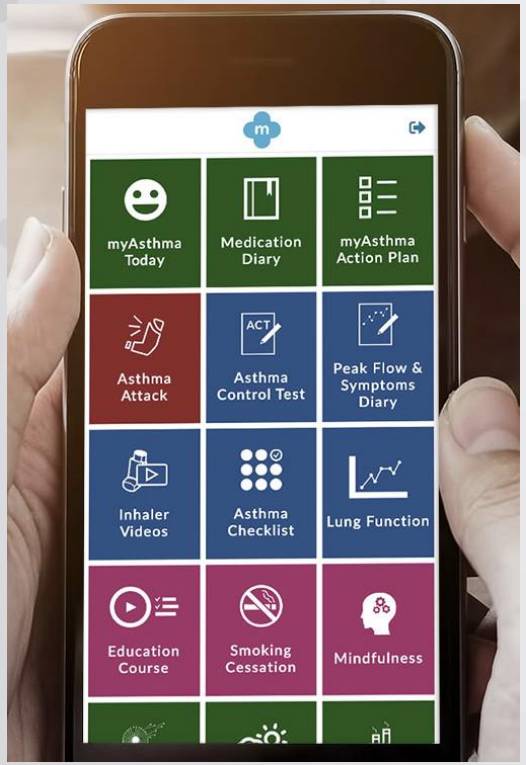
Current pathway:

- Patients self-inject at home
- Virtual consultations and PROs often sent in the post
- Considerable time spent contacting the patient to assess response at the end of 12 months with potential delays



4.6.2.Building capacity - supporting the monitoring of patients on biologics (homecare)

myAsthma Biologic: a digital solution to support patient monitoring



*All feeds into a clinician facing portal

Set up with patient at their first biologic appointment (or earlier)

Will collect monthly ACQ (digital format)

Mini-AQLQ, SAQ, EQ5D

Exacerbation diary

Steroid dose/weaning

At 12 months will collect all the data needed by the registry and auto-feed into the registry (baseline data also feeds into registry)

PDF generated for your electronic patient records

Collect and collate all the clinical data needed for MDTs to make timely decision on biologic use

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5. Impact

5.1. Headline impacts (April 2021-March 2023)

The ambition of the Asthma Biologics programme was to reduce inequalities and increase access to the biologic treatment for all eligible adult patients. To improve patient care and outcomes through earlier identification of uncontrolled and potentially severe asthma and streamlining patient journey to biologic treatments. Between March 2021 and March 2023, **4,695 new patients received life changing biologics**. As services were still recovering from the COVID-19 pandemic, with workforce shortages. Acceleration in prescribing rates might have been of greater magnitude without the workforce challenges that the pandemic posed.

The impacts that the programme supported is shown below:

Impacts observed since programme initiation

Biologics Access

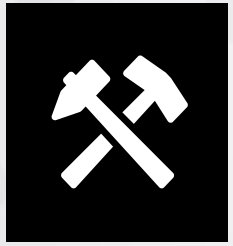
4,695 new patients now receiving life changing biologics

Homecare Prescribing

Increase in biologics prescribed for self-administration/ homecare

Toolkit Users

21,685 unique users for the Asthma Biologics toolkit



Oral Steroid Prescribing

3,195 Fewer patients being prescribed 3g or more of prednisolone each month

Engagement with Events

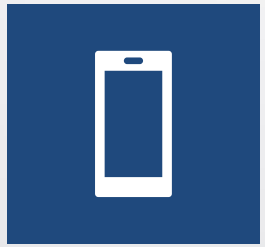
Over 1000 HCPs attending live webinars, 449 HCP completed e-modules and with many more accessing online

Primary Care Quality Improvement

497 practices using the SPECTRA clinical audit tools .

MyAsthmaBiologics App

6 Severe Asthma Centres implementing, with more adopters in preparation



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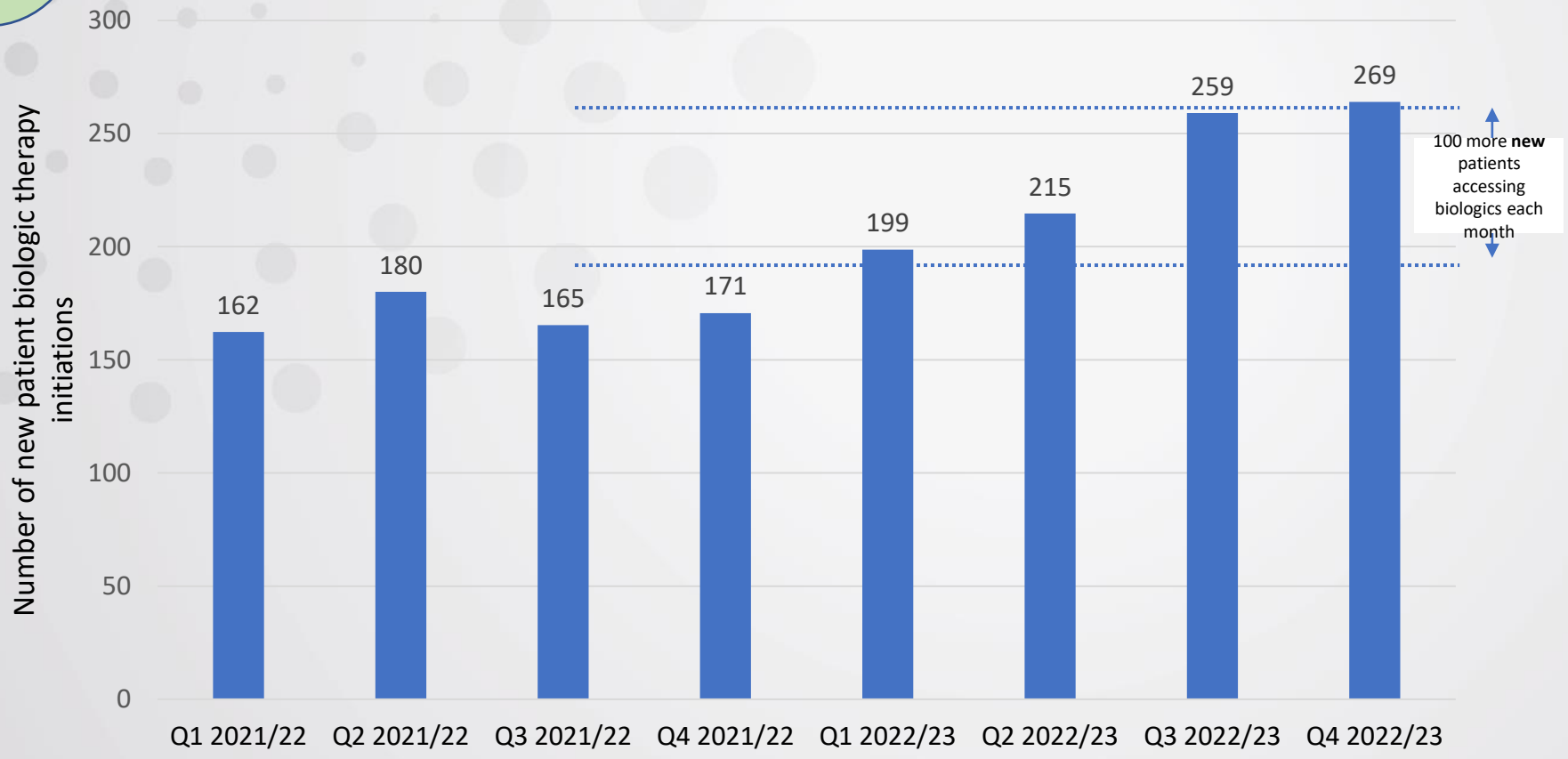
5.2. Impact on patients

The care of people with (severe) asthma had improved significantly through earlier identification, easier access to secondary and severe asthma care teams, faster access to biologics and potential for better asthma control. These achievement will need continued focus on sustaining improvements and facilitating expansion.

New Patient Initiations

4,695 new patients started on life-changing biologic therapy



4,695 more patients now receiving life changing biologics

Rate of increase in access has increased over the course of the AB programme

Now over 100 more new patients accessing biologics each month

Q4 2022/23 saw new record set in number of new initiations (269)

Important to continue to follow this trajectory – longer term benefits realisation

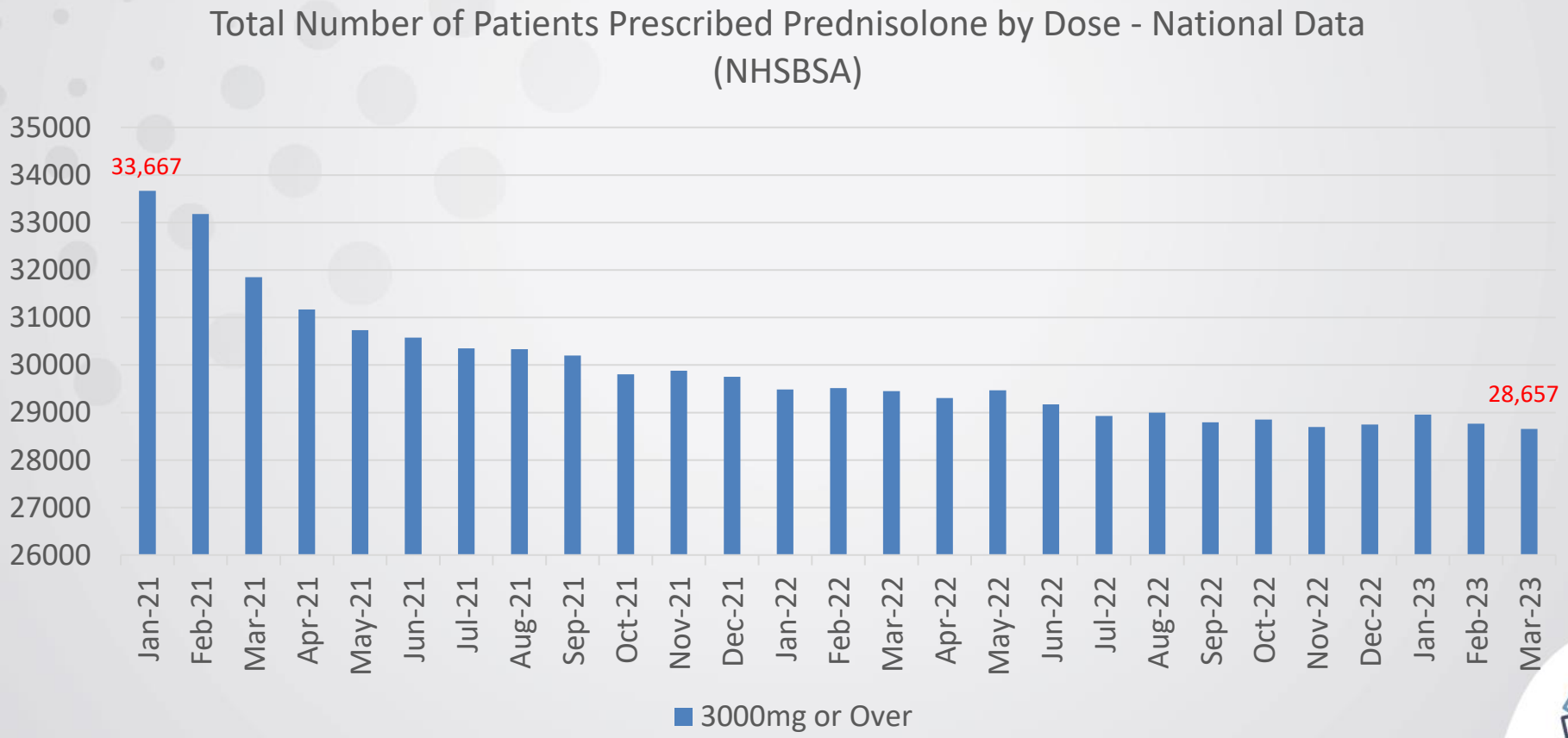
Data source: NHSE analysis of Blueteq new initiation data - April 2023 report

5.2.1. Impact on patients

Another ambition of the Asthma Biologic programme delivery was to improve patient care and delivering better outcomes through **reducing the number of patients on steroids** (and the associated side-effects).

Oral Steroid Prescribing

3,195 Fewer patients being prescribed 3g or more of prednisolone each month



Data source: NHSBSA Data – Prednisolone Respiratory Dashboard accessed August 2023

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5.3. Impact on patients and workforce: expected benefits of MyAsthma Biologic App supporting the monitoring of patients on biologics (homecare)

Accurate and timely availability of data

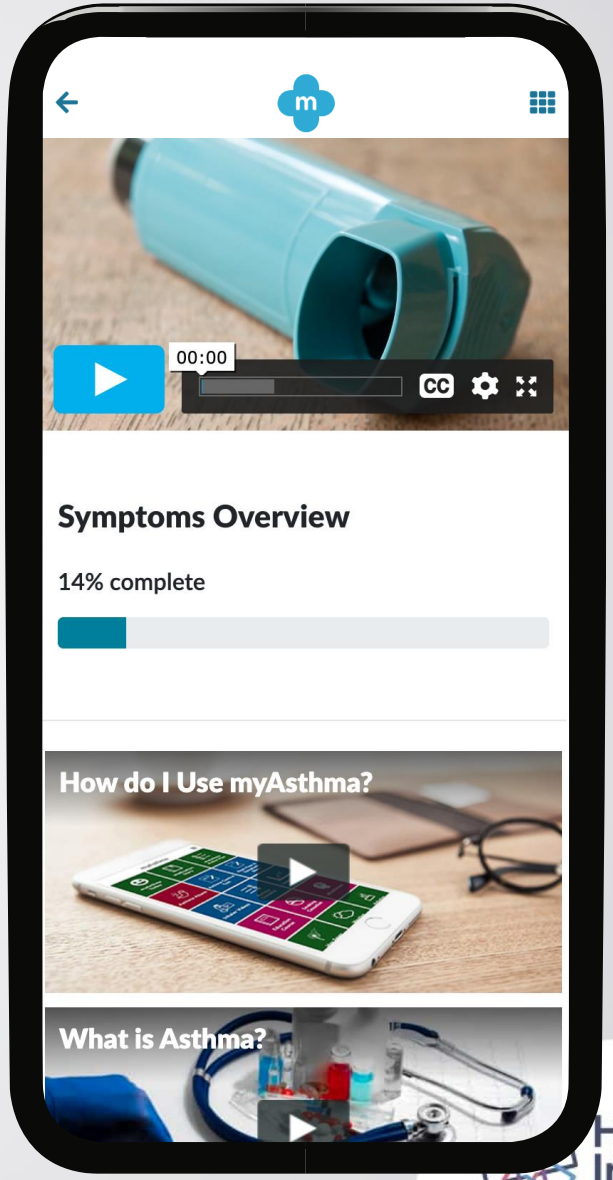
Time saving / capacity release for clinical teams

Expedited data entry and record creation for the UK severe asthma registry

Reduced waiting lists

Improved monitoring of patients on home care

Improved experience; patients and clinical staff



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5.4. Impact on workforce

The Asthma Biologic programme had **significantly impacted on the workforce** development opportunities across different systems of care through:

- **Supported early identification, treatment escalation and workforce** development in primary care through:
  - Enabled **449 HCPs access specific e-learning modules** and with many more continue to access online
  - Over **1000 HCPs attended live webinars**
  - Enabled **497 GP practices to access SPECTRA clinical audit and risk stratification tool**
  - Supported **reviewing patients** with uncontrolled asthma and aiding/knowing when to refer more confidently through **access to HASTE tool**
- Supported **increase in biologics prescribed** for self-administration/homecare
- Homecare has **freed up space and (some) staff capacity** by enabling 6 Severe Asthma Centres pilot sites adopt MyAsthma Biologic App, a remote monitoring platform with many patients using it
- The wider resources created by the programme have been integral with **21,685 unique users accessed the Asthma Biologics toolkit**

Feedback and testimonials received on e-learning modules:

98% said: The module has improved my understanding of uncontrolled asthma

96% said: I have learnt new ways to identify patients

96% said: I have learnt new ways to optimise treatment for uncontrolled asthma

97% said: I feel more confident now in managing patients with uncontrolled asthma

96% said: The module will change my clinical practice

97% said: I would recommend this module to colleagues

Excellent module. Many Thanks.

Very enlightening - I had not realised biologics were being used for asthma

Clear presentation, useful information appropriate for general practice.

Excellent input regarding how to target most at risk groups. Really found discussion interesting and informative.

Excellent module. It has helped me increase my knowledge about managing severe asthma and to learn about newer modalities of treatment.

Very extensive information. We need this kind of modules. Job well done.

6. Programme Learning

6.1. Key Learning - a detailed look...

Consolidate priorities	The programme originally had 11 priorities to be delivered in the two-year time frame; consolidating these into four main aim areas added focus for the working groups.
Sub metrics were important to track progress when improving complex pathways	Initial analysis uncovered the complexity of the pathway for patients to be identified as requiring asthma biologics. To ensure that the right patients were identified for asthma biologics, it was important to identify the number of patients with severe uncontrolled asthma. Having sub-metrics kept the momentum of the project going. We were able to see earlier signs of programme benefit as we tracked the number of people on oral corticosteroids reduced and the number of clinicians completing training sessions increased. These were very important metrics to measure progress and success. Prescribing of an asthma biologic occurred at the end of this long complex pathway. The beneficial impact on numbers of patients taking an asthma biologic (primary outcome metric), was seen at the end (and beyond) of the programme.
Scope data and access early on for priorities	Having access to baseline data for priority areas at the start of the programme, for instance, would have provided a more rapid starting position. For instance, it was difficult to find where and how to access data on homecare prescribing.
Inequalities data availability at the start of the programme	As this programme covered England, having information on where need for change was highest would have focused specific interventions to ensure this was factored in at an earlier stage.
Multi-disciplinary working contributed significantly	Having a committed engaged multi-disciplinary team is key. For this programme, clinical leadership coupled with an experienced deployment team formed the backbone for engagement and deployment. The recruited clinicians and programme team Health Innovation Oxford & Thames Valley (Programme Lead health innovation network), and NHS England, spent a considerable amount of time engaging peer clinicians, investing in national level conversations and supporting the Health Innovation Network to deliver change. NHS England, clinical champions, public partners, national organisations (NICE, Asthma & Lung UK) and industry were involved in the programme. This enabled opportunities for more holistic change to be made at various levels (Pharma sponsored SPECTRA, an early identification tool and myAsthma Biologic App were developed).
Flexibility is required to allow for additional unanticipated activity	As the programme progressed, the team learnt more about the required changes to pathway that needed addressing e.g., consensus on the clinical pathway. To develop this, additional resource should have been factored into the programme.
Collaborative administration supports delivery and communication	It was helpful to have administration at national and local levels through the HINs. This supported coordination of national meetings, programme communication and facilitated visibility to all parties.
Time saving linked programme management across two lead HINs	Two national respiratory programmes (Asthma Biologics and FeNO), were being delivered by the Health Innovation Network at the same time. Ensuring alignment of these programmes supported HIN leads with local delivery and messaging.
Health economics, evidenced justification	Health Economics was not included as a priority however, showing health economic benefits would have been a powerful way to show financial benefit. This would have supported continued prioritisation of severe asthma management on programme completion.

6.2. Programme Learning - summary

Theme	Key Learning Points (from programme delivery)
Delivery and impact	• Impact and speed of adoption can be accelerated through **structured collaboration** between commissions such as the AAC working with locally enabled adoption organisations such as HINs. • **National operational leadership and direction**, developed national infrastructure and support delivery of tools and resources. • **Priorities identified early and clearly defined** with a designated timeframe and ownership • Delivery through **a large-scale transformation programme**. Supported by dedicated and focused resource across all 15 HINs. • **Multi-organisational working** with NHS England, clinical champions, patient partners, national organisations (NICE, Asthma & Lung UK) and industry. • Implementation **science-based approach** to national project delivery (e.g., benchmarking study, PTF process, HIN level action/improvement plans). • Delivered as a respiratory programme **in partnership with the FeNO** testing AAC Rapid Uptake. Product which increased collective impact.
Critical success factors	• Understand how the **pathway** works and what changes are required for product placement • Effective clinical leadership. • Effective deployment and delivery Health Innovation Network leadership with engaged leads at every HIN owning and leading change. • **PTF funding** available for transformation around innovation. • Good **understanding of the current service provision and barriers for adoption.** • **Co-produce** guidance to support early identification, treatment escalation of uncontrolled patients and workforce development in primary care. • Clearly **defined accessible data.**
Factors that could have accelerated progress, were they in place at the time	• **All metrics and targets agreed at the start** of the programme • **Data to track metrics** available at the start of the programme. • Inclusion of severe asthma in the **Primary Care Quality and Outcomes Framework.** • **Consensus pathway** for severe asthma developed earlier.

6. Programme Legacy

7. Programme Legacy

The Asthma Biologics programme's greatest legacy is improving the lives of people with severe asthma.

The programme was just the **start of the journey to improve asthma pathways and integrate service delivery**. The **networks** created **will continue local improvements planning and delivery**.

Pathway transformation funding has acted as a catalyst for many areas to start on that journey. To continue that work and to enable sustainable continuation, **some of the projects have been able to attract additional funding** through the Innovation in Health Inequalities Programme, Pharmaceutical Industry or local level commissioning. **Other projects have embedded new ways of working** and new networks into routine working. Some of the **exemplar innovative projects have plans to publish the outcomes of their work to enable wider shared learning and potential spread and adoption**.

The **huge number of resources** developed by the programme will continue to be available to NHS.

This combined activity will leave a strong legacy of the programme.

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8. Acknowledgement

With thanks to National Working Group members

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