



Evaluated by
UCLPartners



Digital
Health
Passport



Presenting the Digital Health Passport for Asthma

Easier and smarter asthma
self-management for young people

TinyMedicalApps.

THE PICTURE OF ASTHMA IN THE UK TODAY

- **Asthma is the most common long term condition among children and young people, with 1.1 million children currently receiving asthma treatment.** It continues to be among the top 10 causes of emergency hospital admission for children and young people in the UK.
- **The UK has among the highest mortality rates in Europe for children and young people** with the underlying cause of asthma.
- **Emergency admissions, and deaths, related to asthma are largely preventable** with improved management and early intervention. The National Review of Asthma Deaths found that 46% of the children who died from asthma had received an inadequate standard of asthma care.
- **Emergency admissions for asthma are strongly associated with deprivation** despite the prevalence of asthma being evenly distributed. Children and young people living in deprived areas are more likely to be exposed to higher levels of tobacco smoke and environmental pollution, which may contribute to this.
- If emergency admission rates for all children and young people were at the levels experienced by the least deprived group, this **could save the NHS £8.5 million per year in England alone.**

Statistics from RCPCH - State of Child Health

<https://stateofchildhealth.rcpch.ac.uk/evidence/long-term-conditions/asthma/>

WHAT CAN HEALTH PROFESSIONALS DO ABOUT THIS?

- **All children should be provided with a personal asthma action plan**, to help them (and their families) better understand and manage their day-to-day asthma care, as well as what actions to take in an emergency.
- **Ensure that children have regular (at least annual) reviews** of their asthma care, including: inhaler technique; medications review; preventive advice on tobacco smoke (both active and passive); allergy review; and consideration for escalation of care and/or referral to secondary or tertiary services if required.
- **Provide children and young people with education and self-management tools**, particularly for school-aged children and young people transitioning into adult services.

INTRODUCTION TO THE DIGITAL HEALTH PASSPORT

The Digital Health Passport (DHP), developed by Tiny Medical Apps, is a digital self-management service provided to the NHS to make managing long-term conditions easier and smarter. The DHP for asthma is in use across ten Integrated Care Services, and is free to download nationally. The product is now being expanded to support young people with epilepsy and sickle cell disease.

The service comprises a patient facing app, on-boarding of target groups and an analytics dashboard.

The Digital Health Passport brings everything into one place that has an evidence base to support self-management. Support services from TMA increase adoption in higher risk demographic groups and provide dashboard oversight of engagement in deprived and target populations.

Key features



Health Coaching: A pathway through reputable resources, including videos, articles and quizzes from Asthma & Lung UK, Moving on Asthma, Beat Asthma and NHS.uk, improving skills, knowledge and confidence.



Symptom Tracking: Users can record their asthma symptoms and triggers, helping them to monitor and manage their condition and share diaries with clinicians.



Medication Reminders: The app sends reminders to users about their medication schedules to improve adherence.



Environmental Alerts: Provides local air quality alerts and other environmental triggers to help users avoid potential asthma triggers.



Home for Personalised Asthma Action Plans (PAAP): Allows users to upload and share their personalised action plans, making them accessible anytime.



User Engagement Strategies: Maximises the impact of nurse-led, social media and NHS communications strategies on patient onboarding and ongoing use.

Key facts

- **Co-designed with young people** living with asthma and **co-produced with the NHS**
- Informed by the **latest clinical guidelines** (NICE, BTS/SIGN, GINA)
- Delivers **14 behaviour change techniques** to improve patient activation (knowledge, skills and confidence to self-manage)
- Currently **live in 10 ICB regions**
- SBRI evaluation by UCLPartners showing **improved asthma control** and **return on investment of £9.28 for every £1 spent** over three years
- NHS England **DTAC approved** and **ORCHA approved (88%)**
- **NHS login is supported** in order to deliver medication reordering both for the user and their linked dependents

EVIDENCE-BASED EFFECTIVENESS

The Digital Health Passport features are evidence-based. Developed in line with best practices and recommendations from NICE, BTS/SIGN and GINA, the app incorporates 14 recognised behaviour-change techniques to maximise its effectiveness.

A Cochrane review 2022 reports that digital adherence interventions are likely to improve asthma control to a degree that is clinically significant.

Improving patient activation in people with long-term conditions through digital tools can reduce emergency admissions by up to 38% and GP appointments by 32% (Health Foundation, 2018).



Evaluation data from UCLPartners suggests significant positive impacts on Asthma Control Test scores (ACT) and patient activation.



The economic model predicts a return on investment of around £9.28 per £1 spent over three years.



Digital Health Passport - Final report August 2024

Executive summary of findings

Has DHP achieved its objectives in current form?

There is promising data on the impact of the DHP on Asthma Control Tests (ACT) and on patient activation. As well validated clinical and behavioural predictors of improved asthma outcomes in terms of reliever medication use, emergency care use and asthma exacerbations the fact that these have shifted significantly over a relatively short period of time (3 months) in those completing the surveys at both time points is a promising result. This promise of a positive change in terms of asthma control drives an economic forecast model from the NHS system perspective that is promising, on the assumption that the cost of asthma management decreases as level of asthma control increases. This model predicts a return on investment of around £9.28 per £1 spent over three years.

However, the predicted improvement in asthma exacerbations, reliever medication use and general quality of life is not evident in the DHP users included in the analysis at this time. Whether this is because it will take time for the predicted impact to manifest, or the means of data collection is not as robust, or objective, as it could be, is unclear but at this point of analysis the expected outcome changes predicted by the positive improvement seen in ACT results and patient activation cannot be seen in the data available.

In addition, the social media focused adoption strategies discussed in this report suggest the reach and uptake is in the intended target population; deprived, and ethnically diverse young people. Early data, with a relatively small sample size, demonstrates that the user base is skewed towards more deprived quintiles and that the social media adoption strategy was most successful in the 13-17 age group, as intended. Other adoption strategies were hard to quantify in terms of conversion to DHP uptake but are discussed in the context of reducing inequity and the clinician role in utilising the DHP with higher need patients.

Benefits summary



Patient activation as measured by the Partners In Health scale shows a statistically significant overall improvement and specific improvements in dimensions related to knowledge and skills which in turn has been shown to predict improvement in asthma outcomes such as admissions and exacerbations.

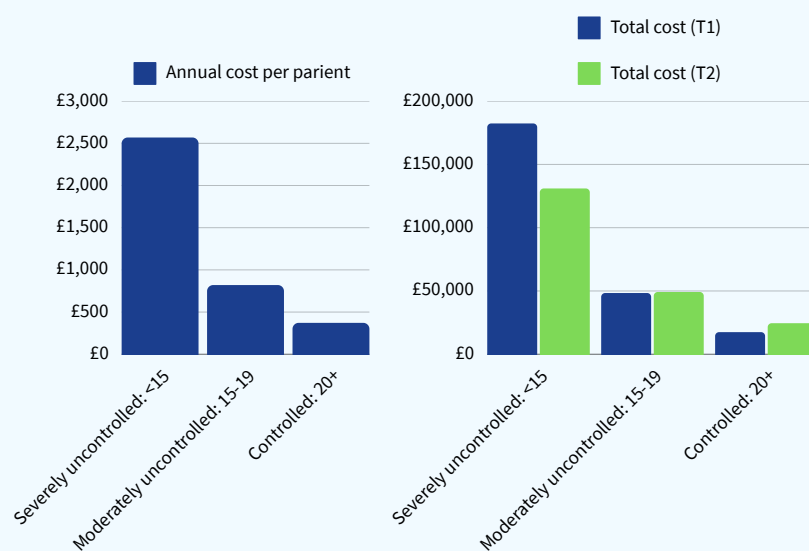


Results from the clinically validated Asthma Control Test taken by 12+ years olds shows a statistically significant improvement and, in the cohort with poorly controlled asthma at baseline, a positive change in line with the minimum clinically important difference. This also has been shown to predict improvement in asthma outcomes, including over reliance on reliever medication, admissions and exacerbations.



The improvements in the clinically validated Asthma Control Test enabled modelling of potential economic impact at NHS system level on the basis, evidenced in literature, that improved asthma control leads to lower asthma management costs, balanced against the implementation and maintenance costs of the DHP. Results were positive, suggesting an ROI of £9.28 for every £1 spent.

Estimated annualised costs for asthma management for 177 patients by ACT score (age 12+) as reported at baseline (T1) and after 3 months of DHP use (T2)



Total cost (T1) £248,211

Total cost (T2) £204,717

Saved £43,494

ADOPTION STRATEGIES – CASE STUDIES

Thanks to NHS England funding, the platform is now being rolled out across 10 ICB regions. Seven unique approaches to drive up engagement are being piloted amongst the Integrated Care Boards to evaluate the impact:



North East London



North East London

The North East London (NEL) Integrated Care System is promoting the DHP through Asthma Practitioners who participate in community events and educational sessions. They utilise promotional materials, including stickers and flyers with QR codes, to raise awareness.

NEL focuses on addressing health inequalities, enhancing prevention, and providing personalised care while engaging local communities. Key priorities include improving quality and outcomes for children and those with long-term conditions like asthma.

To support these initiatives, NEL emphasises the need for improved physical and digital infrastructure.

Sara Nelson, Joint Head of Children and Young People's Transformation Programme for London said: *“Many people will be sick of me saying that a third of our population are children and young people, but they are 100% of our future. And so if we invest some time, money and energy into making their lives the best that they can be, that will help us get a long way to preventing some of the long term conditions in the future.”*



South East London



South East London

South East London ICS launched the DHP on #WorldAsthmaDay 2023. **The Children and Young People Transformation Programme Director at NHS South East London said:** *“It has been used to support children and young people with Asthma in South East London, to help us meet NHS England Asthma Bundle of Care requirements and also to address health inequalities as set out in the Core20PLUS5 where asthma is a priority area.”*

The SEL vision included improving outcomes in population health and healthcare, tackling inequalities in outcomes, experience and access. Their strategic priorities covered the areas of prevention and wellbeing, children and young people's mental health and primary care and people with long-term conditions.



Greater Manchester



Greater Manchester

Asthma currently affects approximately 200,000 people across Greater Manchester. The ICB has been implementing the DHP across the region, with **Asthma Nurses and Asthma Friendly Schools**. GM's vision, which includes the principles of "Everyone has an opportunity to live a good life," "Everyone has improved health and wellbeing," and "Everyone experiences high quality care and support where and when they need it," is at the heart of these efforts.

GM aims to achieve this vision by ensuring children and young people have a good start in life, playing a full part in **tackling poverty and long-standing inequalities**, helping individuals, families and communities feel more confident in managing their own health, and utilising technology and innovation to improve care for all.

The DHP has been integrated into asthma resources and toolkits within schools to increase adoption and spread awareness. Promotional materials, including QR codes, have been strategically placed in high-traffic locations such as waiting rooms, libraries and health clinics to further disseminate information within the community.



Cheshire & Merseyside



Cheshire and Merseyside

The ICB are focused on tackling health inequalities by strengthening the role and impact of ill-health prevention. They prioritise prevention of ill-health **and aim to improve quality of life by delivering the Core20plus5 clinical priorities for adults and children and young people**.

The ICS in Cheshire and Merseyside have implemented a **DHP strategy in local GP clinics and pharmacies**. They are using flyers, posters with QR codes and an animated video shown on waiting room TV screens to educate patients about DHP while they wait for their appointments.

The initiative aims to improve patient education and engagement with digital health resources. Initial feedback suggests increased patient awareness and understanding of these resources, showing potential for better health literacy and informed decision-making.



One of the main priorities for this ICB is to reduce ill-health and tackle inequalities across mental and physical health for people of all ages by understanding the cause of these disparities.

To achieve this, they are building on the resources and strengths of specific communities to help residents access the services and support they need, fostering strong and resilient communities.

The ICB Associate Director for children and young people, said: *“Having this sort of information at a touch of a button will be a big bonus, especially as it will allow young people to self-manage their asthma and get the right help at the right time. It will also mean less time being spent at A&E as you will be able to avoid your triggers through the alerts from the app.”*

Lancashire & South Cumbria have also been pushing the Digital Tools for Asthma CPD accredited course (by Tiny Medical Apps and Rotherham Respiratory) to Asthma Practitioners in the area. This has resulted in an increase of DHP users as Practitioners are being made aware of the benefits of the DHP for their patients.



The ICS' ambition is for everyone in their population to live longer, healthier lives, achieved through a greater emphasis on self-help, prevention and population health management.

This ICS has rolled out the DHP within its region by advocating the app within pharmacy environments. To kickstart this initiative, they launched a pilot programme in conjunction with 40 pharmacies in their area providing QR code stickers on prescription bags for those picking up their asthma medication, accompanied by informational flyers.

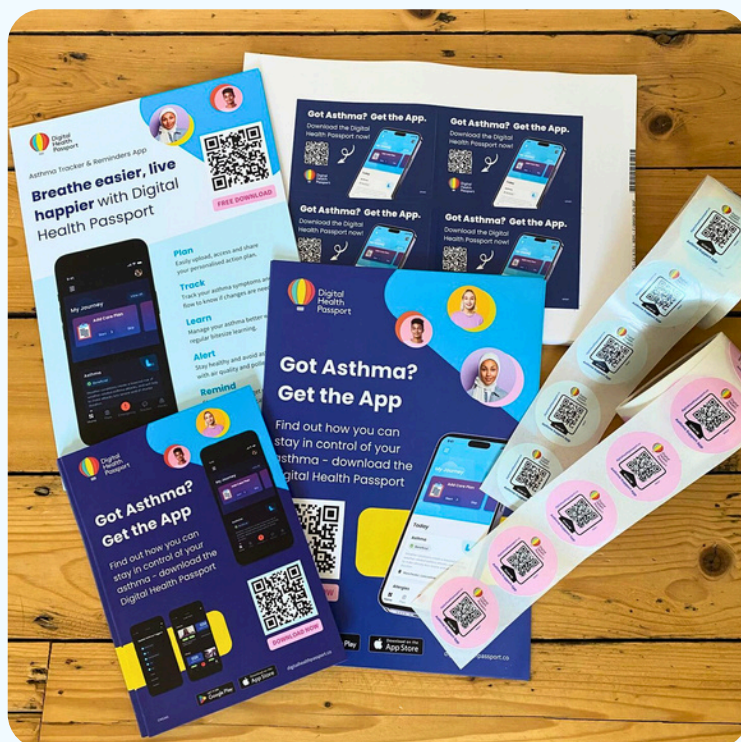
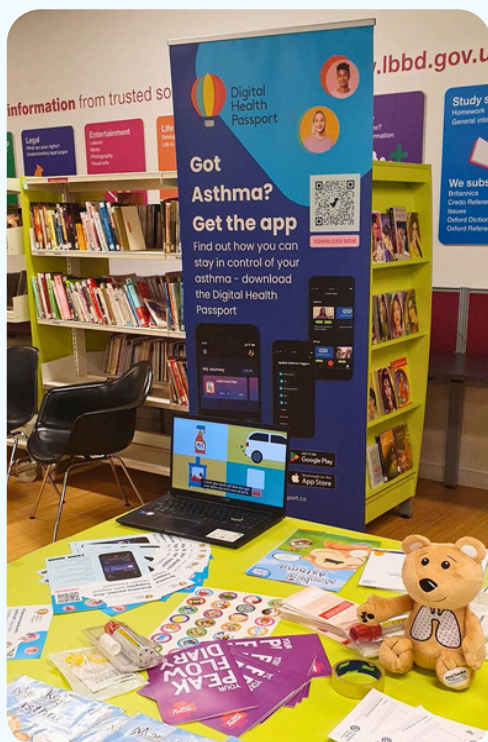
Lead Nurse for CYP Asthma and Keira Norwood, Specialist Asthma Nurse for Children and Young People for Humber and North Yorkshire ICB, express their enthusiasm for this initiative. They stated, *“We’re genuinely thrilled to embark on this innovative journey of promoting the Digital Health Passport in Humber and North Yorkshire, particularly taking the approach of pushing the message within pharmacy settings. It offers us a unique opportunity to connect with underserved communities more effectively, reaching individuals during their everyday routines, such as picking up their prescriptions.”*



The Cambridgeshire & Peterborough ICS strategy outlines plans to enhance community health and wellbeing with a strong focus on prevention.

With their pilot programme on Paediatrics, the ICS introduced the DHP within its region by directing their promotional endeavors towards schools and young people. They've engaged Asthma Practitioners to conduct educational sessions in classrooms, ensuring that both students and parents receive crucial information. The campaign also includes distributing posters and leaflets with a QR code for easy app access. The goal is to enhance young people's understanding of asthma and equip them with valuable insights for their own benefit and that of their parents or caregivers.

Senior Practitioner for Community Asthma Team in Cambridgeshire and Peterborough, stated: *"I am genuinely excited about the possibilities that the Digital Health Passport holds, especially in the context of our efforts to integrate it within school settings. The app has the potential to transform how we support young individuals and their caregivers in effectively managing asthma. It represents a new avenue for self-care and education, perfectly complementing our commitment to delivering enhanced care for our young patients. By pushing its adoption within schools, we can empower young students with crucial asthma information, ensuring they have the knowledge needed to manage their condition optimally, both at school and at home."*





The ICS Strategy summarises their intent to taking action in their ICS at every opportunity to reduce health inequalities for children and young people in asthma.

This ICS rolled out the DHP in their region and focused their engagement and promotional efforts within the Acute hospital environments. This involved placing pull-up banners, and posters in strategic waiting areas, particularly near clinic rooms. Each material used had a visible QR code to make it easy for individuals to download the app.

The Transformation Project Manager for Children & Young People at Suffolk and North East Essex ICB, stated: *“I’m thrilled to witness the potential of the Digital Health Passport. This digital health tool has the capacity to revolutionise how we empower young individuals and their caregivers in managing their asthma. It presents a fresh approach to self-care and education, aligning seamlessly with our dedication to providing better care to our young patients.”*



The ICS has strategically prioritised the co-production of community, digital and education-based initiatives to enhance resilience among children and young people.

The strategic approach also involves leveraging digital technology and workforce innovation to promote a preventative approach to personalised care across the entire ICS, encouraging individuals to take greater ownership of their health and wellbeing.

This ICS rolled out the DHP in their region and focused their engagement and promotional efforts within their Community and Secondary Care environments. This involved placing pull-up banners, posters and flyers in key patient waiting areas. Each material used had a visible QR code to make it easy for individuals to download the app. Flyers are also handed to patients as they are seen by a healthcare professional.

The CYP Strategic Improvement Lead and the Asthma Clinical Lead for Staffordshire and Stoke-on-Trent ICB, expressed their enthusiasm, saying: *“We are thrilled to see the potential of the Digital Health Passport. This innovative tool has the power to transform how we empower young individuals and their caregivers in managing their asthma. It offers a new horizon of self-management and education, aligning perfectly with our commitment to delivering the highest quality care to our young patients.”*



The ICS places significant emphasis on children and young people, with a particular focus on addressing broader factors influencing health, especially among children with asthma. **Digital technology forms a crucial component of their strategy**, with a specific focus on maximising innovation and digital opportunities to improve healthcare outcomes.

Shropshire, Telford & Wrekin's ICS are actively implementing various DHP strategies in the region. Alongside traditional methods like flyers and posters, they've introduced QR code stickers on pharmacy bags, allowing asthma patients to access the app easily. **This innovative approach has placed them among the top two regions for app downloads and patient activation.** Additionally, the ICS organises local webinars for healthcare professionals, raising awareness about DHP. Moreover, they have made DHP a standing item on the agenda of their monthly Practice Managers network meeting, aiming to increase awareness and onboard practice staff. This multifaceted approach demonstrates their commitment to widespread adoption of digital health resources in the region.

IMPROVING STAFF CONFIDENCE IN DIGITAL SELF-MANAGEMENT TOOLS

It's not just doctors and nurses who see people with asthma, or who need to be up to date with the latest evidence and digital technologies. Pharmacists, paramedics, school nurses, teachers and community volunteers are all supporting young people with asthma on a daily basis and looking for trusted information and tools to help. The Digital Health Passport team has commissioned a new training course from one of the UK's leading online health educators, Rotherham Respiratory, aimed at addressing the need to improve confidence in understanding and recommending digital health tools for asthma, such as the Digital Health Passport.

The course covers:

- Key elements asthma self-management
- Digital tools to support self-management
- Digital Health Passport - benefits to people with asthma and their carers

One hour CPD credit is given for completing the course

DELIVERING ON NATIONAL PRIORITIES



Digital Health Passport Asthma Programme in accordance with the National Bundle of Care for CYP with Asthma

Mirroring the directives of the National Bundle of Care for Children and Young People (CYP) with Asthma, our Digital Health Passport (DHP) Asthma Programme addresses several key requirements effectively.

Health education and skills training delivered from reputable sources such as Asthma UK, Beat Asthma, Anaphylaxis Campaign and NHS.uk: This feature, addressing EPM 9, encourages the education of parents, children, and related caregivers regarding asthma management. Moreover, it supports EAD 4, focusing on improving an understanding of asthma and its potential severity. By providing access to trustworthy information sources, it uplifts patients' knowledge levels.

Digitised Personal Asthma Action Plan: The DHP App encourages patient self-management, showcasing its concordance with EPM 7. The digital action plan, shareable and accessible, enhances the asthma control efforts.

Symptom and peak flow monitoring: This tool develops individuals' self-awareness about their symptoms and peak flows, crucial for alertness and informing proactive actions to manage the condition better.

Air Quality notifications: This feature aligns with EI 2, providing users with air quality updates, thereby assisting them in managing their asthma in direct response to the environment.

Support: Incorporation of national support links and the inclusion of ICS content are in line with EI 3 and EPM 9. These connections provide patients with necessary support and resources.



Digital Health Passport Asthma in alignment with Core20PLUS5

The DHP Asthma programme effectively addresses the objectives outlined within the Core20PLUS5 approach, tailor-made for children and young people with asthma:

Tackling over-reliance on reliever medications: Utilising tools and resources provided by our programme, individuals can mitigate their dependability on reliever medication. This aim is accomplished through personalised asthma action plans, addressing asthma symptom management, the correct use of preventative medication, and trigger identification. Alongside, medication reminders within the app support consistent intake of preventative medications, reducing the necessity of frequent reliever usage.

Minimising the number of asthma attacks: The DHP equips users with an ability to identify and manage potential asthma triggers, thereby minimising asthma attacks. Symptom tracking features enable users to monitor their health effectively and log potential triggers. Further, app-provided pollution alerts and educational resources on asthma triggers and preventative steps enhance users' capability to make informed decisions and reduce asthma attack occurrences.



Digital Health Passport Asthma in alignment with the NHS Long Term Plan

The Digital Health Passport Asthma Programme facilitates individuals' control over their asthma, aligning with the central elements of the NHS Long Term Plan, specifically point 1.38. By delivering personalised educational resources, action plans, symptom tracking and medication reminders, our programme enables users to manage their health conditions proactively.

Integration of medication reminders and valuable educational resources concerning medication usage within the Digital Health Passport app, in combination with our supported communications programme, fosters effective collaboration between users and pharmacists within primary care networks. This collaborative effort, reflecting NHS Long Term Plan 3.86, encourages the correct use of medications, enhances health outcomes, and minimises the risk of exacerbations.

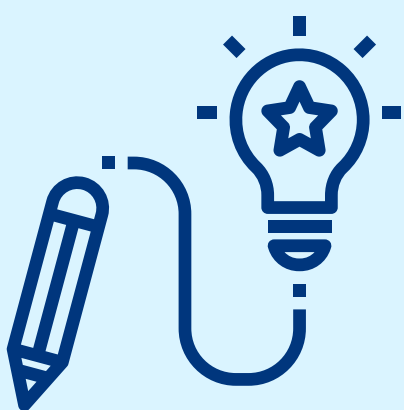
Moreover, the Digital Health Passport Asthma Programme forms a substantial foundation to achieve the objectives encapsulated in point 3.45. By providing a platform for bespoke quality improvement projects through a reporting dashboard and NHS Login, it promises an improved care quality for children and young people with asthma.

CO-DESIGN

The DHP has been co-designed and developed iteratively with young people, carers, school nurses and asthma specialists over a seven year period. New features and refinements are made to the product on a regular basis following feedback from our users. A range of formal and informal techniques are used including group sessions, home visits (observation and structured interviews), clinic visits, surveys, expert opinion and external audits. Target end users of the service are children, young people and their carers. However the service also needs to meet the needs of clinical stakeholders across a range of health and social care services.

A process mapping event (April 2017) had 19 stakeholders from school nursing, pharmacy, paediatrics & respiratory specialists, asthma nurses, GPs, ambulance, A&E, management, academia, Asthma UK and NHS IT leading to 129 feature/process requests.

‘User stories’ have been developed by working with young people to ensure the product primarily meets their needs rather than those of the system stakeholders.



Codesign partners and sessions

Caribbean & African Health Network user groups.

NIHR Children and Young People MedTech Co-operative (NIHR CYP MedTech) led workshops with users as part of SBRI funded study.

Regular Asthma Panel Surveys (100+ UK CYP living with Asthma).

Manchester Youth Forum, NW Coast Young Persons Forum, Sheffield Children's Hospital workshops, Home Visits (North East London), NHS Youth Forum, The Brownies, Mulberry School, Royal London Hospital workshop, Healthy London Partnership youth group workshops.

NET ZERO



Patient Led Asthma Inhaler Net zero Initiative (PLAIN I)

The SBRI Accelerated Access Collaborative has also funded the Patient Led Asthma Inhaler Net zero Initiative (PLAIN-I). This Digital Health Passport upgrade will empower patients to make environmentally responsible changes to their inhaler when safe to do so. It will also be able to measure carbon saving through prescribing changes instigated by patients or carers and report by region.

The primary aim of PLAIN I is to shift the focus from a clinician-driven recommendation (to change inhaler) to a patient-led approach.

Around 3% of total NHS carbon emissions can be attributed to the prescribing of respiratory inhalers, primarily metered-dose inhalers (MDI) which rely on an aerosol propellant to deliver their active chemical ingredient. Supporting patients over the age of sixteen to consider using lower carbon inhalers, where clinically appropriate, creates an opportunity to improve patient outcomes while reducing harmful carbon emissions.

The move also supports improved patient choice. A study from Asthma+Lung UK (ALUK) indicated that most patients would like the environmental impact of inhalers to be a consideration in treatment choice.

Find out more at tinymedicalapps.com/patient-led-asthma-inhaler-net-zero-initiative

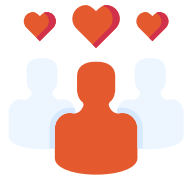


REGULATORY

The Digital Health Passport is built and delivered with information security and clinical safety as core.

Tiny Medical Apps are **ISO27001**, **CE+** certified and have exceeded the standards of the **DSP Toolkit**. The Digital Health Passport is compliant with **DCB0129** and has been approved by the **NHS England DTAC** process. The Digital Health Passport is the highest rated asthma app on **ORCHA** library.

AUDIENCE DEMOGRAPHICS



5000+ users

25%

Ethnically
diverse



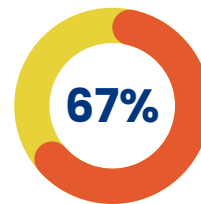
65%

Female



Over 50%

From most deprived areas



Under 25

Years old



Get in touch



digitalhealthpassport.co

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