



Asthma UK Centre
for Applied Research



Impact Report 2014 - 2024



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Executive Summary

Co-led by the University of Edinburgh and Queen Mary University of London, the Asthma UK Centre for Applied Research (henceforth Centre) conducts world-leading evidence-based research which can prove life-changing for people with asthma. As a UK-wide network of researchers, clinicians and people with asthma it uses applied research methods and data science to drive forward asthma policy, practice and research.

Funded by the patient charity Asthma UK (now Asthma + Lung UK) it has, with its core aim of 'Zero tolerance of asthma attacks', since its inception in 2014:

- Established a vibrant, patient-centred, multi-site, multi-disciplinary Centre of excellence, which has networked with other large research collaboratives such as the Medical Research Council (MRC) Asthma UK Centre in Allergic Mechanisms of Asthma
- Built a UK-wide collaborative network of the best applied asthma researchers
- Created multiple strategic, coordinated programmes of research to reduce asthma attacks, to maximise the benefits of treatment and empower people to take control of their asthma
- Supported new interventions, evaluated health policy initiatives and service delivery innovations to reduce asthma attacks, hospitalisations and deaths

Made Asthma Research a Priority

A key impact from the Centre has been its influence in helping bring funding into asthma research. Beyond the core funding of £4 million (M) from Asthma + Lung UK over the past 10 years, the Centre has collectively generated more than £83M of external research grant monies across 106 grants and £2.5M of support for postgraduate training through Centre members at partner and affiliate institutions. Every one pound invested has seen more than a 20-fold return.

The Centre has produced over 750 peer-reviewed publications, many of which have been published in the world's leading journals, pushing forward the applied asthma knowledge base. These outputs have influenced:

- Policymakers in UK and devolved nations' parliaments;
- Industry partners to innovate and develop health-based technologies and;
- Clinical practices through contributions to guideline development groups and training materials for healthcare professionals;
- The asthma research environment both in the UK and internationally by presenting at conferences and symposia.

Pushed the Boundaries of Patient and Public Involvement

Working together with people with asthma has always been at the heart of the Centre, and Patient and Public Involvement (PPI) in research has had a culture shift during the lifetime of the Centre. It has been at the forefront of this shift, through creating one of the largest and most diverse PPI groups in the world, who have supported the evaluation of the National Institute for Health and Care Research's UK Standards for Public Involvement in Research, and by publishing guidelines on how to fund staff to support the facilitation of meaningful PPI.

Trained the Next Generation of Asthma Researchers

The Centre has supported and trained over 50 doctoral (PhD students, MD students), and Early Career Researchers. It has played a leading role in developing the next generation of interdisciplinary applied asthma researchers and championing future leaders. The Centre's training programme is a unique offering helping develop comprehensive skills within a safe and supportive environment. Some of the Centre's alumni have become co-applicants on major collaborative projects, gaining ongoing confidence, training and networking through the network.

Established a Unique Collaborative Research Environment

The Centre has an inter-disciplinary, team science approach, without a limiting hierarchy. The network has grown to 22 diverse academic, NHS and other collaborating institutions who work together to the shared goal of improving asthma outcomes. This breadth of methodological expertise in applied research, both qualitative and quantitative, when combined with that offered by frontline clinicians and lived experiences, offers a potent combination that has been instrumental in achieving the many advances made by the Centre.

Continuing to Transform Respiratory Research Culture

The collaboration and partnerships that started in the Centre have transformed the applied asthma research culture and environment. Despite these impacts, the Centre's journey has in many ways only just begun. The momentum, spirit, ethos and aim of the Centre have laid an outstanding foundation on which to now build: people living with asthma and other common respiratory conditions deserve the best outcomes possible, only achievable with world-leading evidence-based research and a strong advocacy focus.

Foreword

Asthma affects one in every 12 adults and one in every 11 children in the UK. It is much worse in adult women. It's thought that two thirds of deaths could be prevented with good self-management, but despite this, asthma outcomes remain unacceptably poor.

Since its inception a decade ago, the Asthma UK Centre for Applied Research has created a vibrant, enthusiastic and collaborative community of applied asthma researchers and people with asthma reaching across all four corners of the UK. This has led to a more coordinated approach to research funding and leveraged a truly impressive 20-fold return on Asthma UK's original investment as well as generating hundreds of world-leading scientific publications.

The Centre has helped us identify those at risk of an asthma attack and understand better the role of different asthma triggers with a view to avoiding them or managing exposure more effectively. Among the hundreds of published papers, the team showed that hormonal contraceptives reduced the risk of developing asthma in women and that prolonged use was associated with a greater reduction in risk. Given that asthma is much worse for women than men, with women more at risk of asthma attacks and admitted to hospital more often with their asthma, this focus on women is very welcome. The team's subsequent work to understand the role of contraceptives and hormone replacement therapy in asthma attacks could transform the lives of millions of women with asthma across the world.

We also hugely welcome the Centre's focus on digital health. Their data showing that digital self-management tools can improve clinical outcomes and reduce asthma attacks by half is encouraging. But as the team acknowledges, we need greater investment in this area to realise the potential benefits, including significant NHS cost-savings, productivity gains and improvements in quality of life.

Asthma + Lung UK are committed to reducing respiratory morbidity and mortality in the UK through, amongst other important activities, tripling the amount of money invested in respiratory research and innovation from £47m to £141 million every year. Respiratory illnesses are the third biggest killer in the UK and the largest single contributor to NHS winter pressures. Our recent report, Investing in Breath, revealed that respiratory ill health costs the economy £188b including £9.6b direct costs to the NHS, attributed to GP visits and hospital admissions and £4.2 billion indirect costs, associated with lost productivity from people requiring time off work.

The Asthma UK Centre for Applied Research has transformed the way that applied asthma research is done in the UK and is the envy of countries around the world. I hope very much that this model of patient-centred, multi-disciplinary, collaborative working can be extended into other areas of respiratory medicine to transform the lives of the 12 million people alive today who will develop a respiratory illness in their lifetime.



Samantha Walker PhD

Director of Research & Innovation
Asthma + Lung UK

A message from our directors

We are incredibly proud of all the Asthma UK Centre for Applied Research has achieved.

We are particularly proud of the evidence we have uncovered in thematic areas such as environmental factors including air pollution, the impacts of digital health and in relation to children and young people. We have also led incredible developments in pioneering research methodologies, including using population-level health data records to their full potential and implementation science. The more than 750 scientific publications in peer-reviewed journals are a real testament to the work of Centre members.

We are delighted that the Centre has engaged and involved over 100 patients and members of the public who have been affected by asthma. Being involved with all aspects of our work, they give deep and meaningful insights into research, keeping in sharp focus who we are doing the research for.

We are proud that as a Centre we have been able to leverage the initial core funding of £4 million from Asthma + Lung UK to over £83 million for applied asthma research. With asthma as a historically underfunded area of research, we are delighted that our Centre has been able to foster a collaborative environment in which researchers from hitherto competing groups and institutions have been able to come together around a common goal of 'Zero tolerance of asthma attacks'.

We see a brighter future for asthma research because of the talents and capabilities of the more than 50 PhD and MD students and Research Fellows who have come through our postgraduate training programme. This remarkable group of clinicians, psychologists, engineers and those from other specialities are taking forward the Centre's ethos of collaboration and togetherness to produce high quality research and evidence-informed advocacy, which we hope will have an enduring impact on asthma outcomes across the UK and beyond.

Ten years ago, we would never have thought we could have such a strong collaborative network of researchers working to make real-world change for the benefit of people living with asthma.

We give particular thanks to our core staff who have contributed to the success of the Centre, and to our International Advisory Board members on their steer and guidance throughout the past decade.

We hope to see this supportive and collaborative network continue to expand by bringing in new partners and attracting new sources of funding. We want to create a world where people living with asthma and other common respiratory conditions can enjoy the best quality of life.

A decade on, we are proud to present our Impact Report 2014 - 2024.



Professor Sir Aziz Sheikh
Centre Co-Director
University of Edinburgh



Professor Chris Griffiths
Centre Co-Director
Queen Mary University of London

Did you know?...

Since 2014, the Asthma UK Centre for Applied Research has:

- Brought together and effectively networked researchers from 22 academic, NHS and other collaborating institutions from across the UK to create a vibrant, asthma collaborative focused on applied research.
- Facilitated opportunities to share research ideas, knowledge, skills and expertise to improve asthma outcomes
- Developed and nurtured one of the largest Public and Patient Involvement (PPI) groups in the world with more than 100 actively engaged members
- Leveraged an additional £83 million of funding for asthma research beyond the initial grant monies of circa £4 million - representing a 20-fold increase
- Conducted some of the largest asthma clinical trials and observational studies ever undertaken in the UK or indeed anywhere in the world
- Significantly contributed to applied asthma science base by publishing over 750 scientific publications in peer reviewed journals, many of which regularly feature in the top 5% of all research outputs scored by Altmetric
- Generated evidence and insights that now offers the opportunity to achieve a step-change in asthma outcomes across the UK and internationally
- Influenced asthma-related policy, guidelines and practice, and research methodologies
- Successfully trained over 50 doctoral (both PhD and MD) students and research fellows, increasing the capacity and capability of the next generation of applied asthma scientists and future leaders
- Established ongoing innovative collaborations between academia, industry and healthcare partners

Our research has:

- Identified environmental risk factors for asthma, both indoor and outdoor, that are important triggers for asthma attacks
- Identified those at highest risk of asthma attacks through conducting some of the largest population-based studies ever undertaken
- Embedded the use of asthma self-management into primary care
- Developed and shown the benefits of novel digital tools to support people live with their asthma



Why was there a need for the Asthma UK Centre for Applied Research?

Asthma remains a major health problem in the UK: 5.4 million people are known to have the condition. The National Review of Asthma Deaths 2014 stated that four people die every day because of asthma, and up to 90% of these deaths could have been prevented. The economic burden of asthma as measured by the direct and indirect costs amounts to over two billion pounds per annum (1).

In 2014 the Asthma UK Centre for Applied Research (henceforth Centre) was established with funding from Asthma UK, now Asthma + Lung UK. We set out to create a world-class network that would put the UK at the forefront of applied asthma research. As a network dedicated to applied research, we have focussed our activity on what happens in the real world and how we can make changes to practice. This was the first Centre of its kind in the UK being one that moved away from traditionally funded research programmes such as basic science and mechanisms to one with a focus on applied methods.

The Centre's vision is a world where there is zero tolerance of asthma attacks.

To achieve this vision, our aim was to transform the applied asthma research culture and environment in the UK, by:

- Establishing a vibrant, patient-centred, multi-site, multi-disciplinary Centre of excellence;
- Building a collaborative network of the best applied asthma researchers from across the UK;
- Establishing and developing a group of individuals who have been affected by asthma to shape our research and keep it relevant for people with asthma
- Creating strategic, coordinated programmes of research of reducing attacks, maximising benefits of treatment and empowering people to take control of their asthma;
- Supporting the development of new interventions, evaluate health policy initiatives and service delivery innovations to reduce asthma attacks, hospitalisations and deaths;
- Succeeding in attracting more investment in applied asthma research.

Who we are

We are a large multi-institutional UK network of researchers, clinicians, people living with asthma and their carers dedicated to improving asthma outcomes through applied research. Since we started our journey, we have doubled the number of academic institutions that are now working - collaboratively - on programmes of applied asthma research.

What we do

We are an international centre of excellence that pioneers developments in applied asthma research. We bring together five key pillars of integrated activity, which are outlined in the box below.

Box 1: Our key activities

High Quality Research

We conduct world-class asthma research that has potential to improve patient care and outcomes with a focus on methodological innovation.

Working Together with Patients and the Public

Our common purpose is to improve the lives of people living with asthma: they are at the heart of that all we do.

Driving Change

The Centre is at the interface between science and policy. We want the evidence that the Centre generates to support positive changes to policy and practice.

Building UK Asthma Research Capacity and Capability

Through our postgraduate training programme, we provide excellence in education, developing the next generation of inter-disciplinary applied asthma researchers and championing future leaders.

Internal Capability and Processes - Core Infrastructure

In addition to our high-quality programmes of research and professional development we aim continually to improve how we support our network of members. We focus on being efficient and effective in how we manage our resources and continue to foster a positive culture across the Centre.

Theory of change

We have mapped our five key pillars of activity on to a Theory of Change thought process to focus our activities and enable a comprehensive description and illustration of how our work moves towards wider social, clinical and personal impact. This process has unified the Centre partners and explains why we do what we do. It also enables us to define our long-term goals and map our actions as clearly as possible to facilitate achieving those goals.

From Figure 1, the key activities are at the bottom, with the work we do leading upwards out of them. These lead to long-term goals in the white circle, which in turn lead into wider impacts at the top, with our overriding objective to improve the quality of life for people living with asthma.

Gathering evidence of impact

Using the Theory of Change model as our framework, we have collected both quantitative and qualitative data, from a range of sources, to measure impact across our 5 domains of activity.

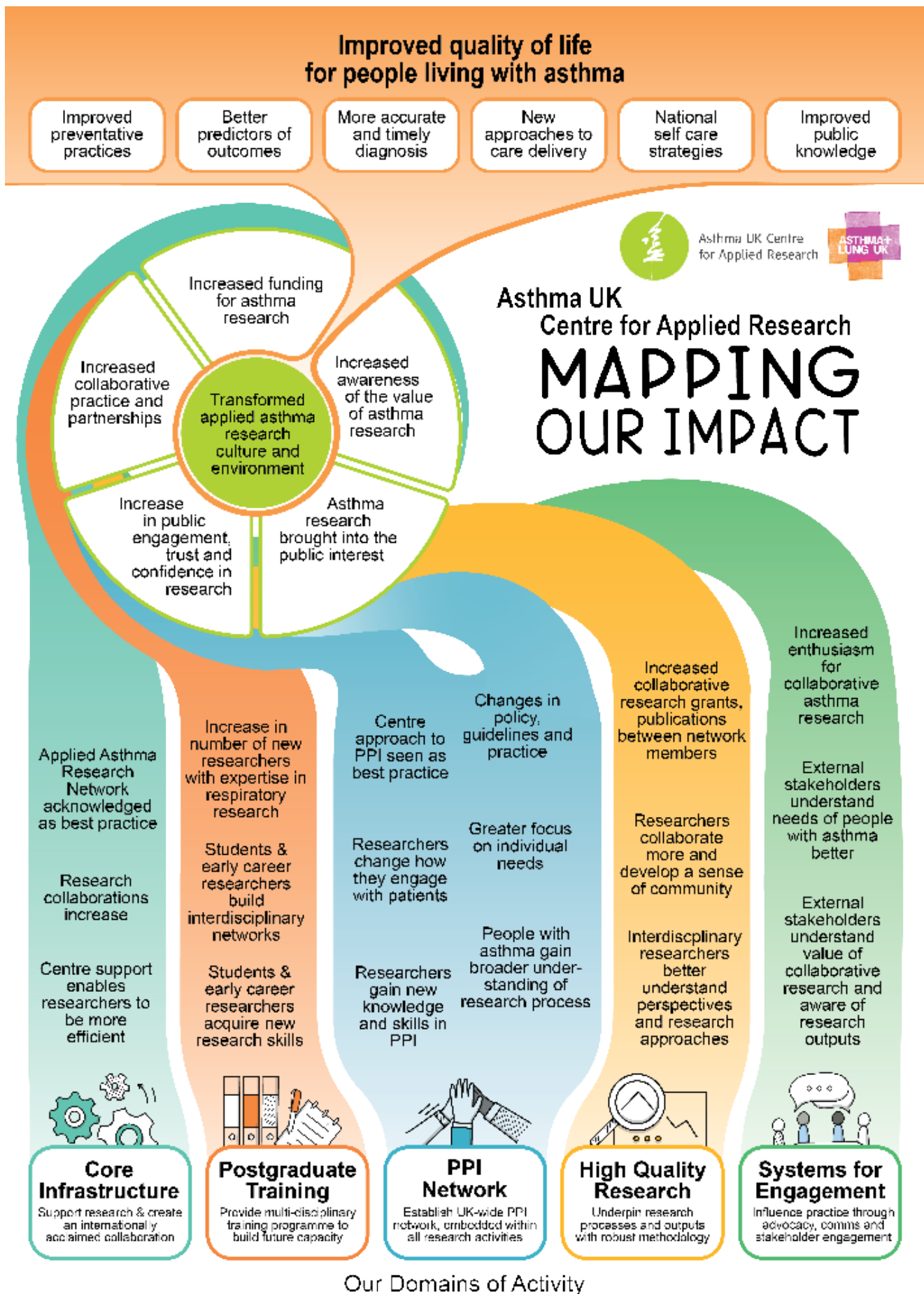
We extrapolated data from the regular funder reports and routinely collected administrative data and combined this with responses to surveys and interviews from a wide range of Centre members and external stakeholders.

Summary of our major impacts

We have been a catalyst for the creation of a collaborative and impactful community united in its goal to improve care for those living with asthma. In our quest to achieve our vision and aim, we have:

- Identified environmental risk factors for asthma, both indoor and outdoor, that are important triggers for asthma attacks
- Identified those at highest risk of asthma attacks through conducting some of the largest population-based studies ever undertaken
- Embedded the use of asthma self-management into primary care
- Developed and shown the benefits of digital tools to support people with asthma
- Used innovative methodologies and a collaborative approach to advance the knowledge base of applied asthma research as it relates to people with the disease.
- Pushed the boundaries of Patient and Public Involvement in the Centre to create a highly valued and critical component of our research activities, demonstrating best practice for any research field.
- Enabled members to take advantage of unique career and personal opportunities.
- Built capacity by training the next generation of collaborative asthma researchers in a supportive and congenial culture
- Succeeded in raising the profile of asthma in both the areas of UK clinical and research priorities.

Figure 1: Asthma UK Centre for Applied Research Theory of Change Model



The future

After 10 years, it is clear we have made noteworthy progress on many fronts, but our work is not done. Despite major impacts on the personal lives of people with asthma, researchers, and the asthma research environment, there is still much that we can and must do. In 2024, we will have evidence from several large trials evaluating complex interventions, which have the potential to transform the way asthma care is delivered in the UK and impact on asthma outcomes. We need to continue to work with our multiple partners to engage and empower patients, policy makers and the public. We want to ensure that what we now know works is implemented, embedded and sustained at scale in daily clinical practice.

High Quality Research



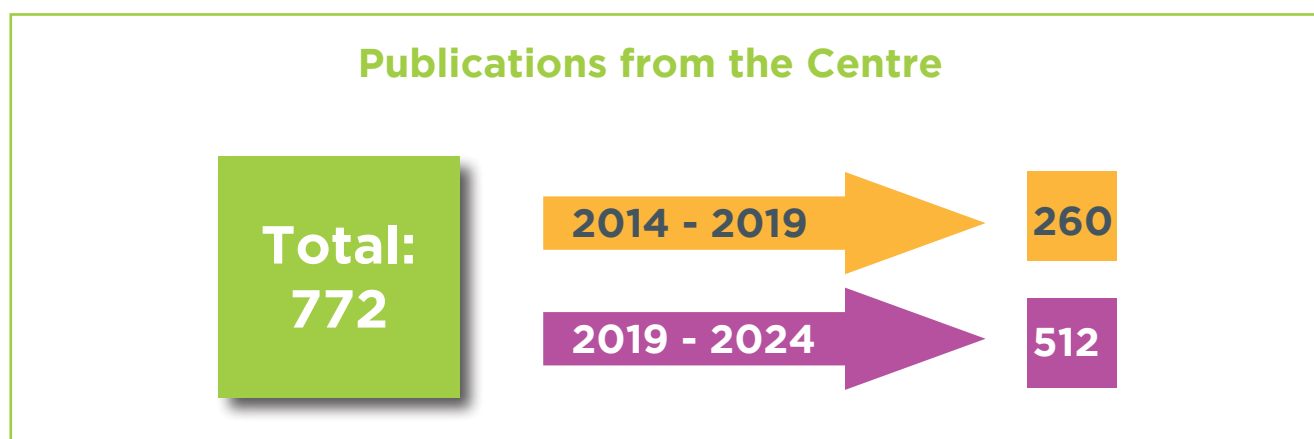
High Quality Research

We conduct world-class asthma research that has potential to improve patient care and outcomes with a focus on methodological innovation.

Our leadership team has built a culture of trust across the Centre such that we are able to tackle research challenges in a highly collaborative manner, bringing together and respecting a wide range of views and different perspectives.

Improving the knowledge base of applied asthma research

Over the lifetime of the Centre, through applied research we have generated world leading evidence in a range of aspects of asthma prevention and management. Collectively, members of our network have published over 750 peer-reviewed manuscripts, including in some of the most respected generalist and specialist journals in the world.



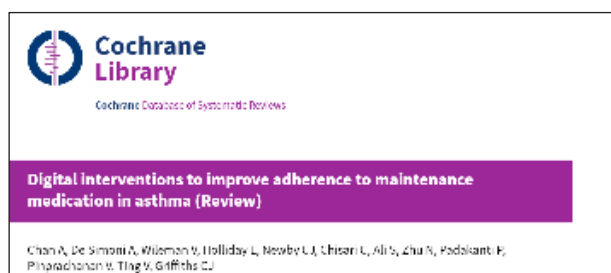
These manuscripts range from high profile generalist journals (such as The Lancet, the British Medical Journal (BMJ) and PLOS Medicine) and prestigious specialist journals (such as The Lancet Respiratory Medicine, European Respiratory Journal and Thorax) to journals dedicated to other research areas such as psychology, data science, and clinical trials.

Many of our research papers are highly cited and regularly feature in the top five percent of all research outputs scored by Altmetric, which demonstrates our work is being read and acknowledged not only by the research community, but far wider.

“*Without the Centre’s work, I think there would be so many gaps and so many unanswered questions.*”

Centre PhD Student

Publications from the Centre



Research themes

Applied asthma research demands a comprehensive and holistic approach. There is no 'one-stop' solution to a disease which is so varied. Our work has focussed on the full range of applied asthma research, from preventing asthma attacks from happening in the first place, and in optimising the management of asthma attacks when they do occur.

Preventing asthma attacks

Risk Stratification

Our studies have investigated whether separating different types of asthma and adjusting treatment can support better personalised treatment. Research from the Centre has found that:

- FeNO (a test that helps determine whether the type of inflammation present in the lung might respond well to treatment with inhaled steroids) could be used as a tool to identify if patients with difficult-to-control asthma have been taking their medication as prescribed. The results can then be used as a guide on whether to start expensive treatments with biologics.
- People from ethnic minority groups frequently report poorer health with their asthma compared to White counterparts (2)
- There are increased challenges that come with having asthma as an older person (3)
- People with asthma who are at a high risk of having the severest form of asthma attacks, can be identified using a prediction tool designed by Centre members (4)
- During the COVID-19 pandemic, there was a reduction in asthma attacks seen in GP practices (5) and in hospital admissions due to asthma (6)

Improving Adherence

A key part of preventing asthma attacks is taking maintenance medication as directed. Our research has found that:

- Financial incentives for young people with asthma can improve their asthma management behaviours, reducing their risk of asthma attacks (7)
- Electronic monitoring can support people to take their medication as prescribed but does not always translate into clinical benefits (8)

Controlling Risk Factors

People with asthma can reduce their risk of having an attack by controlling their triggers. These triggers can range from air pollution from vehicle fumes to dust and pet hair. Another way people with asthma can control their risk is by exercising. Our research has found that:

- Family members of children and young people may not always understand indoor asthma triggers or act to attempt to reduce their impact (9)
- Behaviour change techniques can have a significantly positive impact on physical activity, quality of life and asthma symptoms (10)

Optimising Management of Asthma Attacks

Self-management and Care

Much of our research focuses on how people with asthma live with their condition after they have been diagnosed. Healthcare professionals need to be able to support self-management when required. Our research has found:

- Supporting people with asthma to manage their own condition can reduce admissions to hospital, accident and emergency departments and other unscheduled care, without increasing total healthcare costs (11)
- Digital self-management tools can improve clinical outcomes (12), and could cut asthma attacks by half (13). They can also support organisational efficiency in general practices. However, there are currently policy, regulatory, financial and technical infrastructure barriers to the implementation of digital respiratory tools.

Optimising Clinical Care

People with asthma will consult healthcare professionals in their general practice, or in hospitals, either for emergency care or when attending a specialist asthma clinic. Our research is uncovering how clinical care can be optimised to benefit the patient. We have:

- Shown that a computer-based decision support system, which helps healthcare professionals diagnose asthma, would be welcomed by clinicians (14) and patients (15) and would help facilitate an open dialogue, providing visuals to aid understanding and encouraging patient involvement.
- Found that using the wheezing severity score tool was the best way to help decision-making on whether to give oral steroids to pre-school children with moderate to severe wheeze in the emergency department (16)

Addressing Modifiable Risk Factors

When people have an asthma attack, our research is finding out how these can be managed afterwards. We have:

- Developed the first definition of near-fatal asthma (17)
- Taking vitamin D supplements does not reduce the risk of asthma attacks in children or adults (18)

Real world evidence from routinely collected data

In recent years, catalysed by research during the COVID-19 pandemic, epidemiologists have been attracted to join the Centre. We have also equipped a cadre of early career researchers with skills and expertise in data science and Artificial Intelligence (AI), which focusses on medical evidence generated from routinely collected data. Routinely collected health data can come from a variety of sources and can be extremely powerful if used prospectively and retrospectively in spotting trends over time at a population-level and individual level.

Using this information, recommendations can be made to health systems, policy makers and people with asthma. Data became a regular factor in everyone's lives during the pandemic, and work undertaken by the Centre has raised the important and complementary role of research generated from real world evidence.

 [Read more about connecting to policy makers in the Driving Change section](#)

Translating research into practice

The Centre is committed to improving asthma care and as such we believe that producing high quality research and publications, needs to be combined with efforts to translate this into routine care through policy and practice change.

Several of the Centre's academics from a range of clinical backgrounds have been involved in the development of national / international guidelines. These include the Scottish Intercollegiate Guidelines Network British Thoracic Society (SIGN/BTS) Guideline for the management of asthma and the Global Initiative for Asthma (GINA) Global Strategy for Asthma Management and Prevention.

 [Read more about Changes in Clinical Practices in the Driving Change section](#)

Beyond guideline changes, there has been a push towards implementation research, to discover how interventions can be introduced into practice, how they are adopted for the benefit of everyone with asthma, what adaptations are needed to suit different contexts, and the implications for healthcare costs.

IMP²ART (IMPLementing IMProved Asthma self-management as RouTine): Implementation Research in Practice

IMP²ART is a multidisciplinary programme which aims to help general practices across the UK to embed supported self-management of asthma into routine care.

With their team of GPs, asthma nurses, health psychologists, educationalists and researchers, the IMP²ART programme has been developing effective resources to support patients, providing in-house and online training for professionals, and helping practices to change their organisation to prioritise supported self-management. The team have recruited 144 General Practices from across the UK, and the main trial results are expected in 2024.

The resources and training are all part of the study's implementation strategy, which is being tested and refined as the study continues. The overall goal is to have supported self-management become a routine part of asthma care across the UK.



**IMPLementing
IMProved
Asthma self-management
as RouTine**

This is a small selection of our research outputs and impacts. See a comprehensive list of our publications and research activities on the Knowledge Hub section of our website:

<https://www.ed.ac.uk/usher/aukcar/knowledge-hub>

Working Together with Patients and the Public



Working Together with Patients and the Public

Our common purpose is to improve the lives of people living with asthma: they are at the heart of that all we do.

Culture change in patient involvement in research

We have developed a UK-wide network of people with asthma and those who care for them. Our Patient and Public Involvement (PPI) group is one of the largest in the world and members are involved in all aspects of the Centre's work, individual research projects, PhD and MD studentships, and large programme grants. Some specific activities undertaken include:

- Contributing to grant applications, including being co-applicants
- Co-creating research interventions and study designs
- Reviewing and shaping our [Centre Research Briefings](#)
- Supporting the planning, content and delivery of our Annual Scientific Meeting
- Participating in developing our Theory of Change model
- Delivering face-to-face teaching for our students and Early Career Researchers
- Co-authoring peer reviewed academic publications from the Centre, including for The Lancet Respiratory Medicine
- Participating in scientific and public facing webinars
- Participating in Media interviews, including the BBC World Service



Active Involvement

Our PPI members are encouraged and supported to get deeply involved in the research.

As well as being a co-applicant on a research study, one member led focus groups with people with asthma. These groups discussed how healthcare professionals in local GP practices could promote online health communities, such as Facebook groups, to support their asthma. The same person recorded a video for the study website which emphasised why the study was important for people with asthma. They also co-authored peer reviewed publications for studies.

Other activities include being engaged in the organisation and scientific planning for our Annual Scientific Meetings. Members have been part of the planning team for the conference, and to ensure that the patient voice was represented throughout.



Find out more about our Annual Scientific Meetings in the Internal Capability and Processes – Core Infrastructure section

To deliver our PPI activities, we have funded a dedicated team made up of PPI research and professional services staff members alongside 4 PPI Patient Leads: these are people affected by asthma who want to have a say in the strategic direction of the Centre. All research within the Centre is encouraged to involve PPI members at all stages, and the team ensures this happens.



“For the first time, we had somebody funded to do the PPI work and that made all the difference to us being able to do something meaningful.”

Centre Member, Senior Researcher



Over the lifetime of the Centre, the PPI team has facilitated patient involvement in over 100 grant applications and research studies and supported 35 doctoral student studies. These activities include; developing research ideas in collaboration with PPI members, contributing to grant applications, producing reports, hosting meetings, running PPI volunteers’ live sessions and contributing to the costing for PPI staff and PPI members’ time and consumables specific to each project.

The Centre PPI team has facilitated involvement in over
100 grant applications
and research studies and supported
35 doctoral student studies

Evaluating the NIHR (National Institute for Health and Care Research) UK Standards for Public Involvement in Research

The National Institute for Health and Care Research (NIHR)'s Standards for Public Involvement are considered the gold standard for involving patient and public members in research in the UK.

The Centre applied to NIHR to become a pilot site for the evaluation of the NIHR UK Standards for Public Involvement in Research. Between 2018 and 2019, we tested all six NIHR standards and gave feedback on how they were implemented across the Centre. The PPI group also contributed to reflections and learnings from that report and presented at a feedback workshop.



Image from NIHR UK Standards for Public Involvement in Research workshop describing how the Centre benefited from having a PPI framework in place, and realising that they did not need to use all the NIHR standards.

There has been a culture shift in the wider research community over the past couple of decades, where increasing numbers of funders are requesting evidence of PPI in grant applications, and some funders have started creating their own standards for PPI. During that time our PPI activities have led the way and are viewed by many as an exemplar in engaging the patient community and public in research. Within our Centre, PPI is seen as an essential part of research, and something that ensures we maintain a strong applied focus to our work.



“The really strong focus on patient and public involvement helps bring that applied research and implementation research to the forefront.”

Centre PhD Student



Funding PPI staff

Centre PPI staff have been leading the way on how to fund meaningful PPI into projects. They have published guidelines on how to fund staff to support the facilitation of worthwhile PPI. The Centre’s PPI team hopes this will lead to appropriate PPI staffing costs being included in grant funding applications as standard across the wider research community in the future.

Recognising the need for meaningful PPI in asthma research, the Centre initially started with two co-leads for PPI and one Research Fellow. The team has increasingly been in demand and consequently employed a Research and Operations Assistant to support the wide variety of activities they conduct.



Valued contributions

Within the Centre, PPI members are considered colleagues, whose input is regarded as being of equal worth and relevance as any other member of the research and Centre teams. PPI members are considered essential in the decision-making processes in the Centre.

The Centre ensures a safe and respectful environment for all its members, where all contributions are welcomed.

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“Each member of a single project is afforded respect as their contribution is valued. In most instances, the individual leading the group tries to ensure that everyone is encouraged to contribute through voicing their views”

PPI Member

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Our researchers value the dedicated group of people who give up their time to become involved in their studies.

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“It’s not so hard to find a PPI group, a generic one, but not so easy an asthma specific one, with a range of people with different levels of experience some who’ve been PPI volunteers for a long time and others who are new.”

Former PhD Student

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As we operate as a ‘virtual centre’, using platforms such as Zoom, PPI members feel connected and are contributing to a UK-Wide network. We also value our in-person meetings to solidify friendships and connections: our Annual Scientific Meetings (ASMs) and other opportunities to connect face-to-face are a way for PPI members to do this.



“I’ve met other patients from all over the UK and beyond. It’s interesting to connect with researchers and clinicians as well as other patients as well. I think PPI is an evolving workstream and we can see the positive progress that has been made.”

PPI Member



Inclusive opportunities

We aim to be a role model in encouraging equality, diversity and inclusion in research. We have representation from across the four nations of the UK. We provide flexibility to our members. There is no minimum commitment required and a choice of online and face-to-face activities enables wide engagement.



“PPI members are always included. The Centre is genuinely interested in our voice. We have people across a range of diversities, asthma severities, and ages”

PPI Member



Patient coproduction of research

One of our PPI members flagged that there appeared to be limited research focussed on asthma in older people. As a result, she became involved as part of a study steering group in delivering a qualitative research study to elicit views on the research gaps. As part of a team of academics and medical students from the centre they were involved with idea generation, project design, research management, analysis and dissemination. They were also a co-author on the publication.

Beyond the research and the publication, the study went on to win prizes: the ‘most patient-centred poster’ at the Primary Care Respiratory Society UK annual conference and the ‘best poster’ award at the National ATRIUM Conference (a conference for medical students from around the UK).

The study highlighted that asthma has serious implications for people of all ages and there is need to invest in research in the older generation.

This case also highlighted the importance of listening to PPI members about research we should be conducting.



Confidence, understanding and skills

Some PPI members have stated that being part of the Centre has made them feel more informed and confident about managing their own condition, as well as discussing it with other people. For some, they feel less likely to hide their asthma.

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“I’ve had people mention to me that being part of the Centre’s helped them manage their asthma better which is very interesting.”

Centre Member, Senior Researcher

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Their involvement has also helped them to develop a much broader perspective on asthma and how it can affect other people. They have come to understand that their contributions help ground the research which can help far greater numbers of people with asthma.

Being part of the PPI group has given our members the sense of being part of something bigger, and the feeling of a safe community where their opinions are heard and taken on board. Some members also feel as though they are part of a change and move towards better care for other people with asthma.



“I love the work I do for the Centre. I feel that if I can help someone have a better experience with their asthma then why not. Very rewarding”

PPI Member

“I am better informed about my condition and want to remain up to date. This is influenced by being part of the Centre. As a PPI member I want to help influence the research and outcomes for asthma and in doing so, know I can help myself.”

PPI Member



Beyond their understanding of their condition and how their involvement could help others, many PPI members have gained a sense of purpose and satisfaction.



“I have seen PPI members, who’ve come in very shy and not want to speak up in meetings, become PPI leads and really know the direction they want to then take their career.”

Centre Member, Senior Researcher



Our PhD and MD students have also gained skills and understanding directly from our PPI members with Patient and Public Involvement being embedded throughout our Postgraduate Training. There is an emphasis on how PPI members’ involvement can influence and improve research. We are creating the next generation of researchers who expect any applied research to involve patients or the public at all stages. 70% of students and Early Career Researchers in the Centre have been supported by the PPI platform to involve PPI members in their research.

As well as the value PPI members bring to the research, the training provided on PPI also helps students understand the benefits that the PPI members get out of being involved.



“Really useful to hear from people who are part of the PPI group, what they get out of it and how they like to be involved in the projects.”

PhD Student





Driving Change

Driving Change

The Centre is at the interface between science and policy. We want the evidence that the Centre generates to support positive changes to policy and practice.

Disseminating research

Within both the UK and international respiratory research communities the Centre is recognised as leading the way in applied asthma research. Centre members present their work as oral or poster presentations at respiratory and other conferences in the UK and globally. An impressive number of these presentations have been awarded prizes demonstrating that the work is highly regarded by their peers.

Public engagement is an integral component of research dissemination. Centre members have attended a range of science festivals and have engaged with the members of the public about their research. One such event was held in conjunction with Operation Earth, called 'Air Pollution and You', helping attendees learn about air pollution and its impact on health.



Research Brief – translating our evidence into clear messages

With the Centre having a decade of amassing publications in multiple areas of applied asthma research, we wanted to synthesise the evidence in particular subjects. The Centre published its first research brief in 2023, bringing together clear recommendations from Centre work on digital tools for asthma care. This included key recommendations for people with asthma, policy makers, healthcare professionals, and asthma researchers.

Associated communications activities around this brief included a series of videos, a dedicated webpage to download the brief and a webinar designed for people with asthma. In the first 3 months after launching, these activities resulted in almost 14,000 impressions across all channels, over 500 engagements and 236 unique downloads of the document from the Centre's website.

The image shows the cover of a research brief. At the top right, there are two logos: the Asthma UK Centre for Applied Research logo (a green circle with a white figure) and the Asthma+ Living UK logo (a purple and orange cross). The title "Research Policy and Practice Brief: Where next for digital tools in asthma care?" is written in white on a teal background. Below the title, a green bar contains the text "Asthma UK Centre for Applied Research | Research Policy and Practice Brief | Spring 2023". The main content area is white with a teal border. It features a section titled "Recommendations from the Centre" followed by an introductory paragraph. Below this are three sub-sections: "Policy makers and funders", "Practitioners and commissioners", and "People with asthma", each with a list of bullet points. The final sub-section is "Researchers" with a list of bullet points. A small number "1" is at the bottom center of the page.

**Research Policy and Practice Brief:
Where next for digital tools in asthma care?**

Asthma UK Centre for Applied Research | Research Policy and Practice Brief | Spring 2023

Recommendations from the Centre

Given the potential of digital health to support asthma care, we need to increase the pace and scale of research and innovation, including evaluating implementation of evidence-based digital tools into standard clinical practice.

Policy makers and funders

- Call for digital tool developers to involve people with asthma at every stage of the design and creation process with input from healthcare professionals wherever possible.
- Recommend that digital innovations are tested, trialled and optimised within the NHS, at pace to ensure that technology integrates with other aspects of care provision and does not become outdated prior to adoption.
- Strive to develop new ways for developers and innovators to rapidly move through the translation landscape and develop evidence to take their digital tools from pilots to trials and evaluation of implementation.
- Key grant funders should support research which focusses on the integration of digital technologies into routine asthma care without widening digital and health inequalities.
- NHS commissioners should develop incentives to encourage the adoption of evidence-based digital tools by people, carers and clinicians.

Practitioners and commissioners

- Through professional development training and clinical guidelines, ensure healthcare professionals are aware of digital tools that have been evaluated and shown to improve asthma outcomes.
- When recommending digital tools to patients, be aware of potential additional financial costs or access issues.
- Encourage uptake in those who may be digitally marginalised.
- Recommend funded evidence-based digital tools to patients that can complement standard care and support self-management.
- Provide rapid and responsive technology support for those who need help with setting up, using and maintaining digital tools.
- For patients who are expert in their own care, offer alternative methods of regular asthma reviews using telephone or video, with continuity of care conducted by a respiratory skilled practitioner.

People with asthma

- Ask your GP, respiratory nurse or pharmacist about the different digital options available for asthma, that could help you better manage your asthma.
- If you have a preference, ask your practice if a telephone, video or face to face consultation could be appropriate to review your asthma.

Researchers

- Make sure that people with asthma are involved at all stages of research studies, including driving ideas for research.
- Collaborate with digital technology innovators to combine existing and new research and evaluation methods.
- To promote digitally supported self-management, researchers should collaborate with health technology companies and work with health care regulators to support implementation into practice.
- Use the best methods to examine the adoption and implementation of digital tools into routine asthma care, for example ethnography, video observation, population level routine data.
- Design studies to evaluate innovations used in remote consultations.

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Influencing policy

Our members - including people with asthma, clinicians and researchers - have frequently presented at UK and devolved governments' cross-party groups on respiratory or lung health issues. As well as describing first-hand insights about the experience of living with asthma, members report the latest evidence from work within the Centre. In 2020, evidence gathered from the Centre was included in the UK Parliament's All-Party Group on Respiratory Health report entitled 'Improving Asthma Outcomes in the UK'. This report provided recommendations and key actions for the Government and the NHS to reverse the upward trend in asthma mortality. Members of the Centre were invited to launch the Report at a multi-stakeholder meeting.

Providing evidence on impacts of air quality - Children's Health in London and Luton (CHILL)

A key focus of our work is the study of air quality and air pollution and its impact on people with asthma.

In 2015, Centre members and colleagues produced a report summarising the evidence on health impacts of air pollution. The report documented evidence of the harms of air pollution throughout the life course, particularly on the lungs: exposure to pollution creates structural changes in the lungs which impairs lung function.

After the introduction of London's first Low Emission Zone between 2008 and 2012, Centre members produced studies which showed that exposure to nitrogen dioxide (NO₂) reduced the growth of children's lungs (measured as lung capacity) of children living in east London by 5-10%. These findings motivated public advocacy groups such as Mums for Lungs and provided evidence for the implementation of the Ultra Low Emission Zone (ULEZ) in central London in 2019, inner London in 2021 and the expansion to all London boroughs from August 2023. These findings also influenced UK GOV policy on promoting Clean Air Zones in the Air Quality Strategy.

Centre members have been leading on a natural experiment cohort study comparing the lung function, growth and respiratory health of children living within London's ULEZ with children in Luton, a large town with poor air quality that has no air quality intervention.

Members of the Centre have been influential in establishing the UK Department for Environment Food & Rural Affairs' Daily Air Quality Index as part of the UK Government's Committee on the Medical Effects of Air Pollutants.

This work also highlights collaboration between the Centre and the Medical Research Council-Asthma UK Centre in Allergic Mechanisms of Asthma. The mechanistic work showed the impact of exhaust particulates on tree-like cells which can start immune responses within the body.

During the COVID-19 pandemic, Centre-based projects and programmes were essential in providing near real-time respiratory population data. This helped shape national and international decision-making and continues to influence decisions today.

EAVE II (Early Pandemic Evaluation and Enhanced Surveillance of COVID-19), led by Centre co-Director, Professor Sir Aziz Sheikh and involving other Centre members, links data from general practices to testing, vaccination, hospitalisation, intensive care units, and mortality data. The data covered 5.4 million people (99% of the Scottish population) and provided a vital insight into the spread of COVID-19 across Scotland. From these data, the EAVE II team was able to provide the first national estimates on vaccine effectiveness, showing the vaccination rollout substantially reduced the risk of COVID-19 hospital admissions in Scotland. This activity was fundamental in delivering the insights needed to inform the UK national COVID-19 response.

As well as showing the spread and effectiveness of the vaccination rollout, Centre members also demonstrated a significant relationship between prior air pollution exposures and the risk of COVID-19 infection. Additionally, evidence from the Centre showed that there were substantial improvements in asthma outcomes during the pandemic period.

Additionally, studies requested by the UK Government's Joint Committee on Vaccination and Immunisation and carried out by Centre members identified that children with poorly controlled asthma were more likely to be hospitalised with COVID-19 than those without asthma or with well-controlled asthma. Partly due to this evidence, the NHS now offers the COVID-19 vaccine to children aged 6 months to 4 years old who are at increased risk of getting seriously ill from the disease.

Changes in clinical practices

Our Centre encourages clinical academics, those individuals who combine both clinical and academic roles, to broaden their perspective of asthma research and its application to practice. Our community has also appreciated the benefits of interdisciplinary working, blending the expertise of colleagues from various professional backgrounds from primary and secondary care, in particular those who work as respiratory specialists, paediatrics and in emergency medicine.

Many members of the Centre influence asthma care through being part of guideline development groups including SIGN/BTS (Scottish Intercollegiate Guidelines Network/British Thoracic Society) British Asthma Guidelines, NICE (National Institute for Health and Care Excellence) Diagnosis of Asthma, NICE Management of Asthma, GINA (Global Initiative for Asthma) Allergic Rhinitis and its Impact on Asthma. Members of the network were invited to support the Primary Care Respiratory Society UK (PCRSUK) in synthesising these multiple guidelines into a unified document for primary care healthcare professionals (HCPs).

Our work is regularly featured in professional publications such as the PCRS UK newsletters helping inform, educate and influence frontline healthcare professionals working with people with asthma.

Training materials developed for the ARRISA-UK (At-Risk Registers Integrated into primary care to Stop Asthma crises in the UK) and IMP²ART (IMPLementing IMProved Asthma self-management as RouTine) studies have been targeting primary care

professionals to improve delivery of asthma care. With Education for Health, IMP²ART have also developed training for healthcare professionals delivering asthma care. This has reached and been used by a wider cohort of healthcare professionals.

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“Asthma action plans are in [general practice] now. Maybe it’s just a change in the general perception of what’s going on and all the noise that we’ve been making about action plans and publishing on it.”

Centre Member, Senior Researcher and Clinician

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Read more about IMP²ART in the High Quality Research section



Read more about ARRISA-UK in the Internal Capability and Processes - Core Infrastructure section

Some initiatives outside of the Centre have been influenced by its work and network. Our members in Leeds have worked with partners locally to help set up an asthma friendly school network.

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“We got one of our clinical nurse specialists from our asthma clinic seconded into a role to set up the asthma friendly school network. It’s something we’re quite proud of.”

Centre Member, Researcher and Clinician

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Working with industry

Our connections to industry partners with an interest in health continue to grow. Several studies have benefitted from collaboration with industry partners, including app developers for clinical research, smart device developers (like peak flow machines to measure lung function and smart inhalers), climate and environmental data experts, and experts in how applications communicate.

Being the bridge between academia and industry: Project A4A Connected+

One of our PhD students joined the Centre as a qualified engineer, interested in how technology could be used best to support people with asthma. A4A (App for Asthma) Connected+ designed and tested an app which connected multiple devices which supported people in monitoring their asthma. The App allowed them to choose which devices they linked, and if and when they shared the information with a healthcare professional. The app was also able to include further technologies in the future. The idea was to allow them and their healthcare professional to have a better overall picture of their asthma and to take steps to improve it.

This study involved industry partners including Medical International Research SmartOne and Smart PeakFlow, which provided devices for the study, and Findair and Polar Electro (UK) Ltd provided the software support to allow the different devices to link together and 'talk' to one another.

This study continues to lead the way in demonstrating how academia and industry can work together for the good of patients.

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“My perspective was there right on my first day in the Centre. I already had a mindset around being a bridge between industry and academia. I want to support the academics and industry together to make something good for the world.”

Former PhD Student

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**Building
UK Asthma
Research
Capacity
and
Capability**

Building UK Asthma Research Capacity and Capability

Through our postgraduate training programme, we provide excellence in education, developing the next generation of inter-disciplinary applied asthma researchers and championing future leaders.

A unique offering

We recognise that our postgraduate students and Early Career Researchers (ECRs) have a range of experience and expertise before they join our Postgraduate Training Programme. We aim to offer a flexible programme centred on individual needs, which builds and exploits the diverse range of experience and expertise. Peer teaching and learning has been key to our success and is part of our multi-disciplinary approach.

Regular online training allows students and ECRs to gain insights and understandings of different research areas relating to asthma. In-person training meetings held across the UK two to three times a year help students feel even more connected to their cohort.



“I definitely think it was a good holistic approach that gave me well-informed knowledge which means I can think more widely about branching into different areas.”

Former PhD Student.



The multidisciplinary background of our students and ECRs brings a depth and breadth of diverse experience. They have found real strength in learning from each other and seeing different perspectives. For those without a clinical background they have learned from their peers, our PPI group and from a range of educational opportunities such as inhaler device training and technique and asthma action plans. Overall, this gives those in the training programme the opportunity to develop a rounded understanding of the mechanics, treatment and management of asthma alongside their specific research.

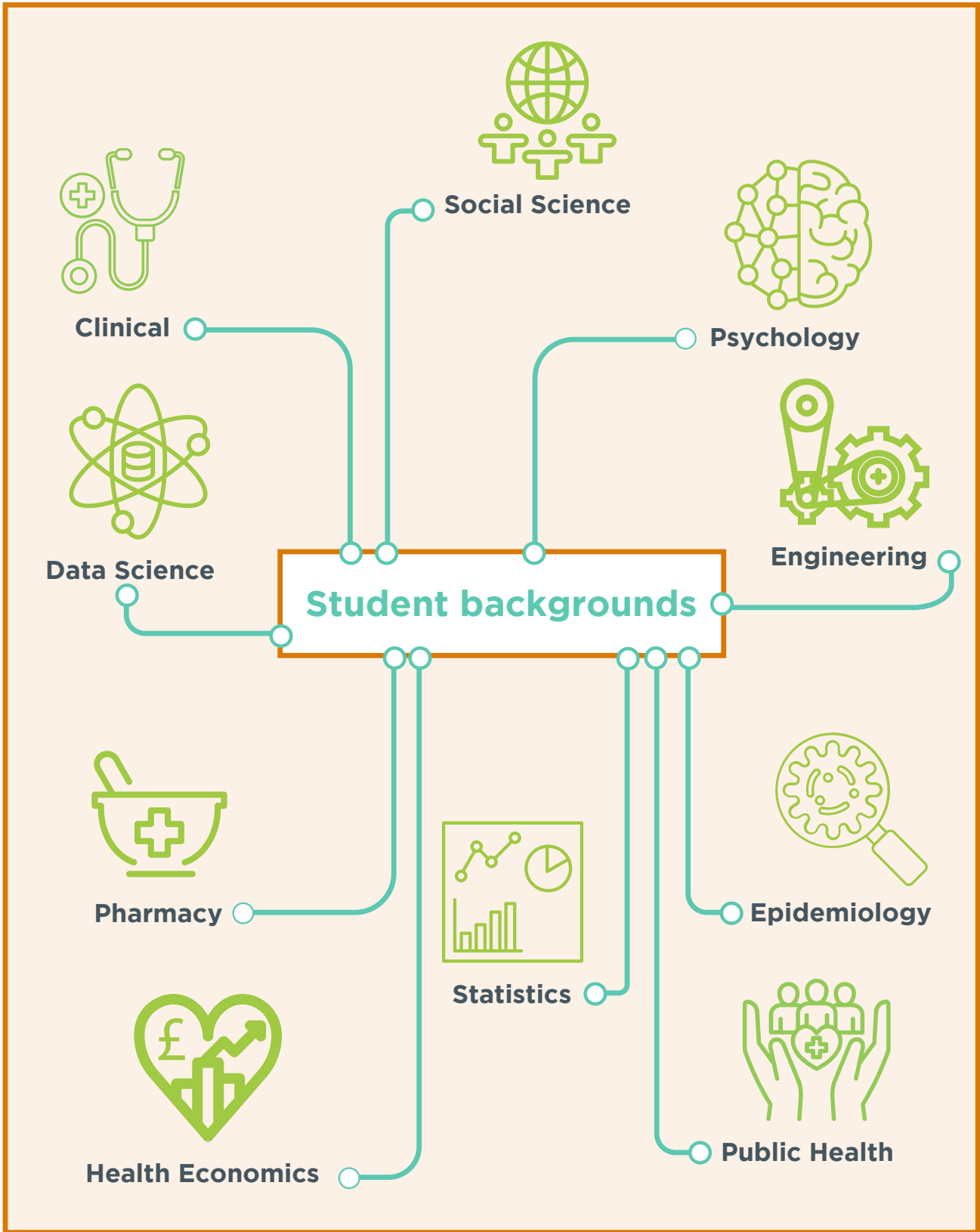
Additionally, training in various methodological approaches gives our students options for when they complete their studies.



“I’ve got a clinical background, but still having the asthma specific training was useful. So having the sessions with one of the respiratory pharmacists who talked about all the different inhaler types was great.”

Centre PhD Student





Developing comprehensive skills

Other key academic skills taught on the Postgraduate Training Programme include grant writing, writing for the public, managing personal wellbeing and presenting in a safe and friendly environment.

Another key skill was being able to present in a safe and supportive environment. All students are encouraged to present at the monthly Research Seminars and at the quarterly Training Sessions, and to submit abstracts for the Annual Scientific Meetings, for either poster or oral presentations.



“There’s the Centre meetings, the students have all spoken and presented posters and abstracts at a percentage of meetings. You may think, well, that’s in-house, but by many people’s standards, that’s UK-wide. So, although it’s in-house, our house is so big.”

Centre Member, Senior Researcher and Clinician



Developing presenting skills

One PhD student joined the Centre during the COVID-19 pandemic as an affiliate.



“In my last annual conference, I won an award for my presentation, which was such a nice way to end it for me personally, because at the beginning I was petrified to even talk in front of the other PhD students. It really does reflect the confidence I gained from the opportunities there were in the Centre.”



Read more about the monthly Research Seminars and the Annual Scientific Meetings in the Internal Capability and Processes – Core Infrastructure section.

While part of the Centre, students and ECRs are encouraged to become members of appropriate professional bodies and attend appropriate conferences, depending on their research focus. Most students have presented their work as poster or oral sessions at conferences such as the European Respiratory Society International Congress, the International Primary Care Respiratory Society Scientific Meeting, the British Thoracic Society Meetings, the Primary Care Respiratory Society Conference, the King’s John Price Paediatric Respiratory Conference, the International Conference on the Internet of Things, and the European Health Psychology Society Conference, among others.



During these events, the students felt the benefit of being part of support network, and this also helped to develop further confidence as each new step was taken.

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“When we would go to conferences, it meant that I wasn’t just stuck by my supervisor’s side or on my own. There was a group of us who were there. I remember giving my first presentation at a large conference and seeing the other PhD students in the crowd. They were all like “I’ll ask a question. What question do you want me to ask?””

Former PhD Student

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Fostering collaborative practices

The Postgraduate Training Programme was established with collaboration at its core. This included the supervisory structure for all students. Every supervisory team included people based in their own department or institution alongside a Centre member from another institution. This encourages a broad mindset for students and supervisors when it comes to research focus.



“The PhD students had to have a supervisor from another university. It was all part of encouraging this working together.”

Centre Member, Senior Researcher and Clinician



As well as academic training, the Centre provides its students and ECRs with support for the experience of working through a PhD, MD or research study. The trainees have a strong bond with each other despite being based at different institutions across the country. Some have also developed deeper cultural understandings.



“I felt like the Centre student community was a closer-knit group than my own lab group [in my own institution]. We’re still all very much in touch. I refuse to leave the PhD student group even though I’m not a student anymore!”

Former PhD Student



When they can meet in person at the Centre training meetings, it reinforces these connections.



“I find these meetings incredibly useful to have an opportunity to network with other PhD students who are sharing similar experiences.”

Centre PhD Student



Working through lockdown

The relationships in the Centre were particularly important for those who were studying during the COVID-19 lockdown period. Since the network was set up as virtual from the beginning, the transition to remote working was straightforward. Reflecting on the challenges of being a student and a supervisor during the pandemic, several members discussed the experience in a series of videos available to watch on our website.

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“I know that working from home, it has been quite isolating, but having had the friendships made through the Centre, I’ve been able to schedule my Teams meetings with the other PhD students. I’ve got someone to have a coffee and a chat with and talk through any of the problems that we’ve had going on.”

- Centre PhD student

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As part of the culture of collaboration and developing best practice across the group, several students reached out to others to work together and support each other.

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“I could have found someone else to help support with my systematic review, but the fact that another student was interested in learning those skills and had a similar project, it worked really nicely for both of us.”

Centre PhD Student

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Influencing career paths

Being part of the Centre has impacted our students’ careers directly. It has given many students and ECRs insights into their future options, as well as creating an ongoing influential professional network to connect with and enable them to develop future careers.

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“I always had a sounding board for my ideas that gave me a broad perspective of where my research could go. I’ve ended up moving into slightly more mixed methods like implementation research that was nothing to do with my PhD, but that was inspired by talking with other researchers in the Centre.”

Former PhD Student

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Some students and ECRs remain in research after they complete their studies through the Centre. Some have applied as co-applicants on grant applications due to the training and support they received from the Centre. For example, students have gone on to be co-applicants on grants looking at the relationship between asthma and sex hormones, a prediction model study in New Zealand, equitable health partnerships across Africa, and using novel technologies to support teaching.



“The Centre has provided fantastic support, training, and networking opportunities, which influenced my decision to remain in this area of research”

Former PhD Student



Career Path from PhD student to Senior Research Fellow for Patient and Public Involvement

Dr Tracy Jackson was a PhD student in the Centre researching the impact of financial incentives on the implementation of asthma self-management in general practices in Northern Ireland.

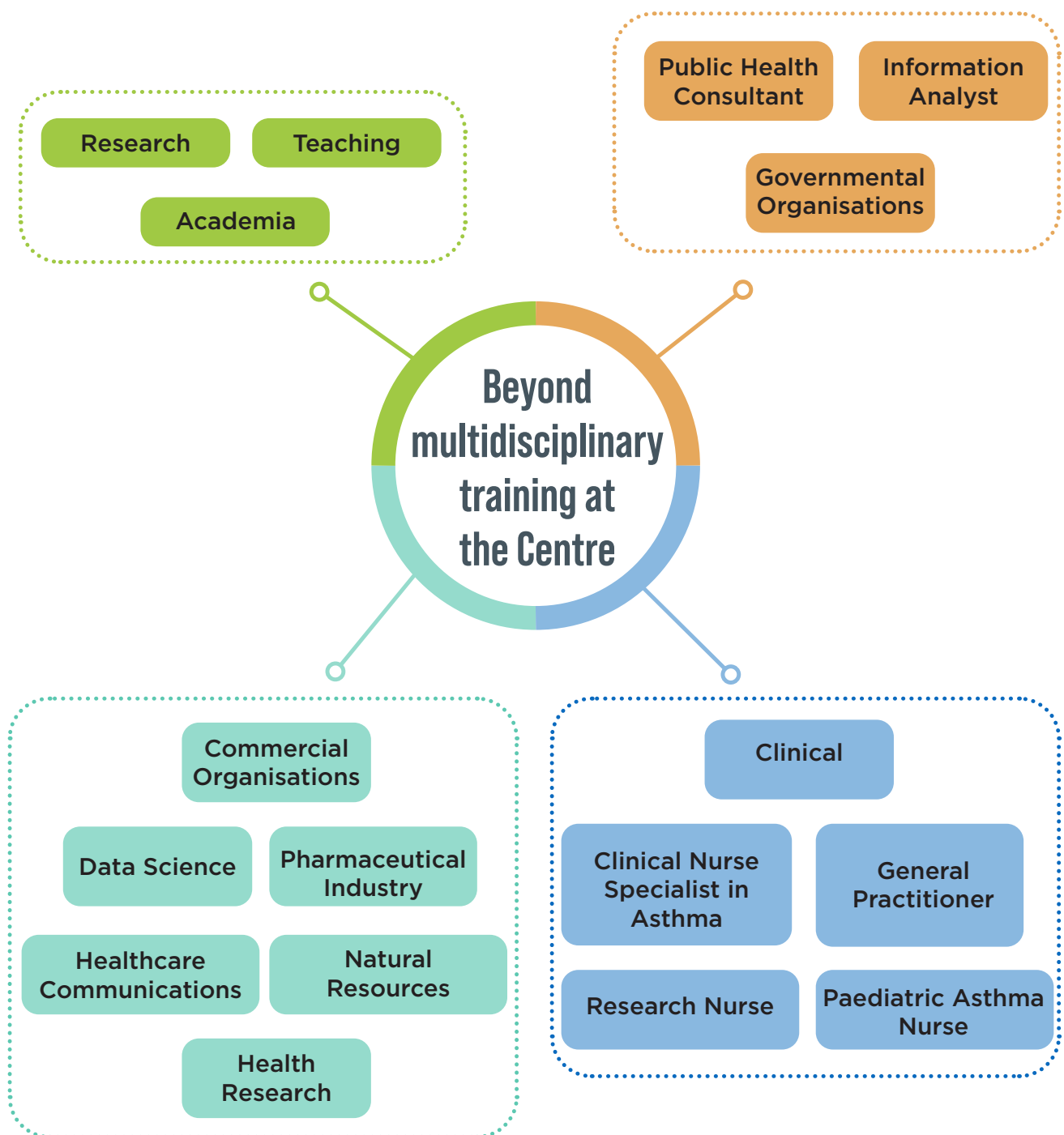
Nearing the end of her PhD, an opportunity within the Centre arose: Patient and Public Involvement (PPI) Research Fellow. It had been such an integral part of her PhD and meant Tracy could work even more closely with the PPI members she had collaborated with during her studies.

Because of her work in the Centre, Tracy was invited to lead the PPI in other projects within the University of Edinburgh, including the Health Data Research UK’s BREATHE project, a respiratory health research data hub, and The National Institute for Health and Social Care Research Unit on Respiratory Health (RESPIRE), a global health project focusing on respiratory health in Asia. During the pandemic, Tracy was also involved in delivering the PPI in a lot of UK and Scotland based research on COVID-19.

Due to Tracy’s work ethic and development since completing her PhD, she was appointed a Co-Lead of the Centre’s PPI Team. She was also promoted to Senior Research Fellow for Patient and Public Involvement in the University of Edinburgh. Tracy now leads the strategic direction for PPI in the Centre and has built up a team around her to continue the meaningful work in this area.

Read more about PPI in the Centre in the Working Together with Patients and the Public section.

Our alumni have varied roles beyond their studies with us. Many remain in asthma research, but others use their skills in engineering, psychology, teaching and clinical areas.





**Internal
Capability
and Processes
- Core
Infrastructure**

Internal Capability and Processes - Core Infrastructure

In addition to our high-quality programmes of research and professional development we aim continually to improve how we support our network of members. We focus on being efficient and effective in how we manage our resources and continue to foster a positive culture across the Centre.

To facilitate and enable the delivery of our programmes of work we have a motivated team of exceptional people co-ordinating all our activities. Without this team we could not deliver the ambitious standards of research, patient involvement and advocacy activities, upon which our reputation is built.

Our collaborative network

We are an inclusive network, headed up by our co-Directors, working cohesively with a team of Centre core staff, people affected by asthma, and a range of academic and clinical leaders from across the UK. The overall vision and direction of the Centre benefits from this diverse, collaborative leadership and having patients at the Centre.



Over our time together, the network has grown year on year from 14 to 22 academic, NHS and other collaborating institutions across the UK. Over a third of these institutions are actively involved in the oversight of how the Centre is governed, and all are invited to participate in the broader work of the Centre. We embrace all views from our network members including our students and patient members. We have fostered a culture whereby collaboration is paramount, and this has resulted in increasing numbers of collaborative cross-institutional grant applications, sharing of ideas and less competition between institutions for students and grants. We have developed an over-riding common goal to improve asthma outcomes by making a real difference to the lives of those affected by asthma.

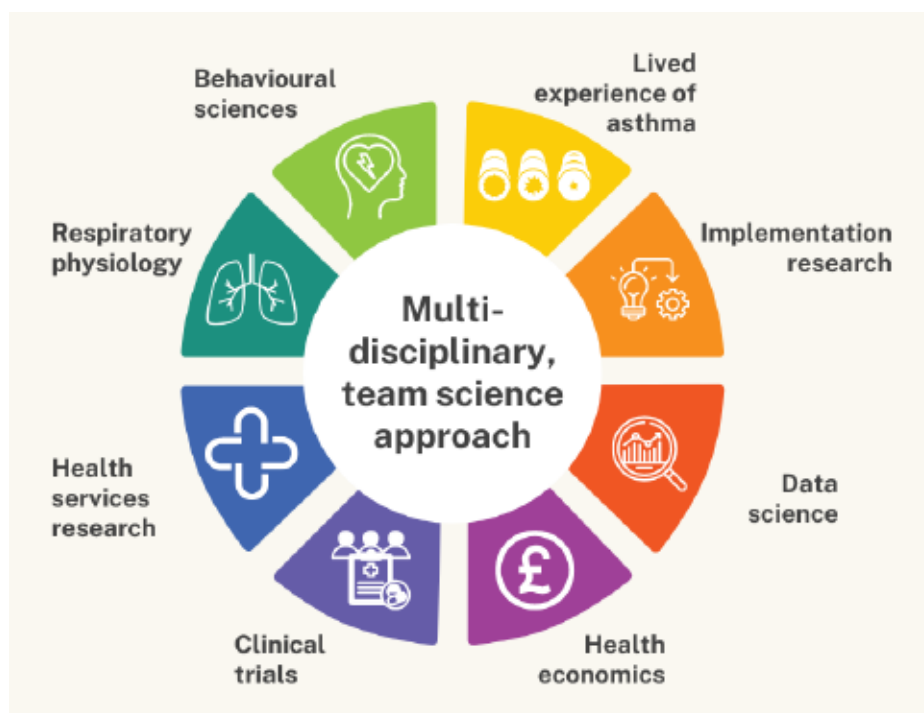


“I’ve learned that it is possible and desirable for people from competing universities to come together to work on a shared mission and that kind of a culture needs nurturing.”

Centre International Advisory Board Member



The Centre has a multi-disciplinary, team science approach, without a limiting hierarchy. It is a thriving network of a range of diverse institutions and individuals wishing to openly collaborate. We value views and new ideas on our research activities and broader impact work. As well as involving people with lived experience of asthma, we attract qualitative and quantitative researchers from diverse areas. We have members from a wide range of educational and work backgrounds with different skills and expertise which include medicine, psychology, data science and engineering, and different methodological specialities, like clinical trials, behavioural interventions, implementation research and statistics.





“We are all very aligned in what we wanted to do. There was an intention to have this network to work together to be incredibly open to collaborations.”

Centre Member, Senior Researcher and Clinician



These multidisciplinary connections have enabled collaborations on large programme grants, which raises the quality of the applications that are submitted.



“Because we had immediate, obvious and very supportive access from very high and very senior people from lots of different places, and in lots of different skills, it elevates the standard of the grant applications that can go in.”

Centre Member, Senior Researcher and Clinician



ARRISA-UK (At-Risk Registers Integrated into primary care to Stop Asthma crises in the UK)

ARRISA-UK is a trial testing whether a training scheme to identify and flag records of people with a high risk of asthma could reduce how often they have severe asthma attacks which lead to them going to hospital or dying.

270 GP practices across England, Scotland and Wales have been enrolled and their staff have been trained. This study produced an algorithm using anonymous routinely collected data to identify more than 10,000 patients in the UK at risk. Computerised medical notes in the practices will provide pop up alerts to staff to remind them to book appointments, advise patients to take medications and follow their written asthma plans.

The study will tell us whether the training has changed the numbers of people going to hospital or dying because of their asthma. It will also tell us whether the cost of the training and computer system changes the cost to the health service.

ARRISA-UK is a multi-centre, multidisciplinary study involving people with asthma, researchers from nine universities across the UK and the charity Asthma + Lung UK. Many researchers are part of the Centre’s network and bring to the study the expertise in primary care and data science.

ARRISA-UK will soon be reporting its results which could have major impact on reducing the numbers of asthma hospital admissions and deaths.



“By having colleagues from other institutions with expertise in primary care, this strengthened our application for ARRISA-UK.”

ARRISA-UK Chief Investigator and Centre Member



As well as large programme grants, individual projects are encouraged to be collaborative across institutions. All our students have supervisors from multiple institutions. This gives them broader viewpoints and instils in them an outward, collaborative focus.

 **Read more about our Postgraduate Training Platform in the Building UK Asthma Research Capacity and Capability section.**

Our members continue in the ethos of collaboration by encouraging new members to join the Centre. This includes people with asthma, senior researchers in specialist clinical areas, PhD students wishing to increase their knowledge of asthma, researcher managers, education specialists, and our international advisory board members.

Funding into asthma research

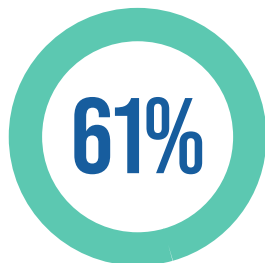
Asthma & Lung UK's Research Strategy is to attract significantly more money into respiratory research (19). We have been hugely successful in achieving this aim by increasing our core funding over 20-fold. Since 2013, we have received £4 million from Asthma + Lung UK as a core grant and we have successfully attracted over £83 million for applied asthma research through other grants. As well as the cross-institutional collaborations, many of these grants were collaborations between small and larger industry partners, including Tiny Medical Apps, X-halo, Health Unlocked and GSK.

We are indebted to all our funders for their support.

 **Find out how industry connections have been supported through the Health Data Research (HDR) UK BREATHE Data Hub in the Driving Change section.**



Centre funding:
21 students and Early Career Researchers



Additional match-funding and external funding:
33 students and Early Career Researchers

£2 million of grant funding received from Asthma + Lung UK, supported a total of 21 PhD students and ECRs. They were based at various collaborating academic institutions within the UK. The Centre was able to leverage further funding from our affiliated university partners. Further investment of approximately £3 million came through 33 additional match-funded and externally funded PhD students and ECRs who wanted to benefit from our network and the postgraduate training programme.



“Having Centre money gives us the opportunity to leverage funding into asthma research. Approaching your institution with funds from the Centre makes them much more willing to match it.”

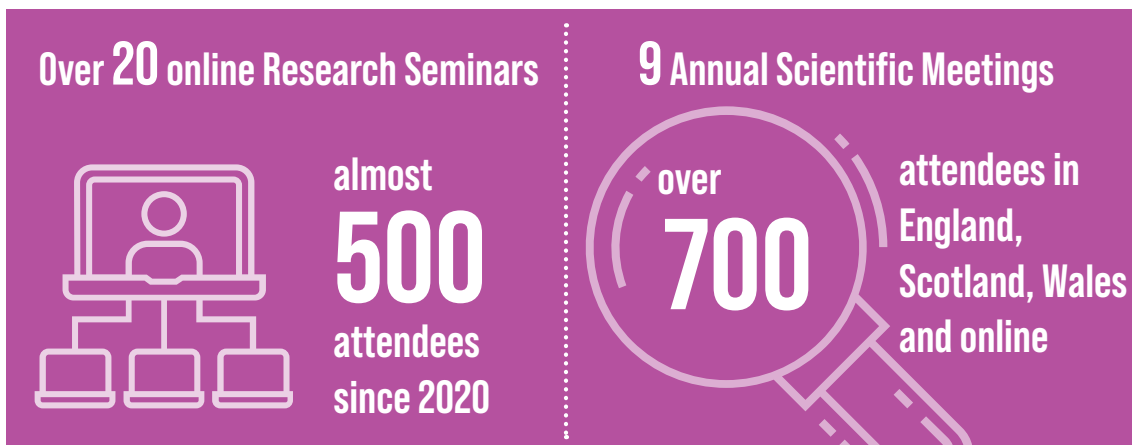
Centre Member, Senior Researcher and Clinician



Communication across a UK-wide virtual community

We are proud to be inclusive and bring together individuals from across the UK, from diverse backgrounds and geographies. Many of the activities of the Centre operate virtually, which is convenient but also allows us to minimise our operating costs. Utilising digital communications from the outset has enabled the Centre to create a true sense of belonging. Regular communications through emails, quarterly newsletters and website content have given members choices about how to engage with the Centre. It also helped members understand the complexity and breadth of work in the Centre while celebrating its success. Engagement activities like monthly online Research Seminars and the in-person Annual Scientific Meetings (ASMs) helped build togetherness, congeniality and a positive emotional culture.

There have been over 20 online Research Seminars with a total of almost 500 attendees since 2020. Over the 9 ASMs held so far, over 700 attendees have met in person in various locations in England, Scotland and Wales, and online during 2020 and 2021.



Our ASM is highly valued by the members of the network. Not only does it provide an opportunity to share current scientific outputs, but it also provides an opportunity to recalibrate what we are doing as a Centre, in the context of current changes in clinical practice, policy and service delivery. This regular contact has been vital to the life blood of the network and our student community.



“We could bring a good many of the applied asthma researchers in the UK together to create a network that didn’t have a physical home. It was designed to be a virtual grouping and that was the novel feature of it.”

Centre Member, Researcher and Clinician



Having the chance to get together and share work has been one of the most enriching experiences for Centre members, particularly our students. Our monthly online Research Seminars were an opportunity for our students to share their work in a safe and supportive environment and invite a guest speaker of their choosing.



“Meeting PhD students in person and online across the network and the UK built a fantastic sense of community”

Centre PhD Student



During the COVID-19 pandemic, while many research programmes had to slow their work or stop altogether, the Centre’s virtual environment allowed members to pivot to online working almost immediately. Using the relationships and partnerships that already existed, the Centre was able to pivot towards population-level data science methods to understand the prevalence and spread of COVID-19 within the UK. This work provided evidence for national-level responses to the pandemic.

A welcoming and friendly environment

The Centre has a core team of staff who form the operational heart. They are essential to the running of the Centre; without these individuals, our research community would not have flourished as it has. They provide the robust and supportive hub of the Centre to facilitate the management of the Centre, the integration of PPI work, Advocacy, Communications and Engagement and the Postgraduate Training Programme.



“Having core funding means there is a nucleus around which people can congregate, and we can use that as a springboard to leverage more research grant funding. It’s just a huge stimulus. I think as an organisation structure, ambition, outlook, it’s worked exceptionally well.”

Centre Member, Senior Researcher



Students in particular feel supported in the early stages of their careers. Beyond the Postgraduate Training, many students felt the Centre was a safe and welcoming environment to ask questions, particularly of very senior academics, but also within their own group, both on academic matters and for pastoral support.

“

“ I think sometimes in your own institution you might have a similar person as a postgraduate coordinator, but it can be difficult to chase them down or they might be supporting a much larger group and doing that as a very small part of their other roles. So having that connection throughout, if they couldn't answer a question, had links to so many other people in the Centre that could help you. That was valuable.”

Former PhD Student

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Read more about the Postgraduate Training Platform in the ‘Building UK Asthma Research Capacity and Capability section on Page _____

Many of our members are practising clinicians who are embarking on new academic careers while combining this with their busy day-to-day clinical and leadership responsibilities in the National Health Service (NHS).

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“I work part-time for the Centre and part-time for the NHS. The programmes and outputs from the Centre really are applied and they really are making a difference.”

Centre Member

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For members who were further along their academic careers, the Centre also provides a welcoming and friendly environment, particularly at the ASM. The ASM is the Centre's main opportunity for members to meet, share ideas and findings and generally feel part of a bigger group.

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“Everyone is so involved as a community. You can speak to people from a range of disciplines and seniority, without any fear of worry or intimidation.”

Centre Member, Senior Researcher

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Viv Marsh, Facilitation Coordinator, IMP²ART Programme

Viv Marsh joined the Centre through connections to Monica Fletcher, Advocacy Lead. Both working at Education for Health, Monica asked Viv to input into the IMP²ART programme grant.

With her background in education and nursing, Viv's input into the IMP²ART programme would be vital for the implementation of the study into practice. Viv hasn't come from a traditional academic research background but didn't feel intimidated when joining the Centre.



"I did feel accepted. I did feel welcomed, and it is incredibly welcoming. I always felt valued. I always felt encouraged to speak, to share my opinions. To feel such warmth and to feel welcomed and to develop the confidence to be comfortable in speaking my own truth, which is something that is very important to me and that was just great."



Read about the IMP²ART Programme in the High Quality Research section.

The value of the network and its processes have been recognised as best practice in virtual research centre management. Colleagues at another institution were setting up a NIHR (National Institute for Health and Care Research)-funded global health research centre and approached the Centre to enquire about the processes for affiliate membership.

Wider collaboration

Due to the Centre's collaborative nature, further initiatives have been developed.

The Centre formed strategic links with the Medical Research Council (MRC)-Asthma UK Centre in Allergic Mechanisms of Asthma. This Centre's work focussed on lab-based research understanding the allergic mechanisms of asthma to inform the development of new treatments. The connection encouraged members of both Centres to think and work beyond their silos, allowing them to engage in work between the fields of basic and applied asthma science.

The alliance between the two Centres resulted in joint educational programmes, engagement activities, symposia at national conferences, grant applications and studies, and publications. Studies which spanned both Centres included research into Vitamin D and its impact on people with asthma, and the health impacts of air pollution. Collaboration between the two Centres also secured renewal of the MRC-Asthma UK Centre in Allergic Mechanisms of Asthma.

Many members of the Centre and its stakeholders combined forces to successfully bid for the HDR UK (Health Data Research-UK)-funded BREATHE Health Data Research Hub. Combining patient, clinical, methodological, industry insights to create Findable, Accessible, Interoperable and Reusable (FAIR) respiratory datasets allowed this Hub to provide expert support to catalyse the use of these data in respiratory research and innovation. The hub provided a platform to receive, curate and provide secure access to data for a diverse range of stakeholders including government COVID-19 bodies, NHS Trusts, local authorities, public health agencies and academic groups across the UK. Its ambition was to allow industry partners access to data in anonymised safe havens for research and development purposes.

Beyond the BREATHE Health Data Research Hub, the push towards a UK linked respiratory data environment continues. In 2023, HDR-UK funded six Research Driver Programmes, one of which included Inflammation and Immunity with a focus on respiratory health as its theme. This shows the leveraging of respiratory expertise from across the UK, combined with data specialists and learnings from the COVID-19 pandemic to drive forward potential for new treatment and management breakthroughs, as well as policy change.

We are currently in discussion about potential collaborations and synergies with the Canadian Respiratory Research Network and others.

Conclusion: The whole is greater than the sum of its parts.

Overall, we as a Centre are extremely proud of the change and impact we have made in the field of applied asthma research. We have learnt so much but recognise that of itself, high quality science is not enough to achieve the social, clinical and personal impacts as highlighted in our Theory of Change model.

We've been at the forefront of implementing the standards of meaningful PPI, we've set up a strong foundation for the future of asthma research, and we've established a passionate community of people invested in improving outcomes for people with asthma. The collaboration and partnerships that started in the Centre have transformed the applied asthma research culture and environment.

People living with asthma deserve the best outcomes possible, only achievable with world-leading evidence-informed research. When evidence drives holistic policy shifts, changes in clinical practices, and innovation in effective tools, the benefits of improved quality of life will be seen by people living with asthma.

We want these impacts to continue. The Asthma UK Centre for Applied Research has shown what can be achieved when people with asthma, academics and clinicians come together in collaboration rather than competition.

Looking forward, we see a future which engages far wider than our academic community and existing partners. We need to widen our network further, bringing in expertise from other disciplines such as; business, engineering, social sciences. We want to transform the lives of the millions of people and their families living with common respiratory conditions in the UK and beyond.

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