

**Asthma UK**  
**Research Strategy**  
**2016-21**



# Asthma UK Research Strategy 2016-21

## Background

### Why fund asthma research?

Whilst prevalence of asthma has stopped rising in the UK over recent years, this has not been matched by an improvement in outcomes such as deaths from asthma and emergency admissions. We need new approaches, not least because of the rapid growth in global asthma prevalence which means that over 300 million people are now affected by asthma on a daily basis.

This is a hugely exciting time for science with breakthroughs in a variety of areas including personalised medicine, genomics, biomarkers, phenotyping and m-health. There is also new understanding of what causes and drives asthma, and new technologies that have the potential to deliver new treatments, objective diagnostic tools and better support asthma self-management. This gives us renewed optimism that asthma outcomes could be transformed by investment in research.

Research funding can be used to both help people prevent asthma attacks now (practical, people-based 'applied' research) and to speed up the journey towards a cure (discovery or laboratory-based 'basic' science). Research is, therefore, critical for Asthma UK to achieve our organisational vision of "Stop Asthma Attacks. Cure Asthma".

### What has changed since the previous strategy?

The 2011-16 Research Strategy was published after a very extensive impact assessment of our research portfolio. It was agreed the research funding landscape had not changed sufficiently to need that exercise repeating, and that this strategy should be evolutionary rather than revolutionary. It is critical to cement the progress already made in the last 5 years by using Asthma UK's funding to further strengthen the asthma research 'supply side' by continuing to:

- Strive to fund a balanced mix of types of research (e.g. applied and basic).
- Fund two Research Centres in the UK to develop a critical mass of researchers to collaborate, grow talent, build networks and act as hubs from which to lever greater research activity.
- Invest to expand the pipeline of world class asthma scientists.
- Actively promote collaborative working and patient and public involvement in asthma research.

We believe the UK's current pre-eminence in asthma research, and position as a global science hub, continues to make it the right place to develop the stellar asthma scientists for the future. To invest more in this area, we have decided to stop funding research through commissioned grants as a way of addressing specific priority research needs. Instead Asthma UK will explore how best to encourage collaboration between researchers to address these questions. Medical research charities are increasingly collaborating with a wider range of partners and in different ways. This is a relatively unknown area but we expect this to grow.

The biggest strategic change in the next 5 years will be the research priorities we focus on. Asthma UK has historically been a thought leader in research prioritisation; believing this is critical to ensure our limited funding maximises the benefit for people with asthma. This has been taken to the next level through the collaborative work of the European Asthma Research and Innovation Partnership (EARIP) [www.earip.eu](http://www.earip.eu)

We recommend the 15 asthma research priorities identified by EARIP are used to not only guide Asthma UK's funding decisions but all research funders both in the UK and internationally over the next five years.

However wisely Asthma UK directs our own research funding, to truly deliver better outcomes for people with asthma we must be more active in driving overall asthma research funding. In the last 5 years there have been more calls on the limited research funds available globally, and we believe asthma has often been overlooked. We are proposing to invest more to make the case for asthma research as strongly as possible in the UK and internationally, to ensure asthma research receives a greater share of available research funding.

## How this strategy links to our overall organisation strategy and mission

Asthma UK's long term mission is to stop asthma attacks and cure asthma, and we do this by driving and funding world class research, campaigning to improve the quality of care, and providing expert advice and support. By supporting new avenues of asthma research and asthma scientists we aim to halve the time it takes for new discoveries to start helping people with asthma. New technologies and collaborations will increase the chances of scientific breakthroughs and we are determined everyone with asthma should benefit. Research is critical to beating asthma long-term but we must also improve the treatment and management of asthma right now. In order to help people to effectively manage their daily life with asthma and reduce their risk of an asthma attack, we use research evidence to continually update all the information and advice we provide. Research evidence also underpins all our campaigning activity; we constantly challenge the complacency around asthma, raising awareness of the issues and solutions to ensure there is consistent delivery of the basic care that research has proved time and time again substantially reduces the risk of an asthma attack.

# Asthma UK research strategy 2016-21

## Asthma research priorities

- A)** Ensure every aspect of our research work is directed by the areas of unmet need and likely impact identified through the European Asthma Research & Innovation Partnership (EARIP) – the Top 15 asthma research priorities (page 5). These 15 are in ranked order of importance, and can be grouped into the following 6 themes:
- Asthma biology
  - Asthma types
  - Asthma prevention
  - Asthma diagnosis
  - Asthma management
  - Asthma treatments

## Asthma UK research investment

- B)** Aim to achieve a 50/50 balance of funding for high quality basic and applied research across our portfolio to achieve impact for people with asthma in both the short and long term. In practice our control over this is limited but we evaluate annually and can adjust funding rounds if necessary. We will not fund poor quality science just to 'balance the books'. It should be recognised that basic science has a 20 year track record of successfully attracting funding and the applied field will take time to catch up (perhaps another 10-15 years). We will work with the research community to increase the number and quality of applications submitted. In addition we will ensure that the funding available is appropriate for both types of research.
- C)** Invest our funding where we think this will leverage additional financial support from other funders for the Top 15 asthma research priorities. We will actively pursue different types of research funding partnership models to increase funding available for asthma research, subject to these meeting the same standards of governance as our existing funding.
- D)** Continue to fund both Asthma UK's world class research centres (Asthma UK Centre in Allergic Mechanisms of Asthma, and the Asthma UK Centre for Applied Research) for the rest of their current terms. Following consultation and agreement on the strategic direction of this Centre in 2016-17, we will invite the Applied Centre to apply for a second five year follow-on term of funding in 2017 (funding would continue in 2019 subject to favourable review by an external independent review panel in 2018). We will consider the funding mechanism for ongoing investment into basic research in 2018 and have an open competition for this funding in 2019 (funding to begin in 2021).
- E)** Support the growth of asthma talent in the UK by investing in promising researchers to become established in their career by funding a mixture of projects, fellowships and PhD studentships in the UK over the 5 year period. Decisions about which and how many to fund each year will be made according to predicted income and funding gaps. To support this talent growth Asthma UK funding will be available to UK based researchers; international collaborators may be funded as co-applicants but not lead applicants.

## Research investment influencing

- F) Re-frame the asthma funding landscape in line with the new asthma research priorities, using these to influence and collaborate with other research organisations, industry and funders to increase the amount of funding available for asthma research and equipping researchers across all disciplines to build more compelling asthma research applications by sharing our case for investment.
- G) Drive collaboration by encouraging researchers to work together to link basic and applied science to create a pipeline of research innovation that speeds up the process through which new interventions reach people with asthma. We will strengthen links between our two Centres, and explore opportunities to organise 'sandpit' events with the aim of connecting researchers to write collaborative bids for funding for a specific priority research area.

## Asthma research governance

- H) Select the research we fund through rigorous review processes, firstly filtering the applications in terms of their alignment with the Top 15 priority research areas and secondly in accordance with their quality; only the highest quality research of the greatest relevance and importance will be funded.

- I) Monitor and evaluate the research we fund in line with best funding practice and governance requirements and maintain Asthma UK's Gold-standard certification by the Association of Medical Research Charities (AMRC). We will also measure the difference our research is making in the lives of people with asthma by capturing impact achieved on an annual basis and endeavour to improve the quality and efficiency of our impact reporting in line with current trends.
- J) Continue to promote the involvement of people with asthma (patient and public involvement; PPI) in research to increase the quality and relevance of research applications to their intended beneficiaries by providing and brokering expertise to researchers and maintaining a pool of trained research and policy volunteers. Asthma UK will continue to involve people with asthma in all our research funding processes and offer direct PPI support to large and/or multi-national projects as co-applicants.
- K) Make the most of donors' money by constantly seeking ways to minimise support costs and streamlining research governance processes where possible.

	<b>Research priority (1=top priority)</b>	<b>* Type of research</b>	<b>Research theme(s)</b>
<b>1</b>	Identify, understand and better classify the different forms of asthma, their progression, and effect on airway inflammation and the immune system	<b>Basic</b>	Asthma Types
<b>2</b>	Assess the effectiveness of patient-professional communication to develop patient-professional partnerships, for example to optimise self-management and adherence	<b>Applied</b>	Asthma Management
<b>3</b>	Assess the effect of infections in early childhood, the long-term effects of anti-inflammatory treatments, and use of anti-viral drugs and vaccines	<b>Basic &amp; Applied</b>	Asthma Treatments
<b>4</b>	Assess impact, adoption and transferability of best practice in regional, national and European asthma programmes, care pathways and asthma clinics	<b>Applied</b>	Asthma Treatments
<b>5</b>	Develop new treatments for the different types of asthma: treatment-resistant and steroid-resistant asthma, severe asthma, allergic asthma, hyper-responsive asthma	<b>Basic</b>	Asthma Biology
<b>6</b>	Develop tools for quick, accurate and low cost diagnosis to distinguish asthma from other causes of breathlessness, cough and wheeze	<b>Basic &amp; Applied</b>	Asthma Diagnosis
<b>7</b>	Evaluate the implementation of supported self-management, the educational needs of patients and caregivers, and the challenges faced and training needs of professionals	<b>Applied</b>	Asthma Management
<b>8</b>	Evaluate the role of lung function testing and new ways of measuring airway inflammation in monitoring asthma	<b>Basic &amp; Applied</b>	Asthma Management
<b>9</b>	Identify biomarkers for exacerbations and understand the interactions between biomarkers, risk and comorbidities	<b>Basic</b>	Asthma Biology
<b>10</b>	Understand the increase in asthma (both childhood asthma and different types of asthma, such as allergic and hyper-responsive asthma) to help develop primary and secondary prevention strategies	<b>Basic &amp; Applied</b>	Asthma Prevention
<b>11</b>	Assess the efficacy of existing and new drugs on different asthma phenotypes	<b>Basic &amp; Applied</b>	Asthma Types
<b>12</b>	Develop tools to assess asthma self-management and asthma inhaler technique in primary care settings	<b>Applied</b>	Asthma Management
<b>13</b>	Explore the interaction between asthma, socio-economic and psychological factors, and comorbidities to reduce the risk of severe exacerbations	<b>Applied</b>	Asthma Prevention
<b>14</b>	Investigate the impact of environmental factors on asthma and exacerbations, such as air quality (indoor and outdoor), climate, allergens and microorganisms and UV radiation	<b>Basic &amp; Applied</b>	Asthma Biology
<b>15</b>	Understand the impact of exposure to substances known to trigger asthma, and the impact of strategies that regulate and control this exposure	<b>Basic &amp; Applied</b>	Asthma Prevention

\*There is often overlap here, this categorisation is to illustrate the likely type of research that would be encompassed in each research priority but should not be regarded as definitive.

## Asthma biology

In order to develop new asthma treatments tailored to different types of asthma, we need to build an accurate understanding of the intricacies of the immune system and the underlying biology of asthma. It's also crucial to understand how the lungs respond to triggers and infections, and to know about structural changes to the airways in order to prevent long-term lung damage. When symptoms become rapidly or wildly out of control, people can die from a fatal asthma exacerbation or attack. Despite best efforts, we still don't fully understand what happens in the airways during an asthma attack and we need to understand what early-warning signs could help us identify and prevent an asthma attack in advance.

## Asthma types

We know that all types of asthma are not the same, yet current treatments often adopt the same approach, meaning that they don't work well for everybody. Delving deeper into the subtleties that characterise different individuals' experiences of asthma (asthma phenotypes) is an essential step towards improving asthma control. We need to be able to differentiate between the various types of asthma in order to develop new and better-quality treatments which can then be targeted to those people who will benefit from them most.

## Asthma treatments

Millions of people experience unnecessary asthma symptoms that could be avoided if better use were made of existing treatments and treatment programmes were tailored to individual challenges and needs. We also know that thousands of people in the UK experience constant, debilitating asthma symptoms because their lungs don't respond to existing treatments such as steroids. To enable us to free them from asthma's effects, we will fund research to develop better treatments, and repurpose existing treatments, which enable all people with asthma to manage their symptoms effectively, and maximise the benefits they get from treatment.

## Asthma management

Regardless of how effective asthma treatments are, they will only work if people understand and appreciate their benefits and take them as prescribed. Although other challenges exist in asthma, psychological and lifestyle factors have an important part to play and we know that a number of complex barriers exist which unnecessarily limit the level of control most people have over their asthma and therefore their quality of life. In order to improve the way asthma is managed, we want to channel resources into research which gives us the information needed to empower and enable people to take control of their own asthma so they can live full and active lives.

## Asthma diagnosis

Currently there is no single diagnostic test for asthma. This means that asthma often goes unrecognised, putting patients' lives at risk, while others may be taking treatments they don't need. In order to ensure people with asthma get the right treatment and support for them, it's crucial to find a way to definitively diagnose asthma in primary care, and help health professionals to monitor their patients' level of asthma control. Building on recent developments in measuring lung function, we will fund research to develop quick and cost-effective tools to diagnose and monitor airway inflammation and asthma.

## Asthma prevention

Our knowledge about when asthma starts, what causes it, and how our risk is influenced by our genes, lifestyle, exposure to infections and our home and working environments has steadily increased. Scientists are now better able to identify ways to protect people from developing asthma; however there are still gaps in our knowledge. We will support research which helps us to explicitly understand how to stop people from ever developing asthma or cure it if it does develop, meaning that people don't need ongoing treatment or management to minimise symptoms. We will also channel resources to understand the relationship between different characteristics and behaviours which increase a person's risk of experiencing a severe asthma attack, and ways to reduce the risk.

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