The challenge
Asthma is the most common long-term disease in children. The drugs we use to treat the symptoms of asthma are effective in most children but some do not respond at all. There is currently no cure for asthma.

Few new asthma therapies have been developed over the last few decades. This is in part because asthma is an umbrella term, and we use this to describe patients with symptoms of cough, wheeze, breathlessness and chest tightness. However we know that these symptoms can arise for different reasons, with different underlying mechanisms. Sorting out the different disease sub-types will allow us to gain a better understanding of how asthma develops and eventually, how to prevent it.

The research
To improve science’s understanding of asthma, how it develops and how best to treat it, researchers at The University of Manchester developed a secure online system called the Asthma eLab. The eLab is a platform that is able to unite health information from a variety of sources and allow world-leading researchers to share ideas and expertise remotely and importantly, securely.

For the STELAR project, the eLab collated data that had been collected on seven, large in-depth research studies (which included 13,000 children). Each study had followed a large population of children from consenting families, from birth (or even before birth) and gathered information about who did and who didn’t develop symptoms of asthma and other diseases. This included information from primary care services, symptoms reported by parents, allergy testing and measurements of lung function as well as lab test results and environmental monitoring.

Researchers were then able to mine this data and understand more about the ways that childhood symptoms change and evolve over time for a variety of projects.

One such project used data from 9,801 children and investigated patterns of ‘allergic’ diseases in children. One well described pattern is known as the atopic-march, and describes a natural progression of symptoms from eczema to asthma and hay fever during childhood development.

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The results
Analysis of the data showed that whilst half of those involved in the study displayed symptoms of asthma, eczema or hay fever during childhood, only 7% of those affected by these symptoms showed the atopic march pattern. The majority of children with symptoms fell into one of the six other patterns that were identified.

The proportion of children with the atopic march pattern is much lower than had been previously thought. The other patterns identified may indicate different types of asthma, and this is now being studied further by the research teams. The researchers are also looking for ways to predict who will develop which pattern of symptoms in the future, but we cannot answer this question yet.

The impact
One impact of this research is that we know that most children who develop eczema in infancy will not go on to develop the atopic march.

Find out more at: http://bit.ly/STELAR_RESEARCH

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