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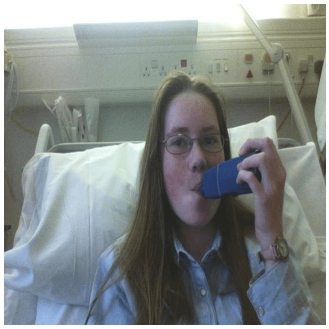
£15M Cystic Fibrosis Innovation Hubs to Use AI & Sniffer Dogs for Lung Infection Tests & Treatments

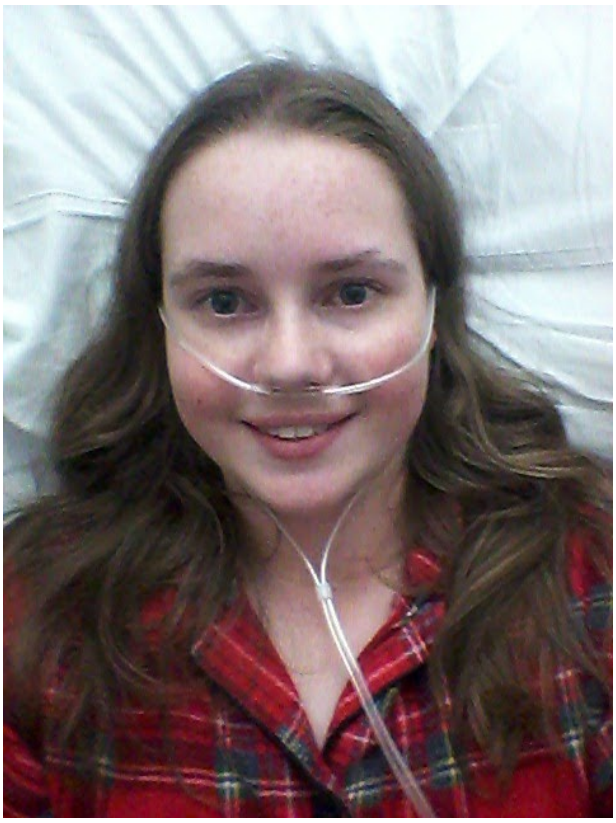


- LifeArc and Cystic Fibrosis Trust are jointly investing £15 million to establish a network of research innovation hubs that will accelerate the discovery of new tests, treatments and medical devices for lung infections.
- The Translational Innovation Hub Network for Lung Health and Infection will consist of four Innovation Hubs based in Cambridge, Liverpool, Manchester and London. Through innovative research, including using AI, sniffer dogs and new home monitoring tests to detect and even predict infections, they will aim to transform the way lung infections are detected, treated and managed.
- Cystic fibrosis (CF) is one of the UK's most common life-limiting inherited diseases, affecting over 11,000 people here and nearly 200,000 people worldwide. Despite recent advances in treatment, there's still no known cure and the median age of death is just 33.
- The network will bring together world-leading experts from different fields of knowledge, including scientists, doctors, data scientists, patients, regulators and industry partners, to provide a training ground for the next generation of scientists and clinicians.

A network of research hubs is being launched nationwide to speed up the development of new tests and treatment approaches for lung infections and improve the way that lung health for people with CF is managed in the UK.

The medical research charity, LifeArc, and leading charity Cystic Fibrosis Trust are jointly investing £15 million in the Translational Innovation Hub Network for Lung Health and Infection in cystic fibrosis. The network will be made up of four Innovation Hubs, led by the universities of Cambridge, Liverpool, Manchester and Imperial College London, as well as partners across the UK and overseas.

Guided by insights and experiences of people with cystic fibrosis, the new CF Innovation Hubs will address areas of unmet medical need and help to overcome some of the barriers that can prevent scientists from turning their discoveries into real outcomes for patients.



Dr Catherine Kettleborough, Head of Chronic Respiratory Infection at LifeArc says: “Even with the development of new treatments like Kaftrio, people with cystic fibrosis still face many challenges which impact their quality of life and life expectancy. The Innovation Hub Network is a unique approach to addressing these problems, using shared knowledge, partnerships and investment to accelerate new tests and treatments for people living with CF.”

Dr Lucy Allen, Director of Research and Healthcare Data at Cystic Fibrosis Trust, said: “We’re thrilled to be partnering with LifeArc and expanding our Innovation Hub programme, combining our expertise and exploring exciting areas of research to maximise the impact for people with CF.

"Those with the condition are particularly susceptible to lung infections, meaning they often have to spend time in hospital having IV antibiotic treatments and this has a huge impact on all areas of their life. These new Innovation Hubs will help transform our understanding and lead the way to new ways to test and treat lung infections.”

Cystic fibrosis is one of the UK's most common life-limiting inherited diseases, affecting over 11,000 people here and nearly 200,000 people worldwide. The condition causes mucus to build up in the internal organs, especially the lungs and digestive system. This can lead to chronic chest infections, lung inflammation and other complications such as digestive problems. For many people, managing their health involves a rigorous daily treatment regime including physiotherapy and oral, nebulised and occasionally intravenous (IV) antibiotics.
Cystic fibrosis is a life-limiting condition and, despite recent advances in research, there is still no known cure, and the median age of death is just 33.

Initial research projects for the Innovation Hubs will include using AI to forecast future lung infections. Researchers at the University of Cambridge will use cutting edge methods including machine learning to analyse the very earliest signs of a flare up of infections and predict the best antibiotic combination to treat them. The hope is to eventually create a test that can be used by patients at home to decide how and when to treat infections.
The team at the Imperial College London Innovation Hub will bring together microbiologists, healthcare professionals, breath scientists, cell and animal biologists, physiotherapists and even sniffer dogs to detect the pathogens, such as bacteria, that are often present in the lungs of people with cystic fibrosis and understand how these bugs are affected by other bacteria and fungi. The aim will be to develop predictive tests for lung infections to inform doctors about the best way to treat them.

At the University of Liverpool Innovation Hub, scientists will develop the use of naturally occurring bacteria-killing viruses called phages to treat infections. This ‘phage therapy’ aims to provide an alternative way of treating infections and reduce the negative effects of antibiotics, including antibiotic resistance. The Innovation Hub will also use cutting-edge technology to find the microbiological causes of lung exacerbations, which will pave the way for other new treatment approaches in the future.

The research team at the University of Manchester Innovation Hub will study the cause of ‘flare-ups’ for people with cystic fibrosis in a different way by analysing blood, saliva, sputum and sweat samples from patients, gathering lung function test results and recording symptoms via an app and monitoring pollution in homes. People with CF will play an important part in studying what triggers these flare-ups and who is most

affected. Researchers will also look at why individual people with cystic fibrosis sometimes respond in different ways to IV treatments for exacerbations, so that they can understand who will respond best to antibiotics and why. This research will hopefully lead to clinical trials testing ways to prevent exacerbations.

24-year-old Sarah Sharp from London has cystic fibrosis. She experienced her first lung infection when she was a baby and has spent a lot of time in hospital over the years. Sarah explains: “This condition affects everything about my life, every single day. I have to adjust my life around my symptoms, in everything from work to friendships. The dream, for me, is to have less of a treatment burden and more time feeling like a valuable member of society. These new Hubs give me hope because improving research into the cause of exacerbations and the development of potential new treatments takes away a lot of my fears around what my health is going to look like in the future."

Source & Image Credit: LifeArc

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