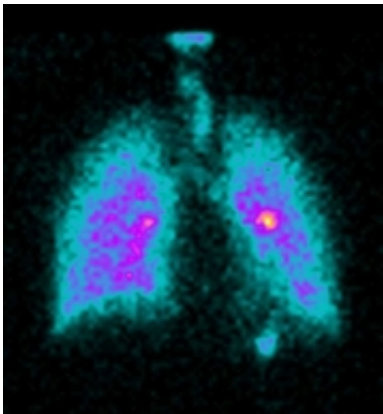


New research uses 3D imaging to improve the lives of lung disease patients

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The amount of drug deposited in the lung after inhaling from a typical clinical nebulizer.

Pioneering research in Southampton, using hi-tech 3D imaging, could improve the lives of those suffering from chronic lung disease.

The research, led by Joy Conway, Professor of [Inhalation](#) Sciences at the University of Southampton, aims to provide a better understanding of diseases such as [chronic bronchitis](#), cystic fibrosis and asthma.

The [3D imaging](#), using a gamma camera and CAT scanner, 'map' the disease as well as how inhaled drugs specifically work within a patient's lungs. This unique 'map' is plotted by combining the data from these two pieces of specialist medical equipment.

[Physicists](#) from the University then interpret the data collected from the scans of volunteer patients to develop a distinct 360° image of how a particular drug is inhaled, dispersed and exhaled from the lungs.

The image is used to inform experts on how best to optimise the administration and delivery of inhaled drugs such as antibiotics and antivirals for diseases like asthma, but also future gene therapies for diseases such as [cystic fibrosis](#).

It is hoped these images will also assist physiotherapists in the future, helping to improve the effectiveness of chest physiotherapy required by many patients as part of a daily routine to help clear secretions from the lungs.

The latest project, funded by the National Institute for Health Research (NIHR) Respiratory Biomedical Research Unit at University Hospital Southampton NHS Foundation Trust and the University of Southampton and the pharmaceutical industry, is investigating chronic obstructive pulmonary disease (COPD). It is a part of a much larger portfolio of clinical trials and computational research led by the imaging team and it is hoped that the findings will help inform patient care in the wider NHS.

Professor Conway says: "Diseases causing dysfunction in the lungs affect a significant proportion of the population.

"We hope our research will positively support the NHS in delivering the best possible treatment to these patients and ultimately improve their lives.

"We are privileged to be one of only a handful of universities with access to gamma camera equipment, which is dedicated to research purposes."

Provided by University of Southampton

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