

# Lung Research Grand Challenges

**DIAGNOSIS PREVENTION TREATMENT**



# 1. DIAGNOSIS

Halve the number of people living with an undiagnosed lung condition.

# 2. PREVENTION

Reduce preventable lung conditions and halve avoidable hospitalisation.

# 3. TREATMENT

Discover cures for lung conditions and new treatments that significantly reduce symptoms

# 1. DIAGNOSIS

**Halve the number** of people living with an undiagnosed lung condition.



people with **asthma**  
wait more than five years  
for a diagnosis.



people with **COPD**  
wait more than five years  
for a diagnosis.



people with **bronchiectasis**  
wait more than five years  
for a diagnosis.

# 1. DIAGNOSIS

## Goals:

1. Identify **biomarkers** for the early detection of lung disease and find new ways of measuring lung health.
2. Determine the role **screening** has in the early detection of disease, particularly for those who are most at risk and therefore most likely to benefit.
3. Use data-driven approaches (including AI) to develop diagnostic tests to **distinguish between different lung conditions** and their subtypes to guide personalized treatment early in the disease journey.
4. Develop **simple, accurate and low-cost tests** for individuals and community healthcare professionals to detect early signs of lung disease and lung infections, so people affected can get the right care at the right time.

# 2. PREVENTION

**Reduce** preventable lung conditions and **halve** avoidable hospitalisation.



**42,000 people** needed emergency hospital care for breathing difficulties in 2024.



Respiratory conditions are the **leading driver** of emergency admissions and NHS winter pressures.



Lung conditions cost the UK **£188 billion** every year.

# 2. PREVENTION

## Goals:

1. Keep lungs healthy throughout life by reducing the impact of early life and environmental factors and **predicting and preventing disease progression**.
2. Understand more about how genes affect lung health and how they can be used to **identify and reduce risk** of developing lung problems.
3. Prevent emergency hospital admissions by developing and implementing digital health tools to **transform monitoring and guidance**, especially for those facing deprivation.

# 3. TREATMENT

Discover **cures for lung conditions** and new treatments that significantly reduce symptoms



Lung conditions cost the NHS **£10 billion** every year.



More people **die from a lung condition** in the UK than anywhere else in Europe.

# 3. TREATMENT

## Goals:

1. Find new classes of drugs and pathways that can act on specific targets to **cure** lung diseases or **reduce symptoms**.
2. Improve quality of life by **reducing the impact of multiple health conditions** on lung disease—across day-to-day living, exacerbations and end of life.
3. Develop biomarkers to **optimise treatment decisions and delivery**.

**By 2035, the Lung  
Research Grand  
Challenges will  
have transformed  
respiratory health.**