

# Cystic Fibrosis Research News

**Title:**

Factors in childhood associated with lung function decline to adolescence in cystic fibrosis.

**Lay Title:**

What makes lung function fall between childhood and adolescence

**Authors:**

Nelufa Begum<sup>1</sup>, Catherine A Byrnes<sup>2</sup>, Joyce Cheney<sup>3</sup>, Peter J Cooper<sup>4</sup>, Emmanuelle Fantino<sup>1</sup>, Nicholas Gailer<sup>3</sup>, Keith Grimwood<sup>5</sup>, Diana Gutierrez Cardenas<sup>1</sup>, John Massie<sup>6</sup>, Colin F Robertson<sup>6</sup>, Peter D Sly<sup>1</sup>, Harm AWM Tiddens<sup>7</sup>, Claire E Wainwright<sup>3,8,\*</sup>, Robert S Ware<sup>9,\*</sup>.

**Affiliations:**

<sup>1</sup> Children's Health and Environment Program, Child Health Research Centre, The University of Queensland, South Brisbane, Qld, Australia.

<sup>2</sup> Starship Children's Hospital and The University of Auckland, Auckland, New Zealand.

<sup>3</sup> Children's Health Queensland Hospital and Health Service, Brisbane, Qld, Australia.

<sup>4</sup> The Children's Hospital at Westmead, Westmead, NSW, Australia.

<sup>5</sup> Griffith University and Gold Coast Health, Southport, Qld, Australia

<sup>6</sup> Royal Children's Hospital, Melbourne, Vic, Australia.

<sup>7</sup> Erasmus MC, Sophia Children's Hospital, Rotterdam, The Netherlands.

<sup>8</sup> Child Health Research Centre, The University of Queensland, South Brisbane, Qld, Australia.

<sup>9</sup> Griffith University, Nathan, Qld, Australia

**What was your research question?**

Despite modern treatment children with CF of having lower lung function than they should by the time they reach adolescence. We wanted to know what potentially preventable factors occurring before the child reached school age increased the risk of having lower lung function.

**Why is this important?**

Lung function reflects how well a child with CF is at the moment and is a major determinant of how well a child will be in the future. As a person with CF grows into adolescence and adulthood, their lung function is often lower than it should be. Those with very low lung function may require lung transplantation. If we understand what factors increase the risk of having lower lung function, we may be able to devise new treatments or preventative strategies to preserve lung function.

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## **What did you do?**

We made use of a longitudinal study in children with CF who had participated in a clinical trial of bronchoscopy guided therapy (ACFBAL study) from birth to five years of age that included measurements of lung at age 5. These children came back for assessment at around 12 years of age that included measures of lung function. We also got annual measurements of lung function from the CF data registry and calculated how much lower their lung function was than it should have been in early adolescence. We used data from the earlier study to relate to lower lung function.

## **What did you find?**

When judged against what lung function should have been, the children, as a group, had lower lung function in early adolescence. We found that the factor that had the most influence on lung function in adolescence was respiratory exacerbations requiring hospitalisation in the first 5 years of life. Other important factors related to inflammation in the lungs at age 5.

## **What does this mean and reasons for caution?**

These findings suggest that preventing respiratory exacerbations in early life and stopping the need for hospitalisation would be expected to improve children's lung function. However, our current knowledge does not allow us to predict when a respiratory exacerbation is coming, certainly not early enough to prevent it. At the moment early treatment of respiratory symptoms seems to be a good idea, but our study does not show whether that would improve lung function.

## **What's next?**

We are working on ways to better monitor lung function and lung inflammation in children too young to use standard lung function tests. We hope to that these new tests might allow us to detect exacerbations earlier in the future.

## **Original manuscript citation in PubMed**

<https://pubmed.ncbi.nlm.nih.gov/35341694/>