

# Childhood respiratory disorders may be diagnosed with a smartphone

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Automated cough analysis technology incorporated in a smartphone app could help to diagnose childhood respiratory disorders, according to a study published in the open access journal *Respiratory Research*.

Researchers at Curtin University and The University of Queensland, Australia, showed that a [smartphone app](#) had high accuracy (between 81% and 97%) in diagnosing asthma, croup, pneumonia, lower respiratory tract disease and bronchiolitis.

Dr. Paul Porter, corresponding author of the study, said: "It can be difficult to differentiate between [respiratory disorders](#) in children, even for experienced doctors. This study demonstrates how new technology, mathematical concepts, [machine learning](#) and clinical medicine can be successfully combined to produce completely new diagnostic tests utilising the expertise of several disciplines."

To develop the app, the authors used similar technology to that used in [speech recognition](#), which they trained to recognise features of coughs which are characteristic of five different respiratory diseases. The researchers then used the app to categorise the coughs of 585 children between ages 29 days to 12 years who were being cared for at two hospitals in Western Australia. The accuracy of the automated [cough](#) analyser was determined by comparing its diagnosis to a diagnosis reached by a panel of paediatricians after they had reviewed results of imaging, laboratory findings, hospital charts and conducted all available clinical investigations.

The authors note that the technology developed for this study is able to provide a diagnosis without the need for [clinical examination](#) by a doctor in person, addressing a major limiting feature of existing telehealth consultations, which are used to provide clinical services remotely. Removing the need for a clinical examination may allow targeted treatments to begin sooner.

Dr. Porter said: "As the tool does not rely on clinical investigations, it can be used by health care providers of all levels of training and expertise. However, we would advise that where possible the tool should

be used in conjunction with a clinician to maximise the clinical accuracy."

**More information:** A prospective multicentre study testing the diagnostic accuracy of an automated cough sound centred analytic system for the identification of common respiratory disorders in children, *Respiratory Research* (2019). [DOI: 10.1186/s12931-019-1046-6](https://doi.org/10.1186/s12931-019-1046-6)

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