

New Breath Test for Pneumonia



A new UK study published in the journal *Thorax* has identified an important new approach to diagnose infections in critically ill patients rapidly and accurately. The new method involves chemical analysis of breath specimens from patients in intensive care to detect bacterial infection in the lower respiratory tract of ventilated patients at risk of developing pneumonia.

Current methods of confirming the presence of infections involve laboratory tests of samples from deep in the lungs, which can take days.

The research was carried out at Salford Royal NHS Foundation Trust, The University of Manchester Centre for Respiratory Medicine and Allergy, and the Manchester Institute of Biotechnology (MIB). It was a proof-of-concept study that has provided significant evidence leading to a larger research programme involving patients across Greater Manchester.

While the work is still in its early stages, researchers say the findings so far look very exciting and could potentially have a huge effect on clinical practice as healthcare-associated infections are a major issue worldwide.

"When patients come into hospital, their safety is absolutely crucial. ...We have to provide the very highest quality safety measures for them, but despite that, some patients do still get infections and one of the most common is respiratory tract infection, especially pneumonia, says Dr. Paul Dark, Honorary Consultant in intensive care medicine at Salford Royal and an author of the study.

Pneumonia is caused by microbes that can be treated with antibiotics. However, pneumonia can be difficult to detect and diagnose so physicians "tend to use potent broad spectrum antibiotics in anyone who shows symptoms of infection," Dr. Dark points out. "This might not be necessary, so is wasting NHS resources, but the bigger picture is that we could be seeding antibiotic resistance — a huge worldwide issue," he continues.

Another author, Dr. Stephen Fowler, Clinical Lecturer in the University's Centre for Respiratory Medicine and Allergy, says: "Now we know that it's feasible to capture and measure breath chemicals of patients on mechanical ventilators, we plan to develop a simple non-invasive system that will be part of the normal connections on the machine." The research team has attracted National Institute for Health Research Invention for Innovation funding for the next three years to develop the new system.

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Published on : Sat, 27 Jun 2015