



Research Article

Diagnostic accuracy of point-of-care tests for acute respiratory infection: a systematic review of reviews

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Plain language summary

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What is the problem?

Respiratory infections are a common cause of illness. Currently, healthcare professionals use clinical experience to decide whether an infection is caused by a virus or bacteria, and whether antibiotics are needed. However, this is not always easy to establish. We tried to identify the effectiveness of rapid tests (with results in under 45 minutes) at distinguishing between viral and bacterial respiratory infections.

What did we do?

We identified and summarised all the existing reviews and studies in this area. We looked at many different tests which aim to distinguish between bacterial and viral causes of respiratory infections. In particular, we assessed:

- individual symptoms and signs (such as the presence of cough, or a fever)
- combinations of symptoms and signs (the presence or absence of multiple symptoms)
- various 'biomarker' tests (blood tests for evidence that the body has used its defence mechanisms)

We also looked at specific tests for flu and respiratory syncytial virus, which are common causes of viral infection.

What did we find?

The reviews we found showed symptoms and signs were not able to identify bacterial infections in people accurately. The accuracy of biomarker tests was slightly better, particularly when multiple markers were used. The accuracy of rapid tests for flu and respiratory syncytial virus varied; the most accurate tests were those that detect viral genetic material. We also found studies showing that genetic tests that identify many viruses at once (multiplex tests) were very accurate.

However, most of the evidence we identified was not robust. There were concerns about the conduct of some of the studies. In some cases there was uncertainty whether a test was really accurate enough to be useful. Therefore there is still doubt about whether any of these tests will be useful additions to current clinical care.