



Clinical and cost effectiveness of technologies for the assessment of attention deficit hyperactivity disorder: a systematic review and economic model

Eve Tomlinson^{1†}, Mary Ward^{1†}, Josephine Walker¹, Melissa Benevente¹, Hanyu Wang¹, Chris Cooper¹, Hayley E. Jones¹, Amanda Owen-Smith¹, Catalina Lopez Manzano², Sara James², Dietmar Hank³, Richard Lee-Kelland⁴, Nicky J. Welton^{1,††}, Penny Whiting^{1,††}

[†]joint first author

^{††}joint last author

¹Bristol TAG, Population Health Sciences, Bristol Medical School, University of Bristol, Bristol, UK

²Patient representative

³Avon and Wiltshire Mental Health Partnership NHS Trust

⁴Sirona Care and Health

Corresponding Author

Professor Penny Whiting

Bristol TAG

Bristol Medical School

Canynges Hall

39 Whatley Road

Bristol, BS8 2PS

e-mail: penny.whiting@bristol.ac.uk

Plain English Summary

What is the problem?

Attention deficit hyperactivity disorder (ADHD) is a common condition that affects behaviour in both children and adults. People with ADHD may find it hard to concentrate, act without thinking and be unable to sit still. This can get in the way of daily life.

ADHD is usually diagnosed by a specialist (an expert in ADHD) based on the person's history, behaviour and symptoms. The expert will typically observe the person and interview the person and others in their life (e.g. partners, parents or teachers).

It can take a long time to be diagnosed with ADHD and the person may have to go to lots of appointments. ADHD is also sometimes confused with mental health conditions that have similar symptoms, making it harder to diagnose.

Tests have been developed that may improve how ADHD is diagnosed and followed up. These tests involve the person doing a computer-based task which measures behaviours associated with ADHD (e.g. ability to concentrate and to control movement) and include the use of sensors to track movement. These tests may reduce the number of appointments needed and could increase the likelihood of diagnosing ADHD correctly. They might also be able to help work out if treatments are working properly.

What did we do?

We wanted to know whether using these new tests to help diagnose ADHD will mean that more people are correctly told whether or not they have ADHD, whether these tests help diagnose ADHD faster, and whether the tests can be used to correctly tell us how well ADHD treatments work. We also wanted to know whether these tests are a good use of NHS money. We looked at existing research and developed cost models to answer these questions.

What did we find?

We found very limited good quality data. Our findings suggest that using QbTest is likely to help diagnose ADHD more quickly, using fewer appointments, and may allow a diagnosis to be made in more people. It is likely to represent a good use of NHS money.