

Team develops new eye tests that could help patients and reduce burden on NHS

December 20 2018

Researchers from Queen's University Belfast, in collaboration with the University of Bristol, are leading a cutting-edge project, named the "MONARCH" study, that could benefit eye disease patients whilst saving both time and money within the NHS.

The MONARCH study aims to investigate if patients with an eye condition called wet age-related macular degeneration (AMD) could [test](#) their vision at home, rather than attend a hospital appointment.

The most serious type of AMD, known as wet AMD, develops when abnormal blood vessels form underneath the macula stops functioning as well as it used to. AMD patients experience blurred distorted vision, difficulty seeing in dim lighting and problems reading.

Current [treatment](#) for wet AMD is a series of monthly injections which reduce the growth of new vessels which limit vision loss. Following treatment, patients attend regular hospital check-ups where clinical staff monitor the macula by taking photographs and doing [vision tests](#), checking whether any follow-up treatment is needed.

Most patients will not require follow-up treatment, but about 30% do. Hospital check-up appointments are important for preventing further loss of vision. However, these check-up appointments put a huge strain on already-stretched resources, and limit the capacity for seeing new patients who, if not seen urgently, are at high risk of losing their vision.

Dr. Ruth Hogg, from the Centre of Public Health at Queen's University Belfast and Co-Chief Investigator of the MONARCH study explains: "Injections for AMD have been very successful, with about half of patients retaining vision sufficiently good for driving. However, the burden on the NHS and patients has been considerable due to the need for frequent injections and intensive monitoring throughout the follow-up period. In Belfast, evening and weekend clinics have been added, yet it's still not enough.

"We urgently need to rethink how services are offered as the current setup isn't sustainable. AMD is a huge burden to the NHS through time spent by clinical staff monitoring patients of whom the majority do not require treatment."

The study aims to find out whether monitoring vision by patients themselves at home could potentially alleviate some of the burden of AMD on the NHS, as well as be more convenient for patients, without compromising their safety or wellbeing. If home eye tests can detect when treatment is needed, it would mean that patients might only need to attend hospital appointments to have treatment.

Patients participating in the study will be provided with three different eye tests for them to do at home, comprising a paper-based booklet of reading tests and two tests ("apps") that run on an iPodtouch. Patients will be asked to do all three tests weekly at home. The results of the tests are sent automatically via the internet to the Study Management Centre in Bristol.

Professor Reeves, from the Bristol Medical School and Co-Chief Investigator of the MONARCH study says: "We are excited to be collecting data from the apps automatically, via the internet. These kinds of methods, with data flowing directly from the [data source](#) to the study database, should increase both the accuracy of the data and the

efficiency of their capture."

Throughout the [study participants](#) will attend their normal hospital check-up appointments and the results of the tests done at these appointments will be compared with the results from the home eye tests.

Patricia Strong, an AMD patient added: "Since completing a course of treatment for wet AMD, I've had regular appointments to check my [vision](#) and get photographs taken and I've occasionally needed further injections. I spend quite a lot of time getting to the hospital and the cost of transport does add up so being able to check for myself at home would make a real difference for me, saving time and money."

The study aims to recruit 400 participants from five different hospitals around the UK, including Belfast. Patients will be provided with equipment and support to do the three home eye tests weekly over a period of one to two years. It is hoped that the data gathered will lead to a shift in services provided to AMD [patients](#), so that only those who require treatment will be required to attend [hospital](#) appointments.

Provided by Queen's University Belfast

Citation: Team develops new eye tests that could help patients and reduce burden on NHS (2018, December 20) retrieved 19 April 2024 from <https://medicalxpress.com/news/2018-12-team-eye-patients-burden-nhs.html>

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