Oxford AHSN case study

Date: Q3 2019/20

Programme / theme: Strategic and Industry Partnerships

Title: Partnership between Osler Diagnostics, University of Oxford and the Oxford AHSN secures almost £1 million funding to develop new tests for quicker, cheaper and easier diagnosis of patients with chest pain

Overview Summary

Funded by an Innovate UK grant, the Oxford AHSN is working with Osler Diagnostics, a health technology company developing innovative biosensor technology and products. Osler's main product is a portable, handheld device capable of taking a drop of blood and quickly testing for a panel of biomarkers.

Osler Diagnostics wanted to understand the clinical utility and possible advantages that a multi-biomarker point of care (POC) test might bring for diagnosis of patients presenting with chest pain in the Emergency Department (ED) and the wider potential value of a POC approach for NHS EDs in England.

Cardiovascular disease (CVD) is one of the main causes of death and disability in the UK and continues to place a strong burden on the NHS. Cardiovascular biomarkers are used daily by clinicians in ED to help diagnose a range of cardiovascular conditions, including myocardial infarction.

The Oxford AHSN conducted a feasibility study using its Lean Assessment Process (LAP) to assess the potential impact of implementing a new multi-biomarker POC test in ED for diagnosis of critical cardiovascular disease.

How is the AHSN involved?

In July 2018, Professor Jason Davis, Senior Subject Tutor in Chemistry at the University of Oxford, was awarded an Innovate UK grant in collaboration with Osler Diagnostics and the Oxford AHSN to develop a point of care (POC) diagnostic test for cardiac disease.

The Oxford AHSN performed an initial feasibility study using its Lean Assessment Process (LAP) to identify the care pathway for proposed POC multi-biomarker test in emergency department (ED). In testing the potential scenario, the current and proposed pathways were developed along with a semi-structured interview guide. Interviews were conducted to explore the potential use and adoption of the test in the clinical setting within the ED.

The key objectives of this study were to help determine initial levels of support for the use of a new multi biomarker test, to understand the impact on the patient and the intention of the NHS to adopt. Additionally, a health economic analysis was performed.

Around one million patients present to hospital with chest pain every year, accounting for approximately 5% of all emergency department attendances in the UK. However, only one in five patients are found to have had a myocardial infarction (MI). Cardiac troponin is the biomarker of choice for the detection of MI. Use of high sensitivity troponin has facilitated the development of pathways that can rule out MI at an earlier stage. Currently there is no point of care test available for high sensitivity troponin, so clinicians are dependent on laboratory testing.

Osler Diagnostics wished to establish whether their technology could lead to earlier diagnosis of patients presenting with Acute Coronary Syndrome (ACS) or chest pain in ED, leading to a rapid rule-in or rule-out of patients, faster referral or discharge and possible reduction in use of NHS resources. Osler Diagnostics also wanted to understand which of five proposed biomarkers would be useful in this approach.

Impacts and outcomes of the AHSN involvement to date

The partnership between the Oxford AHSN and Osler Diagnostics has helped the company to refine the biomarkers that are going to be used in the multi biomarker POC test. The feedback given as part of semi-structured interviews has enabled Osler Diagnostics to bring its product offer more in line with clinical needs and has given the company a good understanding of how clinicians can benefit from the test. This feedback is crucial for the new test to be aligned with clinical need and facilitate its use in the NHS.

With the help of the literature review and stakeholder identification tool, stakeholders were identified for the interviews and engaged in the study. The interviewee responses helped Osler Diagnostics to understand the clinical utility and acceptability of the test, helping to ensure that it meets NHS needs.

The Oxford AHSN identified that clinicians have the greatest need for a POC test for high sensitivity troponin.

The project is receiving funding of £955,529 from Innovate UK through the January 2018 sector competition: strand 1, health and life sciences for the development of a small, low-cost, accurate and rapid point of care diagnostic platform, with primary application to critical cardiovascular markers. Osler Diagnostics and the Oxford AHSN have applied for a second funding stream to develop a comprehensive metabolic test panel.

The partnership between the Oxford AHSN and Osler Diagnostics helped the company to refine the design of a POC multi biomarker test in relation to critical cardiovascular disease for an NHS emergency department setting.

The feasibility feedback given as part of the semi-structured interviews undertaken has enabled Osler Diagnostics to draw the offering more in line with clinical needs and has given them a good understanding of what clinicians require from this proposed new test. This feedback is crucial for the test to be adapted and adopted for NHS use.

Supporting quotes

Innovator

We are very happy with the report conducted by Oxford AHSN as it shows the real need in the NHS from an independent source. Understanding the acceptability of the POC test has been paramount and has enabled us to speak to clinicians that we otherwise would not have had access to.

Mike O'Connell, Senior Scientist and Project Manager, Osler Diagnostics

AHSN

We assessed the benefits of a rapid biomarker test for use as a POC test in ED for patients experiencing chest pain. This provided a deeper knowledge of the cardiac pathway and the importance of aligning the new test with appropriate NICE guidance. An early economic evaluation is being conducted to assess the economic benefit within the NHS.

Mamta Bajre, Lead Methodologist, Oxford AHSN

Plans and timescales for spread and adoption

The product is still at early stage and under development. The Innovate UK funding to develop the core biosensors and fluidics ends at the end of 2019. Regulatory compliance is being considered in detail during the project but certification will only be sought after the project (12-15 months post-project will be spent preparing for clinical studies and CE marking).

Start and end dates

July 2019 to December 2019

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