

Oxford AHSN case study

Date: Q2 2018/19

Programme/Theme: Strategic and Industry Partnerships

Title: Unique point of care blood test speeds up clinical decision-making, improves quality of care and reduces costs

Overview summary

A new point of care blood testing device is being introduced into frontline NHS services after an evaluation at three hospitals showed that it reduced A&E waiting times and helped clinicians make quicker decisions and get it right first time.

The Oxford AHSN study found the device speeded up antibiotic prescribing decisions in three-quarters of cases involving common childhood illnesses such as fever and abdominal pain. It also improved the quality of care by enabling potentially life-threatening conditions such as sepsis to be identified earlier.

The study found that the Horiba Medical automated analyser delivered lab quality results on average three hours quicker than traditional lab tests. It also saved the NHS money - independent economic analysis identified potential combined net annual savings of more than £60,000 across the three hospitals largely through more efficient use of clinicians' time.



Wider application has been demonstrated and NHS organisations are now investing in the devices. They are contributing to streamlining diagnostic pathways in the community for frail elderly patients, enabling more care closer to home and easing pressure on A&E departments. Wider use of the automated analyser is being investigated relating to paediatric appendicitis.

Challenge identified

In emergency medicine blood tests are carried out when diagnosis is unclear to help with clinical decision-making around admission. A C-Reactive Protein (CRP) assay is a commonly used blood test, particularly as a potential proxy indicator for bacterial infection, often alongside a full blood count (FBC). The test is normally performed in a hospital laboratory which takes about 60-90 minutes. However, the time from needle to result can be considerably longer - up to several hours. CRP and FBC are commonly used in paediatric emergency care to assist clinical decision-making. CRP is also used as a proxy indicator for the presence or absence of bacterial infection. The Oxford AHSN chose to evaluate Horiba Medical's Microsemi CRP point of care device because it is an automated analyzer uniquely capable of simultaneously measuring CRP and FBC, as well as offering the potential to speed up clinical decision-making, improve care and reduce NHS costs.

Actions taken

Following [publication of a series of Oxford AHSN reports](#) into variation in paediatric hospital admissions, technology was identified with the potential to address this issue.

A unique automated haematology analyser (the Horiba Microsemi CRP) was evaluated for three months at three paediatric emergency departments. The AHSN set up protocols, arranged equipment loans, facilitated training and provided project management.



The aim was to establish whether the device led to quicker diagnosis of common paediatric conditions including fever, limpness and abdominal pain, improved patient flow, reduced waiting time by speeding up assessment and reduced unnecessary antibiotic prescribing.

The Oxford AHSN also commissioned the York Health Economics Consortium to carry out an economic analysis which concluded that the device produced combined net annual savings of more than £60,000 across the three hospitals due to more efficient use of nurse and doctor time.

In June 2017 Oxford and West Midlands AHSN hosted an [event focusing on point of care diagnostics](#) attended by over 100 people including Keith Willett, Medical Director for Acute Care at NHS England. Contributors included [one of the teams which tested the Horiba device](#).

Impacts / outcomes to date

The Horiba Medical automated analyser point of care blood testing device reduced A&E waiting times and helped clinicians make quicker decisions and get it right first time. It detects infection and inflammation within four minutes of a pinprick test enabling immediate treatment or referral.

As a result, antibiotic prescribing decisions were speeded up in three-quarters of cases involving common childhood illnesses such as fever and abdominal pain. Quality of care also improved with potentially life-threatening conditions such as sepsis identified earlier.

The device delivered lab quality results on average three hours quicker than traditional lab tests. In one emergency paediatric department an earlier decision could have been made in 87% of cases, saving an average of 109 minutes per case, significantly improving patient experience by reducing waiting times for sick children and their parents.

The study found that the device was an effective stratification tool identifying children needing specialist referral more quickly and could shorten the time to decision-making about antibiotic use. In one case a high CRP result prompted urgent registrar review and initiation of IV antibiotics. The child had pyelonephritis and use of the reduced the clinical decision-making time by 50 minutes.

It also saved the NHS money - independent economic analysis identified potential combined net annual savings of more than £60,000 across the three hospitals largely through more efficient use of clinicians' time. There are also potential savings from quicker treatment decisions when a delay could have adverse effects on the patient's condition.

Reduced waiting time for test results also improves patient flow, particularly at peak times, assisting service redesign.

The device found wider application supporting community frailty assessment pathways.

The study findings have been fed into the national antimicrobial medicines review.

The Oxford AHSN supported business case development to introduce the devices on the NHS frontline.

This initiative generated coverage in specialist media during 2018 including [Clinical Lab Products](#) and [Building Better Healthcare](#).

The Oxford AHSN has an ongoing connection with Horiba Medical and both work with BIVDA, the in vitro diagnostics technologies industry body.

Supporting quotes

“Oxford AHSN was a massive help in launching the Microsemi CRP in the UK market. They provided access to key opinion leaders as well as enabling a much broader and more in-depth evaluation study than we would have achieved without their support. As well as ensuring that the dataset is large enough to be statistically valid, the health economic study they commissioned also provided real weight when trying to place the instrumentation in a new market by breaking down barriers to adoption and demonstrating the financial as well as technical efficacy of the solution. We have seen increased interest in the instrument since the AHSN study.”

Mandy Campbell, Sales and Marketing Manager, Horiba Medical

“Patients see it as an advantage. Before the analyser was installed, we sent our samples away via two collection slots. Of course, this meant that patients were not able to access their results until 1-2 days later, whereas now, we can perform a combined FBC and CRP, see a result within four minutes and take the relevant course of action almost immediately. It also means that patient samples don't get lost.”

Shelagh Wojtowicz, Staff Nurse, Marlow Community Hub

“This is a unique technology addressing an unmet clinical need to better stratify paediatric and elderly patients by speeding up clinical decision-making, improving quality of care and reducing costs. Real world evaluation by the Oxford AHSN partners has helped to prove clinical utility and benefits and we would encourage other AHSNs to introduce the concept to their health partners.”

Julie Hart, Acting Director of Strategic and Industry Partnerships, Oxford AHSN

Future plans

The Oxford AHSN is sharing the results of the evaluation in a number of ways both within and outside its region. Within the Oxford AHSN one trust has invested in the analysers and is using them to streamline existing diagnostic pathways in the community for frail elderly patients, enabling more care closer to home and easing pressure on A&E departments. At least one other trust is going through a procurement process. Wider use of the analyser is being investigated relating to paediatric appendicitis.

NHS England priorities addressed

- Care and Quality
- Funding and Efficiency
- Health and Well Being
- Driving Economic Growth

AHSN priorities covered

- Long-term conditions
- Patient safety

Start and end dates

Evaluation and assessment, 2016/17; roll-out ongoing

Contact

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