

Facilitating Cardiac Decision-making at the Point of Care

The Emergency Department laboratory at Addenbrooke's Hospital is the first in the UK to enable a rapid diagnosis of cardiovascular disease to quickly determine an appropriate treatment plan.

Cardiovascular disease (CVD) is the leading cause of death in the UK, with over 100,000 people suffering heart attacks each year. This number continues to grow.[1] For patients with CVD, it is critical that diagnosis is timely so a treatment plan can be put in place swiftly, safely, and effectively.

The Emergency Department (ED) at Addenbrooke's Hospital, part of Cambridge University Hospitals NHS Foundation Trust, serves the local population of South Cambridgeshire as well as adjoining parts of Essex, Hertfordshire, and Bedfordshire. The hospital has witnessed a steady increase in emergency admissions, with chest pain

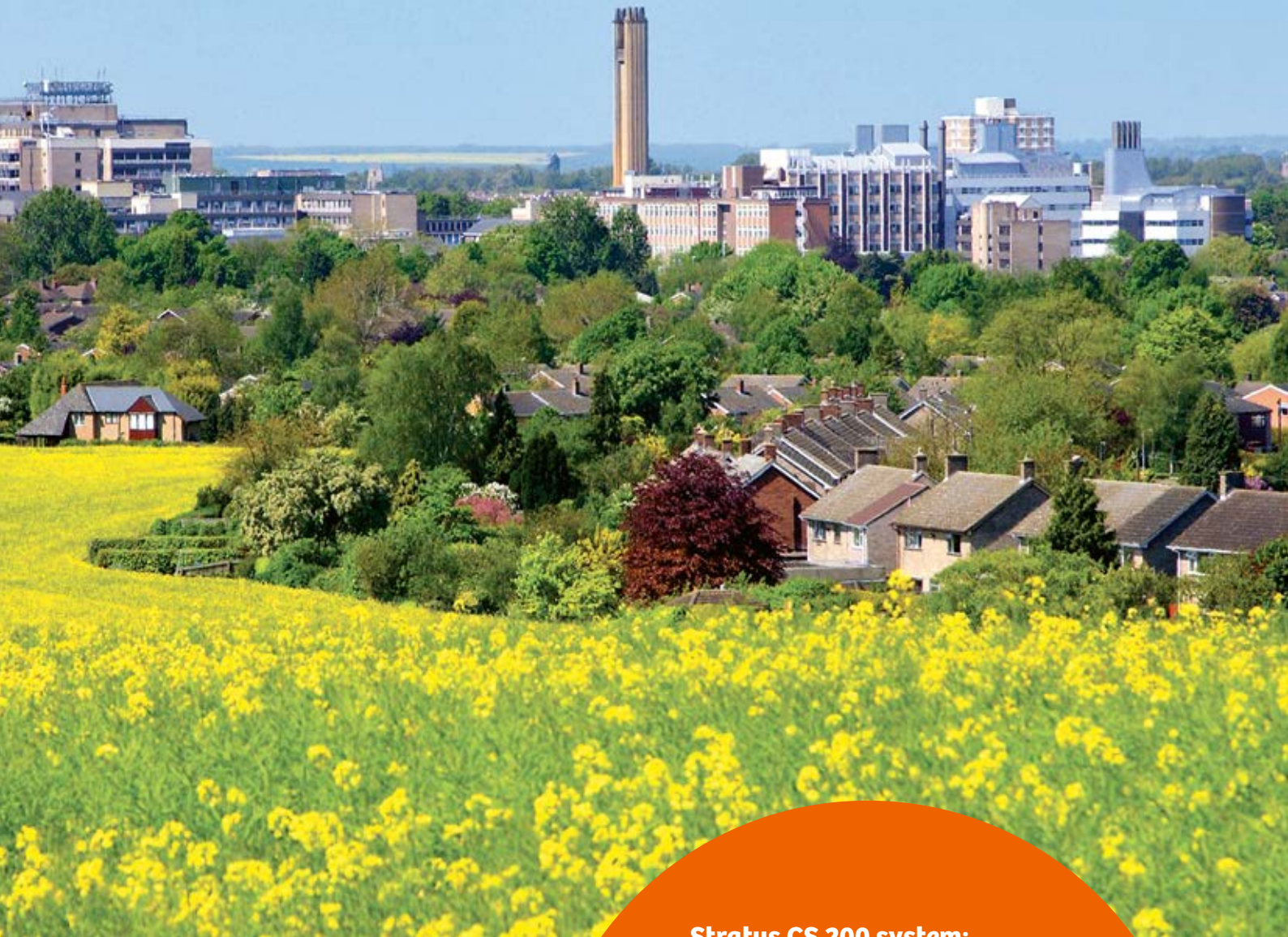
as one of the most common presentations, and sought to open a 24/7 laboratory housed within the ED to ensure rapid turnaround times for diagnostic tests at the point of care. This has since included a refresh of solutions in place to aid in the testing of CVD.

Rapid results

Before the ED laboratory existed, samples would be sent to the central laboratory to be processed.

Rhys Tassell, Point of Care Testing team lead at Cambridge University Hospitals NHS Foundation Trust, explains: "The prevalence of cardiovascular disease means we sought





to make it quicker and easier to gain diagnostic results in the ED for patients who may require admission. Through the decentralization of CVD tests from the central laboratory into the core of the healthcare setting, clinicians are able to quickly formulate a decision as to whether a patient should be discharged or will need a bed. Furthermore, patient anxiety can be significantly reduced. Faster results lead to less time spent in hospital and a reduction in the stress of waiting for a diagnosis, ultimately improving the patient experience.”

Stratus CS 200 system: Streamlining workflows at Addenbrooke's Hospital

- Improved patient experience and movement through the ED
- Reduced workload in the central laboratory
- Fast analysis of low-risk chest pain and earlier exclusion of myocardial infarction
- Ability to scan sample barcode, minimizing risk of manual error
- Dual-unit measurement for easy results interpretation
- Password protection to ensure only registered users can change settings



Rhys Tassell, Point of Care Testing team lead, Cambridge University Hospitals NHS Foundation Trust

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Meeting guidelines and targets

Complying with the NHS guideline for a maximum 4-hour wait in the accident and emergency (A&E) department is a key commitment at Addenbrooke’s Hospital and a standard contractual requirement for all NHS hospitals. Previously, when samples were sent to the central laboratory, it could take up to 3 hours from testing to reporting results. The ED laboratory is the first in the UK to install two Stratus® CS 200 Acute Care™ Diagnostic Systems¹ from Siemens Healthcare Diagnostics, enabling a rapid diagnosis of CVD to quickly determine an appropriate treatment plan.

“If the 4-hour NHS waiting time target is breached, there is the potential for the hospital to be issued a fine. With the Stratus CS 200 system, we can rapidly gain results in around 15 minutes, and with testing taking place in the ED, it can take just 35 minutes for the whole cycle, from testing to delivery of results.

Previously, when sending tests to the central laboratory, the process was significantly slower, so the Stratus CS 200 system is aiding us greatly to stay within A&E waiting time requirements,” states Rhys Tassell.

Streamlining procedures

The Stratus CS 200 system features a touch-screen interface that enables easy navigation of menus, as well as a barcode reader to eliminate the need for manual data entry. The system also allows results to be reported in dual units for easy interpretation by clinicians. It delivers a robust cardiac assay menu, including guideline-acceptable sensitive troponin I, meeting European Society of Cardiology and American College of Cardiology Joint Committee recommendations of $\leq 10\%$ CVD at the 99th percentile of a normal population. Increased sensitivity of troponin tests can capture damage from very small or evolving infarcts and also allows a reduction in the window of serial testing.

Tassell continues, "Previously, we were capable of handling approximately 650 troponin I samples per month, while this now typically averages around 900. Furthermore, turnaround time for these results has improved from over 45 minutes to between 17 and 25 minutes. The ability to automatically scan barcodes without manual input has had a great impact on staff in terms of ease of use and time saved; it also drastically reduces potential for human error. We recently enrolled with WEQAS, an independent quality assessment organization, to further bolster our service quality and assess comparability to other methods in the scheme."

The hospital is also benefiting from system password protection to ensure that only selected staff groups with experience calibrating the system can make changes to established settings. Previously, access was available to all who used the system, with the risk that settings may be accidentally changed. This could affect results and have a negative impact on patient diagnosis.

Latest technology

Tassell concludes, "Addenbrooke's Hospital prides itself on staying up to date with the latest technology, and we are always open to piloting new systems that can help to advance our offering. By working closely with partners such as Siemens, who actively respond to our feedback, we can ensure this technology best meets our needs, in turn improving patient pathways and outcomes.

We now send very few samples to the central laboratory, and in the future we are hoping to increase our testing repertoire even further within the ED, emulating the success we have experienced in the diagnosis of CVD patients." ●

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Rhys Tassell,
Point of Care
Testing team lead,
Cambridge
University Hospitals
NHS Foundation
Trust

References

¹ Not available for sale in the U.S. Product availability varies by country.

[1] NHS Choices. April 2015. <http://www.nhs.uk/Conditions/Coronary-heart-disease/Pages/Introduction.aspx> (date accessed 02/15/2017)

The statements by Siemens' customers described herein were realized in the customer's unique setting. Since there is no typical laboratory, and many variables exist, there can be no guarantee that others will achieve the same results.

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