Following the success of a D-dimer testing pilot scheme in 2014/15, South West Lincolnshire Clinical Commissioning Group (CCG) has initiated a revised, primary care deep vein thrombosis (DVT) service, incorporating point of care testing for D-dimer using the cobas h 232 POC system in all 19 of its general practices.

By reducing referrals to secondary care and providing accurate, high quality DVT assessment closer to patients’ homes, this new DVT pathway is cost effective for the CCG, while improving the experience and care of patients with suspected DVT.
Driving the need for change

South West Lincolnshire Clinical Commissioning Group (CCG) encompasses 19 town and rural based general practices that serve a population of around 130,000. Following a review of services in 2013, including the deep vein thrombosis (DVT) pathway, the need for change in the provision of DVT assessment and management services was identified. The team had concerns about the accuracy and reliability of the previous qualitative D-dimer testing kit, and not every practice in the region offered a DVT service, which was challenging for patients in an area with poor transport and highways infrastructure.

Untreated DVT can lead to life threatening pulmonary embolism. Anticoagulant therapy reduces both morbidity and mortality from venous thromboembolism, and so early and accurate diagnosis is important to minimise complications. Patients presenting with symptoms of DVT constitute a substantial burden on primary care and DVT is confirmed in only 20-30% of cases.

With the availability of point of care quantitative D-dimer testing in primary care, hospital referral for diagnostic ultrasound can be reserved for patients in whom DVT cannot be safely ruled out. In accordance with national guidelines, a validated assessment scoring method, such as the Modified Wells Probability Score, and quantitative point of care testing (POCT) for D-dimer allow primary care physicians to select with confidence those patients that do not need onward referral to secondary care. Such a community based D-dimer scheme and DVT service would meet a number of CCG objectives, including:

- Providing care closer to home.
- Providing an improved patient experience.
- Reducing accident and emergency attendances and emergency assessment unit (EAU) admissions
- Reducing referrals through the secondary care DVT service.
- Cost and clinical effectiveness.
- Maintaining primary care healthcare competences.

A new DVT pathway

A business case was presented to the South West Lincolnshire CCG executive in January 2014, proposing the implementation of a quantitative D-dimer testing scheme in all 19 practices in the CCG, using the cobas h 232 POC system, as part of a revised DVT service specification. Funding for a pilot scheme was approved in February 2014 for a period of one year, to include equipment, consumables, training and external quality control (NEQAS). Equipment was handed out at a training event held at Market Cross Surgery, which was attended by staff from all practices, with ongoing training, advice and technical support provided by Roche Diagnostics. Shona Brewster, Senior Commissioning Manager, comments:

“The cobas h 232 D-dimer assay has been shown to have a high negative predictive value, making it a good ‘rule out’ test for DVT. This allows hospital referral for diagnostic ultrasound to be reserved for patients in whom DVT cannot be safely ruled out.”

The revised DVT service specification, incorporating the D-dimer scheme, became effective on the 1st April 2014, with a new DVT pathway based on NICE guidelines for VTE. Shona Brewster explains:

“It is important to have a strong understanding of the DVT pathway and how it can be managed in primary care within your CCG.”

In South West Lincolnshire, when a patient presents to their GP with signs and symptoms of DVT, the initial step is to obtain a Wells Score to assess the probability of DVT followed by a D-dimer test, where appropriate, to help rule in or rule out a diagnosis of DVT. Ultrasound imaging is required for definitive diagnosis in patients when DVT cannot be excluded and patients who assess as likely to have DVT are referred directly for ultrasound without D-dimer testing.

Access to secondary care diagnostics is challenging in more rural areas. Ideally, the ultrasound scan should be carried out within 4 hours but, if this is not possible, anticoagulation therapy is administered and an ultrasound scan is arranged within 24 hours.

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2 Quantitative testing is recommended and has been positively reviewed by the NHS Centre for Evidence Based Purchasing and by the NHS Technology Adoption Centre.

POCT expands possibilities

One of the main motivations for introducing D-dimer testing in all practices was to reduce unnecessary referrals to secondary care, which is both inconvenient for patients and expensive for the CCG. Shona Brewster observes:

“POCT is important in a largely rural area, such as this, and is in line with best practice guidance to provide care closer to the patient’s home.”

“There has been positive feedback regarding the cobas h 232 POC system from the practices,” Dr Elder adds. “This method is easy to use and is more accurate than the previous qualitative method, reducing concerns about false negative results.”

“Previously, not every practice provided a D-dimer POCT service, but now all 19 practices are equipped to do so, which allows more patients to be assessed and managed in general practice across the CCG”.

“Another advantage of POCT is that we are no longer dependent on the transport of samples to the laboratory and the subsequent delay in receiving a result,” Dr Elder continues. “No matter what time of day the patient presents, they can have a D-dimer test and a decision to refer for ultrasound, and to initiate treatment if required, can be made almost immediately.”

Improved patient experience

With available expertise already present in primary care, the CCG recognized that such a community based DVT service, incorporating D-dimer POCT, would provide more convenient and timely patient care. In addition, by reducing referrals to secondary care for suspected DVT, it would minimize unnecessary travel and provide a more holistic approach to patient care.

“Undoubtedly, the primary care D-dimer testing scheme helps to improve patient care,” Shona Brewster says. “Care is provided closer to home and DVT can often be ruled out without the patient having to go elsewhere. If DVT is suspected they can receive more immediate care, including interim treatment while they wait for a scan, if necessary. This is particularly important in Lincolnshire where public transport is limited and can lead to delays in getting to hospital.”

“With this new service, patients are reassured quickly. Faster, more accurate D-dimer testing provides peace of mind for patients and reduces unnecessary referrals to secondary care.”

Dr Elder adds, “Town practices may wait for the result of an ultrasound before initiating therapy if this is likely to take only a few hours, but more rural practices will generally start patients with suspected DVT on medication straight away because it can take 24 hours or more before an ultrasound can be arranged.”

“DVT is a potentially high risk condition and can be life-threatening. This scheme allows early initiation of treatment, which reduces the risk of complications and offers better resolution of the leg clot.”
Addressing patient needs cost effectively

An evaluation of the D-dimer testing scheme in Q1 and Q2 of 2014 revealed that 272 patients (equivalent to 540 patients per year) were assessed for DVT in South West Lincolnshire. In 194 of these patients, DVT was excluded and 78 patients required further investigation. This was around expected levels, based on an annual incidence of one per 1000 and the estimate that DVT could be excluded in 70-80%. Shona Brewster states:

“With all 19 practices in South West Lincolnshire signed up to the POCT D-dimer testing scheme, we are able to assure equality of care throughout the region for DVT assessment and management. Furthermore, a reduction in referrals to secondary care has resulted in significant cost savings for the CCG.”

For 2015/16, the total costs for the primary care D-dimer scheme, including test consumables and EQA (there are no maintenance costs for Roche POCT devices as these are covered by a 5 year guarantee from date of purchase, subject to terms), and DVT service are estimated to be £38.8K (based on the audit activity levels for Q1 and Q2 2014/15). A local study indicated that, by using the cobas h 232 D-dimer test and the Wells score, 58% of patients did not require referral. With an estimated referral cost of £400 per patient, this would save £121K, resulting in net annual cost savings of £82K. Shona Brewster concludes:

“This scheme addresses the needs of the patient population through quality, reliable and cost effective testing that improves the accuracy of DVT assessment and allows for early identification and management of DVT. The service is timely and convenient for patients, and allows them to be seen in the most appropriate setting.”

In March 2015 the South West Lincolnshire CCG agreed to recurrent funding of the primary care DVT service for 2015/16 and the D-dimer testing scheme was appended to the NHS contract.