

The impact of using the Sherlock 3CG TCS for PICC placement on our radiology based vascular access service

20
YEARS OF
NICE
1999-2019

An evaluation of the use of the Sherlock 3CG Tip Confirmation System (TCS) for placing peripherally inserted central catheters (PICC) undertaken by the vascular access radiology service at University Hospital Southampton (UHS).

'I am extremely proud and pleased that, by using NICE medical technology guidance 24, we have established an efficient, high quality service and improved patient care'

Heather Smith, Advanced Practice Radiographer
Vascular Access Radiology Service, UHS



What we did and why

A vascular access service was set up in the fluoroscopy suite of the interventional radiology department at University Hospital Southampton (UHS) in 2007. Demand soon exceeded capacity, with a 30% increase in referral numbers. This adversely affected initial treatment regimens, and also speed of patient discharge across all divisions.

After NICE published its medical technology guidance on the Sherlock 3CG TCS for placement of PICCs, it was decided to evaluate the system. Sherlock 3CG TCS uses real-time electrocardiographic and magnetic monitoring to allow for optimal positioning of the PICC tip and for mobile PICC placement. Also, by detecting and correcting placement errors, it removes the need for most chest X-rays.

The main aims were to see if we could:

- Increase efficiency and capacity by reducing waiting times and increasing service flexibility.
- Improve the service in the multiple intensive care and high dependency units by avoiding the need to transfer clinically unstable patients for fluoroscopy and by reducing the need for emergency acute central venous catheters when intravenous access is difficult.

Outcomes and impact

Sherlock 3CG TCS has improved the quality of patient care provided at UHS by:

- Increasing the speed patients get their treatment and ensuring the appropriate vascular access device is inserted regardless of patient location.
- Increasing the speed of discharge for patients requiring long term home intravenous access.
- Promoting vessel health preservation by using the vein sizing tool.

After the initial successful trial, and with support from the radiology team, purchase of the system was approved and a new member of staff added to the vascular access team. This has led to a more robust and sustainable service. Waiting times have reduced from an average of 3.4 days in 2014 to an average of 1.5 days in 2018. And PICC placements have almost doubled from 638 in 2012/13 to 1,244 in 2017/18.

By using Sherlock 3CG TCS, PICCs have become possible in new clinical areas because it is not dependent on fluoroscopy. However, insertion location still has to meet infection control requirements to comply with national guidelines. Also, there needs to be enough space for monitoring equipment and free movement of the clinician to insert the PICC while maintaining a sterile field.

What we learnt

This project has provided more evidence on the effectiveness and reliability of Sherlock 3CG TCS. Working with interventional radiology consultants, we were able to compare the accuracy of PICC tip positions using Sherlock 3CG TCS with that using chest X-rays.

This showed that all PICC tip positions in which maximum P-Wave elevation was visible on Sherlock 3CG TCS were in a safe position for use. This evidence has meant we have been able to stop routine chest X-rays in patients having a PICC with Sherlock 3CG TCS.

Sherlock 3CG TCS has also provided a cost saving to the radiology department, and has increased the speed and efficiency of the service.

In the 3 years since we started using Sherlock 3CG TCS, we have established an efficient, high-quality service and improved patient care. It means that we are able to fulfil our Trust values to put patients first, work together and always improve.