

Standardizing is the key to effective POCT

April 2003



Peter Schwarz et al.

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According to the Hvidovre Hospital, standardizing is a must if POCT is to run optimally. In the first article of the series "POCT setups for blood gas", acutearetesting.org interviews the Danish hospital on how they have successfully implemented POCT.

Facts about the Hvidovre Hospital

- Location: Hvidovre, Denmark
- 715 beds
- 170 POCT instruments measuring blood gas, urine, glucose, hemoglobin, and troponin.
- Seven blood gas analyzers placed at the point of care.
- Each unit with POCT instruments is responsible for performing tests and for training.
- Department of Clinical Biochemistry is responsible for QC, troubleshooting and maintenance of POCT instruments.

No stranger to POCT

The Hvidovre Hospital in Denmark is no stranger to decentralized testing. Blood gas and other types of testing have been performed at the point of care since the 1970s in the intensive care and pediatric units. So far each unit had been responsible for buying their instruments.

However, by the beginning of the 1990s, the hospital had about 20 different suppliers of blood gas and glucose testing equipment.

Having so many suppliers generated not only an enormous workload for the central lab, which supported the instruments placed in the different units. It also created a problematic lack of standardization in test procedures and results.

In 1992, Peter McNair, MD, PhD and at that time Head of Department of Clinical Biochemistry, and some colleagues drafted a report on the advantages and

savings that would come from standardizing instruments and operating procedures.

“But at that point, standardizing our whole equipment was just too big of a step for the hospital,” says Peter Schwarz, MD, PhD and since 2002, Head of Department of Clinical Biochemistry.

Standardizing the POCT setup

However, by 1996, the Hvidovre Hospital was ready to take the step towards standardization. An analysis was made to assess the need for POCT equipment in the different units.

Peter McNair and medical technologist Lisbeth Theil put a POCT concept together. Later on, Lisbeth Theil was appointed POCT coordinator to lead the process.

In 1997, the Department of Clinical Biochemistry - backed by the hospital's management, IT and medical technical departments - started a formal standardization of the hospital's point-of-care testing.

The Department of Clinical Biochemistry became responsible for all equipment purchases. The number of suppliers was narrowed down, and the department provided staff training in the new equipment.

According to Lisbeth Theil, the transition to a standardized and more comprehensive POCT setup including blood gas, urine, and glucose testing was fairly smooth.

“We took a lot of time to prepare ourselves and make a detailed plan on how the process would take place,” explains Lisbeth Theil. “Having been ISO 9001 certified since 1996 also gave us a kind of checklist to go by,” adds Peter Schwarz.

Dialogue makes the hospital smaller

Even though the process went fairly smoothly, there were two initial challenges: Convincing staff in the units to embrace POCT and finding a common ground to communicate with them.

“In the beginning, some of the nurses felt that they would be doing the lab's job, which they were not particularly thrilled about,” says Peter Schwarz.

“However, we overcame the problem by emphasizing what point-of-care testing meant to the units and the patient care management: Getting reliable results in a matter of minutes, right there when they needed it, instead of having to send tests to the central lab and wait for hours to get the results.”

According to Lisbeth Theil, communication was a key element in the project's success.

“We found that out as we began training staff in the units,” she says.

“We had to find a ‘common language’ to communicate our knowledge and understand their concerns. It was not only about finding the right terminology, but also about being sensitive to different needs. For some nurses, it was a big step suddenly to be in charge of a blood gas test; for others, it was not an issue at all. Our training had somehow to reflect that.”

The Department of Clinical Biochemistry at the Hvidovre Hospital still keeps in touch with what is going on in the units.

The department has a group of eight “contact technologists”, as they are called. Among other responsibilities, each contact technologist has a handful of units to assist whenever POCT problems, questions, and suggestions come up.

“The contact technologists are in constant dialogue with the units and have been great in creating a strong working relationship between nurses and the Department of Clinical Biochemistry,” says Peter. “Dialogue has made the hospital smaller.”

Defining responsibilities

POCT at the Hvidovre Hospital has come a long way since 1997. Today, the hospital has a total of 170 instruments

measuring blood gas, urine, glucose, hemoglobin, and troponin at the point of care.

There are seven blood gas analyzers placed in the neonatal, pediatric, cardiology, intensive care, and maternity units, plus those placed in the operating room and the Department of Clinical Biochemistry.

Standardizing the hospital's critical care testing has unburdened the Department of Clinical Biochemistry and resulted in better support to the units that can now obtain reliable test results in a few minutes.

All users of POCT equipment are trained. For users of blood gas analyzers and other POCT instruments located at the point of care, a "quality binder" was put together and placed on the side of every instrument.

The binder summarizes standard operating procedures and instructions on how to deal with minor problems. Should problems that have not been described in the binder arise, staff is to contact the Department of Clinical Biochemistry.

The Department of Clinical Biochemistry is responsible for all quality control and maintenance, whereas each unit is responsible for performing blood gas tests and for training new staff. Training is done face to face.

Who is responsible for what is properly defined in a "contract" that the central lab has with all the units that have POCT equipment. Despite the fact that all equipment purchases are taken from the central lab's budget, the units using POCT equipment contribute with symbolic amounts.

"It gives the units a better understanding of the costs involved, so they can optimize their use of the equipment," explains Peter Schwarz. According to him, any unit can apply for POCT equipment. Equipment is granted based on the unit's ability to argue for their need.

Next step: optimizing information management

Even though decentralizing blood gas and other types of critical care testing is an ongoing process, Peter Schwarz is satisfied with the results obtained so far. "Our main goal - and concern - was to provide units with reliable test results fast. And that's what we have achieved," he says.

According to Peter, reliability has always been a top priority. "If you can't trust a test result, you can't act upon it immediately. And if you can't act upon it, then there is no reason for having decentralized testing."

The next improvements of the current setup include optimizing the information management. Currently, each unit is responsible for manually entering patient data into the hospital information system (HIS).

"In the future, we will be looking into barcoding," Lisbeth explains. "Password-protected analyzer access based on competency assessment is also on our list." In addition, the hospital will soon be starting a research project to assess to what extent decentralized critical care testing contributes to improved patient outcome.

If the Hvidovre Hospital had to do things all over again, would they do anything differently? "We would probably include a team of nurses early on in the process to assist in the communication with the units," says Lisbeth. "Otherwise, we are very satisfied with the process leading up to our current POCT setup and the activities that followed."

The Department of Clinical Biochemistry is not the only one satisfied with the results. As Mette Baumgarten, nurse in the intensive care unit, puts it: "Being able to perform a blood gas test ourselves has become such a natural part of our everyday life, that I don't think we could do without it. Because we have a lot of equipment here, we are glad that the staff from the Department of Clinical Biochemistry does the maintenance, troubleshooting, and the QC for us."

Keys to success

- Standardize instruments and procedures.
- Be committed to the project: "If you are going to do it, you might as well do your best," says Peter Schwarz.
- Have a person - a POCT coordinator - who is dedicated fulltime to the project.
- Planning and education.
- Clearly define the role and responsibilities of the units and the Department of Clinical Biochemistry.
- Understand how the different units work and what their needs are. That will put you in a better position to assess how POCT can make a positive contribution to their everyday work.
- Foster an open and ongoing dialogue with the units using POCT.

Interviewees

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