Improving the efficiency in intensive care

In their continuous effort to achieve the highest quality of service, the Department of Intensive Care at the University Hospital of Ghent (UZ Gent), Belgium, was looking for a more efficient way to manage daily treatment of the ICU patients. A technically advanced information management system provided them with an efficient and welcome solution.

Efficiency needed improving
Caregivers, especially in the intensive care unit (ICU), often have to work with a large amount of critical information received from patient monitors and other medical devices. Before the advent of digital data collection, these data were systematically registered manually on paper-based flowcharts.

“This alone was more than enough reason for our decision to invest in an information management solution (IMS),” says Professor Johan Decruyenaere, Head of the Department of Intensive Care. “Gathering all this information manually meant a lot of work for the nurses every day. A second reason for implementing an IMS is that all these data need to be analysed and interpreted and it is helpful to have these tasks automated as much as possible. Thirdly, providing intensive care is very expensive. The staffing costs are considerable. Furthermore, each bed is equipped with about € 100 000 worth of medical equipment. It is extremely important to keep these costs under control and therefore information management will become indispensable,” he emphasises.

Finding the right solution
“For four years we analysed the markets to see what kind of information management systems were available. Finally we chose the Centricity Critical Care Clinisoft solution from GE Healthcare because the underlying software architecture appeared to be very sound and also because the local support in Belgium by the distributor Meda n.v. is excellent. Another positive factor was the rapid response time of the application,” Prof. Decruyenaere explains.

The Clinisoft software helps to standardise patient care by making use of protocols for routine tasks and procedures. Nurses and doctors can then further adapt these protocols to their and the patient’s individual requirements. The software also helps staff avoid mistakes by reminding them to execute repetitive tasks in a chronological order, by having them register data from clinical devices and by showing this information on a computer screen.

“We have, indeed, configured the application according to our actual needs,” Prof. Decruyenaere continues. “We have done this ourselves. Three configuration specialists have been working on this project for almost six months. Naturally, this was done in close cooperation with the nurses and doctors, who are the end users. We have put a lot of energy into this phase, but then again the impact of such a system on the daily tasks at the bedside is remarkable.”

An essential aspect of successfully implementing such a complex project is the involvement and support of the hospital’s top management. Professor Decruyenaere had the advantage that his former Head of Department, Professor Francis Colardyn, is currently the CEO of the hospital and was fully behind this project, partly thanks to his background as one of the pioneers in intensive care medicine in Belgium. Prof. Colardyn was in charge of the Department of Intensive Care at the UZ Gent for over 25 years. He was also the hospital’s chief physician for many years and became the CEO in 2003.

High reliability essential
Currently, the IMS has been implemented in three of the hospital’s ICUs. The system is being used at 22 beds with a mobile wireless LAN solution and in 14 office stations. The system’s operation has been problem-free, and user satisfaction is high.

When switching to an IMS, a large amount of the care processes becomes more dependent on information and communication technology (ICT). It was thus very important to upgrade the hardware infrastructure accordingly, and new servers were purchased.

“The servers had to meet high quality requirements,” says Prof. Decruyenaere. “We have about 16 000 patient days a year and we cannot afford any system breakdowns. That is why we wanted to have our hardware up and running 99.999% of the time. That is also why we wanted a clustered server so that if one of the servers in the cluster drops out, another can instantaneously take over the workload.”

“For the server and PC hardware we chose IBM,” says Chris Danneels, Intensive Care Nurse and Project Manager for the Clinisoft implementation project. “Our total solution provider for clinical applications, Meda, works primarily with IBM. We also prefer to work with one and the same company for both hardware and software, and IBM has a solid reputation when it comes to quality and after-sales support. In both cases, we have a support contract so that whenever a problem occurs someone will arrive at the site within four hours.”

Present and future benefits
Even though the project team had put forward a tight implementation time frame, the entire implementation was finished on time and within budget. The excellent co-operation between the local distributor and the IT, Biomedical Technical and Intensive Care Departments greatly contributed to this achievement.

“A short-term return on investment is not our top priority, but it is, nevertheless, important in the long term,” Dr Kirsten Colpaert adds. “Our main goal was to improve the quality of care.” Dr Colpaert has been closely involved in the project and has recently completed a study showing that thanks to the new system significantly less medication errors are being made. “Initially this might not deliver any cost savings but the quality of care will greatly improve.”

After completing the first phase of the IMS implementation, the system will also be implemented in the other units of the IC department. Once fully equipped, the goal is to add an additional feature for invoicing and ordering medication so that, in the short term, a return on investment can be obtained by the greater correctness of electronically registered data. In the long term, the goal is to add ‘medical decision support’ so that the application can provide real-time support to the physician at the bedside in choosing the optimal therapy for each individual patient.

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