

Positive Experience with the First Clinical Information System to be Implemented in Norway

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By Hans Petter Fosseng

Akershus Central Hospital is the first hospital in Norway to implement a CIS in its ICU.

"Our experience so far is very positive, and our workflow has been simplified and improved" reports project leader Tor Buxrud.

This screen shows values for blood pressure and respiration. Hourly values are shown above, but values for any time period between one minute and 24 hours may be displayed.

The clinical information system is an electronic case record for the ICU, which in addition to presenting general documentation, offers many other advantages by utilizing the most up-to-date database technology to communicate with medical equipment and bedside devices. Akershus Central Hospital has been using the system in its ICU for a year and a half, and the experience so far has been very positive. The system is also in use in hospitals in Japan, the Netherlands, Great Britain, and Switzerland.

Replaces the patient graph

The traditional patient graph, or intensive case record, consists of large volumes of data and information, and tends to be very extensive. Recovering data in this case record may therefore be a very time-consuming task, and when it comes to quality assurance, paper-based case records are simply unsuitable.

According to project leader and chief ICU physician Tor Buxrud, "between one- and two thousand number elements have to be recorded over a 24-hour period.

"The data arrives unstructured and therefore requires extensive processing. The solution we have chosen is a Windows-based clinical information system, with standard protocols for Internet communication. This means that we will be able to integrate it with our other applications in the future," Buxrud says.

Akershus Central Hospital has emphasized properties like user-friendliness and a low entrance threshold for new users. "It proved to be easy for the many deputy nurses at the department to learn and master the system after a relatively short introduction," Buxrud says.

The system meets the wide-ranging requirements for electronic case record systems. It is easy to extract reports, and treatment regimes can be entered by a click of the mouse or a few keystrokes. The traditional paper-based case record at the patient bedside has been replaced by the clinical information system running on dedicated bedside workstations.

Documentation tool

Some fifty variables are automatically recorded from the surrounding equipment, among them values from the respirators and blood gas equipment. Data may easily be entered manually into the system. The tool is dynamic and flexible, permitting users to define new schemes and variables when needed.

"This fantastic tool gives us data and details we did not have access to in the past. It is simple to compare values from hour to hour, from day to day. Important decisions have been much easier to make. These are major advantages over the paper based case record," department chief physician Nils Smith-Erichsen states. He adds that the tool may be used in research activities, such as studying in detail the development of certain patient groups.

More time for the patient

None of the nurses working in the ICU miss the paper-based case record.

"The electronic case record is more accurate and saves time. It is our experience, however, that the system does not reduce the need for personnel, since a critical sick patient needs the same monitoring and supervision as before. Rather, using the system has made it possible to spend more time on important tasks," department nurse assistant Unn Nestande clarifies.

The nurses see it as a major advantage that they have access to updated data, especially for the fluid balance:

"In the past, we had to calculate this ourselves; now, we have access to updated information each minute. We now also have the opportunity to continuously record what we are doing. This was a time-consuming task before the system was implemented," Nestande continues.

Hopes for cooperation

Within a few years, it will be a requirement for Norwegian hospitals to implement such systems in their ICUs, Tor Buxrud believes. "We hope that other hospitals will choose the same system; there's no need to reinvent the wheel. Hopefully, hospitals will co-ordinate their systems to optimize communications. Using the same system will offer great benefits, and is likely to happen, in Buxrud's opinion.

Akershus's ICU has nine beds, covered by 60 nurses and 25 physicians. Project costs have been around 1.7 million NOK for software and 1.0 million NOK for IT infrastructure. In addition to this, 6 months of physician time and 6 months of nurse time have been invested in the project. Given that the daily rate for each patient is some 20,000 NOK, just 1% of this amount relates to the clinical information system.