GE Healthcare

Centricity Clinical Notification System bolsters quality of care, streamlines clinical research and facilitates administration in ICUs

Ghent University Hospital is one of Belgium's largest hospitals, with over 1,000 beds and 6,000 employees serving a wide range of patient profiles including medical, surgical, transplant, paediatric, burn units and others. The hospital's 66-bed Intensive Care Unit has taken additional control of "data in intensive care" using GE's Centricity* Clinical Notification System (CNS), part of the Centricity Critical Care solution.

With a growing number of patient data points from glycaemic control to antibiotic dosing, there is an increasing need for clinicians to be alerted to notifications in order to make timely decisions and be pre-warned of situations relating to clinical events, adherence to protocols or data completeness. Ghent University Hospital has found that using a specialist notification system has improved quality of care in their ICUs and streamlined innovative research practices.

In summary:

- One of Belgium's largest hospitals, including a 66-bed ICU reliant on various patient data points
- A pioneer in Belgium and Europe to use alerting, with basic alerts incorporated over 10 years ago
- Centricity Clinical Notification System from GE Healthcare in place since 2010
- Improvements in quality of care and patient experience from automated alerts
- CNS supports research with inclusion rates increasing from 20% to 100% due to CNS' support with patient enrolment[i]
- CNS assists routine care, having led to clinical benefits such as significantly fewer episodes of persistent hyperglycaemia and a higher proportion of time with normoglycaemia[ii]
- Administrative workflow streamlined with instant alerts sent to administrators for relevant events
- Uplift in data completeness supported since installation of CNS
- Reliable and accurate notifications delivered with seamless integration into Centricity Critical Care, the intensive care information management system from GE healthcare
- Smooth system implementation, with users benefitting from enhanced control over alert setup

Supporting improvements in quality of care with customised, rapid alerting

"ICU has experienced direct quality improvements as a result of the Clinical Notification System. We use various data points such as those based on physiological, laboratory or medication information. CNS amalgamates this data to produce meaningful alerts that have a significant impact on clinical practice. For example, we have seen significantly fewer episodes of persistent hyperglycaemia and decreased the number of hypoglycaemic events.

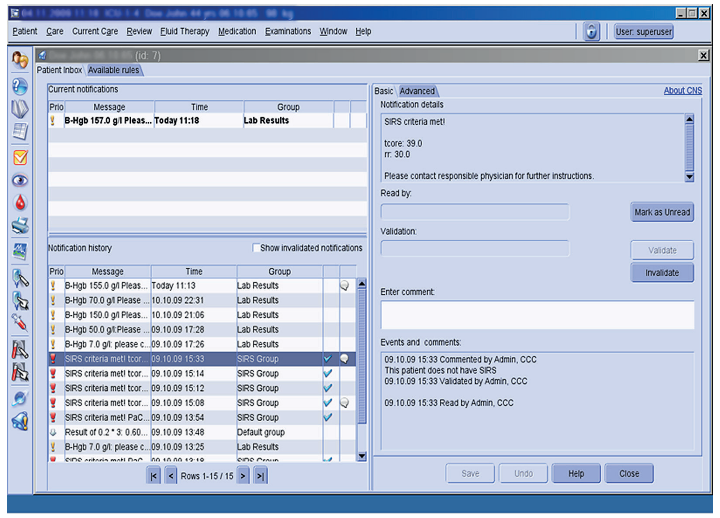
"We use alerts for quality improvements across the board such as with glycaemic control, acute kidney injury and adaptation of antibiotic dosing to renal function. These all add up to ensure we're providing patients with the best quality of care and a smooth overall stay."

Kirsten Colpaert
Intensivist
Intensive Care Unit
Ghent University Hospital

The Centricity Clinical Notification System at Ghent University Hospital allows users to define a set of conditions based on any combination of relevant patient data held within Centricity Critical Care (CCC) and other integrated hospital systems. Up to six different variables are used at Ghent from four different sources including the laboratory, ventilator, CCC and Cosara, the hospital's own infection program. Whenever they are verified, a notification is forwarded to the relevant clinician or administrator, ensuring the proactive management of patients and their data.

Ghent University Hospital regularly observes the challenges that ICUs face and identifies whether an alert could help to avoid future problems of that type. A study is then launched to see whether the alert is helping to tackle the issue so that it can be incorporated into mainstream clinical practice.

Hyperglycaemia and hypoglycaemia were frequently encountered in Ghent's ICU and the decision was made to launch a smart alert to tackle this. With CNS, Ghent University Hospital witnessed a drop in hyperglycaemic values from 26.5% to 19.5% and less persistent hyperglycaemic episodes in the alert phase from 15.4% to 9.9%. Not only was more time spent within its target glucose interval, but a lower proportion of patients experienced a new-onset hypoglycaemic event in the alert phase. The Sequential Organ Failure Assessment score was also significantly reduced from 5.2 to 4.2.



"There will be a greater focus on clinical decision support in the future, with systems such as CNS becoming increasingly valuable. CNS isn't a luxury, it's a necessity – clinicians need smart alerts to make timely decisions and to accurately visualise a patient. ICUs must identify key challenges such as glycaemic control, sepsis or antibiotic dosing then address these with an intelligent notification system before checking desired outcomes are met."

Kirsten Colpaert
Intensivist
Intensive Care Unit
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Powering research capacity
CNS has enabled Ghent University Hospital to boost inclusion rates from 20% to 100% with CNS' support. "We create alerts designed to boost subject enrolment in clinical trials – and these have been very successful since the deployment of the Clinical Notification System. It was previously very difficult to find the right subject as you often have a narrow window in terms of the conditions that need to be met."

"We had a Clinical Pharmacist that didn't enrol any patients in his study, until CNS was implemented. Today, as soon as a patient meets the required criteria, we immediately receive an alert to say the patient could be included. For example, we conduct a lot of PK/PD (Pharmacokinetic / Pharmacodynamic) modelling studies with antibiotic dosing. From the moment the patient is prescribed the drug, the clinical pharmacist is sent an alert to see whether the patient is fit for enrolment in the appropriate clinical trial," states Kirsten Colpaert.

Streamlining administrative workflow
CNS has also been designed with system administrators in mind, allowing complete personalisation of notification messages and ensuring alerts can be sent via email to suit individual ways of working.

"CNS has obvious benefits within ICU – but these also extend to outside of the immediate clinical environment. For example, if a patient is deceased, psychologists are able to arrange the rapid despatch of a letter containing all the relevant details to the family. Administrative staff also receive a notification to ensure the letter has been sent to the patient's GP. In cases such as this, Ghent University Hospital has a duty to respond quickly, and CNS helps to facilitate this," continues Kirsten Colpaert.

Ensuring data completeness
Centricity CNS allows users to be notified whenever important data, such as an examination result, is missing. "Administrators need to be rapidly notified of any gaps in clinical data so that these can be flagged and rectified as quickly as possible," explains Kirsten Colpaert. "CNS also helps clinicians at the point of care, by providing instant alerts when necessary parameters have not been completed."

Ease of use and integration helping to empower clinicians
"CNS is reliable and accurate. It integrates with GE's Centricity Critical Care and our own proprietary infection program that contains all microbiology, infection and antibiotic data. The implementation of CNS went very smoothly – we encountered no challenges and clinicians were already familiar with alerting services. Nurses were particularly impressed with the relevance of the notifications, such as when they might have forgotten to give an antibiotic dose after dialysis."

Kirsten Colpaert concludes, "Our previous alerting system focussed on research and was difficult to control, as close liaison would be needed with engineers to get parameters correctly set up. With CNS, we have total control, our time has been freed up and we can improve the patient experience."

About GE Healthcare

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE (NYSE: GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients. For more information about GE Healthcare, visit our website at www.gehealthcare.com.

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imagination at work

[i] According to the estimation of Ghent University Hospital.

[ii] According to independent study by Ghent University Hospital: “Influence of smart real-time electronic alerting on glucose control in critically ill patients”, Journal of Critical Care.

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