

CUSTOMER REFERENCE STORY



Slingeland Hospital: continuous monitoring accelerates

Turbulent times in The Netherlands. The Slingeland Hospital in Doetinchem started in early February with a test with wireless measurement of patients' vital sign values. Based on these values, the risk of deterioration (Early Warning Score) or complications is calculated. After a short break to solve the latest technical challenges, the neurology and vascular surgery departments were ready to restart the trial in early March. But, just then, the COVID-19 pandemic reached the Netherlands. This meant that all non-acute care stopped immediately, including the Sensing Clinic project with Ascom. Until the doctors asked themselves after a few days: can we use this planned continuous monitoring system for our COVID-19 patients?

In no time, the platform was set up for the COVID-19 department. This made it possible to continuously monitor COVID-19 patients who were nursed in isolation. Healthcare providers can get a non-stop view of the respiratory rate and heart rate of patients assigned to them, on their smartphone or via the dashboard in the patient file. Saturation is measured several times per hour. These values are also monitored 24/7 from a central control room. The assigned carers are informed if the patient shows signs of deterioration. The remote measurement aim to support the healthcare professionals. Deterioration can be signaled earlier with continuous monitoring and so intervention may be possible earlier than with a point measurement.



Malou Peppelman
Innovation program manager
at the Santiz hospitals

What they discovered

Malou Peppelman, Innovation program manager at the Santiz hospitals, thinks it is too early to draw firm conclusions. How much has been prevented? Does it save sleeping days? Does it benefit the quality of care? Initial case evaluations do show that there was faster insight into deterioration through the use of continuous-monitoring and the assessment of the data in the control room.

She also looks back in awe at a period in which a lot has been learned. “We have discovered that people are flexible in a crisis; that innovation is possible in a short time, and that nurses have discovered the potential of technology.” Now that the peak of COVID-19 patients has leveled off, there is still room to start with sensor technology in the vascular surgery and neurology departments. We are in discussion with healthcare professionals in the region about which conditions we want to measure vital sign values for and whether this care must necessarily take place within the walls of the hospital. We can convert the data we obtain from the monitoring into information that contributes to the Right Care in the Right Place.”

Thinking creatively

It was at least as exciting for the supplier to literally introduce a new system for nursing remotely, for a different purpose than for which it was developed. Mario de Lijster, Portfolio Manager Cure at Ascom looks back: “In this transformation, we had to convert users in a short time, arrange secure access and instruct departments about the working method. Creativity was also needed when activating the pulse oximeter in the COVID-19 patient at bedside. For that you would have to be very close physically and that is not desirable. The IT department of Slingeland Hospital has found something to give a "push of a button" from a distance. If it works the way you want, it is very satisfying.”

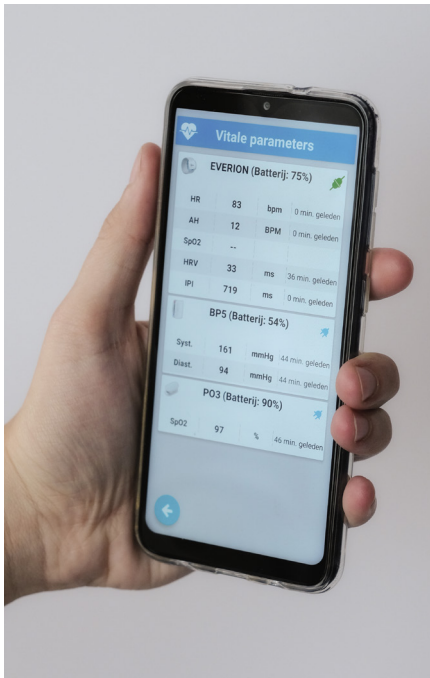
If one of the sensors on the patient's body gives a notification that a value is increasing, a notification is sent to the nurse's smartphone. The data are simultaneously visible on a dashboard in the EPD and via a screen at a central monitoring location, the control room. The sensors used come from different suppliers. The Digistat Suite communication platform from Ascom is used for the central processing, enrichment and analysis of the data.

Sensors in addition to the clinical view

The classic model of measuring values is that the nurse takes bedside measurements three times a day. Heart rate, respiration, saturation, blood pressure and temperature are checked and the values are entered in the EPD. This Early Warning Scores point measurement does not provide real-time insight into the patient's situation. Wireless sensors do measure vital values continuously, so you know how someone is doing every minute of the day. As a result, deviations and complications can be identified sooner, making it possible to act faster. It is of course important: what is the norm, at what value will the system beep? Malou Peppelman: “You first need medical content protocols before you can organize the process automatically. And that's an ongoing process.”

“For example, we are now examining with the pulmonologists whether the COVID-19 patients may drop the SpO2 maximum by three or four percent before a signal is received. That is customization. What we want is to support physicians and nurses with technology so they can focus on their core business. E-health is a useful addition to the clinical perspective.”

Better care, faster recovery and more comfort for the patient: based on these considerations, Slingeland Hospital has partnered with Ascom in the Sensing Clinic



project. The project started in early 2020, before the coronavirus outbreak. Shortly afterwards, all schedules were cleared. Malou Peppelman: “We were, as it were, thrown in at the deep end. You have to work collaboratively when it comes to safety - that is the highest good. Do we dare to innovate? The need to change just gives the push. We fixed this together.”

Increasing demand for care

The Achterhoek region is struggling with a double aging population: more and more older people are coming, who are also getting older. This increases the demand for care. An additional problem is that there is a shortage of care providers. This puts pressure on the entire ecosystem of care and therefore also on specialist medical care in the region. The wish for the future is that the application of sensor technology reduces the workload for nurses and helps the hospital to better cope with the increasing demand for care. Decline can probably be detected early, which means that action can be taken earlier.

The idea is also that this sensor technology can also be applied at a later stage to patients when they return home from the hospital. This gives them a feeling of safety and ensures that, if necessary, quick intervention is possible. More patients can also be cared for with the same number of care providers. In addition, a number of hospitalized patients can probably go home earlier, because the sensors can also keep an eye on things at home. Mario de Lijster: “We are in talks with other healthcare institutions to deploy the platform with the aim that people receive the least invasive care. This can be interesting for nursing homes with their vulnerable residents. Sensors that are already in use can be linked to the platform, so it is not necessary to replace well-functioning wearables.”

Tips:

- Choose a platform that can connect as many sensors as possible
- Set clinical goals, not technical ones up front
- Verify coverage for the wireless sensors at patient locations in advance
- Set up a central analysis room
- Provide mobile access to alarms and patient data
- Make the measured data also accessible from the EPD
- Ensure fast, unambiguous governance regarding the implementation of algorithms
- Involve the IT Security Officer and the Medical Ethics Committee early in the process
- Fit it seamlessly into existing clinical work processes
- Schedule employees free for hands-on training

Dr. Malou Peppelman

Malou Peppelman is a technical physician. She works as an Innovation program manager at the Santiz hospitals (the Slingeland Hospital in Doetinchem and Regional hospital Koningin Beatrix in Winterswijk)

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