

Derriford Hospital

One patient, one monitor, one acute care episode

When choosing patient monitors for its new Cardiac Unit, Derriford Hospital thought beyond a single unit and created a hospital-wide solution where the monitor follows the patient throughout the episode of care – collecting vital signs data without interruption and making clinical data available wherever needed via the network.



As part of the process of building a new cardiac wing, decision makers at Derriford Hospital decided to replace the hospital's aging patient monitors. Their first step was to consider what capabilities they would like the new monitoring system to offer.

Team leader Dr. Sergei Dudnikov, Consultant Cardio-Thoracic Anaesthetist, explains: "Our vision was that it should be a hospital-wide system, capable of being both mobile and stationary. Our patients come to a fixed location – such as the operating theatre or intensive care bed – so all the patient monitoring and data management needs to be available at this location. However, the system should also have a mobile component that could plug into the stationary part and automatically transfer the vital signs data collected on transport. This allows all information to follow the patient: one patient, one monitor one acute care episode. Finally, we wanted to be able to bring networked clinical data to the point of care and also to have remote access to patient monitoring data in real time.

Following clinical evaluations, the hospital implemented the Dräger Infinity® Omega solution with Innovian® clinical information solutions. Infinity Omega combines an Infinity Delta monitor with a medical-grade bedside workstation, the C700 for IT, integrated by Infinity Explorer software.

The Delta continually monitors patients at the bedside and on transport, while Infinity Explorer brings networked information – such as clinical applications, lab values and DICOM images – to the large 20" C700 touch-screen display at the point of care. Innovian, a Web-based clinical information system, gathers data from bedside devices in critical care and perioperative care environments and documents care-related activities. All systems run on the Infinity Network, which is linked to the hospital information system.

Integrated transport with automatic data backfill

The Dräger solution allows the hospital to keep patient data as one episode. The nurse only needs to enter data once and the Delta monitor links into the patient administration system when the patient moves between locations. This eliminates the need to manually admit a patient when they move to a new area – which was very time consuming for nurses and had potential for error. Dr. Dudnikov explains: "The Delta monitor's Pick and Go® capability enables data collected on transport to automatically backfill into the electronic medical record."

The Pick and Go capability also saves the staff time with each patient transport. "Nurses no longer have to disconnect and reconnect the patient for transport. They don't



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– Dr. Sergei Dudnikov, Consultant Cardio-Thoracic Anaesthetist
Derriford Hospital, Plymouth, England

need to zero transducers, or reconnect ECG leads. Before, we would have to disconnect the patient from the stationary monitor, connect the transport monitor, go to the CT scan, and reverse the process when they returned to the unit. Now it's just dock and undock – the monitor follows the patient's journey."

The new monitoring system supports patient safety because all parameters monitored at the bedside continue to be monitored on transport without interruption. Once the monitors are undocked, they are automatically powered by batteries rather than the docking station.

This capability is also useful in case of power outages. "Once the hospital's power went down for three hours," recalls Dr. Dudnikov. "The monitors automatically switched to battery power, and once the hospital's power came back on, the monitors backfilled data quite nicely so no data was lost."

Comprehensive data – when and where it's needed

Another key requirement for Derriford Hospital was to be able to bring networked data to the point of care. Because all Infinity monitors are networked together, patient monitoring information can be viewed simultaneously at the bedside, the Infinity CentralStation, and remotely on networked PCs and handheld devices.

At the point of care, clinicians can access information such as blood gas, lab results, X-rays, angiograms and more – without obstructing vital signs data – on the bedside workstation.

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Because the system is connected to the hospital network, the staff can view patient information over the Web using Dräger's Web-based tool, PatientWatch™. They also use the Web browser to access information such as the pharmacy and clinical guidelines for treatment of diseases.

"Dräger monitors have given us the opportunity for remote monitoring, which is extremely valuable in caring for acutely ill patients," says Dr. Dudnikov.

A clinical example: The ICU staff is expecting Mr. X to arrive from Operating Theatre 2 but don't know exactly when or what his condition will be. Now the staff can plug into PatientWatch and check the patient's vital signs. If they see that Mr. X's temperature is rising, they can expect him to come to the unit soon. Or, if they see that the patient is struggling and going back on by-pass, they will be able to prepare for a difficult patient by having solutions such as adrenalin ready.

This remote viewing capability also facilitates consultations – regardless of the clinician's location. Dr. Dudnikov explains, "If I'm in theatre, and simultaneously on call in the ICU, and get a call saying, "Mr. Y from bed six is bleeding," I can view the patient's vital signs and such things as his thromblastogram remotely.

"I can do the same from home. Because our system allows us to use our hospital laptops at home when we are on call, we can see our unit bed-by-bed with very accurate information as to what is going on. We were not able to do this before implementing the Dräger technology."

Standardisation provides clinical benefits

Another key benefit of the Dräger solution is that that it enables the hospital to standardise on one monitor. The Infinity Delta supports all care areas, all patient types, and all acuity levels. Standardisation can also improve patient safety, reduce training time, and make it easier for staff to work across different departments.

"When you have standardised equipment, people can learn how to operate the monitors once and know how to operate any monitor in the hospital – which is very important for junior doctors. They don't spend time pushing buttons in desperation.



The hospital can now have one monitor follow a patient throughout the entire episode of care – from emergency, to the OR, to the ICU, to radiology, and back to the ICU, for example. So for five or six days of care, the patient is never disconnected. Not only is vigilance and data collection continuous, it's also a more hygienic solution.

Thinking beyond the unit

Looking back, what are the lessons learned in this patient monitoring upgrade? According to Dr. Dudnikov, "Look into the implication for the whole hospital, rather than just for your own department, and don't let small things distort your vision. Try to think big."

Derriford Hospital

Located in Plymouth, England, Derriford Hospital is one of the largest hospitals in the southwest part of the country, with 900 beds. The hospital provides a comprehensive range of emergency and general hospital services, as well as specialty services including heart surgery, bone marrow transplants, kidney transplants, neurosurgery, pancreatic surgery and neonatal intensive care. Derriford Hospital is managed by Plymouth Hospitals NHS Trust, whose mission for the hospital is "to be recognised as the best in everything we do, providing leading-edge, high quality health services, safely delivered with courtesy and respect."

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THE CHALLENGE:

Derriford Hospital wanted to standardise on one monitor that could follow the patient throughout the entire episode of care. They also wanted to bring networked information to the bedside, have remote data access, and a patient data management system.

THE SOLUTION:

Dräger implemented the Infinity Omega solution and Infinity Delta patient monitors at more than 200 beds hospital-wide, as well as Innovian Perioperative and Critical Care. PatientWatch enables remote viewing of patient monitors.

THE RESULTS:

Hospital-wide standardisation

- Supports patient safety and reduces training needs

Safer, more efficient patient transport

- Allows bedside monitors to go on transport without disconnecting patients, providing continuous vigilance and data collection

Improved access to vital information

- Allows vital information to be brought to the bedside and accessed remotely via the hospital network

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