

# Perfecting the Digital PACS Experience at Groene Hart Ziekenhuis



**Nestled in a particularly beautiful area of the West Netherlands, the historical city of Gouda is home to the Groene Hart Ziekenhuis (Green Heart Hospital). Spanning four main sites, the Groene Hart is a medium-sized general hospital providing care to a local population of 450,000 people. Housing 441 beds the hospital employs some 150 doctors and, as an established user of Carestream Health products, it was the ideal European launch point for the new CARESTREAM Cardiology PACS.**

Launched in 2009, the CARESTREAM Cardiology PACS offers a single integrated platform for diagnosis, reporting, storage and review, creating a closed-loop information cycle that greatly improves efficiencies and removes the potential for errors caused by multiple data entry points. Working in synchrony with the Hospital Information System, Carestream Health's PACS takes patient information from a central database and duplicates it across every record or entry made about that patient—no more lost records, broken videotapes or corrupted CDs.

Carestream Health spoke to Ralph Wagter, the resident ICT consultant at the hospital. The Cardiology department saw the benefits in implementing a digitised workflow and asked the ICT department to help select and implement such a workflow.

Ralph describes the scope of the project in Cardiology; "The plan was to digitise ultrasound and cath lab, previously stored in analogue form on VHS and CD. We have a large archive of VHS tapes that necessitated lots of time spent searching through for patient records; obviously a manual process that was both time-consuming and carried the potential for error." Committed to the ideals of best practice and efficiency creation, Ralph was impressed with the promise of CARESTREAM Cardiology PACS: "We saw what Carestream Health did for us in Radiology which, although a very different type of set-up, relies on the same basic tenets that we wanted to translate to Cardiology—digital imaging, processing, report and review."

The Groene Hart discovered through its own research that Carestream Health was the only vendor prepared to offer an integrated system.

Ralph explains: "The potential to integrate the systems was the most exciting part; every piece of information is stored in a central hub and is instantly accessible from a single browser located anywhere in the hospital, cardiology and radiology alike. Carestream Health delivered this flexibility, working with us to create a bespoke system that perfectly meets our needs."

Carestream Health's application specialists worked on-site to perform the installation, a complex process that began in May 2009 and was rolled out in September 2009. As in any environment dealing with confidential data it was essential to ensure thorough checks and beta-testing took place before going live with real data.



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Initial system training was conducted by Carestream Health and included a cross-section of key users from the pool of Cardiologists and Technicians. From here a 'train the trainer' programme was successfully rolled out providing a two-tier benefit system that not only compounds the knowledge of the recent trainee but also enables him to pass on expertise to his colleagues using contextual cues and examples that an external trainer would be unaware of. The net result is a robustly trained department who feel a sense of shared responsibility for ensuring the success of the system.

Carestream Health has since provided additional support both on- and off-site and this will continue, giving Carestream Health the opportunity to learn from the experiences at the Groene Hart and work on further system developments based on real rather than simulated client experiences.

The PACS necessitates some subtle changes to working practices. Previously Cardiologists would dictate reports that would then either be stored in tape form for future reference or typed up and stored in hard copy with a patient's file. Using CARESTREAM Cardiology PACS all of this data is held in digital format, facilitating its use and review from any authorised viewing point. This precipitates an administrative shift that different departments will handle in different ways and as Ralph describes: "At the Groene Hart it's involved an element of change management, working with people to show them how the change will benefit them and to help them manage their workload positively. Our long term aim here is to enable remote access which will make this easier still."

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The experience at Groene Hart is a perfect example of what can be achieved using CARESTREAM Cardiology PACS. A 27-step workflow has been contracted to just 8 steps through intelligent combinations made by combining different systems, which was not possible without the CARESTREAM Cardiology PACS. Whilst it's impossible to convert this to a direct time or cost saving, the correlations between a contracted workflow, financial economy and greater accuracy—streamlining the potential for error—are obvious.

In terms of its impact on patient care, the CARESTREAM Cardiology PACS enables much more intuitive reviewing and reporting; comments that a patient makes during a consultation can be discussed and immediately assessed using the live data taken from the scan. Patients also have the option to take home a copy of their CD and, in the absence of a national imaging network, another hospital can request and receive a CD with a significantly faster turnaround—all huge positive steps in terms of improving communication and maintaining high standards of patient care.

Ralph describes his predictions for the potential of CARESTREAM Cardiology PACS; "PACS could be adapted for use with any documents or streams of information, basically anywhere that is imaging and storing information could benefit and the wider that this technology spreads itself, the more successful it will become." Specifically at Groene Hart, the next step is to roll out PACS to ECG and work on delivering remote access to the hospital's consultants, making the system work ever more efficiently and completing the transition from analogue to digital.