



# Case Study: Turku University Hospital



## Customer Overview:

Turku University Hospital is one of Finland's five university hospitals. Located in Turku, the country's oldest city, its main role is to provide health services to the 435,000 inhabitants of the south west of Finland.

In addition, it offers highly specialized services such as cardiac surgery and neurosurgery to other regions. With some 3,100 employees, the hospital cares for up to 1,000 out patients each day and more than 35,000 in-patients each year.

## Turku University Hospital was essentially looking for a solution that would deliver the paperless hospital

### Challenges

Providing services to so many patients inevitably means the accumulation of large numbers of patient record files. By the beginning of 2003, the hospital was storing 24 million pages of paper in its patient files. "The files were taking up too much storage space. And retrieving the files was taking too long: 5 days on average. Also, files and papers were sometimes mislaid," explains Yrjö Koivusalo, Chief Information Officer at Turku University Hospital.

In addition, to ensure fast access to patient records for doctors across the country, Finland has introduced legislation requiring medical records to be stored in an Electronic Patient Record systems by the end of 2007.

This represented a significant challenge for Turku University Hospital's IT team. "We were essentially looking for a solution that would deliver the paperless hospital," says Yrjö Koivusalo.

Like three of the other five university hospitals, Turku University Hospital had already started to implement a central Patient Administration System, known as Miranda. So the solution selected to deliver the Electronic Patient Record would need to integrate with the Miranda system. It would also need to provide an alternative to paper for long-term storage. And it needed to be ready to implement fairly rapidly, in order to support Finnish hospitals in achieving the 2007 deadline.

Also, the IT team at Turku University Hospital IT team knew that their Electronic Patient Record solution would be high profile, because they were piloting the solution for national roll-out across university hospitals.

### Solution

In 2003, after researching the marketplace for the right system, Turku University Hospital chose Global 360's hybrid File360 solution. "One of the main reasons we selected File360 was because it is a working solution, with good reference sites in Nordic," comments Yrjö Koivusalo. "What is more, it's a hybrid solution. It allows us to put the records to an Electronic Patient Record system and also to microfilm, for long-term storage.

File360 is also an open-systems solution, allowing easy integration with other systems.

Over the winter of 2003/4, the IT team worked on the File360 implementation, ensuring it was capable of meeting all the hospital's needs. And nine Kodak scanners were installed, running Kodak Capture software: one high volume production and eight departmental scanners.

### Challenges

In response to Finland legislation requiring medical records to be stored in an electronic Patient Records System by the end of 2007, Turku University Hospital needed a process and document management solution to help them deliver a paper-less hospital and convert their 24 million pages of paper-based patient files.

### Solution

Turku University Hospital deployed File360 to scan, index, and store active and inactive files to create an electronic Patient Record System, convert paper files into microfilm files, and integrate with the central patient record system to move towards a paperless office.

### Results

The Global 360 deployment has reduced physical storage space for archiving inactive files, reduced the time to access files, enabled the hospital to meet legislative requirements, and created an electronic Patient record Systems for use by all Finnish hospitals.



## Case Study: Turku University Hospital

In spring 2004, the hospital started scanning inactive paper-based patient files into the File360 system, and soon after, active files were also scanned in. "Priorities have been assigned in such a way as to ensure that active and inactive patient records are simultaneously scanned into the File360 system," comments Yrjö Koivusalo. This allows the hospital to gradually reduce the volume of paper documents in long-term storage while at the same time converting current patient files.

On average, each medical file holds 50 documents, although some files hold up to a hundred. Prior to scanning, each paper file must be manually sorted. Staples are removed, and documents are grouped together and indexed, using the patient's social security number, the specialist medical category, and the document type, from a list of 47 options.

Scanning a patient's file into the File360 system takes an average of one minute, with larger files being scanned on the high volume Kodak scanner, which can process over 80 pages a minute.

The next stage is to check the quality of the results. This takes some minutes, although complex files may take up to 10 minutes. Then the paper files can be shredded.

The microfilm version of the file is then stored long-term, while the Electronic Patient Record is stored on digital media.

*"Global 360's File360 system not only saves us space and time, it is helping us achieve our goal of a 'paperless hospital!'"*

*Yrjö Koivusalo, Chief Information Officer,  
Turku University Hospital, Finland*

During summer 2004, the IT department started to integrate File360 with the hospital's central Miranda electric patient record system, to ensure the same high levels of access security as Miranda.

In Finland, unless a patient gives written and signed consent, only a patient's medical doctors are permitted to access a patient's files. Even then, they are only allowed access to some of the documents.

Initially, a customization of File360 was developed for Turku University Hospital to deliver the additional security needed to restrict access to the records. However, in response to this requirement, Global 360 soon developed and released a storage server module that meets the requirements for confidentiality.

## Results

The File360 Electronic Medical Record system has been integrated with the central Miranda system in such a way that the links to File360 appear clearly from within the Miranda system, showing a list of the documents the user is permitted to access.

In the meantime, the IT team has also integrated the hospital's scheduling and invoice software with the Miranda system.

Through integration with Miranda, the hospital is now using File360 for scanning, storing electronic documents and automatic retrieval through the File360 link. "File360 provides a reliable storage system and a very good automatic retrieval solution," says Yrjö Koivusalo.

By the end of 2004, the hospital's File360 system had 65 concurrent users, with plans for a massive increase to some hundreds of users during 2005. More than a million pages have already been stored into the hospital's File360 Electronic Patient Record system, with daily updates of progress posted on the hospital intranet.

In response to user requests, future enhancements to the scanning system include color scanning and the option to scan an A3 original as a single document.

A forthcoming major enhancement will be to implement an electronic signature facility. This will allow patients to electronically authorize other medical staff to access their records, which will move the solution even closer to the "electronic hospital." "With the electronic signature in place we will no longer need to generate paper documents for signing. So we'll gain more time and save even more space," confirms Yrjö Koivusalo.

By the end of 2004, just 18 months after selecting File360, Turku University Hospital had successfully piloted the use of the File360 Electronic Patient Record system within the central Miranda central electronic patient record system. The solution can now begin to be rolled out on a national basis to Finland's other university hospitals, in order to meet the statutory 2007 requirement.

