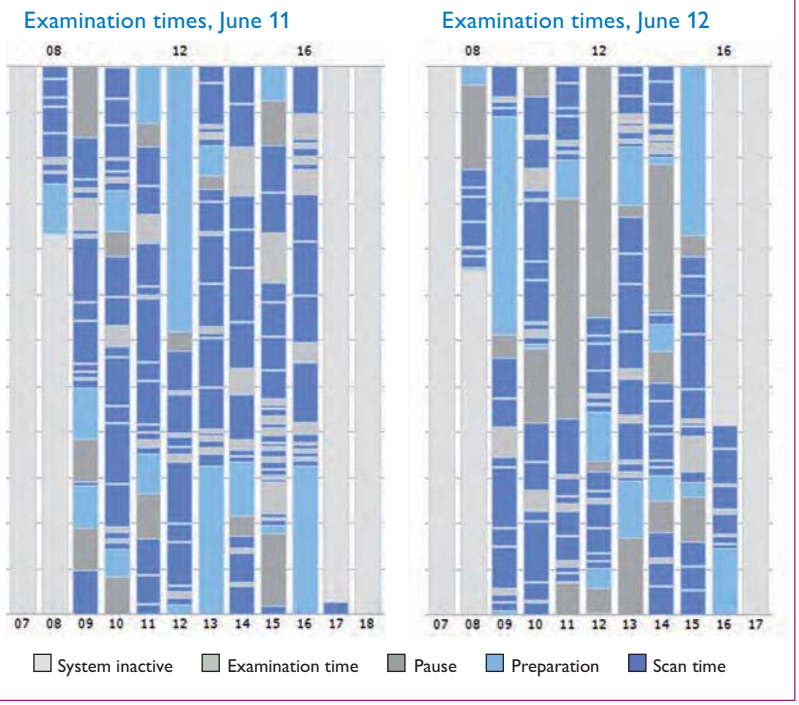
Utilization Services helps to cut exam waiting time at Catharina

Dramatic improvements realized after Philips' Utilization Services helped reveal planning deficiencies

The Catharina Hospital is a large teaching hospital in Eindhoven, The Netherlands, which operates three Philips MRI scanners. The waiting list for MRI exams was rather long, and the management of the radiology department decided to look into ways of reducing it. With the help of Philips' Utilization Services, the department achieved significant improvements in overall scanning efficiency and a major reduction in exam waiting time.



The initial Utilization Quick Scan analysis reveals 'dead times' between scans (grey) and long preparation times (light blue).

Philips' Utilization Services helps to pinpoint and minimize wasted time by acquiring objective data on system utilization via Philips Remote Services (PRS) including system idle time, intervals between scans, patient preparation time, examination time and scan time. The Head of Radiology at the Catharina Hospital, Philip Jurgens, MD, was already aware of the efficiency improvements achieved in other institutions with the help of the Utilization Services tool, and he was eager to see if it could help his department to reduce its waiting list for MRI exams. "At an average of around 30 days, our waiting time for an MRI exam was too long, and although we'd lived with this for some years, the inconvenience to patients and referring physicians meant we had to take action to reduce it," he says.

Objective analysis of 'dead time'

A team was set up that included Philips workflow experts plus representatives from the Catharina's Quality and Radiology Departments. The efforts initially focused on identifying problems in the scanning process itself based on an initial Utilization Quick Scan analysis. These included all non-scan times such as patient changeover time and time lost due to patient no-shows, patients arriving at the scanner improperly prepared (e.g. for a necessary contrast injection during scanning). This was followed by actions to determine the root causes of problems in the scanning process and taking steps to eliminate them using a standard methodology known as 'Lean Six Sigma' embodying a DMAIC (define, measure, analyze, improve, control) process.

Planning system identified as hidden bottleneck

Surprisingly, even after the department had adapted its procedures to reduce the scanning time, initially there was hardly any improvement in throughput. This led the team members to look for causes outside the scanning process. By interviewing everybody involved in the whole process, they discovered that a major issue was the planning process.

Having evolved over several years, the planning process had become very complex with a lot of complicated and rigid planning rules such as rules predefining fixed slots in the day when specific types of exams would be done.

"Throughput increased by about 10% and waiting time was cut from 30 days to about 5 days."

Average waiting time dropped

Average waiting time for an MRI exam at the Catharina Hospital was cut from around 30 days to just 5 days.

Moreover, all planning information was textual so that the scheduler could not readily deduce the length of an exam or see if there was an open slot between exams, which meant many open slots were not being filled. In total, over the department's three scanners, around 85 minutes of available scanning time per day were unfilled.

"With the help of a Philips specialist, a new simplified planning system was developed that gave the schedulers far better oversight of available scanning time per day," explains Joline Verhulst, Quality Manager at Catharina Hospital.

The new planning system was also more flexible with fixed blocks reserved only for acute care patients and for scans that have to be coordinated with other departments within the hospital, for example a patient needing a series of exams in different departments. All other blocks are free to plan for any exam.

To keep the planning as simple as possible, all exam slots were set at the same length of 30 minutes, which was found to be the average exam length over the working day. And as actual exams can vary in length depending on the type of exam and procedures included, by randomly distributing the different exams over the day, some shorter than 30 minutes and some longer, the schedule balances out by the end of the day.

A perfectly balanced process

"We obviously had some serious issues with our planning process but these were initially masked by bottlenecks in the scanning process itself. Philips' Utilization Services enabled us to adopt a holistic approach to develop a perfect balanced planning and scanning process which has proven itself by increasing throughput by around 10%," points out Dr. Jurgens. "This has also had a dramatic effect on exam waiting time which since the introduction of the new regime has been cut from 30 to around 5 days."

It was also essential to demonstrate that the introduction of the new regime would not negatively affect patient satisfaction. Measurements before and after its introduction showed there was virtually no change in time spent in the waiting room before an exam when the new schedule was introduced. In both instances 95% of patients had to wait less than 30 minutes.

Joline Verhulst (right) and colleagues during the brainstorm sessions.