

Electronic patient records and speech recognition technology

A Danish hospital group has integrated computerised speech recognition into its patient record system, increasing office productivity by up to 7%. But that hasn't meant staff redundancies

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Healthcare is restructuring all over Europe, and Denmark is no exception. The hospital unit Sygehus Lillebaelt in the Southern Denmark region is a product of this restructuring process.

Sygehus Lillebaelt is one of four hospital units in Southern Denmark. It consists of five hospitals brought together through two recent mergers of formerly independent hospitals. Vejle Hospital in the town of Vejle is the biggest of the five institutions.

The four other hospitals that belong to the network are situated in the towns of Kolding, Fredericia, Give, and Middelfart. Altogether, there are 700 beds for inpatient care in the five hospitals. The Sygehus Lillebaelt hospital unit currently offers its services to roughly 65,000 inpatients and another 425,000 outpatients per year.

Merging the institutions has led to central administrative structures, in particular to a joint facility management with the aim of making useful and productive IT solutions from individual institutions available to the whole hospital network.

There is already a joint electronic patient record (EPR): the solution IPJ from Acure, an

IBM subsidiary. It has been adapted specifically for the hospitals that make up the Sygehus Lillebaelt network. A key focus of Sygehus's facility management now is to equip all hospitals in the network with speech recognition technology.

Streamlining patient care

The goal is to streamline patient care by making information instantly available, to cut costs by reducing workload for the secretaries and to make using the EPR more efficient for doctors and other care providers by offering not only the possibility to create documents but also to navigate through the EPR by speech.

Speech recognition is not completely new for Sygehus Lillebaelt. At Vejle Hospital, speech recognition technology was fully implemented in September 2006 by the Danish speech recognition specialist Max Manus, a local partner of Nuance Communications. Implementing speech recognition at Vejle Hospital was a huge success story, so that, after the recent mergers, the decision was taken to extend the implementation to all hospitals in the network.

At Vejle hospital, speech recognition is successful for several reasons. One is that it streamlines the care processes; particularly in the context of the existing EPR. With speech recognition, doctors are more or less obliged to finalise documents immediately. Relevant data is instantly available in the EPR. Documents are not forgotten somewhere on the clinicians' desks or unavailable for assistant doctors.

The availability of documents creates a lean workflow with a number of benefits, especially a reduction in bottlenecks that had previously led to

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Vejle Hospital, Denmark, is part of the Sygehus Lillebaelt hospital group where facility management is equipping the network with speech recognition technology

repeated delays in patient care. Speech recognition is one of several tools that enabled Vejle Hospital to treat more patients in a given time.

Economic benefits

Being able to offer optimal treatment to an increasing number of patients is financially attractive for a hospital. But there are also more direct economic benefits. With speech recognition, Vejle Hospital has been able to save several million Danish Kroner per year, mainly because the number of typists was considerably reduced. The hospital management has estimated that speech recognition has led to an increase in overall annual productivity of 5% to 7% in some hospitals of Sygehus Lillebaelt.

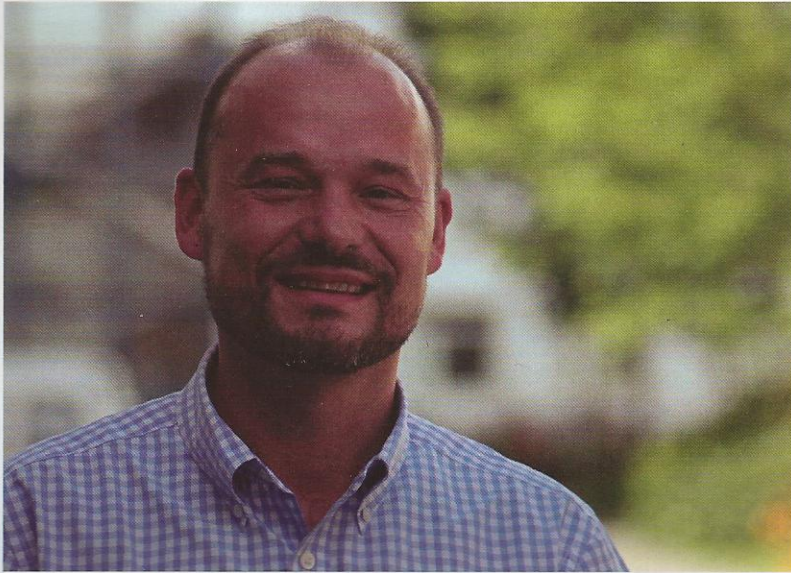
It has to be emphasised that the increase in productivity has been achieved without having to sack employees. Some secretaries left the hospital before the implementation and were not replaced. All others have received on-the-job training and qualified to work as, among other things, IT assistants, registrar specialists or quality assistants. The majority of staff consider their new role more in-

teresting than the transcription job they had done before.

Acceptance of speech recognition among doctors at Vejle Hospital is high, too. Many doctors were sceptical in the beginning, but after having been trained and having become used to speech recognition, most do not want to do without it now.

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It is true that clinicians now spend more time on the patient record process, as they have to review and verify their dictations instantly. Overall, though, they save time because they no longer need to interact with transcriptionists and because there is far less time spent on looking for docu-



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ments and on hunting out and gathering patient information.

Speech recognition at Vejle is used primarily, but not exclusively, as a front-end solution. The doctors also have the possibility to opt for back-end speech recognition. This is preferred by some doctors for long and complicated documents or in situations when time is an issue. Back-end speech recognition is also the method of choice in departments where the integration into the information

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systems has not been completed.

Conventional keyboard

The third option in the ‘tool box’ – the doctor can use the conventional keyboard for typing. This, again, is preferred by some doctors, chiefly for short documents or EPR entries.

After the successful implementation of speech recognition at Vejle Hospital, Max Manus was chosen again as the implementation partner at the Sygehus Lillebaelt hospital unit. The aim is to offer a centralised speech recognition infrastructure for all five hospitals with three servers.

The solution that is currently being implemented is based on Nuance SpeechMagic 6.1. It

is usually referred to as ‘TGK2’, because it is the second version of speech recognition that Max Manus has integrated into the IPJ EPR. Before that they used ‘TGK1’ which was a batch solution. (TGK is the Danish abbreviation for speech recognition technology.)

In addition to Vejle hospital, where all doctors are already using speech recognition, there is one department in the remaining four hospitals that has already gone live with speech recognition and another four departments that are currently running pilot projects. It is expected that speech recognition will be available for all 600 doctors in the five hospitals by the end of 2011. Initially, there will be 570 licenses, with an option to increase the number to 670.

Deep integration

The experience at Vejle Hospital shows that a key success factor for this kind of project is a deep integration of speech recognition into the existing information system, in this case the IBM EPR. Deep integration has been achieved at Vejle and will be achieved for Sygehus Lillebaelt as a whole by using the SpeechServer/Speech Editor interface that has been developed by Max Manus. Deep integration requires close and very intense co-operation between the hospital IT department and specialists, both from Max Manus and from IBM/Acure.

Deep integration means that doctors can use the EPR with very little need to press any buttons. They can get from one field to another by

voice commands. They can control the process of recording with their voice. They are, in fact, the voice commanders of their EPR. Voice becomes an essential tool for using the EPR, and usage of the EPR is encouraged and facilitated by voice.

It is clear that a speech recognition project with this level of integration is tough to realise. But the effort is certainly worth it, because it results not only in economic benefits for the hospital provider but also in higher staff satisfaction. It is essential, though, that the IT department has the full backing of its hospital administration, including a readiness to make the use of speech recognition obligatory for the medical staff and to ban or mostly ban conventional dictation. ♦