

## Volume 1 / Issue 6 2005 - eHealth Developments

### Saving Time and Money with Speech Recognition

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While some hospitals still wait for the right time to introduce speech recognition, the situation at Norway's Sykehuset Telemark HF (STHF) hospital is as clear as the Nordic air: speech recognition saves almost 900,000 euros per year, money that is invested in better patient care. And while physicians elsewhere still critically eye the technology, Norway trains medical students in speech recognition-based reporting at the world's first academic training center. The start of a trend? "Definitely", says Espen Behring, STHF's speech recognition project manager. "I can't imagine anything that is going to reverse this."

During the nine hour course students learn how to dictate and are provided with practical advice and guidance on professional medical reporting. How the technology "thinks" is explained. For example it is better to talk in entire sentences rather than single words, because speech recognition systems are able to analyse context. These students will be the first generation of doctors who will no longer rely on secretaries for transcription-report creation will be part of their job.

There are several reasons to change a workflow that has served well for so many years.

"It allows us to deliver medical and discharge reports without delay to referring doctors," says Espen. Norway has pretty strict guidelines regarding report availability, which can only be achieved with speech recognition in conjunction with an electronic distribution system.

"And secondly, speech recognition saves money," says Espen, "Money, which can be reinvested in medical technology, quality assurance or staff training – all of which, in the end, benefits the patient."

These arguments, however, might look slightly theoretical to some hospital managers, even though the system is part of the daily routine for some hospitals.

"It is the reality", says Espen. 50% of the money a department saves through speech recognition comes on top of its annual budget. "A clever idea of the hospital management," he finds. "Because those who save the money, benefit from it first, and the rest of the funds can be used for the overall development of the hospital."

STHF started with speech recognition in 2004. First they developed a strategic implementation plan and a requirement catalogue together with an industrial partner, who also provided the dictation hardware and consultancy services. From September to November 2006 they piloted the technology in a front-end workflow (backend speech recognition is hardly used in Norway). Almost all of the 18 oncologists and cardiologists adopted the technology immediately and have been working with it ever since. The time it takes them to dictate a report is slightly longer now. But when a dictation is finished, they are done with it. There's no more back and forth with the transcriptionist, no more proof-reading, corrections and so on.

"At the end of the day, front-end speech recognition does not require more time, sometimes even less – because it eliminates time-killing inefficiencies in the overall workflow," says Espen.

Quick Documentation Required by Law Before speech recognition, turnaround time for medical reports could be somewhere between one and thirty days. But with Norway's Health Ministry demanding that 80% of the discharge summaries are sent to the GP within 7 days after a patient's release from the hospital, work procedures had to be modified accordingly.

"Before speech recognition we could meet the 7-day deadline in less than 65% of the cases, now it is over 90%", says Espen. There are only very few hospitals in Norway that can show such figures.

This has all been achieved despite a reduction in staff. Out of 35 full time secretarial positions, 10 are now left. A difficult task, finds Espen. "While one group is afraid of losing work, another is afraid of getting more work."

Secretaries are key in the process of treating patients: they have the experience, they handle the logistics, and they allow doctors to focus on medicine. They are the ones who tie everything together. "That's why redeploying secretarial staff should be the goal," advises Espen. By freeing them from typing, they can concentrate their efforts and experience on supporting physicians and nurses, helping them to deliver the best possible care.

"We motivated secretaries to apply for new positions, we provided perspectives – for everybody," he says. There is no reason to wait for speech recognition, but the implementation should be well prepared.

#### **An Enterprise-Wide Solution**

Apart from pathology and psychiatry, all departments have been equipped with speech recognition - not only at STHF, but also at two other hospitals. Dr. Ørnulf Paulsen from palliative medicine is one of 425 doctors working with the technology. "We have no waiting time anymore," he says, "Almost all epicrisis are available immediately. This had never happened before."

"It's a new way of working," Dr. Paulsen admits. Before, when the secretary didn't understand him, she left an empty space in the report. Speech recognition tries to find a solution for every word said – no matter how unclear its pronunciation.

"Our memory is fresh when we review a report, because it is available immediately. On the other hand, we have to check very thoroughly – especially for the recognition of small words. But overall, my documents are more accurate now, because once I understood how the system thinks, I was easily able to generate reports of consistent quality."

In the past, Dr. Paulsen sometimes used to type reports himself, because he didn't want to wait until they were transcribed. Speech recognition, he finds, solves his documentation challenge. One has to be motivated in the beginning, but the benefits do materialize quickly.

"The documents, especially large ones, are created more easily and available more quickly and the logistics of distributing the information is much easier," Dr. Paulsen emphasises. "You don't have large piles of documents anymore."

Once the document is signed and saved in the electronic health record system, the report is instantly available for other doctors to continue treatment. Even to colleagues outside the hospital, who can access the report over the hospital's extranet or are receiving it electronically via the healthcare sector's virtual private network (VPN).

Norway is seen as one of the most advanced countries in the world in terms of implementing technology. In recent years, a number of highly successful speech recognition projects have triggered new installations of speech recognition technology throughout the country.

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#### **The Secretary's View**

Unni Taraldien is an executive medical secretary and she has kept a critical eye on the speech recognition implementation.

"How will this change my job?", she wondered.

"We were eight in internal medicine, now we're two," she reports. The others either retired or are in new positions.

"There's almost nothing to type anymore," she says. 40 doctors are working in her department. Before, they had on average a backlog of 1,000 dictations at any time. In addition, approx. 500 cases were waiting on the doctor's desk for dictation.

**Now, it's Zero.**

"Our profession has changed," she says. She has mixed feelings about it. While she clearly sees the benefits in terms of speed, she misses the influence on perfecting the layout or rephrasing sentences.

She says she really loved typing and so did her colleagues. She admits that in a few years, secretaries will simply not know how to type anymore.

While she misses the old days, she recognizes the reality: "Life for secretaries is not that interesting anymore. But this technology has to benefit the patients and not us," she says.

"Don't introduce it overnight and give people time to adapt," she recommends. Some of her colleagues are now "really happy" with their new jobs. They're more involved in the daily process of delivering care. They are supporting nurses directly, for example by preparing patients for ECG.

"Things change and we have to accept it. And honestly, speech recognition has so many benefits for the healthcare process, that I wouldn't want to go back to the old days," she says.

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