

# Voice recognition, innovation to improve the healthcare process



Saint Joseph Hospital in Paris, a model “paperless” institution constantly looking for technological innovations to improve the quality of its healthcare processes, recently decided to give Voice Recognition a key role in doctors’ working lives. This case study takes a look at a voice recognition solution which has become a crucial part of the hospital's information system and for its doctors.

**Objectives**

- Reduce the time it takes to process hospital records in order to improve compliance with the standards of France's healthcare regulator, the Haute Autorité de Santé.
- Expand the “paperless” strategy to other procedures

**Solutions**

- Nuance Dragon Medical Direct
- Voice Recognition Software integrated into Medsys's DxCare Electronic Medical Record (EMR)

**Results**

- Medical record processing times greatly reduced
- Medical information recorded in real time, at source
- Doctors gain complete control over creating records
- Increased transparency in the patient-doctor relationship
- Clearer records, popular with GPs
- Secretaries have more time for patients (appointments, welcome desk, etc.)
- Optimised consultation times

- Single platform allows dictation anywhere
- Faster and smoother healthcare process

Saint Joseph Hospital is a private, non-profit hospital created in 2006 from the merger of three hospitals in southern Paris which were founded in the nineteenth century – Saint-Joseph, Notre Dame de Bon Secours, Saint-Michel – and the nurse training establishment, Institut de Formation en Soins Infirmiers. Since 2015 the hospital is managed by the Saint Joseph Hospital Foundation and comprises seven establishments

on the same site: Saint Joseph Hospital, a care and rehabilitation centre, a health centre, a geriatric department, a dialysis centre, and the Arago clinic. Saint Joseph Hospital is one of the main health centres in Paris. It provides all-inclusive high-quality medical care – nearly 57,000 inpatients and 160,000 outpatients in 2014 – and has upwards of 350 doctors.

**Technological innovation to improve the quality of the healthcare process**

As a private healthcare establishment, Saint Joseph Hospital needs to make itself attractive to an increasingly demanding patient clientele. It is one of the first institutions to have adopted a “paperless” strategy in an attempt to improve everyday procedures and the quality of patient care. Always on the lookout for the most innovative technologies to align its performance and quality objectives with its “paperless strategy”, Saint Joseph Hospital decided to give Voice Recognition a key role in doctors' working lives in order to reduce the time it takes to create and distribute medical records, a crucial factor for continued care.

Saint Joseph Hospital's decision to launch the project is founded on two observations: first, the healthcare regulator's recommendations which specify a deadline for distributing hospital records and,

second, the maturity and usage of Voice Recognition software on smartphones and tablets which are now commonplace.

In order to make the healthcare process more efficient, the current recommendation specifies that hospital records must be given to patients upon discharge from hospital and sent to their primary care doctor within a week. While Saint Joseph Hospital is already partially in compliance with these recommendations, its objective was to prepare for any subsequent developments and optimise the procedures for creating and distributing hospital records, especially since the regulator will soon require establishments to provide same-day distribution of records.

For Saint Joseph Hospital this means deploying innovative technologies as part of a drive to improve the consistency and quality of its healthcare process.




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“It will never work! That's what many doctors were saying before trying the voice recognition software. But once they had tested the tool and realised that it was intuitive and could be used immediately to dictate reliable records without wasting time, they were completely on-board with adopting its usage. The few departments that haven't yet been equipped with the solution are now calling out for it.”

Olivier Boussekey, IT Director –  
Saint Joseph Hospital.

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### **Recording medical information more quickly and reliably through speech**

“The true meaning of computerisation has become clear now that information can be entered in real time by the same person who created it,” explains Olivier Boussekey.

“Previously, doctors produced the information and then sent it to a secretary who would then retype the same information. Much to-ing and fro-ing was needed to finalise a record, giving rise to the risk of errors and delays, especially since doctors' working hours are not always the same as those of their secretaries. This sometimes resulted in a delay of several days to validate and send a record, which wasn't acceptable within our policy for improving the quality of our healthcare process.” Also, it was common practice for a doctor to take notes throughout a given patient's treatment. It was only upon discharge that the hospital record was compiled from information that was useful and pertinent for the regulated framework of the document.

Today, doctors instantly record, through speech, their medical information and thereafter no time is lost looking for it. Doctors can immediately check the different parts of a record because their voice is transcribed in real time on the screen, thus minimising errors and reducing the risk of information loss.

### **Records created in real time and immediately made available to both patient and GP**

Doctors are now completely independent – connecting to any workstation in the establishment – and have total control over the final record. They can also personalise the document using their own words, as they used to do with an accompanying letter.

“Voice Recognition enables us to eliminate time-consuming steps and get the hospital records out quicker,” says Olivier Boussekey. “For example, Specialist Medicine, one of the first departments to use Voice Recognition, has reduced the number of records sent after the seven-day deadline from 32% to just 5% and currently sends out 30% of records on the day of discharge. Rheumatology now sends

out 50% of records on the same day as opposed to 10% before Voice Recognition was introduced. Another example is the Cardiology, Neurology and Vascular Surgery Department which makes 35% of records available on the day of discharge, up from 25% previously. Indeed 25% of records are still sent out after the seven-day deadline, but before using Voice Recognition the figure was 40%.

Overall, doctors use of Voice Recognition has significantly impacted the quality of the healthcare process. Today, nearly 200 doctors dictate into Electronic Medical Records using Voice Recognition and send them instantly to patient GPs via a secure messaging system, or give them directly to the patients.

“Voice Recognition has become without question one of the most important parts of our information system,” observes Olivier Boussekey.



## Hospitals rated on how quickly they issue hospital records

The Healthcare Regulator makes detailed information about the quality of 4,000 healthcare establishments in France publicly available on its website *Scope Santé*. Patients looking for a specialist or an establishment can thus determine where they are sure to get the best treatment. The hospital's rating is based on criteria that the Regulator judges essential. The time taken to issue correspondence after patient discharge is among the criteria judged. Hospitals are assessed every four years by the Regulator and are given a rating which allows the patient to compare establishments. This rating is based on whether they have improved the quality and safety of their care, and whether they have acquired a particular level of quality.

Although certification is based on recommendations, and therefore not compulsory, it is nonetheless extremely important for these establishments. Saint Joseph Hospital has made this issue a strategic part of its quality policy and, as such, systematically reviews if and when records have been sent. Every Monday morning hospital staff generate a list of all of the hospitalisations of the past three or four months. Each entry indicates whether the record was sent on the day of discharge, within a week, late, or not at all. “This indicator enables us to measure our performance and act accordingly. We take pride in being the best,” says Olivier Boussekey. “Patient health doesn't stop at the hospital door. Also, when patients go to their GP they need

to take their records with them to ensure proper subsequent care. If something goes wrong during the healthcare process the patient suffers and, as a consequence, so does our healthcare system. The patient might be asked to do tests that have already been done, might not receive treatment at the right time, and so on. For us, it is crucial that our patients leave with their records and that the documents are sent simultaneously to their GP. Currently the Regulator recommends patients should wait no more than a week for their records, but we wish to go further and issue the record on the day of discharge.”

“Doctors who haven't yet been equipped keep asking us for this Voice Recognition that their colleagues are so excited about.”

Olivier Boussekey, IT Director –  
Saint Joseph Hospital.

### **Quick user adoption means Voice Recognition gets universal backing**

“Voice Recognition quality is incredible,” say all the doctors today. However, based on their previous experiences, their initial reaction was: “It will never work!” The Voice Recognition project was launched in late August 2014 and deployment started last July. Surgeons were the first to benefit from Voice Recognition, quickly followed by the remaining departments (Anaesthetic, Casualty, Rheumatology, Anatomical pathology, etc.).

“Voice Recognition is a project in its own right, not just a small feature. It's a disruptive technology which must be deployed as a full-blown project,” insists Olivier Boussekey. Introducing an innovative technology was not a problem per se, however doctors needed to be convinced of the necessity to change the way they worked. “Some were not so keen on changing their habits,” admits Olivier Boussekey. It was therefore necessary to take into account the organisational changes that come with the introduction of Voice Recognition and respond to certain limitations that had not been considered from the start. “For example, we didn't take into account that at the end of a patient report doctors usually add oral instructions solely for their secretary. Such instructions aren't meant to appear in the hospital record. That's why we worked with our Electronic Medical Record supplier to create in each consultation and hospitalisation questionnaire

a section dedicated to communication between doctor and secretary. It works as a sort of oral post-it note. The doctor dictates into the section and the instructions go straight to the secretary without having to record a sound file.”

“Doctors who haven't yet been equipped keep asking us for this Voice Recognition that their colleagues are so excited about,” says Olivier Boussekey. Radiologists, already users of the old Voice Recognition software, wished to benefit from the latest advances in the product. The most recent Voice Recognition software has a new engine that no longer requires a learning period. Voice Recognition's quality, vocabulary and acoustic model enable users to start dictating right away. Corrections are used to automatically adapt the doctor's voice profile. Doctors can also add their own vocabulary (words, expressions, acronyms, etc.) while dictating and make it instantly available without having to do any additional operation. They can use the autofill feature to automatically insert text and thus save time when writing reports and prescriptions. Voice commands enable them to navigate hands-free within their medical software. “Recently some paramedics (physiotherapists, dietitians) asked us if they could use the Voice Recognition software. They will undoubtedly adopt it quickly, since they write a lot and don't have a secretary,” remarks Olivier Boussekey.

# Three questions for Doctor **Gérald Rajzbaum**

Saint Joseph Hospital's Head of Rheumatology



## **How did you feel about Voice Recognition being introduced into your practice?**

I had already used Voice Recognition for private work. I was expecting to spend time dictating lists of words in front of a microphone until the system recognised my voice, but with the latest version of Voice Recognition, it no longer requires a learning period. You can start right away. It performs far better than the previous versions. The new Voice Recognition product impressed me by how quickly you can get started and by the immediacy and quality of the recognition. Of course, there were some errors at first, such as agreement errors or words that weren't recognised. On the other hand, the system doesn't make mistakes with medical vocabulary, which it recognises without hesitation. It's not difficult to pick up, you just have to get used to speaking into a microphone. As a doctor, I'm used to using a dictaphone, but that is often not the case for younger people – the interns – who are less comfortable with a microphone than they are with their smartphone!

## **How did Voice Recognition affect your daily work?**

The change was difficult for some of my colleagues who still use paper, but since I was already a computer user, I found it less difficult to adapt to the new technology. It took me about four to six weeks to feel at ease with it. The first consultations were a bit awkward. Dictating into a microphone in front of a patient never feels natural. But after a month, I could already see the benefits in my work. Voice Recognition changed a couple of my habits. Before, I would dictate my correspondence in the evening or the day after the consultation. Then, my secretary would transcribe it. With the time it took to go back and forth to be validated and signed, the report might not have been sent until several days after the consultation. Now, I do it in real time, and the patient can leave with the record. Voice Recognition has also had an impact on my relationship with patients because they listen to what I am dictating and I can ask them if they agree with what I am saying. Finally, my secretary can now spend more time welcoming patients, taking appointments and handling billing.

## **How did Voice Recognition benefit you?**

Adding an observation to a medical record or editing a prescription is much faster with Voice Recognition. I use the "autofill" feature, which is very useful for prescriptions. I state the name of a medicine and it automatically appears in my standard prescription text. All I have to do is edit it. Voice Recognition really saves me time. I see on average twelve patients every afternoon when I'm consulting. The time that I save when writing medical observations and prescriptions enables me to finish a consultation in a reasonable amount of time and write the report in real time.

Overall, the benefits are significant: records are immediately returned to patients and sent to their GP, secretaries have more time to take appointments and welcome patients, and consultations run to schedule. I also use Voice Recognition when I have something to write, even if it's not a medical record, such as a letter or a scientific article. As a result, I'm using the keyboard less and less!

“GPs appreciate it when records are well clearly written because it saves them time in their own practices”

Olivier Boussekey, IT Director –  
Saint Joseph Hospital.

## Unexpected benefits

### GPs appreciate these new, clearly written records

“Overall we have seen that dictating hospitalisation and consultation information leads to clearer records,” remarks Olivier Boussekey. Thus, by using Voice Recognition many doctors have changed the way they write their reports. They are more careful when choosing words, and make an effort to simplify what they are saying. “GPs appreciate it when records are clearly written because it saves them time in their own practices,” adds Olivier Boussekey.

### More transparency in the patient-doctor relationship

In addition to being an innovative technology, Voice Recognition also drives change in the patient-doctor relationship. By creating greater transparency, it changes the way patient and doctor relate because the patient hears everything the doctor is dictating and thus takes an active part in the process. “Of course, doctors might not wish their patients to listen in. The choice is theirs, depending on the situation,” explains Olivier Boussekey.

### Encourages the use of the Electronic Medical Records

Doctors agree without hesitation that Voice Recognition makes a difference when using Electronic Medical Records. Being able to dictate medical information into a written record or edit a prescription without using a keyboard saves them time and makes Electronic Medical Records easier to use.

### Next step: dictating anywhere using smartphones

One technology, one platform where anyone can dictate anywhere – this is Saint Joseph Hospital's short-term goal. Today, healthcare professionals use a microphone connected to a computer. "Current microphones are very sophisticated, but not all of their features are used by doctors. They want to be able to dictate wherever they are and with the equipment they have at hand," explains Olivier Boussekey. Saint Joseph Hospital's next project will therefore involve mobile Voice Recognition. Doing away with microphones by dictating through smartphones is going to expand the scope of Voice Recognition even further. By having the microphone in their pockets, doctors will be able to access the service anywhere with a single click. It is not fanciful to suggest that other uses will emerge in the future. Already some doctors are using it to work on their scientific articles.

"Voice Recognition is a value driver both in terms of ease of access and savings," confirms Olivier Boussekey. "We are devising ways to make certain facets of our Electronic Medical Record mobile, which would enable doctors with smartphones to use their voice to edit a prescription, change information, such as dosage or the treatment duration, add a comment, and so on. With a device like this, we expect to resolve 80% of the issues they encounter during their daily work."

"Not being limited to specific and situation-based use is one of the more interesting added benefits of Voice Recognition," highlights Olivier Boussekey. "What's more, administrative staff have even started using it and our general director can no longer do without it."



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### About Nuance Healthcare

Nuance Healthcare empowers healthcare organisations and individual doctors to accurately capture and transform the patient story into meaningful, actionable information in 22 languages. Today, over 10,000 healthcare organisations and 500,000 users worldwide trust Nuance voice recognition technology to deliver higher quality care, improve financial performance and enhance compliance efforts.

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