PHILIPS

Dictation

White paper

Intelligent document creation for a new way of working

Clinical documentation workflow with AI-powered speech recognition

In cooperation with NUANCE

High quality clinical documentation is a necessary but time-consuming part of healthcare. Using digital voice technology solutions designed specifically for the healthcare industry can free up time normally spent on paperwork and documentation, allowing organisations to provide more efficient, patient-centred care.

Improving the process of producing a complete patient's medical record is an important element in delivering quality essential healthcare services – and this is where an innovative document creation system with integrated speech recognition can make a difference.

Internal and external challenges

In recent years healthcare organisations have been put under pressure to adhere to programs to improve patient safety. Patient Safety is a health care discipline that aims to prevent and reduce risks, errors and harm that occur to patients during the provision of health care. A cornerstone of the discipline is an efficient and secure patient identity management.

Patient identity management is needed to identify and link accurately and appropriately individual patients and their digitised health care information, often within and across multiple electronic systems, including patient/medical records, patient registries and claims databases. Manual processes are prone to mistakes. Therefore digital technology with a high-performing documentation workflow solution can help to support and enhance this process.

When doctors, nurses and other healthcare professionals can rely on an easy and quick clinical documentation solution with accurate up-to-date patient records, they will be able to better collaborate with multi-disciplinary team members and ensure a more timely and complete exchange of vital information. By automating processes with the help of integrated speech-to-text technology, healthcare professionals can accelerate the patient's referral-to-treatment pathway and at the same time reduce the turnaround time for claiming and reimbursement.

Another challenge for healthcare clinicians is the increased demand for telehealth. The recent pandemic has even accelerated this growing trend. Clinicians must make up for the lack of in-person connection with their patients by giving them complete attention. Patients also expect having sufficient opportunity to discuss and engage with their healthcare provider and having access to their own health data.

Leveraging a documentation workflow solution with integrated speech recognition can help healthcare professionals to reduce time spent on note taking and typing documentation following a patient consultation. The freed-up time can be used to concentrate on a more patient-centred and value-based care.

Delivering automation and efficiency

To cope with all documentation requirements of the healthcare industry, intelligent solutions for electronic document production are available, such as Philips SpeechExec Enterprise with integrated Nuance speech recognition (Dragon Medical). This powerful document creation tool combines the best of both worlds: documentation workflow from the world's market leader in professional dictation and AI-powered speech recognition from the pioneer of speech processing innovations.

The solution enables healthcare professionals to automate documentation production and allows staff to work efficiently regardless of their location.

SpeechExec Enterprise is Windows, Citrix, and VMware friendly, and is deployed on-premise. Data is encrypted end-to-end both in transit and at rest, ensuring confidentiality and compliance. Nuance Dragon Medical Cloud Services also encrypt all communications between client applications. Users can always work on the application without interruption due to no server downtime. Nuance's public cloud hosting infrastructure is GDPR compliant, ensuring that all legal requirements are met and data is always kept secure.

For internal IT operations, the solution brings several benefits such as central administration, high level of data security, and easy integration with virtually any business application and hospital information system.

The flexibility of the tool allows users to be easily added as required. SpeechExec Enterprise also includes an archiving function that securely stores both the original recordings and the transcribed texts. Access to the dictations in the archive can be restricted to individual persons to ensure the confidentiality of the documents.

A document creation solution such as SpeechExec Enterprise with AI-based speech recognition has several advantages over conventional processes. Documents and correspondence remain in the SpeechExec workflow from the time the dictation enters the system until the task is completed – with the finished document sent to the patient or filed with hospital network. Dated working practices such as the exchange of documents via internal post or e-mail or, even worse, the handling of recordings from analogue tapes, are eliminated —as well as erasing the bottlenecks and data security threats which they cause.

How the way of working in a digitised environment could look like, can be described in three scenarios:

1. Safeguarding patient identity
Sensitive patient data must be protected and should always be attributed to the right electronic patient/medical record (EPR/EMR). For healthcare professionals working away from their desks – while visiting patients in different units - require a flexible document creation process that allows them to remain productive regardless of their location. Clinicians maintain the records up to date in real-time while safeguarding the patient data in the right EPR/EMR, completing the patient narrative, and avoiding any data loss or mix-up.

SpeechExec Enterprise with AI-powered speech recognition has several functionalities that support agile working. The system provides a smartphone app that turns a mobile phone into a dictation device, allowing clinicians to quickly capture further instructions on treatment and care, for example.

Speech recognition with specific medical vocabulary then converts the audio file into text. The SpeechExec workflow routes the text file either to a pre-defined secretary or to the admin support team where an assistant does the formatting and assigns the finished document to its next destination. Alternatively, clinicians can simply dictate instructions for further treatment or next consultation appointments, for instance.

The workflow sends the recording directly to a specific assistant or team who can act upon the instructions. To ensure confidentiality and compliance, all data in SpeechExec Enterprise is encrypted. The software uses secure AES encryption (Advanced Encryption Standard) with a key length of 256 bits, keeping data safe whether in transit or at rest.

The voice recording quality of a smartphone is by far more inferior than that of a dedicated dictation device. Dictation devices are designed to capture and isolate the speaker's voice from external sounds, such as traffic noise, conversations nearby, ringtones, radio, TV, etc. Precise recording of the human voice is very important for high quality speech recognition results. Less time spent on text corrections leads to a faster documentation turnaround time, increasing productivity and efficiency.

The Philips SpeechMike range of dictation microphones or the Philips SpeechOne professional dictation headset have been especially developed to work with Dragon speech

recognition, achieving 99% accuracy. The SpeechExec user can dictate work on dedicated devices from other manufacturers as well. Modern recording devices generate audio files in WAV or MP3 format, which also work with the SpeechExec workflow. If a connection to the hospital's network via the internet is available, all users within the SpeechExec workflow remain productive creating documentation from anywhere, at any time.

2. Benefits of speech recognition

The workflow technology of SpeechExec Enterprise with AI-powered speech recognition also streamlines daily work in the hospital. Clinicians can dictate directly into any business applications such as Word, Excel, and email, or even applications specific for the healthcare industry. They have the choice of using Dragon Medical's speech recognition to convert speech to text in real time or rather sending the audio file to SpeechExec Enterprise where it will be automatically converted into text in the background. This is particularly useful for doctors who do not want to spend time on corrections and who prefer their admin support team to compare the recognised text with the audio file, make corrections and do the formatting and further follow-up.

No matter which way of working is used, real-time on-screen or deferred speech recognition, they both allow for even faster document production, giving staff more time to dedicate to more important work. On average, people can type 50 words per minute with the ten-finger system, whilst speak at least 120 words per minute at normal pace. This means that speech recognition helps all staff produce clinical documentation three times faster than typing it on a keyboard — and that is without any typos.

Users can start straight away, as hardly any training is required. The recognition accuracy of Dragon Medical integrated in the SpeechExec Enterprise workflow is almost 99% correct from the start. Over a short time, the accuracy increases as the solution 'learns' from the speaker's speech and the text corrections thanks to its deep learning technology. In addition, it is possible to expand the vocabulary to include specific terms used within the hospital department. As every speaker has his own profile stored in the cloud, it can never get lost in case of a PC crash and it is always accessible, from any location.

3. Team collaboration

SpeechExec Enterprise gives a centralised view of all dictation and transcription work via desktop or mobile, whilst keeping all data encrypted in a secure platform. It maps processes such as drafting, editing, reviewing, approving, and routing clinical documentation. What is more, the system allows the team structure of the hospital department to be mirrored on the workflow. With the solution's direct assignment functionality, work can be automatically routed to a team or to specific individuals within a team. The system intelligently monitors and reallocates work based on availability of staff, maximising resource capacity. As a result, internal communication and patient interaction are faster and more accurate, ensuring all staff are setup for effective team working and best-in-class virtual collaboration.

Another important functionality is prioritisation. Clinicians can assign priorities to their dictations to indicate how fast their work or instructions should be processed. The SpeechExec user interface shows a clear view of the quantity, priority, type, and status of work in the queue, allowing admin staff to process urgent requests first. With SpeechExec Enterprise deadlines and pre-established rules can be assigned to planned documents.

If a defined date/time passes, an automatic rule kicks in sending the work on to another staff member for transcription, so that no important deadlines are ever missed. The SpeechExec workflow can also send automatic messages to individuals when new dictations are received or when documents have just been completed.

This makes the approval process more efficient and transparent. All users within the hospital department have visibility of which stage their work is at. Clinicians can better communicate with their patients, while admin staff can easily receive assistance when specific teams might be overwhelmed by absences. Managers have a clear view of the work in the queue and current capacity, plus they can easily move tasks between staff to maximise utilisation. In addition, statistics tools provide in-depth information on staff productivity to detect instances of underperformance or under capacity.

Conclusion

Thanks to a combination of a powerful document production workflow with integrated speech recognition as offered by Philips SpeechExec Enterprise with Nuance's Dragon Medical, two world leaders in speech technology help healthcare organisations implement a best-in-class digital strategy.

To retain the best talent and thrive in a digital world, hospitals must offer a modern and flexible workplace that facilitates staff collaboration. It must also adopt working methods that encourage staff to rethink existing processes and engage with new technological tools. Consequently, hospitals will experience significant leaps towards productivity, efficiency, and profitability by providing more quality time engaging and caring for their patients, and the optimal work-life balance for their staff.

Briefly
Philips SpeechExec Enterprise with Dragon Medical speech recognition

- Philips SpeechExec Enterprise enables medium and large hospitals to switch to a powerful document creation module that supports remote working and staff collaboration. As a result, better productivity speeds work turnaround times leading to higher service levels.
- Cloud-based speech recognition keeps data encrypted in transit and at rest, reducing the risk of loss, breaches or cyber attacks.
- Speech recognition allows clinicians to create documentation in real time and customisable to each patient, removing time-consuming editing and correction. Clinical documentation is generated faster to speed patient responsiveness.
- Automatic archiving prevents the loss of documents and dictation recordings. Access to the archive can be restricted to individual persons to ensure confidentiality and compliance.
- For internal IT operations the solution brings important benefits – central administration, high levels of data security, and easy integration with virtually any hospital information systems and applications.
- Managers have a clear view of the work in the queue and current capacity, plus they can easily move tasks between staff to maximise utilisation. In addition, statistics tools provide in-depth information on staff productivity to detect instances of underperformance or under capacity.

PHILIPS

Speech Processing Solutions (SPS) is a global technology company based in Austria and the world's leading provider of professional voice-to-text solutions. Products developed by SPS are sold under the Philips brand (Philips Dictation). Nearly five million users worldwide work with Philips Dictation products. The range includes dictation and transcription workflow and speech recognition solutions, as well as input devices that deliver best-in-class speech recording capabilities. These intelligent solutions optimize internal processes, leading to higher productivity, efficiency and profitability.

NUANCE

Nuance Communications Inc. (Nuance) is a technology pioneer with market leadership in conversational AI and ambient intelligence. A full-service partner trusted by 77 percent of U.S. hospitals and 85 percent of the Fortune 100 companies worldwide, Nuance creates intuitive solutions that amplify people's ability to help others.

www.philips.com/dictation