

Alder Hey Children's Hospital **freed up** **time to care**

Nuance Dragon Medical integrated into the Paediatric Intensive Care Unit's electronic patient record captures the patient story at the point of care to reduce administration, improve quality and minimise risk.

Challenge

- Improve quality of patient care record
- Relieve administration burden on nurses and doctors
- Information sharing across multi-disciplinary team

Solution

- Nuance Dragon Medical speech recognition
- Integrated into EPR and clinical documentation
- Customised voice macros and templates

Results

- Time freed up to care for patients
- Faster more effective communication
- Reduced risk and increased confidence in clinical decision support

Alder Hey is one of Europe's busiest children's hospitals.

Caring for over 270,000 young people and their families every year, Alder Hey is a world leader in healthcare and research. In 2015 and at 100 years old, Alder Hey is moving to a brand new Alder Hey in the Park, with a design inspired by children. It will be an exciting place to be; inviting, warm, happy, calming, educational and a home-from-home for children who need care.

Elaine Scott, Lead Nurse for the Paediatric Intensive Care Unit (PICU) describes how and why, at this exciting time, they have chosen to invest in Nuance Dragon Medical speech recognition solutions to support the care of children within the unit.

Describe the PICU at Alder Hey and the scope of care you provide within it?

Our PICU is a 23 bed unit and a designated Lead Centre. We care for children up to 16 years old from all specialties including cardiac surgery, neurology and neurosurgery, burns, trauma, infections and oncology. The unit accepts over 1000 admissions per year and is one of the largest PICUs not just in the UK but in Europe.

Our unit is bright, child friendly and modern. It provides all forms of therapy including haemofiltration, Nitric Oxide, High Frequency Oscillation and ECMO providing care for level 4 intensive care children.

Who makes up the PICU team?

As you can imagine we are a large team with a wide variety of experience and skills. There are over 160 nurses on the PICU including a nurse manager, a nurse consultant, three advanced nurse practitioners, a senior nursing research fellow, two audit nurses, a lecturer-practitioner and a clinical education team delivering the specialist PICU course.

The nurse to patient ratio on PICU is 1:1 but can be 2:1 in very ill children. Many of the tasks of nurses in this unit overlap with medical roles. Our nurses are highly practiced and skilled and are constantly at the bedside to support the patients.

Other members of the team include 10 consultant intensivists, 2 specialist physiotherapists, a specialist dietician, a PICU pharmacist, a play therapist, social workers, chaplains, clerical and domestic staff and a team of rotational training doctors in PICU.

We also provide placements for nursing students, medical students and other healthcare students.

What is the nursing philosophy on PICU?

Our nursing philosophy in PICU is strongly one of providing family-centred care and delivering the highest possible level of care to our patients and their families. We believe that an environment which is supportive and encourages education and research is essential in order to support professional and personal growth and provide these children with best care underpinned by evidence. We recognise the importance of family in promoting the child's recovery, so we provide for families from distant locations to stay and we encourage parental participation in the child's care, even when the child is desperately ill. We also strive to keep parents continually informed about their child's condition, so building a supportive relationship of trust, honesty and respect, while maintaining confidentiality and dignity.

We value the contribution of all our team members and encourage nurses to speak freely, acting as the child's advocate when his or her parents are not able to do so, so promoting and safeguarding the well-being of our patients.

How are you using Nuance Dragon Medical Speech Recognition within the PICU?

As you can imagine, our sick children often require a high degree of intervention in a compressed period of time. On PICU, a seriously ill child can deteriorate in under a minute. Old plans for treatment have to be abandoned and new plans for dealing with life-threatening illness have to be instigated. Consequently, the patient's record needs to be flexible enough to capture a vast amount of complex detail about the rapidly changing situation of the child.

Clevermed's Badgernet EPR, specially developed for our PICU, incorporates a lot of structured data (eg feeds from PICU equipment and laboratory results) and also 'unstructured' data in the form of free-text notes outlining diagnosis, treatment plans and events during the admission and communication with families etc. Because of the overlap of roles, nursing and medical records are equally valuable and complement each other.

Our unit also offers both pulmonary and cardiac Extracorporeal Membrane Oxygenation (ECMO) to children (something not available in all hospitals). There is a huge volume of documentation required to support this therapy, all of which needs to be captured in the patient record.

We have integrated Nuance Dragon Medical speech recognition software, Nuance PowerMic II noise-cancelling microphones and blue-tooth headsets into Clevermed's BadgerNet EPR and other clinical documentation. This enables us to quickly and accurately capture the full patient story at the point of care.

With a single voice command, we can insert often-repeated blocks of standard text and then capture specific information for a patient within this block using simple voice command. This method enables a unit-wide standard for our documentation with easy update and individualisation of the patient record.

Nuance Dragon Medical enables us to use our voice to navigate through and between the EPR and other clinical systems and documents using voice 'macros', many of which are part of the standard software. We've also developed new macros to support our unique departmental systems and processes. We can quickly and easily move between fields, templates and applications rather than scrolling through and between screens using multiple mouse clicks.

“Using Nuance Dragon Medical speech recognition integrated into the EPR has raised the bar on the quality of our clinical notes. There is much more detail, the notes are easier to read and the quality of the information is so much better.”

This was a big change for the team – how did you go about training and adoption?

High bed occupancy in the PICU during the summer months limited our capacity to train staff in large groups outside the clinical area. Working around annual leave and sickness also influenced our rollout methods. We identified a small group of nurses within the team whom we trained as trainers. We were also able to schedule some formal classroom training for our doctors, but the majority of our training was conducted at the bedside. The advantage of this training method was that it became embedded in our work practices from the very beginning. From the moment they completed their basic training, nurses could dictate a patient record, sometimes even before the trainer had left the bed space. Trainers had to be prepared for interruptions to the process of enrolling and completing the five-minute speech-recognition improvement task while the staff delivered any necessary care to the patients. Our group of nurse trainers were an invaluable source of support to answer practical 'how-to' questions. We also had our own 10-minute mini-teaching sessions on the ward dubbed 'tea-trolley-training' because it was accompanied by the opportunity to grab a drink - a necessity in the warm environment of the PICU. During these sessions, there was an opportunity for trainers to present a topic quickly and for staff to ask questions and get tips and tricks about working within the EPR.

Nurses who adopted this new way of working quickly realised the benefits. This helped to encourage the more reticent who required a bit more time to embrace the changes. There was no enforcement of this new way of working but it quickly became clear to the team how much easier and quicker it was to use speech-recognition to update the EPR.

What about the confidentiality and privacy considerations of capturing spoken notes in an open ward environment?

When we first introduced and trained our team in the use of Nuance Dragon Medical Speech Recognition this was raised as a concern by quite a few of us. The option to enter notes into our system via the keyboard is still available if necessary. However, in reality, the experience of the team is that this is not an issue. We've always taken care to consider confidentiality and privacy issues and this has not changed with the introduction of this technology. We find that when speaking, even very quietly, the combination of a high quality noise-cancelling microphone and the accuracy of the software attuned to our individual voice profiles ensure accurate capture of the notes. The layout of our new PICU home in Alder Hey in the Park will make it even easier to respect the confidentiality of our patients.

How does the technology cope with different accents?

Nuance Dragon Medical tuned to the individual's nurse or doctor's voice profile ensures the notes are captured quickly and very accurately. We have a number of members of the team who are not native English speakers but even so, the software picks up and adapts to strong regional and national accents and with a high degree of accuracy right from the start. With just a few strong accents, we have found that it pays to provide a slightly longer initial training.

Isn't the PICU sometimes noisy environment and how does that effect speech recognition accuracy?

Nuance Dragon Medical software used in combination with the Nuance PowerMic or bluetooth headset microphones have no problem accurately capturing what we say even whilst we're working at the bedside close to the noisiest of our monitors and other equipment such as ventilators which make a regular and loud thumping noise.

“Now that we can capture the ‘story’ of our treatment, the patient record is much richer and more meaningful during handovers to colleagues.”



Nuance Dragon Medical enables us to use our voice to navigate through and between the EPR and other clinical systems and documents.

What benefits has the unit experienced?

Funding for this whole project originally came from a successful application to the NHS England Nurse Technology Fund on the basis of proving a business case for time saving within the PICU. We wanted speech recognition integrated into the EPR to reduce the administration burden on the team and speed up the process of capturing complete, up-to-date and accurate notes at the point of care.

Yes, we do save time in capturing the notes using our voice rather than typing. We estimate this to be at least 40 minutes per patient per day. However, in practice, more important than time saving has been the improvement in depth, quality and accuracy of the notes we capture at the point of patient care.

Most significantly, as well as allowing us to capture the structured data within the patient record's fields and templates, Nuance Dragon Medical allows us to capture the unstructured data or the 'story' of our patients including presenting history, communication with families, progress of root cause analysis and a narrative about the reasons leading up to our actions. Now we have a much richer patient record that more fully and accurately reflects our ongoing treatment and care of the child.

This complete, detailed patient record of a complex case supports us to share vital information quickly with colleagues on the unit during handover with other members of our multi-disciplinary team. Later, as the child recovers, this breadth of information helps to guide the care of the child as they move out of PICU to other Alder Hey departments, to referring hospitals and to the care of their GP when they return home. The fast creation of case notes, discharge and referral letters will better support the care and experience of the in-patient and help speed up discharge/referral to other units.

We've raised the bar on the quality of our clinical notes. There is much more detail, the notes are easier to read and the quality of the information is so much better. We can now capture not only the core structured data but also the broader context or 'story' of the patient's progress and treatment regime. We wouldn't go back to the old days of one fingered typing. We feel more secure in the knowledge that enhanced clinical documentation of decisions and care will allow us to demonstrate our efficacy should we be queried or challenged.

Finally, the reduced burden of clinical documentation frees up more time for our nurses and clinicians to care for our children and their families – and that was always our primary aim.

“We've made time savings but now, more importantly, we can capture the progress and treatment regime of the patients much more fully and accurately.”



Time savings achieved in capturing notes by voice rather than typing estimated to be at least 40 minutes per patient per day.

What plans do you have for the future?

When we move to Alder Hey in the Park we will become a 'Super' unit of 48 beds incorporating Burns and High Dependency into PICU and we'll be extending the use of Nuance Dragon Medical speech recognition into the practices of this unit as we grow.

Now that we've changed the culture of capturing our clinical documentation in the unit we will be introducing Nuance Dragon Medical into mobile devices to support our nurses and doctors as they move around the ward rather than having to go back to a fixed workstation.

We're freeing up more time to improve processes within the unit. Recent examples of this included the development of PICU 'Apps' and 'Cheat Sheets' that can be activated using Nuance Dragon Medical voice 'Macros' to support better patient care and outcomes. The nurses are also adding to the portfolio of templates within our clinical documentation to more easily capture every aspect of our care.

We will be trialling the use of our speech recognition solution in resuscitation episodes. Currently we assign someone to stand by with a notepad and pen to manually record our minute by minute activity. Now we'll set up pre-defined templates and use voice recognition to capture directly into the patient's record the exact moment at which, for example, we carry out cardio pulmonary resuscitation (CPR) or administer drugs.

Alder Hey is a centre for research and development. We hope that the creation of complete, accurate, up-to-date records will support and attract more researchers to carry out R&D projects into new child medicines, treatments and protocols for the long-term benefit of our PICU patients.

To find out how speech recognition can help you reach your quality and care goals, visit us at:

 www.nuance.co.uk/healthcare

 www.twitter.com/voice4health

About Nuance Communications, Inc.

Nuance Communications is reinventing the relationship between people and technology. Through its voice and language offerings, the company is creating a more human conversation with the many systems, devices, electronics, apps and services around us. Every day, millions of people and thousands of businesses experience Nuance through intelligent systems that can listen, understand, learn and adapt to your life and your work. For more information, please visit nuance.com.

