

Oxford University Hospitals NHS Foundation Trust boost their 'Go Digital' program



CHALLENGE:

- Meet clinic letter CCG turnaround targets
- Administration staff shortages
- High outsourced transcription costs

SOLUTION:

- Dragon Medical One speech recognition in the cloud
- PowerMic Mobile and PowerMic
- Nuance Professional Services and Client Success Organisation

RESULTS:

- Clinic letter turnaround times reduced from weeks to days and meeting CCG targets
 - Administration resources freed up for patient facing tasks
 - 58% of targeted cost savings achieved in 9 months with anticipated overall cost savings across the Trust in seven figures
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'Go Digital' program, accelerating clinician take-up of the EPR with Dragon Medical One secure speech recognition in the cloud.

Background

Oxford University Hospitals NHS Foundation Trust (OUH) is a world renowned centre of clinical excellence and one of the largest National Health Service (NHS) teaching trusts in the UK. With an annual turnover of more than £1 billion, 4 hospital sites and numerous remote clinics, 13,000 staff, and with 1.4 million outpatient contacts per annum it is leading the way in health technology. OUH is already acknowledged to be one of the most advanced NHS trusts for implementing the Cerner Millennium electronic patient record (EPR) system. It is also one of 16 acute trusts selected by [NHS England as a Global Digital Exemplar \(GDE\)](#) based upon its digital maturity and involvement in innovative digital healthcare initiatives.

The Digital Journey

OUH's ongoing programme of investment in digital services and infrastructure is 'Go Digital'. It has ambitious plans to accelerate the opportunities that digital technology offers. This is in line with the vision of the NHS to be 'paper-free' and for patient records to be held electronically and accessible across different systems.

The programme is a journey, not a 'big bang'. Key to 'Go Digital' is the rollout and adoption by clinicians of the 'Go Digital' platform - the Cerner Millennium EPR. Clinical staff routinely document patient notes, order diagnostic tests, view the results electronically and carry out ePrescribing. Nurses document care and when ward clerks are not available also record patient admissions, discharges and transfers. Therapists also document care electronically.

OUH's aim is to deliver information to clinical teams based on real-time data and enable them to share that information with colleagues across different record-keeping systems and to underpin high quality care and improve communication with patients.

The EPR is used at scale across the whole Trust and as an example of its ubiquity and importance is a snapshot of its use in just one day in August 2019. The platform supported 2.2M user triggered transactions and this will continue to grow as 'Go Digital' rolls out across the Trust, inpatients, outpatients and satellite clinics.

Figure 1. Rollout of projects of the Go Digital Programme 2011-2019

2011 → not a big bang						→ Today		
Registration	Basic clinical docs	Vital Signs (SEND)	Advanced Clinical Docs	Clinical Docs & Care Plans	Document Scanning	Positive Drug ID (PDID)	PowerChart Specimen Collection	Power Trials
Scheduling	Assessment forms	Neuro ICU	Patient Worklist/ Whiteboard	Ambulatory Organiser	PatientFlow (CapMan)	HIE	Population Health	IV Pump connectivity 1. Neuro ICU 2. Ward IV pumps 3. Neonatal ICU
Radiology scheduling	Maternity	Oxfordshire Care Summary	Enterprise Data Warehouse & Analytics	Clinic Letters	Patient Portal	Dynamic Worklist	SurgiNet incl. Pre-assessment	Power Trials Neonatal
Radiology images	A&E	ePrescribing & Medicines Admin	Clinical photos	Voice Recognition	Analytics +	Note Centre (inc Search)	Power Chart Touch	Anaesthesia
Requests & Results	Decision Support. g. VTE; Cognition; AKI; sepsis; blood Tx	Take home drugs & Discharge summary	Theatres SurgiNet NOC only	Millennium-PACS link	Revenue Cycle	Fluid Balance +	Digital ECG	PharmNet (pharmacy stock control)

started but goals not achieved yet
 includes the Specialties
 enhancements
 needed for HIMSS-7

[A-ICU, C-ICU, P-ICU, Eye Hospital, Trauma, Cancer prescribing, Cancer and Surgical MDT]

How clinical speech recognition found its voice

Amidst the ambitious aims of 'Go Digital' are the day to day challenges of delivering health services in response to growing demand and constrained budgets. In 2017, one well-performing department at the OUH was averaging a 12 day turnaround of clinic letters to GPs and struggling to meet the CCG target which as of April 2018 is 5 days. The root cause was a combination of a chronic shortage of administration staff and the complex, costly workflow of in-house and outsourced transcription used to produce the outpatient clinic letters. Hardcopy printing and mailing of letters added to delay and cost.

“The introduction of Dragon Medical One into nephrology has resulted in a dramatic change in clinic letter turnaround times. As a result of time being freed up from letter reviewing, this has also permitted the nephrology secretaries to expand the variety of their tasks and work on their continued professional development (CPD).”

— Paul Altmann, Nephrology Consultant and CCIO

Consultant nephrologist and OUH’s CCIO, Dr Paul Altmann, piloted and championed the use of Nuance Dragon Medical front-end clinical speech recognition in nephrology within the Cerner Millennium EPR. Using a structured clinic letter template mirroring their legacy system workflow he then shared this with a handful of co-piloteers and quickly realised the potential of Dragon Medical integrated into the EPR to simplify workflow, save clinician time and cut costs associated with clinic letter production.

Building the business case

OUH initiated a 3-month pilot of Dragon Medical across a range of specialties and with a focus on the whole of the nephrology department. It purchased licenses of Dragon Medical One secure clinical speech recognition in the cloud, a mobile microphone solution PowerMic Mobile for use with Android and iPhones and tethered PowerMic microphones and PowerMicVirtualAdapter (PVA) software to support OUH own virtual network environment – vWorkspace. Also included was a suite of services from Nuance Professional Services (PS) and Nuance Client Success Organisation (CSO) delivered side-by-side with OUH’s own project management team and trainers. The results of the pilot would form the basis of the business case to the Board for approval for further rollout. The success criteria for the pilot were set out from the start:

- Achieve adoption of speech recognition by at least 80% of designated users
- Reduce clinic letter turnaround times
- Reduce outsourced transcription costs
- Ensure complete integration with EPR
- Drive the Go-Digital and paperless strategy

Paul Altmann also created a structured, generic, organisation-wide “PowerNote” letter template within Cerner Millennium containing:

- must-do choices such as addressee options (e.g. To GP or, to patient with a copy to GP or, to other addressees)
- ability to automatically display drugs, problem list and investigation results
- free text area for body of letter and signature line

- optional choice of next visit date or interval
- must-do choice of patient copy or no patient copy
- details of copies to other recipients; internally using EPR messaging or externally via post
- minimal irrelevant information when viewed in EPR, but headers and footers plus patient demographics and when sent electronically or via post

Thereafter, developed by in-house developers, all letter routing is carried out with no further intervention:

- to GPs electronically
- to patient and external primary or secondary recipients by printing, auto-enveloping, posting automatically in the Trust Print Services room
- to internal recipients using EPR message centre
- in the near future to patient portal electronically
- Send success notifications are sent electronically back into the EPR
- In future, options to send to any addressee by email or via patient portal

Learning from the Pilot

OUH found that focusing-in on one specialty, in this case nephrology, benefited faster uptake and adoption of new ways of working enabled by Dragon Medical One. Training of the individual's Dragon Medical One voice profile – available from the cloud, wherever they are working in the hospital – was quick and easy. The effort and the focus of the change was in familiarity with the EPR templates and smoothing the workflows within the department using the peer to peer support of the doctors, nurses and administration team who were 'in-it-together' to share knowledge, experience problem solve and re-design the end to end workflows.

Throughout the pilot Nuance PS delivered workflow analysis and one to one training for Dragon Medical One for the nephrology team and the Trust's own EPR trainers. Once Dragon Medical One licenses were enabled and actively in use by the clinicians, Nuance CSO constantly monitored the progress of uptake and adoption of the licenses by the clinicians.

To support the pilot effort Nuance PS and CSO and OUH project team carried out weekly project reviews to quickly identify and fix any training or process issues. The lessons learned from these weekly meetings further hastened rollout.

Training of the individual's Dragon Medical One voice profile – available from the cloud, wherever they are working in the hospital – was quick and easy.

100%

adoption of front-end
speech recognition

zero

Outsourced transcription
costs in renal are zero

12 > 3

Reduced turnaround of clinic
letters from 12 to 3 days

Hard and Soft Benefits

The success criteria of the pilot were fully achieved:

- Adoption of Dragon Medical speech recognition within the nephrology unit, except for satellite clinics not yet connected to the OUH network, is 100%.
- Outsourced transcription no longer takes place in nephrology ie cost is now zero. Overall department administration workload has been reduced to the extent of not having to recruit a new Band 3 administrator.
- The cost of printing letters to Oxford-area GPs has been reduced. These are now distributed electronically and copies of outpatient letters, completing case notes, are contained within the EPR.
- Turnaround Time of outpatient letters reduced from an average of 12 days to 3 days. This is well within the CCG target of 5 days. Delay in the output of a letter is due only to clinicians' desire to wait for and review blood results which may take 24-48 hours. Where no blood results are awaited, letters are sent in real-time.

The softer benefits of Dragon Medical One's implementation across OUH four hospital sites and satellite clinics will be extended to other specialties. These include:

- Improving patient outcomes and experience with a complete and accurate record of the patient consultation captured at the point of care
- Speeding and improving communication with GPs, multi-disciplinary teams and with patients as patient notes and letters are instantly available within the EPR and automatically and electronically distributed to the relevant people.
- Accelerating uptake and adoption of the Cerner Millennium EPR by all clinicians in the Trust to maximise the return on the EPR investment
- Strategic Alignment with the OUH 'Go Digital' programme and paper-lite aims

Why OUH opted for clinical speech recognition in the cloud

Clinical

- Supports clinicians on the move - voice profile in cloud wherever they are working
- Always available and secure
- Minimum training for the speech recognition application

Costs

- Predictable, scalable spend
- Flexible across organisations and to changing service models
- Fast roll-out

Return on Investment

- Future-proofed technology
- Instant access to new software features and services as they are released
- Accelerate uptake and adoption of the EPR and other clinical documentation

Low IT resources/ investment

- Low/no system administration
- Low management overhead
- No extra investment in IT servers or in-house datacentre space to house them

What is next for OUH investment in Nuance Dragon Medical One?

Having proven that the transition from transcription and digital dictation workflow to front-end speech recognition is feasible and cost effective, the rollout of Dragon Medical One continues apace and is due to complete in November 2019. Rolling out across the whole of the Trust's 8000 clinicians, outsourced transcription services are being switched off department by department.

As workflows are simplified, so too are the PowerNote templates within the Cerner Millennium EPR used to capture patient notes. Considering the necessary differences between specialties there is an ongoing process of standardisation and quality improvement and automated routing.

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Clinician are saving hours per week writing patient notes within the EPR and generating clinical correspondence. The quality and speed of clinician communication continues to improve with a reduction in duplication of their effort, the need for data re-entry and delay and frustration caused by 'finger-trouble'. For example, drug and problem lists do not have to be re-entered each time and letters to one patient cannot accidentally be placed in an envelope to another.

Perhaps the last words should be left to the clinicians themselves:

"I have found the use of speech recognition a huge boost to my clinical practice. As someone who does not "touch type", speech recognition has improved my letter turnaround time 3-fold. I now dictate my letters in real-time so they are with the GP before the patient has reached the car park!"

— Geratology Consultant

"Big impact on the efficiency of getting my letters done for any clinic. I am now able to send my letters within 24 hours - or even instantaneously if there are no blood results to wait for - as compared to the pre-Dragon Medical One era where the letters could take up to 2 weeks or even longer to be done."

— Nephrology Consultant

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This case study was originally published in Jul. 2019 and rebranded in Dec. 2021.

About Nuance Communications, Inc.

[Nuance Communications](https://www.nuance.com) (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.