Leeds Teaching Hospital NHS Trust benefits from the implementation of Winscribe's Clinical Workflow and Speech Recognition solution.

by Dr Anna Bayes

Leeds Teaching Hospital NHS Trust

Leeds Teaching Hospital NHS Trust (LTHT) is one of the largest NHS trusts in the country, offering a range of both general and specialist acute hospital services. It operates out of five main sites and employs over 15,000 staff. It undertook a project to implement digital dictation and speech recognition as part of its transformation programme, which included integration with the trust's Patient Administration System (PAS) and the implementation of a full workflow management tool.

Many of the patient safety and efficiency advantages that have followed this implementation are described in this case study, together with an illustration of how the trust made an impressive year-on-year cost saving of £1.2m.

The Challenge

In common with many other trusts, the need to ensure accurate and suitable clinical records and correspondence has always been a top priority at LTHT. The need to ensure that correspondence is received by the recipients in a timely fashion has been moving up the agenda with the introduction of Commissioning for Quality and Innovation (CQUIN) targets to monitor the speed of release of discharge summaries and clinic letters (local CQUIN 2014-15 Implementation of Electronic Outpatient Clinic Letters).

Managers at LTHT realised that, although they were employing increasing numbers of secretarial staff and supplementing them with agency staff, their backlogs of dictation awaiting transcription was not diminishing. In parallel, a key tenet of the trust's IT strategy was to facilitate the creation of a paper-lite environment. Analysis of the trust's dictation provision and transcription processes showed a protean range of practices, which varied from department to department. Most departments used audio cassette tapes and dictaphones, but there were a few groups of people using digital dictation or outsourced transcription solutions. The trust developed a business case to enable the review of the technological options available, and to enable efficiency changes within the existing organisational workforce model.

The Solution

As part of a wider transformational programme, the trust procured a combined digital dictation, workflow and speech recognition system, which would be integrated with the trust's PAS to allow patient demographic data and clinic data to be imported directly into resultant documents. The deployment programme took some time since it involved not only IT, but also required human resource implications to be carefully considered prior to and during roll-out. These challenges were amplified by the trust's size and multi-site geography. Figure 1 below summarises the process steps in creating documentation at LTHT.

Clinic List	Dictation	Transcription	Finalise for Review	Review and Approve	Distribute and Score

The Outcome

Significant benefits have been delivered: most notably the trust has calculated a saving of £1.2m annually. In addition, there has been an average increase in productivity for document transcription of 16% overall, with up to 100% in some departments. Whilst these quantifiable benefits are laudable, there have been many other gains benefiting patients, secretaries, authors and the wider trust which have made this transformation programme profitable.

Advantages for the patient

For many clinicians, the backlog of dictation that existed in the past was a concern since there was always a risk that a patient's treatment would be delayed, or an important result may not be acted on by a colleague. The clinical risk associated with such delays is not only significantly reduced by the reduction in backlog which the system has facilitated, but also by the fact that each dictated item can be tracked through the production process. For example, if a patient were to be unexpectedly

admitted shortly after an outpatient appointment, the doctors looking after that patient would be able to access the audio record even if it had not yet been transcribed. In some cases, this could be the only data they may be able to access, particularly out of hours or at the weekend when physical notes may not be available. In addition, the ability of staff to prioritise individual dictation items among a series they dictate, also reduces the potential clinical risk in delay in initiating important investigations or treatment plans, which could be crucial to the outcome of the patient.

As patients can be copied into all clinical correspondence, the need to ensure it is delivered in a timely fashion has a significant impact on patients' perception of their treatment. For many patients, receiving copies of the letters relating to their clinic appointments can serve as an aide memoire, and some studies have indicated that receipt of these letters can improve patient compliance with medication. If this is the case, then the sooner they receive the correspondence, the sooner they have a documented statement summarising the appointment and the management plan. The system used at Leeds also has confidentiality factors built in and the potential for the workflow to include secondary approval processes. Since all transcription is managed in house, this reduces the risk of sensitive correspondence going astray, for example there is no transcription that is outsourced overseas.

As the electronic document repository gets larger, patients will benefit from their clinicians being able to view correspondence from across the entire array of specialties, which minimises the need for patients to explain what has been happening in the other trust departments which they may have been visiting.

Advantages for secretarial staff

For secretaries, digital dictation has been a huge change for the better. No longer are they searching for blank cassette tapes, for batteries or even the dictaphone itself to allow their clinical colleagues to dictate. The system allows them to view their workload at a glance. Not only can they see the volume of work to be processed, but also the relative lengths of individual audio files. As one secretary put it:

"If I see there is a 30 second audio waiting, I might just do it before going to lunch. With cassette tapes, one was never sure if they contained the full 30 minutes of dictation or just a quick letter, and you never found out until you got to the end."

Other benefits include the improved quality of the audio recordings: cassette tapes, which were used repeatedly, suffered degradation of quality, which impaired the secretaries' ability to hear and transcribe the recordings.

The central database of clinical correspondence that has built up across the trust has had a series of knock-on benefits. Firstly, it has enabled many departments to become either entirely paperless (i.e. clinics no longer call the physical medical record) or paper-lite. In these cases, secretarial staff no longer require the paper notes for processing dictation.

"I had not realised how much time I spent tracking sets of notes in and out of our office, and most importantly, how much of my day was spent on the phone to others to aid searching for notes. Our office is also much tidier; at times it was verging on a health and safety risk with all the notes piled up on every available surface." Leeds TH Secretary.

In addition, the trust-wide templates used for letter creation save valuable time and ensure data accuracy. Patient demographics as well as GP details are automatically pulled directly from the PAS into the letter template, minimising typographical errors and ensuring that each subsequent letter will pull any updates to demographic details from the PAS. (Past processes often included using previous letters as the starting point for new correspondence, with the risk being that any change to patient demographic details may not be included).

Once documents have been authorised by the author, they're then returned to the typist to complete the process. At present, Leeds are still printing the majority of their correspondence.

"The systems deployed by Winscribe allow me to print off a batch of letters together rather than having to deal with each one separately, which is what we did in the past. This means I can have fixed points in the day when I print and send letters rather than interrupting the typing/editing stream as each letter is completed."

The speech recognition element of the solution has been another positive change for secretarial staff. It takes some time for clinicians' dictation patterns to be "learnt" by the system (a process which is known as profile optimisation). Until that point, editing of the text which has been transcribed may take longer than typing from scratch. However, once authors have reached the end of this profile optimisation period, the

full benefits of the system will be realised. A medical secretary, at the time of the deployment, said:

"The speech recognition functionality has really sped up the entire transcription process, particularly in our department where it is common for our clinicians to dictate very long letters. Once the clinicians have ended the training stage, there is minimal effort involved in editing the letters and then copying the text into the appropriate template before returning the draft letter to the clinician for authorisation."

The speed of document production in these circumstances has impressed consultant staff, as one consultant oncologist commented:

"It is not uncommon for letters I have dictated at the beginning of a three hour outpatient clinic to be available for me to authorise in the system before I have even seen the last patient in the same clinic."

This is a huge difference from pre-digital dictation systems when the dictated tape (and usually the patient notes) would need to be physically transported back to the secretaries after clinic.
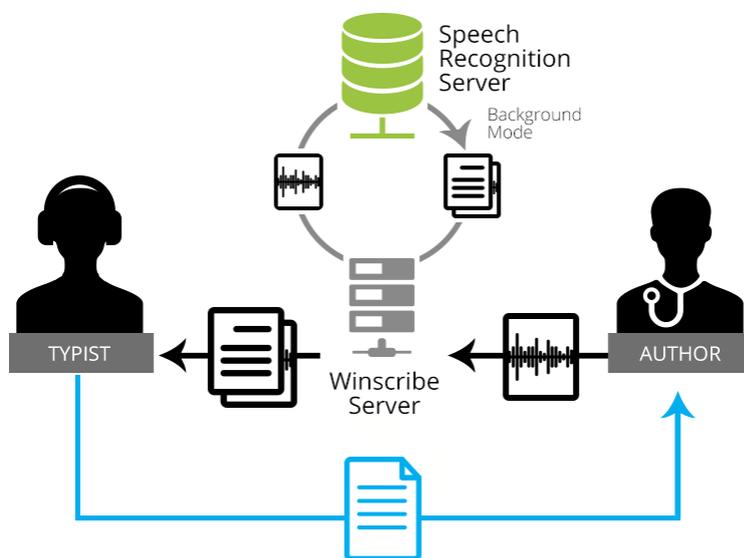
The implementation of the solution has been a pretext for the trust to rationalise and improve the many letter templates which were previously in use. Now there is a discrete set of uniform correspondence templates in use across the trust. This ensures that the trust is delivering correspondence of consistent quality and readers become familiar with the layout enabling them to find the information they require more quickly.

Working smarter - work as team

For managers of secretarial teams, the software can provide an overview (by department) of how many items are waiting, and at which stage. This has led to a number of occasions where managers have been able to smooth the peaks and troughs, by passing some work from an over-burdened team to a less busy team. As a direct result of this, secretarial teams are now working together more closely, forming virtual super-specialty groups that are able to support each other. There has been a reduction in the need to employ agency staff (who had been used to manage backlogs or cover annual leave) and also a reduction in the need to refill secretarial vacancies when staff leave. Figure 3 shows an example of the kind of reporting the system can generate to aid managers in prioritising resource.

The system also provides managers with information that enables them to see if there are any clinicians with a backlog of letters to authorise. This facilitates the provision of individualised reminders to ensure that this task is completed. In turn, this helps the trust to meet the CQUIN targets set by the commissioners for timely delivery of correspondence.

Advantages for clinicians

Digital dictation has generally been very well received by most clinicians at LTHT. Once they have been introduced to the system and gained familiarity with the work-flow, they find that the time spent looking for tapes and Dictaphones, and then transporting them back to the secretaries' office after a clinic, is time saved. Clinicians are also most grateful at the faster turnaround of their dictation. As one pointed out, it is far easier to remember the patient if you read the transcribed document within days or hours of meeting the patient in clinic. In the past, waiting weeks for documents to be processed meant it was very hard to remember which patient was which when reviewing their letters.

In addition, apart from letters being transcribed faster, clinicians are able to prioritise individual pieces of work for urgent turnaround. In the past they might have had to find a separate dictation tape for the urgent letter so that the secretary could process it as a priority. The speed of transcription, together with the prioritisation facility, are particularly beneficial in scenarios such as one-stop diagnosis clinics, where the speed to dispatch correspondence can have consequences for the patient's management and eventual outcome.

For dictation of clinic letters, the integration with the PAS clinic schedule means that patient demographics no longer need to be dictated, since they are automatically tagged at the point of dictation. It is also very clear to the clinician which patients have or have not had a letter dictated at the end of a clinic, making it far less likely that a letter fails to be dictated during/after a busy clinic.

The central database of all documents produced by the system has also been very popular: clinicians are easily able to review serial correspondence on screen. This is particularly valuable if the physical notes are unavailable or if they are called about a patient who had been seen several weeks, months or years ago. In the past, most departments at LTHT had their own shared drives for storing all correspondence dictated. However, the centralised repository means that clinicians can now view correspondence from all specialties in the trust, which is a huge benefit for complex patients under the care of many teams.

For clinicians needing to dictate whilst visiting satellite clinics or during ward rounds, mobile digital dictation equipment has been made available. This does not provide the PAS integration mentioned above, but still allows them to continue to dictate ef-

ficiently onto the digital system. Once the dictation session has been completed, the device can be docked to upload the audio files onto the system and into the transcription pool.

This methodology has benefits over the previous system. As the dictation devices are digital, this means that there is no need to find or deliver cassette tapes and that there is no requirement to continue dictation on to a second tape when the first becomes full. This adds to the knowledge that days of damaged or lost tapes requiring re-dictation of documents are over. Together, these elements result in safer clinical practice with the potential to save the clinician's time.

The financial benefits

The trust has repeated year-on-year savings of £1.2m as a result of this programme. This is primarily through the reduction in replacing secretaries when they leave and the reduction in the provision of intermittent agency staff to help minimise backlogs, or to provide cover during staff absences. This saving has been calculated by the trust's own finance department.

It is difficult to attribute other specific financial benefits directly to the solution since inevitably, there are always confounding factors, particularly since LTHT is currently involved in multiple, parallel transformational programmes. However, there are undoubtedly other 'soft' benefits which are saving the trust money.

There is a reduction in printing costs as there is no requirement to print out draft copies of letters for authors to edit since editing of documents is now performed electronically. Consequently, only the final copy requires printing.

Future financial benefits from the achievement of CQUIN targets as a result of timely delivery of clinic letters are yet to be realised. The software will aid collation of evidence of production of these letters through its standard reporting tools. This can then be shared with commissioners.

Plans for wider use

As with most IT programmes, there is always scope for improvement and this programme is no exception. There are staff groups which traditionally did not have

secretarial support (for example therapists) that, consequently, were not originally targeted to use the system. A number of therapists have initiated their own use of the system and are benefiting from the speech recognition to facilitate their documentation processes. In the past, they would have typed any documents themselves, but the speech recognition software has made the task far faster for them. Since they tend to then edit the documents themselves, they have benefitted from consistent corrections to their own transcriptions. In turn, this has meant that the system has learnt and adjusted to their speech patterns very quickly with rapid improvement in accuracy. This has resulted in a positive reinforcement cycle as the transcription then requires less and less effort to amend and the entire process becomes far more efficient.

Another unexpected outcome is that there are user groups making use of the system who had not been included in the original scope of the programme. A number of physiotherapists have been dictating their reports on to the system and then editing the digital transcription themselves since they find it faster than typing it. There are plans to provide them with their own hardware so that they can do this at their own desks since they are currently having to find equipped workstations elsewhere in the hospital.

Future plans

The integration of the solution with the PAS is only the first step in the trust's aims for this project. The ultimate plan will be to completely consolidate the solution with the trust's electronic patient record. This will provide a single repository of all clinical documents relating to a patient with the ability to navigate all patient data from a single interface without the need to log in to multiple systems. Apart from being far more efficient, integration of this type will minimise clinical risk, as clinicians are less likely to miss important data when it is all viewable from a single point of access.

Integration plans also extend beyond the trust with proposals, as part of the trust's eCorrespondence strategy, to send the transcribed documentation directly to GP recipients electronically. Preparation is underway to transmit the documentation contents to the two most prevalent GP systems in use locally - EMIS and SystmOne. This will not only speed up the receipt of clinical documentation, but also dramatically save costs in the printing and folding of letters, stationery consumables (paper and envelopes) and most importantly in the cost of mailing such letters.

The other benefit is that electronic transmission will also provide an audit trail that will allow the sender to confirm that the items have been received. For the recipients of this correspondence, the electronic receipt will also free up their staff, for example in one large local GP practice, three members of staff are employed on a full time basis just to scan incoming correspondence and attach the electronic copy to the relevant patient record.

In addition to this, the trust are currently exploring the use of enterprise wide 'speech enablement' functionality where other clinical systems are driven by speech recognition. This allows clinicians to enter clinical notes or "free text" more quickly than by typing them manually. This functionality works with any PC-based software to allow a single speech recognition profile for each clinician to work across multiple clinical systems and generic software without the need for costly integrations. It is envisaged this speech driven functionality will greatly enhance the trust's ability to become paper-free. The functionality can also be used to move the user to the next text box using buttons on their recording device or use speech commands to edit transcribed data as it appears on the screen minimising the need to use a mouse and keyboard.

LTHT are also in the first stages of taking their use of speech recognition into new areas within the trust. Clinical coders within the trust are another stakeholder who rely on clinical documentation to help them identify diagnoses and procedures relating to individual episodes of care. This coding process then translates into revenue for the trust, as the various codes generated are assessed by a complex algorithm that calculates the most resource intensive aspects of an episode of care, providing the ultimate cost the commissioners will pay the trust. This is known as the HRG - Healthcare Resource Group.

The ability to code accurately and thoroughly is of vital importance for both clinical safety and for the trust to be appropriately reimbursed for the care they have given. The documentation of co-morbidities is a key factor of ensuring accurate HRG generation. Text generated through speech recognition can also be electronically searched for potential clinical terms (and in particular co-morbidities which have the potential to increase the HRG class significantly with corresponding increase in revenue for the trust). These suggested codes can then be presented to the clinical coders as potential codes to consider for use at the end of a patient episode. In this way, coders are aided in their increasingly difficult task in analysing clinical data from multiple sources to code an episode of care accurately. Initial trials exploring this functionality are currently underway at LTHT.

Key benefits across the Trust

Clinical Safety

- Faster turnaround of transcribed documents

- Ability to highlight and prioritise urgent documentation

- Full audit trail of each document from dictation to authorisation

- Ability to confirm all patients in a clinic have had appropriate dictation completed

- Validation of up to date patient demographics at point of dictation and merging into subsequent correspondence

- Single database of all correspondence produced by trust

- Improved inter-department communication through ability to view all patient corre-spondence

- Consistent quality of trust-wide templates for standardised documentation

Operational benefits

- Visibility of progress of each document through system

- Improved management of time and ability to plan work

- Audit trail for each document

- Improved communication between author and transcriber through workflow

- Ability to view volume of work for individuals or across teams (historical and current)

- Ability to re-assign work to others if there are peaks and troughs

- Enhanced workload management

- Less time spent managing checking in and out of patient notes and dealing with que-ries regarding medical records

- No need to transport physical cassettes between locations

Technical benefits

- Improved and consistent quality audio recording

- Audio recording can be accessed by clinicians prior to completion of transcription (e.g. following an emergency re-admission)

- No requirement for audio cassette tapes

- Reduced need to provide Dictaphones and batteries

About Winscribe

Winscribe works with over 90 trusts in the UK. We work closely with our customers to continually deliver and develop world class solutions that support an ever-developing NHS market. Winscribe is a market leader in the delivery of integrated trust-wide digital dictation, document workflow and speech recognition solutions as well as integrated outsourcing.

Need more information?

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