

Addressing the challenges around surgical documentation.

Market research into UK surgical documentation workflow

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1.0 Executive summary

Accompanying surgeons' core duty of performing operations is a wide variety of administrative tasks essential to ensuring patient safety and the continued delivery of high-quality care.

Two central tasks are the procedure note, which records the narrative of the operation and vital patient information, and the submission of data to specialty registries, which is necessary to monitor and compare mortality and surgeon performance nationally.

There is large variation in the time surgeons spend completing their documentation, particularly the procedure note – the online survey and interviews undertaken for this report found the time spent on the procedure note for a single operation ranges from three or four minutes right through to 20. This variation can be partly attributed to the differing number and nature of procedures completed, but it is also the result of the different methods used to record the procedure note, such as hand writing, typing freeform, electronic template forms, and dictation.

The Royal College of Surgeons of England sets national standards for the quality of documentation, stating that information recorded must be clear, accurate, and legible. Wider research indicates that the quality of procedure notes is inconsistent across organisations. Templates and proformas were found to promote consistency, but anecdotal evidence suggests that, where these exist, they can be hard to locate or load, so while this method may be beneficial to quality, they are detrimental to speed.

Another factor that makes the process more time-consuming is the lack of interoperability between systems. This means that the same information must be entered twice, or transferred manually – printed, scanned, and uploaded into a separate system, for example.

Duplication of information is also an issue with regards to the submission of data to specialty registries. The survey and interviews carried out for this paper suggest this task takes on average between 15 and 30 minutes per procedure, and some surgeons complete submissions in bulk.

Duplication of some information contained in other documentation from along the patient pathway, and particularly the procedure note, is usually required by the registry, which often means accessing multiple systems and manually extracting the relevant data points. This is made more complex when the fields on the registry forms do not match the fields in other sources.

Surgeons from certain specialties, such as trauma and orthopaedics, often have clerks to complete this task for them, but it seems that for many the process of submission contains many inefficiencies. Some registries do include surgeons in the process of designing and developing their forms, but perhaps greater collaboration would promote closer alignment between these forms and procedure note format, which could be helpful.

Greater interoperability and increased ease of data transfer has the potential to drastically reduce the time surgeons are spending on documentation, but this will require substantial, long-term financial investment.

Where this is not an option in the immediate term, upgrading current systems to support automation along the process could deliver time savings and eliminate human error. Installation of voice recognition software could increase depth of information capture and reduce the need for multiple steps within procedure note creation.

For any solution, clinical input is vital. Workflow is dependent on software used and the procedures performed, so trusts must take the time to evaluate what will be of most value when it comes to driving improvement.

2.0 Introduction

The documentation challenge facing healthcare professionals is well known, with several studies finding that clinicians are spending **up to 70 per cent** of their time on administrative tasks. The burden created by surgical documentation, however, particularly around procedures, has not been explored to the same degree.

There are many stages to a patient's surgical journey, each with their own specific clinical documentation requirements. This information capture provides an accurate picture about the clinical events during the surgical journey and is central to the delivery of quality care and patient safety. Around the operation itself, it is vital to accurately record technical details and follow-up instructions in the procedure note before the patient returns to the ward or is discharged home, so the recording process must, therefore, facilitate precision and clarity.

Data submission to registries run by specialties is also hugely important in ensuring surgeons are meeting quality and safety standards. NHS England, via specialty societies, collects and publishes data for common procedures to measure quality and mortality, and to offer patients transparency around consultant performance.

Creating procedure notes and submitting data to various registries are, however, time-consuming tasks, often requiring the duplication of information contained in other records and across numerous IT systems in place at hospitals.

Through a combination of research, surveys, and interviews with surgeons working in the NHS, this paper aims to understand the common problems that surgeons encounter when recording information, how workflow could be improved, and the best ways technology could help to reduce the time surgeons spend documenting procedures and meeting the requirements of national registries.

3.0 Recording procedure notes: workflow and challenges

The various forms of surgical documentation are broad and diverse, comprising outpatient clinic letters and pre-operative assessments through to procedure notes and discharge summaries. As certain aspects of documentation usually involve contribution from other clinical or administrative staff, this report will focus on the creation of the procedure note, which is predominantly the responsibility of the surgeon performing the operation.

The way surgeons capture the narrative of their operations varies greatly across trusts and is largely dependent on the electronic patient record (EPR) and other systems in use. The main methods of recording are handwriting, dictation, and typing, and there is large disparity in the time interviewees estimated it takes them to complete the note, ranging from 3-4 minutes right up to 20.

Depending on the rate or complexity of procedures completed, this can increase the overall time spent on documentation by a significant amount. Jeffrey Lim, a consultant general and colorectal surgeon, spends an average of 60 minutes per day on administrative tasks. For consultant urological surgeon George Yardy, these tasks add up to around eight hours per week in total.

National standards set out by the Royal College of Surgeons of England (RCS) advise that all work must be recorded '**clearly, accurately, and legibly**'. In relation to the operative note specifically, clinicians must 'ensure that there are clear (preferably typed) operative notes for every procedure'. The guidelines also include a list of details – such as name of anaesthetist, tissue removed, closure technique – that should be included in every operative note. The variation in recording methods can, however, result in a lack of consistency in the quality and depth of information captured.

Some trusts are yet to transition to electronic medical records, and even where these are in place some surgeons are still handwriting notes as they find this quicker and easier than electronic capture. In fact, in an online survey of 99 consultants carried out by Nuance Communications, more than a third of respondents were using paper, or a combination of handwriting and typing, to complete their procedure notes. Over half were using no software system for note creation.

Whether these paper records are stored in physical files or scanned and uploaded digitally varies from trust to trust. With handwritten notes, legibility presents a barrier to quality and clarity. Poor-quality handwriting can lead to errors or misinterpretation, which are detrimental to good, safe patient care.

A [2016 study](#) assessed the quality of operative notes across nine hospitals. It compared the quality of 1092 orthopaedic procedure notes against the RCS national standards, finding that the quality and content was variable across the region, as the 'use of software programmes in some hospitals meant that some centres had better results for elements such as date, time, and patient identification details'.



More than a third of survey respondents were using paper, or a combination of handwriting and typing, to complete their procedure notes. Over half were using no software system for note creation.

The study also compared the completeness of typed and handwritten notes, finding that typed notes, which represented 65 per cent of those surveyed, were 'significantly better' at meeting the majority of standards, including anaesthetic type, diagnosis, patient position, incision, and post-operative instructions.

Individual preference comes into play, too, with many surgeons choosing a method of recording dependent on the procedures they perform and the software available to them. This is owed to the potential variability within the procedure itself, level of descriptive detail required, turnover in procedures a surgeon might experience in a typical day, and the speed of IT systems, amongst other factors.

James Brown is a consultant vascular surgeon and group chief clinical information officer at Mid and South Essex NHS Trust, which was formed in April 2020. The trust has software for the recording of procedure notes, but Brown chooses instead to create his by printing a Microsoft Word template and filling this in by hand. He also often includes diagrams, which he says saves time versus writing lengthy descriptions. He says: "Drawing diagrams is much easier for some operations, for example if you're putting multiple stents in multiple arteries." These templates are then scanned into the hospital-specific system.

Ravi de Silva is a consultant cardiothoracic surgeon at Royal Papworth Hospital NHS Foundation Trust. He says that "typing can be a long and laborious process". Instead, de Silva types a brief operative note into the EPR, then dictates a note onto the hospital dictation system, which is then typed out by a secretary and uploaded to the EPR afterwards. Typing the abbreviated note takes 3-4 minutes, whereas typing a complete, comprehensive note takes 10-15 minutes, and is, de Silva says, "time wasted when you need to do other things".

Dictation may be faster at the point of recording, but this method can mean a delay between the creation of the procedure note and its finalisation or availability on hospital systems. It also does not necessarily mean that the note will be high quality.

A [quality improvement project](#) for operative notes at Royal Derby Hospital was undertaken after a study showed an average delay of 11.6 days for the typing of notes after dictation and a 71.1 per cent adherence with the RCS guidelines. The trust designed and implemented a bespoke electronic surgical notes template within existing software, which led to 100 per cent adherence with RCS guidelines and no delay in typing.

Further research has shown that the quality of operative notes is much less variable using templates or proformas than when notes are written or typed freeform. A [2017 study](#) at Northwick Park Hospital sought to assess whether the introduction of a surgical clerking proforma improved the recording of patient information in the surgical admissions unit, looking specifically at the documentation of details against the 17 criteria set out by the RCS. It found that implementing a proforma improved data documentation, with 5 of the 17 criteria showing significant improvement post implementation.

Interviewees using templates or tick box forms to complete their procedure notes indicated that this format is helpful when it comes to meeting the national quality standards.

John Latimer is a consultant gynaecological oncologist surgeon at Addenbrooke's Hospital. The functionality of the EPR in use allows surgeons to create their own smart text templates for individual procedures.

Latimer describes this as “a list of all structures I need to inspect for that procedure, and I can select whether it was normal or abnormal and add some details in freeform where necessary”. He says that, using this system, creating operative notes does not present a challenge.

It appears, however, that this kind of quality and efficiency rarely exist in tandem when it comes to recording notes. Templates can be difficult to access on some IT systems and, once located, can be slow to load.

At East Suffolk and North Essex NHS Foundation Trust, George Yardy creates his procedure notes using template forms on the EPR. He says: “The forms do contain fields that help to fulfil the RCS requirements, but the system takes a while to move from page to page and if you make an error and need to go back to correct it, you lose what you have done so far.”

A consultant surgeon at a leading London hospital agrees that software can be a barrier to efficiency. “A lot of the documentation is templated, but it’s the number of clicks and waiting for the pages to load that is the most time-consuming aspect. The quality is consistent and from an audit point of view you can import it easily into a spreadsheet, but it is cumbersome.”

Additionally, several interviewees, using both electronic and paper-based capture, described multiple steps in the process between creating a procedure note and making it available on all the hospital IT systems. These multiple steps – typing, sending, printing, scanning, and uploading a single document, for example – were viewed as an inefficient use of surgical staff time.

This problem is the result of separate EPR and theatre systems being unable to communicate with each other. Kishore Dasari, a consultant trauma and orthopaedic surgeon, describes the workflow at George Eliot Hospital NHS Trust: “I have to check the nurses’ theatre notes in the theatre system, create my procedure note in the patient portal, write the discharge letter, and then I have to make sure everything is printed and handed over to the nurses because they don’t have access to the portal.

“Turnover for some procedures is quite high, so sometimes I’m actually spending longer on the documentation than I am on the procedures themselves. For example, a targeted joint injections procedure takes 15 minutes, but all the notes can take me around 20 minutes.”

Repetition of information was a common theme in conversations about information capture following a procedure and is a source of frustration for many. Procedures can be standard, with little deviation in the narratives. One consultant interviewed believes much of the procedure note could be automated, explaining: “It is very repetitive – we fill out the same thing over and over again. Procedures are almost identical, so having to write out the same thing is a waste of time. What we should have is a standard macro.”

“

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4.0 Data submission to specialty registries

Regular submission of surgical data to specialty registries is extremely important, as data can be transformed into insights and reports that allow monitoring and benchmarking across surgical peers and units, ensuring patients receive high-quality care and enabling continued improvements in service delivery. For some specialties, submission of data for certain procedures is mandatory, and where this is not the case it is still highly encouraged. More than half of survey respondents indicated they were required to submit data to a specialty registry.

In 2013, NHS England committed to presenting consultant-level data for 10 different surgical and clinical specialties, named the [Clinical Outcomes Publication \(COP\)](#), as part of a drive to improve the transparency of information available to the public.

The COP initiative is now managed by the [Health Quality Improvement Partnership \(HQIP\)](#), which was established in 2008 and is led by the Academy of Medical Royal Colleges, the Royal College of Nursing, and National Voices, and the COP has expanded to include 27 specialty areas. It collects and publishes surgical data at consultant, team, and unit level.

The HQIP's audit programme also includes several national dataset requirements for cancer operations, which are passed on to the [National Cancer Registration and Analysis Service](#), run by Public Health England, where they are combined with other datasets to deliver a comprehensive view of patient pathways for cancer.

For the COP, each specialty decides which procedures to include and what measure of mortality to show. Some specialties choose to publish additional information, such as length of stay or readmission. Outside of the COP, there are many other audit programmes run by individual specialty societies. Societies provide forms to complete, and dependent on the format, these may be completed electronically or printed out and completed by hand, then scanned in.

The data required for audit programmes and registries varies but will include pre-operative, operative, and post-operative clinical information as well as laboratory and diagnostic results. Submitting this data is the most time-consuming aspect of documentation for many surgeons. Most interviewees estimated it takes on average 15 minutes per patient, but for a major procedure it can take up to 30 minutes to complete. One survey respondent estimated they spend more than one hour per day on data submission.

The information required for the registry necessitates that submission takes place after the patient has been discharged, but the majority of the data can be entered prior to this. The timeframe in which surgeons choose to or are able to enter registry data appears to vary – some do it daily, some weekly, and some less frequently. Few enter any of the data directly following the procedure.



One survey respondent estimated they spend more than one hour per day on data submission. Most interviewees estimated it takes on average 15 minutes per patient, but for a major procedure it can take up to 30 minutes to complete.

Paul Kirkland is a consultant ear, nose and throat surgeon at East Sussex Healthcare NHS Trust, predominantly undertaking thyroid and parathyroid surgeries. The [UK Registry of Endocrine and Thyroid Surgery](#) mandates submission, but Kirkland rarely finds time to complete any of this directly after the procedure. He says: “I try to do it when the patient comes back for their first post-operative visit, but quite often the clinic is overbooked, so sometimes I can’t even do it then. I keep a list of patients, and sometimes I have ten patients’ data to input together.” With each submission taking 15-20 minutes per patient, this can accumulate to a substantial amount of time.

George Yardy states that he often finds administrative tasks such as data submission building up, and sometimes finishes them at home in his own time.

The main challenge around submission is that it often demands significant duplication of data contained in the pre-operative, procedure, and post-operative notes. In fact, more than half of survey respondents indicated this was the case, and more than a third believe data submission requires duplication of over 50 per cent of the information contained in the procedure note.

Duncan McNab is a consultant cardiologist at Ipswich Hospital and Royal Papworth Hospital. He says: “After the procedure we record the information by hand into their inpatient medical notes, then by hand into the integrated care pathway notes, and we also type it into the cardiovascular information management system for the audit, so we do two or three entries of the same information, which is quite frustrating.”

George Yardy’s experience is similar: “There is a lot of duplication happening – I have to go through the records to write the discharge letter, and again to fill in the registry, so that takes up more time.”

This duplication can also mean extracting data from other sources and accessing multiple digital systems to find all the information needed. James Brown’s process exemplifies this. He says: “For data submission for major operations, I’ll spend an additional 20 minutes extracting bits and pieces out of different systems – the latest blood results, date of CT scan, date of MDT, etc.”

Ravi de Silva says that duplication also creates more opportunities for mistakes. “Duplication is time consuming, and subject to human error. Things may be referred to differently or altered slightly along the way, a bit like Chinese whispers.”

Another challenge is that the fields on the forms provided by the registries for data submission may not align with the fields on hospital EPRs or other IT systems. Brown continues: “The registry form asks for a range of parameters from the blood results, but the order in which they come up on my screen in the hospital is different to the order they are listed in the registry, so you have to manually transcribe each one, which is one of the reasons it takes so much time.”



More than a third of survey respondents believe data submission requires duplication of over 50 per cent of the information contained in the procedure note.

In fact, few interviewees found that their hospital's IT systems made data extraction simple or easy, but there were some positive experiences. Duncan McNab submits to the [National Institute for Cardiovascular Outcomes Research](#) (NICOR) registry. He says: "Our system works well for submitting to registries – I can hit a button and it analyses certain dates and exports that to an excel spreadsheet, and NICOR have made it easy to upload that data."

With cancer data closely monitored by Public Health England, the process of submission for cancer surgeries is often more defined and has more resources assigned to aid it. Consultants may have clerks to upload the data on their behalf. John Latimer's unit, for example, has a coordinator present in multidisciplinary team meetings that ensures information gets correctly uploaded to the cancer registries.

Great Western Hospitals NHS Foundation Trust has aligned the colorectal procedure note with the information required for the [National Bowel Cancer Audit](#) (NBOCA) to streamline the data transfer. Jeffrey Lim, a consultant at the trust, says: "We have a paper-based operative note for cancer patients, which is a Microsoft Word document with fields from the NBOCA audit. Surgeons that use electronic operative notes also include the NBOCA audit fields for cancer patients. This makes it easier for administrative staff to pick up the relevant data for audit."

The information is first submitted to the [Somerset Cancer Register](#) (SCR), an NHS software application aiming to create an electronic cancer patient record that "avoids duplication of information", before it is passed on to the NBOCA. The SCR tool is used by 95 organisations across England and this number is set to increase.

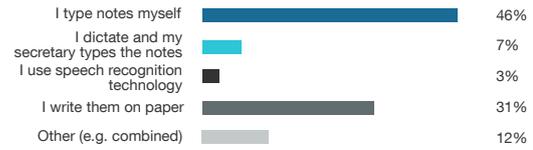
5.0 Online survey reveals extent of challenge

As part of its bid to understand the extent of the administrative challenge facing surgeons, Nuance carried out an online survey of 99 NHS consultants, comprising a range of different specialties and organisations, to gather their views and experiences. The results contained several interesting insights, most notably that 87 per cent of respondents were spending up to an hour on their procedure notes per day, more than half of respondents were not using any software for the creation of their procedure note, and more than half were required to submit data to a specialty registry. It also revealed that more than a third of those required to submit data believed this demands duplication of more than 50 per cent of information contained in the procedure note.

Q1 - Are you a consultant or surgeon in training?



Q2 - How do you create your procedure/operative notes?



Q3 - Do you use a software system for your note creation?



Q4 - Does creating the procedure/operative notes take up a significant portion of your working day?



Q4a - On average how long does creating procedure/operative notes take per day?



Q5 - When do you create your procedure/operative notes?



Q6 - Do you use the national standards for operative notes set by the Royal College of Surgeons of England when you are creating your procedure/operative notes?



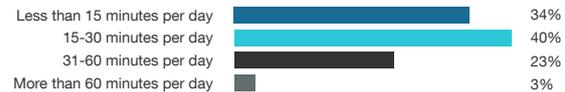
Q7 - Within your specialty, is there currently a data submissions requirement for a national registry/database?



Q8 - Do submission requirements for national registries/databases require you to carry out a significant amount of additional work?



Q8a - On average how long does this additional work take per day?



Q9 - Do these requirements necessitate a duplication of the information contained in the operative/procedure notes?



Q9a - What percentage of data from the procedure/operative note is duplicated for the national registries/databases?



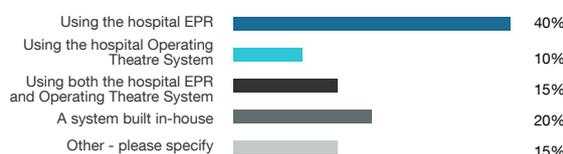
Q10 - Do you think information technology (IT) has the potential to substantially reduce the administrative burden of completing the procedure/operative notes and the national registry/database burden for surgeons?



Q11 - Has your workplace trialled or implemented any IT to streamline the process of electronically completing the procedure/operative notes and the national registry/database?



Q11a - Please choose ONE of the following which applies related to your IT implementation/trials:



Q11b - Has the technology reduced the administrative burden of completing the procedure/operative notes and the national registry/database?



6.0 The registry perspective

While submission to registries is led by transparency and patient safety, there is a financial incentive for trusts to ensure returns are completed. Under the [National Tariff Payment System](#), trusts receive additional payments if the characteristics for best practice have been met for certain procedures.

It is in consultants' interests to submit data, too, in order to be included in benchmarking and to demonstrate that they are maintaining quality and safety in their work. Making the process of submission easier and having forms and hospital systems more closely aligned would, therefore, be beneficial to trusts, surgeons, and registries.

The [National Vascular Registry](#) (NVR) is commissioned by HQIP as one of the Clinical Outcome Review Programmes. The NVR's Vascular Services Quality Improvement Programme requires returns for the five main vascular procedures – repair of abdominal aortic aneurism, carotid endarterectomy, lower limb angioplasty, lower limb bypass, and lower limb amputation. This completion is mandated for all hospitals in England, and returns are submitted electronically.

The NVR is taking gradual steps to make the process more streamlined for surgeons. For angioplasty procedures, it is possible to generate a basic templated procedure note from the data submitted for audit in the form of a Microsoft Word document, eliminating the need to enter the same data twice for a single procedure. The registry aims to expand this function to other procedures in the future.

The NBOCA collects data on around 20,000 surgical procedures every year, and uses this data to measure the quality and outcomes of care for patients diagnosed for the first time with bowel cancer in NHS hospitals in England and Wales, supporting colorectal units in the UK to improve the quality of the care they deliver. Submission to the registry is also mandatory and it sees a high rate of compliance, with case ascertainment for all new bowel cancer diagnoses at 95 per cent.

Kate Walker, lead methodologist for NBOCA, says that the registry “always works to minimise the burden of data collection for hospital trusts”.

“The data items are aligned with the Cancer Outcomes and Services Dataset (COSD) as much as possible to avoid duplication of effort – i.e. hospital trusts enter the data into their systems and these data items are submitted once to the National Cancer Registration and Analysis Service (for COSD reporting) and once to NBOCA. There are 12 additional data items which are unique to NBOCA.”

The [National Joint Registry](#) (NJR) is the largest orthopaedic registry in the world, with more than 3 million records, and was recently cited as a global exemplar in Parliament. Submission for NHS organisations has been mandated since 2011 and it has a consistently high compliance rate, currently averaging around 97 per cent, although orthopaedic surgeons usually have data clerks to carry this out for them.

The registry regularly reviews and updates its forms – since it was formed in 2002, seven versions have been issued. Deirdra Taylor, associate director for communication and stakeholder engagement, explains: “Surgery is always evolving, so the data we need evolves too. In our most recent iteration, for example, we added robotics to the forms, as this is becoming more commonly used in surgery. The forms are created by a working group, with a great deal of surgeon input.”

Taylor believes there is movement towards real-time, electronic data capture in theatre, which would make the process more streamlined.

7.0 Solutions: balancing quality and efficiency

In tackling surgical documentation challenges, there can be no one-size-fits-all solution. Different specialties and procedures require different details in the procedure note and potentially, therefore, different means of recording. Forms used for data submission are curated by individual societies, so any solution implemented to automate or speed up the process must be able to adapt to these formats accordingly. The key will be to develop or improve processes that increase efficiency without compromising on quality.

The IT systems in use have a big impact on the method of recording and therefore on the quality of data and the speed at which it is available. The needs of surgeons across specialties are diverse and an understanding of surgical workflow is central to developing any technology or system that will be of tangible use, so suppliers must work in partnership with consultants on solutions.

Martin Sinclair, consultant general and upper gastrointestinal surgeon at East Suffolk and North Essex NHS Foundation Trust, says: “In my view, a lot of these systems have been developed without adequate clinical input into what is important. When systems are not user-friendly, the data won’t be as good as it could be. The simpler the solution, the more people will use it.”

Eighty-five per cent of survey respondents believe technology has the ability to reduce the administrative burden. Interoperability is a major barrier to progress, however, with myriad systems already in place and often unable to communicate. It is this lack of information flow between EPRs and theatre systems that necessitates duplication.

Duncan McNab says merging systems so that staff along all stages of a patient’s pathway have access to it would be “ideal”. “I would like to have clinical and logistical information in one place, which could be simultaneously updated in real time, so that when something is added to the system it is available on the wards and to the GPs immediately.”

Kishore Dasari agrees: “It is difficult to obtain all the information unless you have access to and training in all other systems. I strongly feel that one system would make the patient journey much smoother, in turn reducing the time spent on information input and output, enabling easier audits and improving communication between the teams.”



85% of survey respondents believe technology has the ability to reduce the administrative burden.

Solutions that offer this are already on the market. One UK-based company developed a cloud-based clinical pathway management system, designed with clinicians, that aims to replace patient management tools such as whiteboards, notebooks and paper lists. The company uses Health Level 7 where possible to integrate with trusts' EPRs and patient administration systems, creating a single electronic hub where surgeons can access all scheduling, documentation, and registry information.

Building interfaces between systems or purchasing tools such as this do, however, require substantial financial investment that may be a challenge for many trusts, which are already operating on limited budgets.

Greater customisation, voice recognition software, and automated data extraction would all require a smaller-scale investment and could potentially streamline the surgical documentation process while maintaining the same depth of information capture.

Patient pathways involve the transfer of some information that will remain the same throughout and which it would save time to automatically copy from one stage to the next. Ravi de Silva explains: "It is predictable that you would want to package certain bits of data together – ultimately you're trying to tell a story. The operative note should always contain an indication of why you are doing the operation, but that can be cut and pasted from the clinic letter, and that bit could be cut and pasted from the referral letter. A system that maintained that coherence from one step to the next would be wonderful."

James Brown believes that even a small amount of automation would help. "If the system could populate some details automatically, even as simple as the staff names, it would be a start to improving the quality of what we're recording in an operation note."

Several interviewees agreed template forms with customisable options work well, and where these are not already in place, implementation would not necessarily demand a complete overhaul but rather a modification of what exists.

Martin Sinclair believes drawing on the template styles that work well in other areas could help: "Ideally it would be a tick box format – you would select the operation you've done and then modify it by selecting click-down options, and it designs the operation note for you. We use this a lot with endoscopy so I don't see why we can't use that for surgeries."

The existing issue around templates, however, is how easy it is to locate and load them, and solving this problem would mean upgrading software which, again, demands financial resources.

Speech-to-text software was raised in numerous interviews as a solution that could enhance information capture for the procedure note, and is already being used in [other areas of healthcare](#) to take notes during patient interactions. Despite this, only three per cent of survey respondents were already using voice recognition to create their procedure notes.



Ideally the template would be a tick box format – you would select the operation you've done and then modify it by selecting click-down options, and it designs the operation note for you.

Kishore Dasari believes voice recognition enables more detailed narratives, which creates a richer patient record. He says: “During the procedure, the nurses will record information in the theatre system, but these notes do not capture the operation minute by minute, and they do not include details such as low blood pressure, or if the patient went into hypertension, so they are not fully reliable as a narrative.

“If dictation [using speech recognition] could happen during the time of the operation or immediately afterwards, I think that could be really useful, and I wouldn’t have to double check the information.”

Improved accuracy could also benefit trusts financially, Dasari says. “By allowing us to record all the comorbidities correctly, it would help to improve coding accuracy too, which has a bearing on our financial resources.”

Duncan McNab agrees: “Speech-to-text technology is long overdue and would be a big step forward. Currently we are typing on mobile keyboards covered in plastic, which is very slow. Using voice recognition would increase clinical quality, because if you can dictate accurately at speed you are likely to be more descriptive of your surgical procedure and of any complications.”

Voice recognition software can also reduce the time delay before information is made available to other clinical staff, by allowing surgeons to check, edit, and publish their notes immediately.

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8.0 Conclusion

From the conversations and research carried out for this paper, it is clear that surgeons recognise documentation is a necessary aspect of their work to ensure patient safety. It is also clear, however, that the majority of surgeons feel the administrative processes surrounding procedures could be streamlined and efficiency increased.

While many of the problems around creating documentation are widespread, every surgical department comes with its own unique workflows and preferences. With limited financial resources, trusts must utilise the systems in place, looking at what works well and where the pain points are.

Where template forms are in use, these must be made easily accessible. They should also align more closely with the fields on registry forms, which would make entering data for submission easier, whether manual or automated.

Where information capture for the procedure note is currently freeform or dictated, voice recognition software could save time, make information available faster, and allow more detail to be captured.

Overall, greater consideration should be given by trusts to the workflow around procedures and the requirements of surgeons in relation to registries. Streamlining this will increase data quality and timely submission, accurately reflecting the work consultants and surgical departments carry out, enabling improvement, and keeping patients safe.

9.0 Recommendations

1. Increase the level of interoperability and data flow across different IT systems within hospitals

More streamlined transfer of information will reduce the need for repetition and duplication, speed up availability of data, and increase patient safety.

2. Greater collaboration between registries and surgeons on submission forms

Partnership working will lead to more efficient data collection. This partnership needs to explore the adoption of smart digital solutions to decrease the duplication and time spent completing the data collection process.

3. Use of structured electronic templates to complete procedure notes where possible

Templates and proformas will improve consistency and help surgeons meet the RCS standards for quality, but these should be tailored to specific specialties and procedures

4. Use speech recognition to create surgical documentation where possible

Where surgeons are currently using digital dictation or typing to create their surgical documentation, speech recognition has an important role to play. Within the various types of surgical documentation there exists both structured and unstructured content, and speech recognition should be used by clinicians to input narrative-style information.

5. Analyse workflow for individual specialties and departments

The variation in processes means trusts should develop an understanding of surgeon experiences and tailor improvements accordingly. As with registries, this exploration will require time investment from all parties.

10.0 Appendix

With thanks to our interviewees:

Name	Title	Organisation
Mr Kishore Dasari	Consultant trauma and orthopaedic surgeon	George Eliot Hospital NHS Trust
Mr Ravi de Silva	Consultant cardiothoracic surgeon	Royal Papworth Hospital NHS Foundation Trust
Mr John Latimer	Consultant gynaecological oncologist	Cambridge University Hospitals NHS Foundation Trust
Mr Martin Sinclair	Consultant general / upper gastrointestinal surgeon	East Suffolk and North Essex NHS Foundation Trust
Mr James Brown	Consultant vascular and group chief clinical information officer	Mid and South Essex NHS Trust
Mr Duncan McNab	Consultant cardiologist	Ipswich Hospital and Royal Papworth Hospital
Mr Jeffrey Lim	Consultant general and colorectal surgeon	Great Western Hospitals NHS Foundation Trust
Mr George Yardy	Consultant urological surgeon	East Suffolk and North Essex NHS Foundation Trust
Mr Paul Kirkland	Consultant ear, nose and throat surgeon	East Sussex Healthcare NHS Trust



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