Accuracy & completeness of clinical documentation

Understanding the clinician, patient and economic implications in NHS England acute trusts

NUANCE

ignetica

Table of contents

1. Introduction

There may be few who would challenge the view that accuracy and completeness of clinical documentation is essential for integrated, effective, efficient and safe delivery of care. However, there is little research which extends through the patient and process factors to the wider economic implications. In response, Nuance Communications commissioned independent research consultancy, Ignetica, to undertake a focused clinician perception study designed to provide this insight for acute providers.

The study is not intended to test the impact of a new technology nor to audit records to evaluate their accuracy or completeness (there are of course other studies in these areas). The focus of this study is to understand the situation and implications when Clinical Documents are not as complete or accurate as clinicians would wish. In so doing, we've also understood the context of clinician interactions with clinical documentation.

Across a sample of doctors, nurses, therapists and allied roles, the frequency of information issues experienced when reviewing clinical documentation, the mix of causes and the approaches used to cope were identified. Using value based methodology, the clinician, patient and economic impacts have been assessed, highlighting the time consumed and cost incurred alongside the disruption to delivery of care. Surrounding this, the study has also provided insight into the time spent reviewing and adding to clinical documentation as well as wider clinician perceptions regarding their notes and the potential for improved completeness.

The insight is likely to prove valuable to acute providers and Electronic Patient Record (EPR) solution providers at a time when decisions made now about clinical documentation workflows will have implications for the quality of patient care and treatment in the future.

This report presents the key findings from the research with further depth available on a tailored basis to support trusts and solution providers alike.

2. Study Overview

Recognising the challenge faced by clinicians interacting with clinical documentation and overlayed with both the benefits and challenges of new EPR deployments, Nuance' objectives in commissioning this research focused on providing clear, representative insight of the situation as it is today – regardless of e-health infrastructure maturity and clinical documentation types in use.

The research was not intended to assess the level of accuracy or completeness of notes, nor to assess the application of different technologies. Rather it was designed to specifically understand the impacts when information was unavailable or insufficiently complete from three perspectives; clinicians, patients and ultimately trust economics. By focusing on the situation as perceived by clinicians and the implications of the actions taken by them to cope with information issues, the impacts for patients and the associated economics could then be derived.

Clinical Documentation can of course span multiple information types including patient notes and letters, observations, order communications and laboratory results, pharmacy and beyond. In the first instance analysis was therefore undertaken to map the document types in use across acute clinical stages, identifying the nature of each and the challenges presented. The process identified those document types most sensitive to levels of accuracy and completeness (primarily linked to degree of narrative rather than structured content). Moreover it also identified the range of choices

for clinicans when the information they required was either not available or insufficiently detailed.

Clinical Information Flows for Acute Patient Journeys
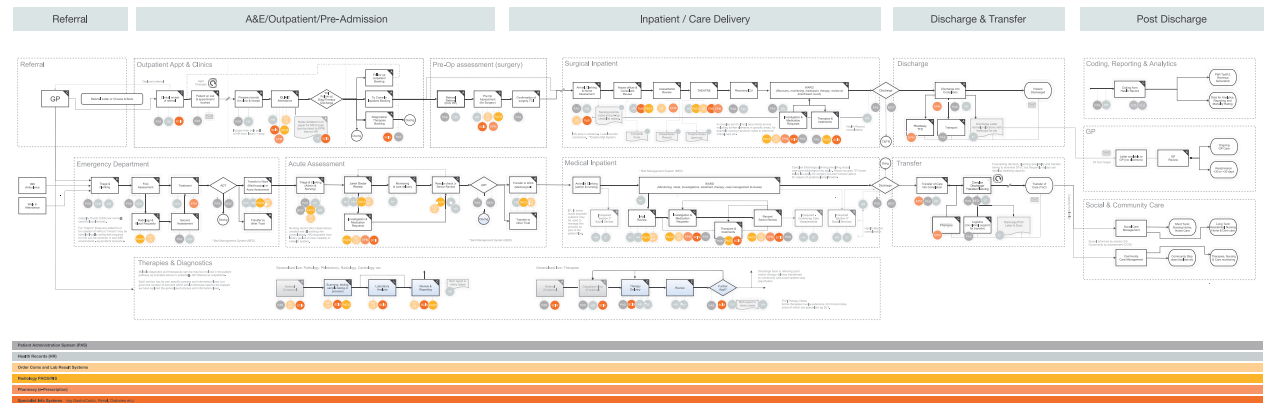
The research was carried out between January and April 2015. Four NHS England trusts were invited to participate in the research including two large university hospital trusts, a large trust spanning acute and community services and a mental health trust (and allied network). The hypothesis was reviewed with Chief Clinical Information Officers (CCIOs) or similar personnel at the trusts to challenge and refine the logic. Surveys were then undertaken with clinicians at each of the trusts to further test the hypothesis and assess the frequencies, timing and other implicatons as perceived by the clinicians. We are extremely grateful for the support of the participating trusts and their clinicians which provided extensive data spanning different clinical roles, fields of work and situations from admission through to discharge including both inpatients and outpatients.

Survey Scope

How frequently do Clinical Documents not include the information you need …

… at the time and the detail you require ?

Clinician Perceptions
– How likely are information delays to cause extended LOS/pathway?
– How satisfied are you that your notes are as complete as you would wish?
– Would your notes be more complete if you had more time available?
– What would be the benefit of more complete notes?

Reasons	**Responses**	**Implications**
The reasons for information issues	How clinicians cope with these challenges	For clinicians, patients and overall economics

Core activity & ClinDocs timing
– Analysis of working time by setting
– Time is spent searching for info
– Time spent reviewing clinical documentation
– Time spent adding to clinical documentation
– Percentage of adding time that is narrative based

Baseline & Demographics
– Clinical Role (Dr/Nurse etc)
– Clinical Area (Medicine, Surgery etc)
– Age profile of respondees
– Methods used for ClinDocs access (e-health stage)
– Methods used for ClinDocs addition (e-health stage)

In total 197 people responded with 40% being doctors, 20% nurses, 27% therapists and 13% in other roles. With multiple questions and response options this generated close to 40,000 data points which has been extensively analysed at overall and segmented levels. Within this document, key highlights are presented at an overall level.

Survey demographics
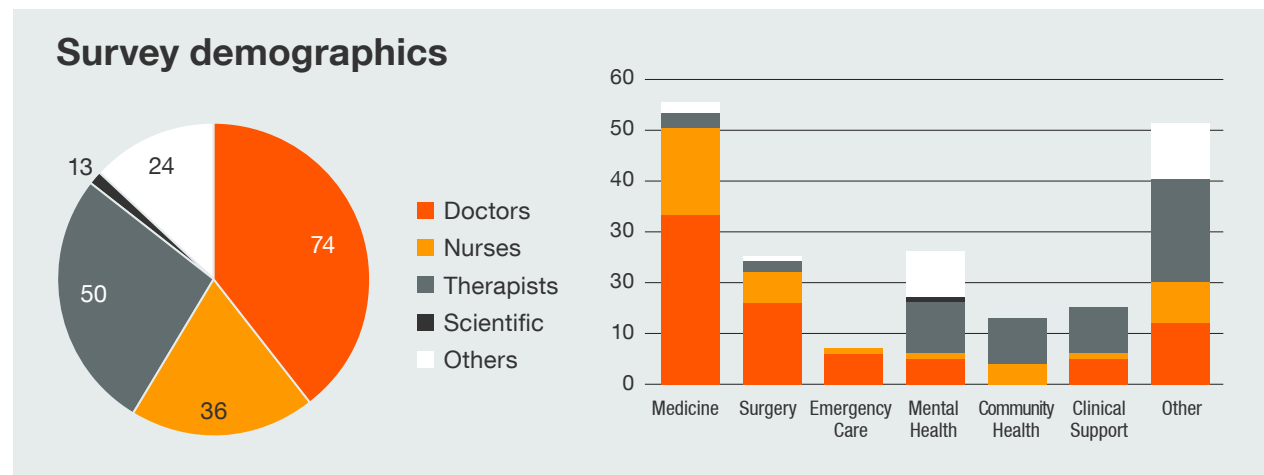
In addition to core clinical use of clinical documentation, accuracy and completion also impacts secondary users most obviously in terms of coding and reporting. Whilst there is clear logic to indicate that accuracy and completion can generate issues in reporting and in terms of efficiency of the coding process, the scope of this study focused exclusively on core clinical activity.

3. Interactions with Clinical Documentation

Information is of course at the core of the clinical process. Reviewing available information alongside patient assessments, diagnosing, planning & delivering care, monitoring progress and adapting as necessary involves a constant cycle of *review-of* and *addition-to*, clinical documentation.

In order to assess the time spent on these activities, clinicians were asked to identify the amount of time per week they typically spent **reviewing** information and **adding** information to clinical documentation. Although there were understandable variations between roles, the data showed very consistent patterns for similar roles within and across the different trusts involved. This identified over 50% of the clinicians' time being spent interacting with clinical documentation. This does not mean this time is necessarily away from patients. Some of the review and indeed some of the addition to notes may be undertaken with patients. Nonetheless, this highlights just how significant the level of information interaction is, and how even small changes to the means of interacting can have a very significant implication for clinicians. At a time many trusts are considering new EPR solutions this highlights the importance of fully considering these aspects.

Perhaps most importantly the study found that across all respondees, the average time spent **adding** to clinical documentation was 10.8 hours per week, with doctors specifically a little higher. Of this time, clinicians indicated 68.6% (7.4 hours per week) was spent generating content which was narrative rather than structured. Moreover, whilst the proportion was slightly higher for doctors, it was only slightly lower for nurses and therapists, reflecting the increasingly extensive nature of notes in all fields.

Over

50%

of clinicians' time spent on clinical documentation

Proportion of time on narrative content

– The overall total of 10.8 hours can now be seen as **7.4 hours per week generating narrative content** and 3.4 hours on structured data.
– For doctors and other roles the breakdown can be seen opposite.
– This is a very significant measure, since this is the time spent producing the content which will be subject to differing degrees of completion – and which might be influenced by differing technology approaches.

|		
Overall	7,5	3,4
Doctors	7,9	3,6
Nurses	6,8	3,9
Therapists	7,1	4,0

0 2 4 6 8 10 12

n=116
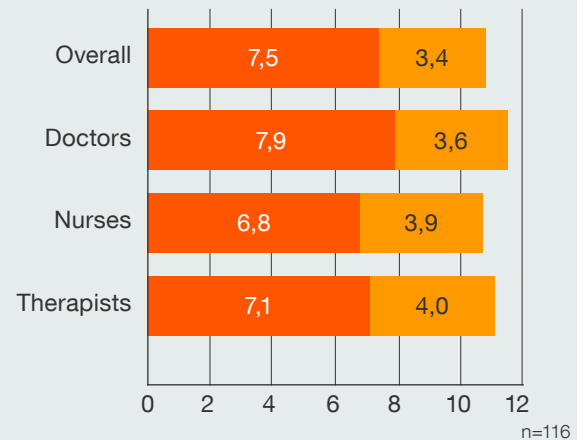
Identifying the amount of time spent on generation of narrative notes is a significant finding on multiple levels: Firstly some 7.4 hours per week is of course a sizeable proportion of available working time. Secondly, as it is this activity which primarily drives the level of completeness of clinical documentation, logically it is also at this stage that approaches could be applied to improve the process as considered later in this paper.

4. Accuracy and Completion of Clinical Documentation

Although activities involved in generating content for clinical documentation can be seen as the start of the information cycle, it is when clinicians come to review the collective existing information that issues surrounding accuracy and completion are experienced. The research therefore asked clinicians to identify how frequently the information they needed was available to the level of detail required when reviewing documentation. The average across all respondees was that it was available in 72.6% of instances, conversely in 27.4% it was either not available or was insufficiently detailed or clear. For doctors this was even higher, whilst therapists had the lowest incidence of information not being available to the level they required.

How frequently do Clinical Documents Not Include the Information You Need at the Time and in the Detail you need?

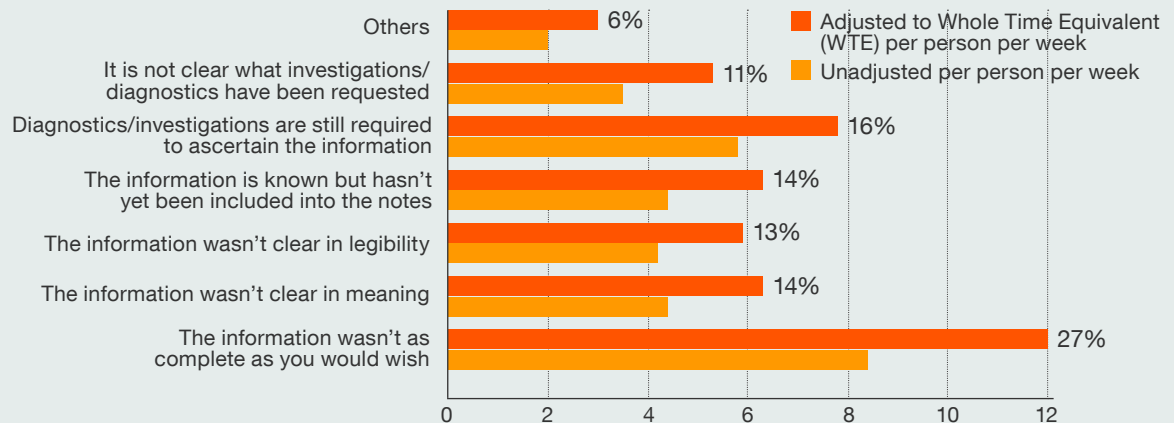Available 72.6%

Not available 27.4%

All
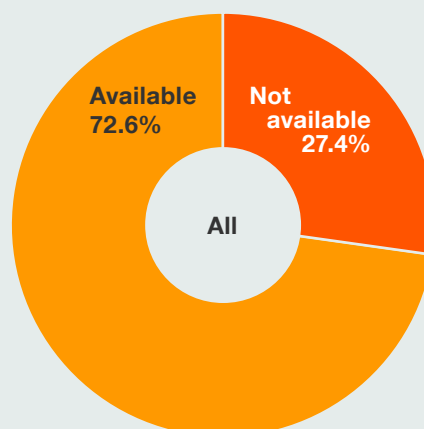
It is striking that

1 in 4

times the information wasn't available to the level required and yet as noted in the comments from respondees it can be "so routine as to be unmemorable".

To understand this further the analysis looked at the mix of causes within the overall number.

Understanding the causes

When the information you require is insufficiently clear or is not available in the notes, please indicate how frequently this is caused by the following factors (number of times per week).

Legend:
- Adjusted to Whole Time Equivalent (WTE) per person per week
- Unadjusted per person per week

Categories (top to bottom):
- Others — 6%
- It is not clear what investigations/diagnostics have been requested — 11%
- Diagnostics/investigations are still required to ascertain the information — 16%
- The information is known but hasn't yet been included into the notes — 14%
- The information wasn't clear in legibility — 13%
- The information wasn't clear in meaning — 14%
- The information wasn't as complete as you would wish — 27%
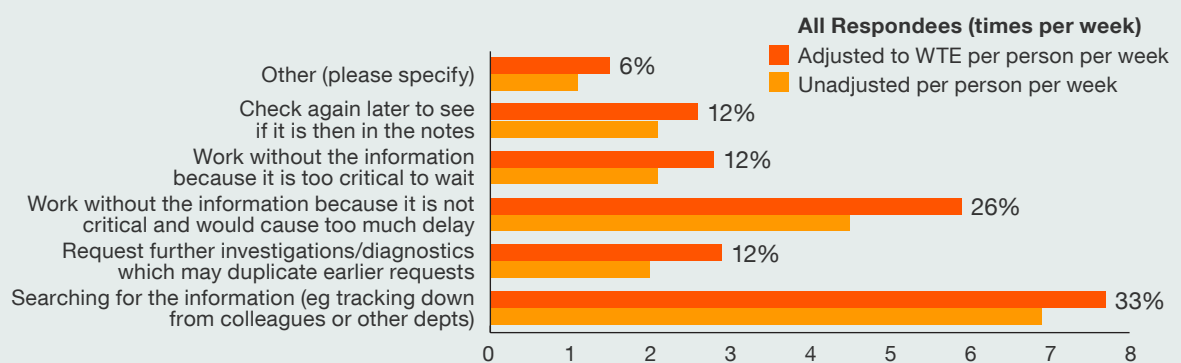
n=91

Whilst the mix covers multiple different causes it is clear that the first two (jointly accounting for 41% of all instances) directly relate to levels of clarity and completion. Other factors may also be influenced. For example clarity regarding requested investigations/diagnostics may normally be the function of an order communications system, but more complete progress notes may also help provide guidance. Meanwhile other causes highlight the potential for improvement with faster information flows and progressive reduction of paper (or scanned paper) notes.

5. Coping Strategies

Faced with the situations in which clinical documentation was insufficiently clear or not available at the time required, clinicians have a limited number of choices depending on the situation. Clinicians were therefore asked to rate how frequently they used various approaches to overcome this.

Coping Strategies

In instances where the information is insufficiently clear or not available, please rate how frequently you use the approaches outlined below (estimated number of times per week).

All Respondees (times per week)
- Adjusted to WTE per person per week
- Unadjusted per person per week

Categories (top to bottom):
- Other (please specify) — 6%
- Check again later to see if it is then in the notes — 12%
- Work without the information because it is too critical to wait — 12%
- Work without the information because it is not critical and would cause too much delay — 26%
- Request further investigations/diagnostics which may duplicate earlier requests — 12%
- Searching for the information (eg tracking down from colleagues or other depts) — 33%

n=85

As such, most of these can be considered as incremental means of searching for information beyond immediate colleagues and departments.

6. Clinician & Patient Implications

Each of the coping approaches carry implications for clinicians, their patients and ultimately for trust economics. Each was therefore considered in the analysis to evaluate the impacts.

The most common approach involved searching for information, which incurs time both on the part of the clinician seeking the information and that of the colleague(s) asked to provide the same. Across all groups the research identified that 52 minutes per day is spent on average searching for information (more for doctors, less for therapists, each directly reflecting the variance in levels of information availability) comprised of both directly searching and covering requests from others. This represents a very significant consumption of valuable clinical time, but more critically in the intervening period, delivery of care can be disrupted whilst the information is sought.

52

minutes per day spent searching for information

Time spent searching for information

When searching for information which wasn't available or sufficiently clear at the times it was required, how much of your time PER DAY is spent…

– Across all groups, **52 minutes per day** is spent searching for information either directly required or requested by others per person
– For Doctors this is higher at **69.9 minutes**, over 51 of which is for their own use.
– For Nurses **61.6 minutes** with a slightly higher proportion being at the request of others.
– Therapists spend the least time searching and this of course reflect the much lower levels of information issues noted earlier.
– From a clinical staff productivity perspective this is very considerable (time value is >£6k pa overall and can be >£16k pa for senior doctors)
– Moreover it also implied an elapsed time delay whilst the information is found…
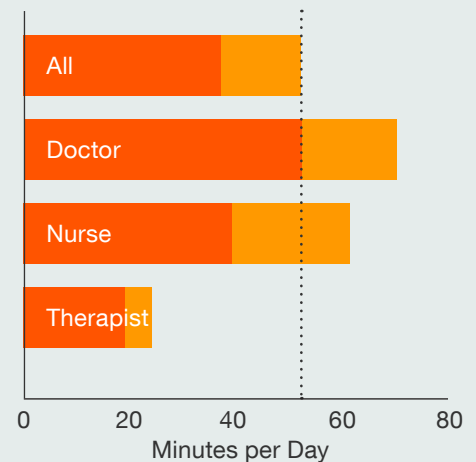

n=91

The level of disruption for patients can vary considerably depending on the setting. For example in outpatients, short delays may delay the sessions causing frustration for patients and staff. Where these are longer, a further appointment may be required instead consuming available appointment capacity, causing patient frustration and delay to the clinical process. As well as direct analysis of the timings overall perceptions were also sought. This identified that 80% of doctors felt that it was "possible", "likely" or "very likely" that information delays would impact on the patient's journey/ length-of-stay. Indeed within this group, "likely" to impact was the most frequent response.

Clinician View on Length of Stay

Respondees were asked for their views on the potential for info-delays to impact patients journey/Length of Stay, with all (other than therapists) regarding it as more likely than not …

Distribution of ratings

- All Groups
- Doctors
- Nurses
- Therapists
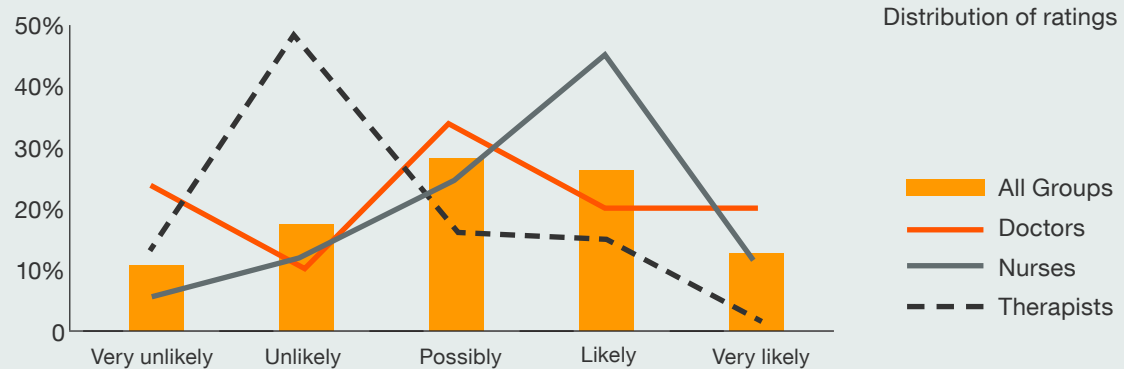
n=85

Potential duplication of diagnostics or investigations similarly consumes resources with allied cost. This is also far from ideal from a patient experience perspective.

Working without information because it is not critical and it would cause too much delay/time to find it accounted for 29% of coping responses. While this may not consume staff resources or directly incur incremental costs, it is far from ideal. Clinicians were invited to provide their views on these situations, with common themes emerging regarding it being frustrating and poor practice but unavoidable given the current information challenges.
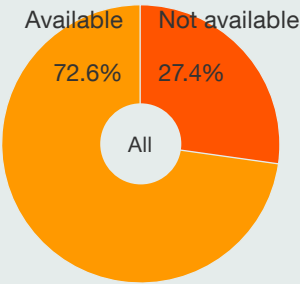
Alongside the approaches already described, rechecking for information later to see if it was then in the notes was also identified as one of the coping approaches. The effort involved in rechecking and the number of times of rechecking before information was typically available was analysed, indicating an average of 63 minutes per person, per week being consumed. During this time patient care could be delayed with implications in terms of patient experience as well as consumption of resources and capacity in the meantime.

63

minutes per person per week
spent rechecking information

Summary of Clinician View and Impacts of Current Situation

How frequently do Clinical Documents not include the information you need at the time and in the detail you need?*

Available   Not available

72.6%   27.4%

All

* Of course not all causes are due to accuracy and completion. The reasons identify those which are directly and potentially influenced by accuracy & completion.

Reasons
27% Not sufficiently complete
14% Not clear in meaning
13% Not clear in legibility
14% Known but hasn't yet been included in notes
16% Diagnostics/ investigations are still required to ascertain the information
11% It is not clear what investigations/ diagnostics have been requested
6% Other

41% directly linked to accuracy completion with **11%** influenced by accuracy and completion

Responses
33% Search for information
12% Request investigation/ diagnostics, may duplicate.
12% Work without because too critical to wait
26% Work without the information because not critical & would take too long to resolve
12% Wait and check again later to see if it is then present.
6% Other

Searching & working without information because NOT critical are most frequent responses

Implications
Time consumed and delayed Time spent seeking information for self and for others
Delay to delivery of care (from information request to information being available to act on)
Activities (leading to cost) Most common duplicated activities/ diagnostics
Number & delay caused
Information Gaps Views on working without info

7. Economic Implications

Through each of the coping approaches there are common themes of consumption of clinician time, available capacity and resources allied with clinician frustration. In parallel, the same issues adversely impact patient experiences, disrupt care delivery and potentially delay patient stay or care journey. Many of these factors also carry allied economic implications.

Business Value of IT (BVIT) methodology was used to consider the full range of strategic impacts across a series of healthcare specific value domains. Against each, value dimensions drawn from the analysis were mapped to the extent that the impact could be identified, measured and where applicable monetised as shown in Table 1.

Table 1

Key Value Dimensions

	Identifiable	Measurable	Monetisable
Staff Productivity			
Time spent searching for information	●	●	●
Time spent rechecking for information	●	●	●
Cost Optimisation			
Potentially duplicated diagnostics	●	●	●
Potentially unproductive Outpatient Clinic Appointments	●	●	
Potential to make contribution to Reduced LOS	●	●	
Patient Experience			
Delayed patient Journey/Pathway/LOS due to info delays	●	●	
Potentially duplicated diagnostics	●	●	
Staff Satisfaction			
Level of staff frustration	●	●	
Time spent searching for information	●	●	
Times working without info (not critical or too critical)	●	●	
Patient Safety			
Number of responses indicating concern over patient risk	●	●	
Times working without info because too critical to wait	●	●	
Revenue Enhancement			
Potential to utilise Outpatient capacity for more patients	●	●	
Potential to utilise Inpatient capacity for more patients	●	●	

● Black Dot – direct measure
● Orange Dot - indirect measure

As set out in Table 1, at a staff productivity level the primary impacts involve the time taken to search for or recheck for information, on average consuming 52 minutes per day and 63 minutes per week respectively. Using standard mid-band rates plus overhead loading, the economic value of this time can be identified at £7,600 per annum across all roles. For senior doctors for whom both the time requirement and rates are higher, the value is some £19,500 per annum.

Similar themes can also be seen in the cost optimisation domain; for example where clinic appointments are rendered unproductive due to information issues and a further appointment is required. At a less binary level, the aggregate impact of information delays are also likely to accrue to impact inpatient length of stay with the associated bed day costs. In parallel, the potential duplication of diagnostics and investigations drives direct costs. Based on analysis of the most frequent types of duplicated activities indicated through the research, coupled with the associated costs, amount to £2,500 per clinician per annum across the sample base. For doctors specifically, this is significantly more.

Alongside the potential for cost optimisation, should the situation be changed, there is also allied revenue enhancement potential. For example with average Payment by Results (PbR) tariffs for first outpatient appoint-ment higher than for follow up appointments, reducing incidences of the latter being required due to information issues can enable the available capacity to be used to see more new patients. In this way the revenue for the same clinic appointment capacity can be enhanced, whilst also mean-ing waiting lists can be addressed more rapidly. Similarly for inpatients with tariffs generally not varying by Length of Stay (LOS), the potential to contribute to reduced LOS means more patients can be treated through the available bed capacity attracting the associated tariff.

As illustrated earlier in this document, the research has highlighted the potential for information issues to impact patients with disrupted and delayed pathways, potentially duplicated diagnostics generating less than ideal patient experience. Whilst not having immediate economic impact, patient experience and satisfaction are of course essential core objectives for all healthcare providers.

In parallel, staff satisfaction is a further consideration with frustration being identified based on the information challenges generated and the means required to work around them.
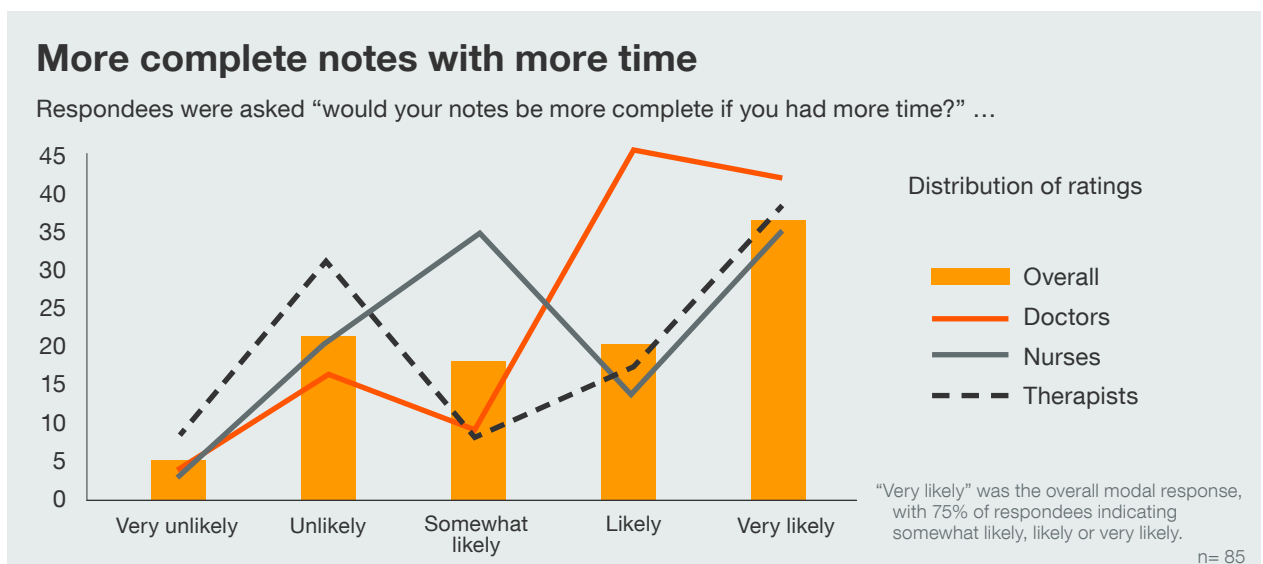
The value of time for a doctor searching for missing information is nearly

£20,000

per doctor per annum'

8. Addressing the Challenges

The research has assessed the situation as it is, rather than evaluating the impact of potential new technologies or approaches. Nonetheless, it is apparent from the analysis that there are both multiple opportunities to seek to improve the situation and compelling reasons to consider them given the economic impact involved.

Given the implications of insufficiently clear or complete notes, a central theme has to be in seeking ways to increase this level, and that of course ultimately comes down to the process for generating the notes. The research sought to identify some of the causal factors for the current situation, and in particular the impact of time constraints on the process. Asked specifically whether their notes would be more complete if more time was available some 75% of respondees indicated that it was "somewhat likely", "likely" or "very likely" that their notes would be more complete if they had more time.

More complete notes with more time

Respondees were asked "would your notes be more complete if you had more time?" …

Distribution of ratings

- Overall
- Doctors
- Nurses
- Therapists

"Very likely" was the overall modal response, with 75% of respondees indicating somewhat likely, likely or very likely.

n= 85

With the time spent adding to clinical documentation already at an average across the sample base of 10.8 hours per week, the potential to increase this further is unlikely to be feasible. However, approaches which mean this time can be used more productively to generate more complete notes could form a key solution. Speech recognition software is such an example with compelling benefits identified in separate studies from clinicians who have already taken this step.

The study also identified the potential areas for other e-health technologies to support the change, not least in terms of speed of live information availability.

In addition to the clinician, patient and economic impact of the current situation motivating change, the study also sought clinicians' views on what some of the core healthcare process benefits would be of more complete notes. Across a range of potential beneficial impacts, there was a consistent view that there would be "considerable benefit" with "More complete story to support patients journeys and avoid delays", being the theme with the highest overall rating.

"**More complete notes support patient journeys and avoid delays**"

9. Summary

It is clear from the study just how significant the information challenge is for clinicians on a day to day basis. Whilst this is unlikely to be any surprise for clinicians who routinely manage the issues, the sampling provides a broad basis to recognise the potential scale of the challenge.

Implications for Clinicians, Patients and Trust Economics

Clinicians	Patients	Economics

Staff Productivity
 – Time consumed searching for information
   - **52 mins per respondee per day** overall and 69.9 for Doctors
 – Time consumed rechecking for information
   - **63 minutes per respondee per week** overall
 – Sessions not utilised effectively due to information not being available
   - eg **3.5 Outpatient clinic appointments** per clinician week due to information issues
 	
 Staff Satisfaction
 – Level of Frustration
   - **68%** indicate frustration in responses to working without required information
	Patient Experience
	 – Delayed and disrupted delivery of care
	   - extended timescales, duplicated Outpatient appointments and potential Inpatient Length of Stay
	 – Duplicated diagnostics
	   - eg bloods
	
	 Patient Safety
	 – Working without full information
	   - though normally because not critical **26%**
		Time Value
		 – **Average across all roles £7,500 per annum**
		 – **Doctors £19,500 per annum**
		   - Time consumed searching for information
		   - Time consumed rechecking for information
		
		 Cost Optimisation
		 – **£2,500 - £6,800 per patient per annum**
		   - Duplicated investigations/ diagnostics
		   - Opportunity cost of under utilised capacity due to information issues
		
		 Revenue Enhancement
		 – **£12,500 per patient per annum**
		   - Potential opportunity to utilise Outpatient capacity through reduced info issues
		   - Potential opportunity to utilise InPatient capacity through reduced info delays

10. Conclusions

The current situation is accepted as the norm but the potential benefit of improvement in accuracy and completion of Clinical Documents offers considerable potential benefit on multiple levels:

– That over 50% of time is spent on reviewing and adding to Clinical Documents is not surprising, it is a core aspect of clinical roles, but it does illustrate how even small improvements in clinical information management can have a big operating impact
– That in 27.4% of instances Clinical Documents do not provide information to the detail & clarity at the time required is striking.
– Of these instances, 41% were directly linked to, and a further 11% were influenced by accuracy and completion
– This highlights the potential opportunity if the generation of Clinical Documents could be supported to achieve more complete and effective notes in particular narrative content (68% of adding time = 7.4 hours per week)
– Even at this level, time available for generation of Clinical Documents appears to be a key constraint, with clinicians indicating that it is "very likely" that their notes would be more complete if they had more time available.

– Conversely, the impacts today involve consumption of clinician time, duplication of activities/costs and under-utilisation of scarce resources, which also impacts patient journeys and experience.
– Analysis of the impacts of the coping strategies for clinicians, patients and ultimately overall trust economics provides compelling justification to invest in assessment of alternate approaches, particularly at a time when many are considering new EPR investments.
– There appears to be strong evidence to suggest that technological approaches such as speech recognition software as well as allied e-health improvements offer the potential to significantly improve the situation with potentially compelling economic justification

11. Further Information

The study was independently conducted and analysed by research consultancy Ignetica, providing insight into the situation today across different clinical roles, specialisms and settings. It was commissioned to provide benefit for acute trusts and those involved in the provision of EPR solutions. In-depth face to face interviews and over 40,000 data points derived from responses to the questionnaires were analysed in the study. Beyond the overall summary presented in this paper, further analysis and details are available. If you would like to assess the results in more depth and/or discover how they could be applied to your own trust, setting or specialty please contact us on +44 (0) 7887 051154.

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