

HEALTHCARE REPORT

INSTANT MESSAGING IN THE NHS

An exploration of the relationship between consumer messaging applications and modern healthcare delivery



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Foreword

At a time when financial and staffing pressures weigh heavily on the UK's public healthcare bodies, there is little doubt that NHS Trusts are struggling to meet increasing demand. In order to maintain frontline care services, many staff report working extra unpaid hours and suffering from high levels of work-related stress simply to prevent a collapse of the system.

It is little surprise, therefore, that a significant number of staff are adopting tools widely used outside of healthcare environments to streamline day-to-day processes. Nowhere is this more apparent than in the amount of staff turning to consumer IM (instant messaging) applications to communicate with colleagues - despite the risks to patient confidentiality and data security.

CommonTime commissioned the research presented in this report to explore how prevalent this behaviour is, as well as to understand the driving factors behind it.

In analysing and publishing this data, our aim is twofold. We want to bring attention to a major failing in the public sector IT marketplace that has allowed this to happen. Second, we want to highlight the communication needs of healthcare professionals so that solutions which work for governance teams & frontline staff alike can be found.

- Ian Knight, CommonTime CEO

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Executive Summary

Key Findings and Implications

Delivering a high standard of care relies on effective frontline communication. This report explores the reasons why UK healthcare professionals are turning to consumer messaging apps to meet this need.

The adoption of instant messaging apps to supplement official communication channels is, in many ways, a sign that NHS staff themselves are being driven to innovate faster than the Trusts they represent.

An important, if ominous, finding of this report is that the issue of NHS staff communicating via consumer-oriented instant messaging services (such as WhatsApp and Facebook Messenger) is much wider than has been previously reported. Further, attempts to stem the tide through education, the provision of alternatives and enforcement of policy are doing little to discourage staff - with 1 in 50 receiving disciplinary actions for IM related incidents.

There is also evidence to suggest that using instant messaging apps to communicate with HCPs (healthcare professionals) for benign purposes such as shift handovers or rota management increases the likelihood that an individual will start to use the same technologies in more fractious ways. Examples identified include communicating directly with patients, storing patient content on mobile devices and sharing medical documents.

A key driving factor of this is a marked dissatisfaction with provided channels of communication when compared to the efficiency that consumer IM apps offer. In fact, their usage has become so culturally engrained, that over 30% of NHS staff believe patient care would suffer if HCPs did not have access to WhatsApp or other consumer messaging tools. This leaves decision makers in a quandary - characterised by a strained status quo, in which the dangers to data security are ignored in favour of the significant benefits that IM provides.

However, as adoption of such apps grows year-on-year (driven primarily by new entrants to the workforce), so too does the risk from accidental or malicious misuse. Participants were able to recall a number of incidents that suggest consumer IM is a space for inappropriate communication and behaviours that are a detriment to confidentiality. Examples include accidentally sending patient information to non-clinical staff, sharing 'pertinent' patient details on social media and sending patient photos to others for 'entertainment purposes'.

This leaves NHS Trusts with a stark, uncomfortable choice; maintain this fragile norm until a catalyst for widespread adoption or rejection is found, or provide staff with the technologies they need in order to deliver the high standards of care expected of them.

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It is no surprise that staff, especially young & geographically dispersed, are actively using the smartphones they carry and organise life outside of work. A number of alternatives exist that manage security, start to integrate with records, and provide other productivity features, but as with the domestic IM tools, they don't yet interoperate. We need standards based, cheap as chips, ubiquitous instant messaging for the NHS, and for this to integrate well with the clinical records. The NHS needs to step up to enable secure use of technology to empower staff.
.....

- Andy Hadley, Head of IT Development, Service Delivery and Transformation Directorate

Section 1

Instant Messaging Usage Habits

Analysing patterns & trends behind the use of consumer messaging applications in the NHS is a vital step towards building technological solutions and regulatory frameworks that work for all.

More than half a million NHS staff use consumer messaging applications, such as WhatsApp, to communicate with colleagues at work. Though policy is adapting, it is imperative to find more permanent solutions that address the rising need for streamlined communication channels & effectively protect sensitive data.

Instant messaging applications, such as WhatsApp, have rarely been far from headlines throughout 2017, and for good reason. Despite clear advice from NHS England on the subject, many clinical & support staff still choose these communication channels over the obtuse alternatives provided by IT vendors.

In fact, 43% of NHS staff admit to using at least one consumer IM app for work purposes, with 14% using two or more. The most popular (Figure 1) is WhatsApp, which is used by 29% of staff. This is followed by Facebook Messenger (16%) and iMessage (11%). Other apps; including Line, Viber and Kik also appear, but are each used by less than 5% of respondents.

and Kik also appear, but are each used by less than 5% of respondents.

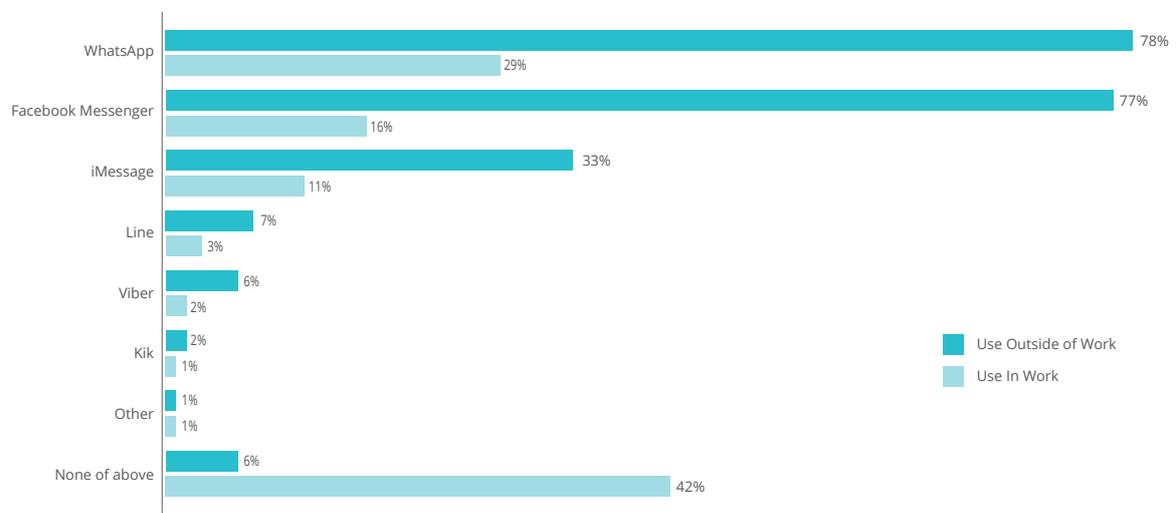
The finding that over one in three NHS staff use consumer messaging apps is perhaps not that surprising, as it is supported by similar results from a 2015 study published in the British Medical Journal¹.

What is more startling is the widespread use of Facebook Messenger & iMessage. Though there is debate over the security & privacy implications of WhatsApp, there is no doubt that alternative consumer IM apps pose even greater risks. Unlike WhatsApp; Facebook Messenger and iMessage can be installed and accessed on multiple devices at any one time; increasing the risk of unauthorised individuals viewing confidential or sensitive information.

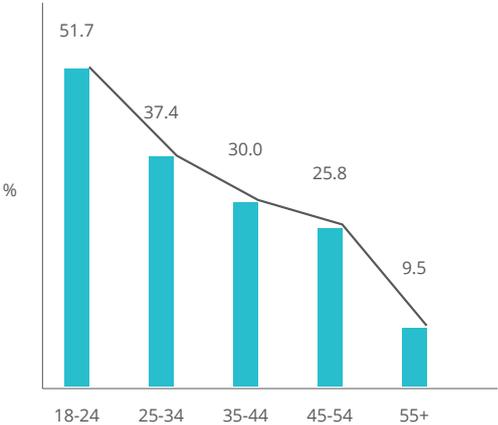
The Impact of Age on Results

A second trend that emerges from this data is the correlation between age and consumer IM usage.

» Figure 1: Instant Messaging Apps Used at Home vs Work



When analysing results in this way, it can be observed that 51.8% of the 18-24 year old cohort admit to using consumer messaging apps for work purposes. Comparatively, only 25.8% of the 45-54 year old cohort and 9.5% of the 55+ group use these apps in the same way. This means that an NHS employee aged between 18-24 is twice as likely to use consumer IM for work purposes than an employee aged 45-54.



» Figure 2: Instant Messaging Usage Breakdown by Age

Not only does this display generational differences in the use of messaging apps in healthcare, but it suggests that this is an issue that will continue to grow. As time progresses, those that currently form the younger cohorts will move into the older brackets - likely maintaining habits that have already been formed.

Further, by comparing the British Medical Journal's research on 'ownership and clinical use of smartphones by doctors and nurses in the UK¹' to this data, - it can be observed that the percentage of Acute care doctors & nurses using messaging apps has risen from 33.1% to 57.5% over the course of two years. This equates to an average 11.2% year-on-year increase. A number of factors are likely to contribute to this; including greater access to mobile applications, changes to regulatory policy and the recruitment of younger staff who are more accustomed to such communication channels.

Though it is clear that age impacts on whether or not an individual uses instant messaging at work, it does not appear to have such a drastic effect on personal usage. This is demonstrated by the difference between the percentage of respondents who report using no IM app at home compared to work across all age brackets. Despite 42% of individuals reporting no use of IM apps at work, only 6% do not use any in their personal lives.

This finding is important because it implies that generational differences in the usage of instant messaging is not due to inherent demographic traits. Instead, it suggests that the differences may be better explained by a shifting opinion on the role that instant messaging applications play in the workplace. Further research is required to understand exactly how opinions are changing, and the impact of this.

Exploring Contextual Differences

As this survey seeks to understand the use of instant messaging throughout the entire NHS, respondents came from a variety of Trust types and functions. It is possible, therefore, to compare differences between these groups and build an accurate picture of exactly how IM fits into the wider context.

When analysing responses by role, it emerges that the two groups with the highest IM usage are frontline clinical and community care staff - with 47.9% and 48.9% of respondents respectively using at least one messaging app. The group which uses such applications least (34.5%) comprises of admin and management staff.

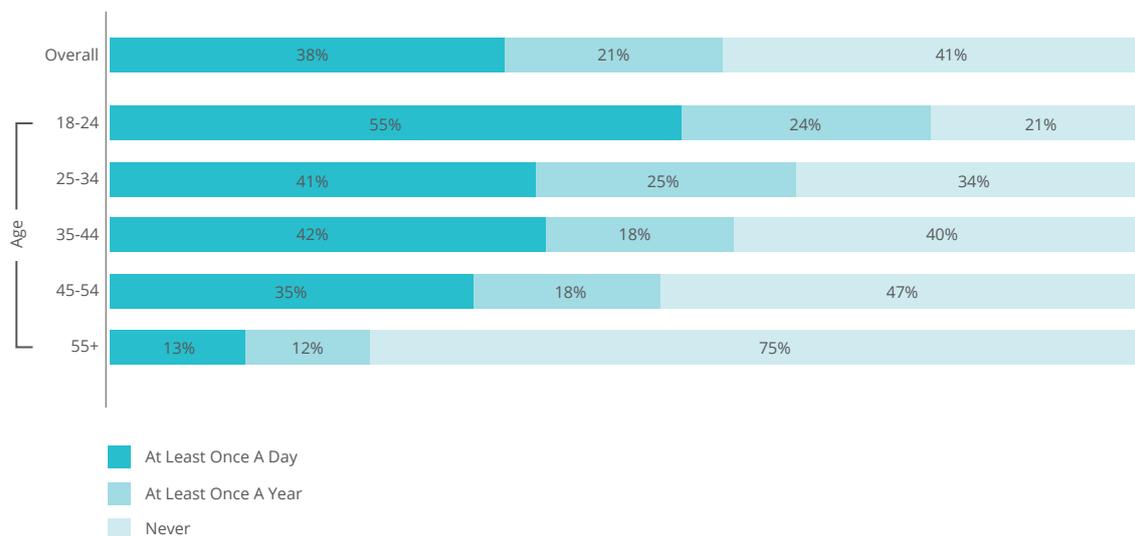
It is possible that this is reflective of the pressures frontline staff are under. Factors such as limited time and the need to divide attention between patients may significantly increase the attractiveness of mobile messaging and the simplicity it provides.

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This research confirms my anecdotal suspicions that many clinical end-users are using consumer-oriented instant messaging applications for clinical work and patient data transmission. Furthermore, given this is a self-reported survey, the true number of users doing this may be much higher.

- Dr. Alexander Graham, Founding Partner of AbedGraham

If the same data is broken down by Trust type rather than role, a different story is told. Headlines around clinician and Acute Trust usage of instant messaging may actually be understating the rampant use of such apps within the NHS.

Out of all NHS organisations which provide services directly to the public, IM app usage is lowest within Acute Trusts; where 38.1% of staff use such services. Staff at Community Trusts are most likely to use messaging apps, with 49.7% using at least one. This is followed by Ambulance (42.1%) and Mental Health Trusts (41.3%).



» Figure 3: Frequency of Instant Messaging App Usage by Age

This paints a stark picture in which Acute Trusts are not rogue actors, but actually the least likely to use consumer messaging applications. In turn, it can be suggested that these communication channels have penetrated all NHS structures and are now vital to the provision of not just inpatient care, but also outpatient and community services.

Correlations Between Frequency & Habit

In addition to who uses instant messaging apps, this survey aimed to dig underneath the surface into both how & why IM usage is so widespread. One important step in answering these two questions is gauging just how often such applications are used; as frequent usage would suggest a much higher cultural acceptance than infrequent emergency usage.

The results of this research indicate that more than a quarter (26%) of NHS staff use consumer messaging applications for work purposes multiple times per day. Meanwhile, a total of 50% use these apps at least once per week.

Of these identified regular users, frontline clinical teams were found to be most heavily reliant on IM, with 75% of Junior Doctors and 86% of Doctors admitting they use these applications at least once a week. This supports the theory that instant messaging is much more vital to patient-facing staff, who are placed under an enormous amount of pressure. However, this also amplifies clinical risk – as it is those who work most frequently with patient identifiable information transmitting data across non-auditable infrastructure most often.

Considering there is no method of tracing communications sent via consumer IM applications, Trusts may already be suffering

data breaches without knowledge of the incident taking place. Though data breaches may be made by accident, knowledge of them relies upon staff self reporting incidents which would also involve admitting usage of non-approved communication channels.

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Instant messaging has become indispensable. Though current concerns centre around issues of governance and data security, there is a rare opportunity here for IT to transform healthcare communication and drive efficiency throughout the NHS. However, for this to be achieved, organisational requirements must be carefully balanced against user needs.

- Steve Carvell, CommonTime Head of Public Sector

A second way to consider the frequency data is to look at responses to the question; 'How often do you use instant messaging applications for work purposes?' 38% of staff stated they use instant messaging apps at least once per day. However, only 21% stated that they used instant messaging less frequently. The remaining respondents do not use IM. What this suggests is that it is significantly more likely for staff to use instant messaging on a daily basis, than an infrequent basis, highlighting how vital it has become.

A second pattern worth considering is the relationship between the usage of instant messaging applications during and outside of working hours. By examining this, it becomes clear that the benefits of IM extend far beyond the obvious.

66% of respondents stated that instant messaging applications help them communicate with other

healthcare professionals outside of work hours. Comparatively, only 58% of participants reported to use IM (Trust issued or consumer-oriented) at work. There are a number of factors which may have influenced this difference, and it could form an aspect of future research.

In the clinical staff group, 72% - nearly three quarters of the entire frontline patient service - communicate with colleagues on instant messaging apps outside of work. However, the cohort in which this behaviour is most common is comprised of 18-24 year olds across the entire health service. In this group, 80% of the workforce use IM to communicate with colleagues when off-duty.

In order to facilitate closer collaboration between colleagues, Trusts should seek to provide safe environments where this can happen; thus reducing reliance on IM. As these figures show, there is certainly demand for it, with more staff utilising these channels to communicate with colleagues on a personal level, to which current policy does not apply.

HCP to Patient Communication

The true litmus test for how normalised instant messaging has become is whether or not it is being used for communication with patients. Outside of written and spoken communications, NHS England policy only permits email & SMS in these scenarios when it has been explicitly agreed with the patient. Instant messaging applications are not regarded as an approved HCP-patient communication channel. For these reasons, prior to the data gathering stage of this research, it was hypothesised that while there would be instances of this behaviour, they would be outliers in the wider data set.

As it transpires, 18% of respondents either personally use instant messaging apps to communicate with patients, or are aware of colleagues who do. This suggests that acclimatisation to IM within a healthcare environment is leading to other uses for the technology.

Supporting this theory is the fact that when examining IM usage patterns, it becomes clear that there is a relationship between instant messaging frequency and the likelihood to contact patients over the channel. While it is debatable whether this is correlation or causation, there is little doubt that the most frequent users of IM are the most likely to contact patients over it.

Of the respondents who reported using IM multiple times a day, 55% also used it to reach patients directly. It would appear, therefore, that those most comfortable and reliant on such apps are also among the first adopters to use it for external patient communications.

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Instant messaging applications are, in many cases, simply an alternative means of communication that are free & easy to use, comparable to a telephone call. Policies of record keeping and patient confidentiality still apply - whether communication is documented itself or by the outcome.
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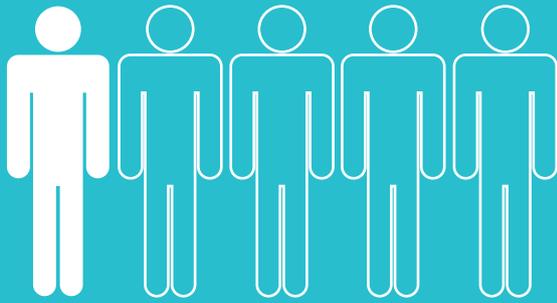
- James Rawlinson, Director of Informatics at The Rotherham NHS Foundation Trust

A similar pattern emerges when comparing staff who use IM outside of work hours to those who communicate with patients across such channels. 90% of those who communicate with HCPs over IM outside of work, also use instant messaging to communicate with patients. These figures suggest that in addition to the issue of widespread IM usage within the NHS, there is also an acute issue with a group that rely on IM more frequently. This group, though the minority of IM users, are likely to breach multiple communication guidelines by using such channels in a range of scenarios.

As will be highlighted in Section 3 - Assessing the Impact on Patients - there are often valid reasons why healthcare professionals rely on consumer instant messaging applications to contact patients. As one respondent explained, their use of WhatsApp enabled patients without access to phone credit to reach them. Without this application, they believed that they would be much less accessible to the community that they served.

In instances such as these, there is a strong case that the individuals are not seeking to circumvent Trust policies but to find solutions to issues that have not been addressed by IT vendors. It is up to these IT vendors to develop technologies that support NHS staff and streamline communication in the same way that consumer IM apps are able to.

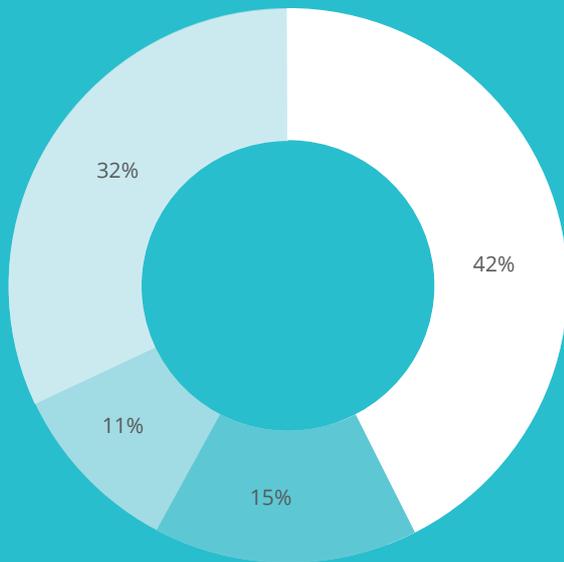
The key message that should be taken from this section is that the demand for healthcare oriented instant messaging is there. However, to be successful - these must now not only replicate the flexibility that WhatsApp provides but add extra value in order to break established habits.



Approximately 1 in 5 NHS Staff are Aware of HCP to Patient Communication over Instant Messaging Apps



The Average # of IM Apps Used vs The Most Reported



No Apps
 Trust Only
 Trust & Consumer
 Only Consumer

Breakdown on Instant Messaging App Usage



Likelihood of a Staff Member to Communicate With Patients Over IM



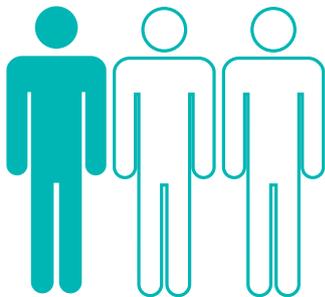
% of Staff at Different Trusts Who Use Consumer IM Applications

Section 2

Exploring Scenarios & Satisfaction

To recognise and address the growing prevalence of consumer IM applications within the NHS, it is important to understand the reasons why their use is growing at such a substantial rate.

The findings of this study indicate that messaging apps are not used in every situation. There are, however, a number of instances where their use is most common, predicated by a lack of adequately equipped official channels.



1 in 3 staff can recall instances of rotas or shift handovers being organised via IM.

Most communication centres around time management. 33% of staff were able to recall instances where they, or their colleagues, have used consumer messaging tools for the purposes of organising rotas. 19% could recall instances where IM was used to supplement shift handovers.

More than one in ten respondents indicated that their use of instant messaging has included scenarios which have a direct impact on patient care. Such situations include, but are not limited to; the organisation of community care, processing referrals, asking for second opinions and developing care plans for inpatients & outpatients alike.

These responses suggest that current, NHS preferred processes are not fast or flexible enough to cope with the difficulties frontline and support staff face in organising their time. It should be recognised that enabling a direct dialogue between staff members is an effective organisational technique, however it does pose risks and will hinder clinical investigations if information or decisions made on private channels are not shared with governance teams.

Features & Functionality

Most consumer-oriented instant messaging applications share a similar suite of features. Designed for personal use, it is safe to hypothesise that some of these features are used more widely in a healthcare context than others.

73%

of frontline staff who use instant messaging applications make use of group conversations.

The results of this survey indicate that the most popular feature is Group Messaging. As many as 73% of frontline clinicians are actively involved in group conversations as part of their day-to-day routine, and actively use this as part of the patient care process. But it is not just appealing to those on the frontline. In fact, Group Messaging featured as the most popular functionality across all staff categories.

It is highly possible that the popularity of Group Messaging features correlates to the number of staff using instant messaging for the purpose of rota management. Such communication channels would provide the best environment in which to organise multiple staff at once. Outside of this, group conversations also allow staff to come together & discuss topics such as individual patients, wards or departments.

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The ability to have 'group chats' is perhaps the most obvious benefit, and reflects the clinical reality that we work in teams, and often make decisions as teams. Phone and pager systems of working, or email, just don't support that clinical workflow particularly if you need a rapid response from multiple team members.

- Dr Martin Wilson, Trust Clinical Lead for IT at The Walton Centre Foundation Trust

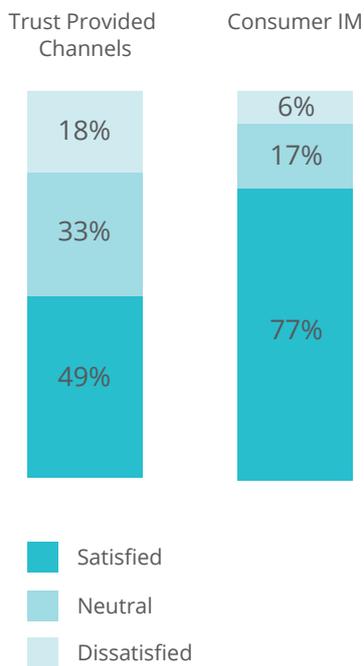
This means that while patient care may be delivered more efficiently, it is done without evidence that supports the chain of actions taken; something that any Impact Assessment should take into account. At scale, this has the potential to lead to treatment history dark spots and have serious repercussions to the integrity and historical accuracy of a patient record.

Across all groups, staff most commonly reported using the following features; group messaging (67%), photo sharing (50%), voice or video calling (37%), document sharing (30%) and video sharing (28%). Out of the respondents who use at least one commercial instant messaging applications, only 18% use none of the features listed above. This suggests that four out of every five users take advantage of at least one advanced feature, with a minority using only the basic messaging capabilities.

Satisfaction as a Driving Factor

As concerns over the use of WhatsApp and other instant messaging apps has grown, there has been a concerted effort to provide better communication channels for healthcare professionals. However, it is clear that these are not being adopted.

One possible explanation for this is satisfaction levels with the functionality that these provide. 52% of respondents have indicated they have either a dissatisfied or neutral opinion regarding Trust provided communications channels. In contrast, over three quarters (77%) of staff stated they are satisfied with the performance of consumer IM applications; a difference of 29%.



18% of respondents were neutral towards the performance of consumer-oriented applications and only 6% expressed dissatisfaction. It can be concluded from this that non-healthcare oriented technologies are actually providing NHS staff with better and more applicable features than those provided by Trusts. This is at odds with official policy, which seeks not only to minimise reliance on commercial instant messaging applications, but put in place alternatives that streamline communication.

Patient Communication

For the reasons discussed in this report, it is little surprise that communication between healthcare professionals takes place on consumer IM channels. What has received less attention is whether healthcare professionals also use these channels to communicate with patients.

To explore this topic, research participants were asked if they were aware of colleagues using instant messaging apps to reach patients. A total of 18% stated that they were aware of such behaviour; a clear breach of NHS England's Accessible Information Standard policy. Under this policy, communication with a patient is permitted via SMS and email only, providing proper procedure is followed. Though it is possible that staff may be applying the restrictions that apply to these channels to instant messaging, it is impossible to be certain.

Ultimately, the fact that so many staff are aware of colleagues using instant messaging applications to communicate with patients suggests that widespread usage of these channels between staff is normalising the behaviour and causing the boundaries of what is unofficially considered appropriate or inappropriate to be stretched further.

» Figure 4: Satisfaction in Trust Provided vs Consumer IM Applications

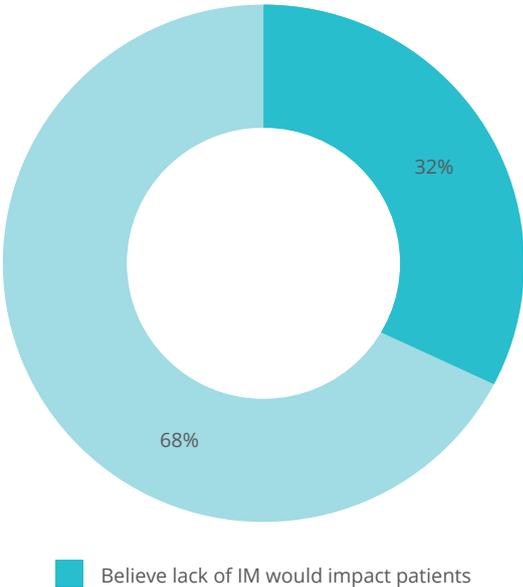
Section 3

Assessing the Impact on Patients

It is easy to conclude that consumer messaging apps pose a risk to NHS governance teams, however it is also important to understand how patients would be impacted if such channels were not available.

There is an obvious growing reliance on instant messaging across both frontline and support services in the NHS. However, an important question to consider is what impact removing such services would have on health service users.

When asked directly if they believed patient care would suffer from a decision to stop NHS staff from using IM, 32% agreed that it would. Though this may seem relatively low, a direct impact on patients is the most extreme result a decision can yield.



» Figure 5: The Percentage of Staff who Believe Removing Access to IM Will Have a Direct Impact on Patient Care

There are a range of other ways in which an IT decision can impact the healthcare service which affects employees, organisational structure and processes. Therefore, the fact that so many staff believe a decision on consumer IM could directly affect patients is indicative of the wider damage it may also cause.

Exploring the Hidden Impacts

Survey participants were not only asked whether they believed removing IM would impact patients, but to elaborate on some of the ways this may manifest. Both frontline staff and those in administrative positions provided detailed accounts of the reasons behind their concerns.

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The ability to prioritise tasks with the detail of IM is helpful to clinical staff and therefore a driver for use above pagers for example. The drawback remains that such detail never makes it into the patient record. It will be critical that Trusts ensure infrastructure can support mobile devices working in this way.

- Rowan Pritchard-Jones, CCIO at St Helen and Knowsley Teaching Hospitals NHS Trust

A number of common themes emerged from this exercise. Answers included expected concerns in addition to a number that are not immediately obvious to an outside observer. For example, two participants with community care backgrounds noted that because WhatsApp is a free, internet-based service, it enables patients from lower income backgrounds who may not be able to afford telephone calls or texts to keep in touch.

It is also worth considering this from another perspective. In addition to reducing costs for patients, messages sent through these applications do not cost the NHS; something that should not be ignored in austerity-conscious times.

Concerns over A&E communication procedures were also raised, calling emergency & trauma team assembly procedures into question. Staff members involved in this process suggested the two-way communication provided by instant messaging apps improved the speed at which teams could be assembled to treat patients. These

comments are damning; highlighting the ways in which frontline staff are being failed by ageing technology in modern care settings.

Additionally, as the paperless 2020 target looms ever closer, many NHS professionals praised the digital-by-default nature of IM applications. Boasting multimedia exchange as standard, IM users can exchange patient documents, scans, wound assessment imagery and more - without the need to print. This is helping staff communicate key information to others at the point of care whilst working towards a fully paperless system. Some participants expressed a concern that removing access to instant messaging apps would be a severe setback in achieving the Paperless 2020 vision.

What Makes Messaging Sticky

Staff are not turning to WhatsApp and Facebook Messenger without good reason. A number of survey participants reported discontent and short-falls in pager devices typically supplied. For some, instant messaging is regarded as a last resort, used only when paging does not yield results.

However, as users become more reliant on this, perceptions of IM seem to be shifting from a last resort to a primary source of communication. As such, survey respondents reported a host of benefits that would be lost if access to instant messaging were to be barred.

61% of respondents reported that IM enabled improvement in communication speeds which, in turn, has led to higher standards of care. If IM channels were to be removed entirely from Trust infrastructure, then clinicians fear the ability to rapidly respond to urgent messages would suffer.

As well as the speed of communication, many staff also indicated increased levels of responsiveness when using IM alerts compared to traditional channels. In fact, 42% of staff indicated that this was a key benefit that currently improves patient

care, highlighting another potential risk associated with removing the technology.

The third most reported benefit of IM was that more time can be spent with patients as a direct result of the time saved using this channel. 28% of staff stated this is a key benefit of consumer messaging apps. Overall, 29% of users believe the presence of IM is vital to improving care, with approximately one in ten staff stating individuals who use it are less distracted.

Comparatively, less than a quarter (24%) of NHS staff felt that there was no benefit to using IM technology at all – a clear suggestion that demand for the technology is present.

In fact, over half of survey participants listed at least two or more benefits to instant messaging that are having a direct, positive impact on the delivery of patient care services. Of those who reported multiple benefits, 80% stated that the speed of communication was key.

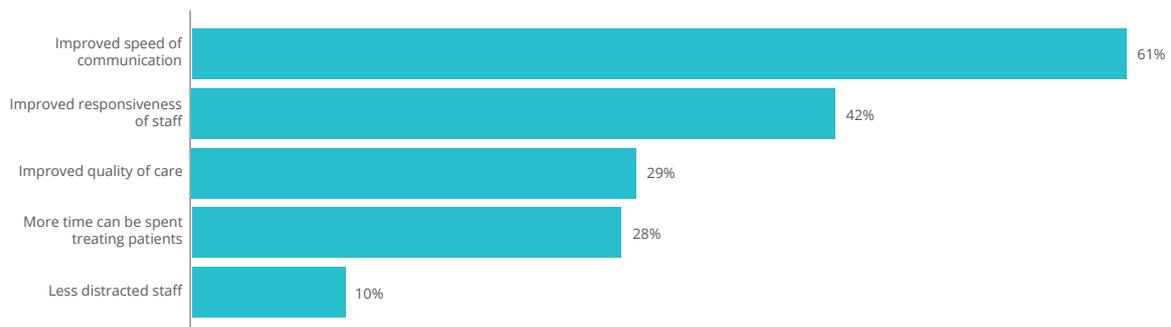
Fit for Purpose Communication Channels

Whilst the speed of paging communication can be called into question, their ongoing presence stems from the resilience dedicated pager networks provide. Because these channels are relied upon across the entire spectrum of healthcare organisations, reliability is imperative. However, 25% of NHS staff recall issues reaching colleagues through these channels in the past 12-months.

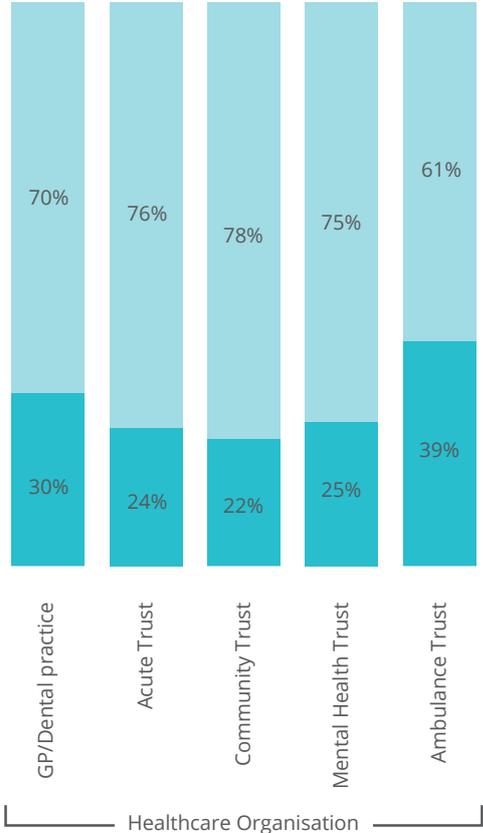
Considering 80% of staff favour consumer IM apps due to the speed of communication offered, and a quarter of staff cite performance issues with existing channels, it is not difficult to foresee a crisis in the near future.

In the event of pager communication failure, there are not always set guidelines or procedures for staff to follow. In instances where primary channels are ineffective, 14.6% of staff reported that they resorted to IM channels. This suggests

» Figure 6: The Most Commonly Reported Benefits of Instant Messaging



that whilst many NHS staff are making a concerted effort to adhere to Trust communication policies, they are aware of alternative channels and willing to use them if necessary.



» Figure 7: (Dark Blue) % of Staff Who Have Had Difficulty Reaching Colleagues via Official Channels in the Past 12 Months

A further 14.1% of staff reported that when unable to reach a colleague over official channels they gave up. Whilst it can be assumed that alternative team members were contacted in such situations, the patient impact cannot be understated. With over one in ten staff failing to reach a colleague when required, there will be occurrences where patients are kept waiting as a direct consequence of these communication inefficiencies.

A Balance of Probabilities

Scraping beneath the surface of themes that have emerged in the course of this research is an important step. Most telling is that over half of staff (51.64%) believe the speed of communication offered by WhatsApp and other consumer IM platforms is greater than the approved tools at their disposal.

Further, the influence of user experience should not be ignored, especially as WhatsApp seems to provide a positive experience; with 24.5% of

users suggesting they prefer using this technology compared to Trust provided channels.

One in four (25.8%) staff stated that patient engagement is better delivered through the exchange of messages on consumer IM apps. Examples that currently occur include 'reminding patients of their appointments to avoid rescheduling', 'resolving minor issues without interrupting care plans' and 'alerting patients when we need to speak with them'. With advantages such as these, it is clear to see why IM is popular – regardless of the dangers to patient confidentiality and data security.

This is in addition to the potential time savings, improved response times and reduced DNAs (Did Not Attends) that have been highlighted. However, the argument against instant messaging applications is equally compelling.

The obvious 'gap' in using a proprietary IM app is the IG concern, but also the inability to integrate with other clinical systems / EPR. Personally I would also like to see such an app developed in partnership with the NHS, preferably on an Open Source model, to allow standardisation and wider NHS sharing.

- Dr Martin Wilson, Trust Clinical Lead for IT at The Walton Centre Foundation Trust

The overwhelming concern is confidentiality, with 75.5% of users citing concerns over data leaks in consumer messaging applications. Further, 27.9% of staff believe that the use of instant messaging apps in the workplace could be a distraction. Many staff believe the temptation to engage in personal conversations would be too great, impacting either professionalism of care teams or patient perceptions of their care and treatment.

Another commonly cited issue is the lack of controls placed on data sent across non-Trust approved servers. 26.7% of staff suggested that this was a significant security risk, raising concerns such as the storage of patient data by a third party, on an unknown physical server location and the potential for information to be accessed by members of the public.

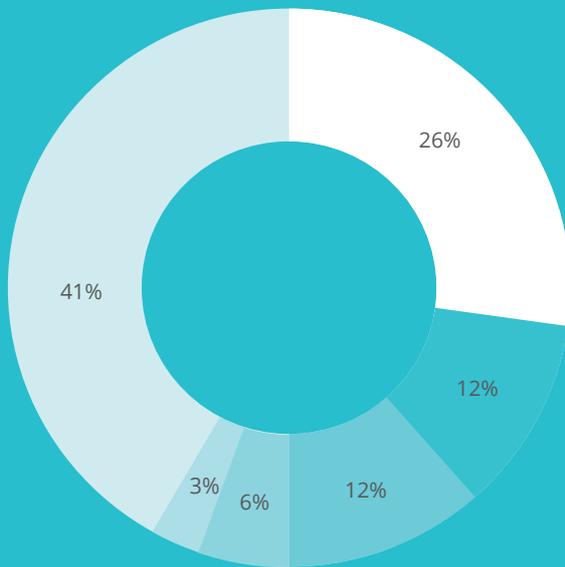
Finally, the risk of losing data through accident or theft was mentioned by a quarter of participants, suggesting that the issue is a pressing topic for many NHS staff. And, as many are aware, when data is sent through consumer IM apps, Trusts can do little to prevent or minimise risk.



25% of staff have had issues reaching colleagues over Trust approved communication channels in the past 12 months



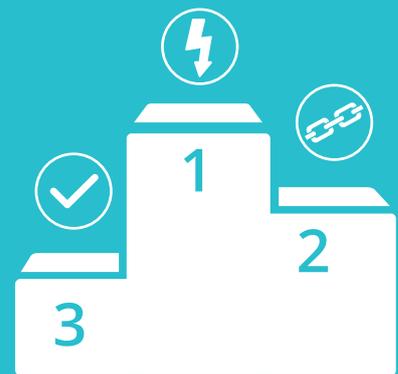
30% of staff have had issues reaching colleagues over Trust approved communication channels in the past 12 months



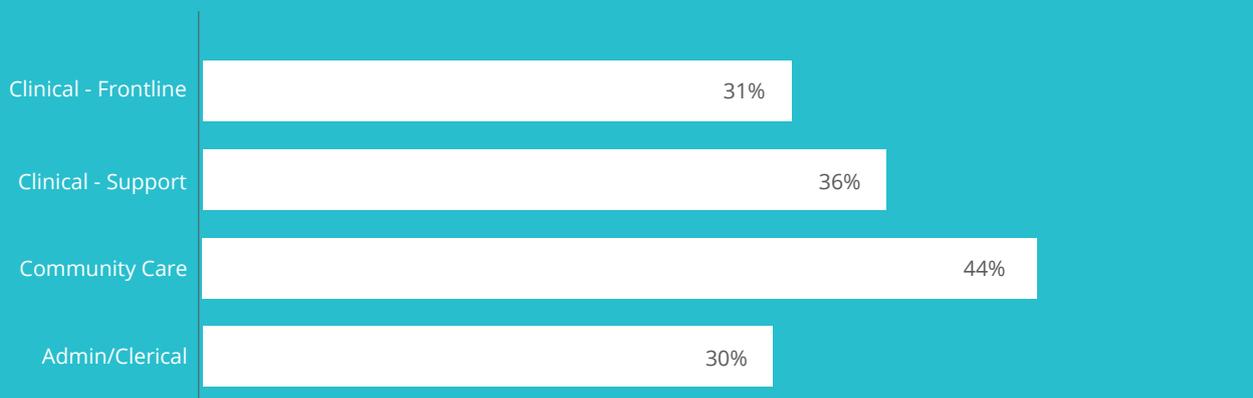
Multiple / day
 Once / day
 Weekly

Monthly
 Yearly
 Never

Frequency of Instant Messaging Usage



Speed of communication, patient engagement and ease of use are the top 3 reported benefits of instant messaging



% of Staff at Different Trusts Who Use Consumer IM Applications

Section 4

Data Security & Governance

The role of NHS England and Trust level IT policy is to enforce and encourage standard practice. So why is instant messaging policy, in particular, ignored on such a wide scale?

.....
Not unreasonably, NHS staff expect the ease with which they use technology at home to be replicated in the workplace. Gaps in expectations are naturally filled through use of applications they know and love. However, these applications often fall short of making the leap from the home to the business arena, lacking the enterprise level capabilities to meet the more stringent operational and governance requirements of the workplace.

- Andy Brett, Independent Strategy & Enterprise Architect

Consumer messaging apps occupy a precarious position within the NHS; enabling staff efficiency at the cost of data security. Yet, until a catalyst for acceptance or rejection is found, evidence suggests this culturally tolerated status quo will remain.

Before analysing the relationship between policy and instant messaging users, it is important to first be clear about the scale on which policy is broken - and the degrees to which this is the case.

42% of NHS staff (approximately 500,000) do not use any instant messaging platform. 15% use only Trust provided channels (such as Microsoft Lync). 11% use a combination of Trust provided channels and consumer IM apps. Finally, 32% (384,000 staff) use only consumer-oriented apps to send instant messages.

In order to explore whether or not policy has an impact on behaviour, the survey asked participants a number of questions to gauge their awareness of data security procedures in their respective organisations. 61% are aware of governance and data protection documentation, 80% have either been offered or received training on data protection policy, and 83% are aware of how to escalate concerns regarding potential breaches.

There does not seem to be any direct correlation between consumer IM usage and awareness of policy. When viewing the cohort which use non-Trust approved instant messaging apps in isolation, it emerges that 58% are aware of documentation, 76% have been offered training and 78% are aware of how to escalate concerns. Limited variation, as observed here, would indicate that awareness of policy is not a strong predictor of IM usage - suggesting that additional training will have little impact on staff behaviour.

Despite this, patterns do emerge around the level of data security awareness in different organisations. Out of all organisations which provide services direct to patients, Acute Trusts are most likely to provide access and training to staff. Meanwhile, respondents from GP Practices and Dentists were least likely to have access to or have been offered training on data security & governance.



» Figure 8: Awareness of Governance & Policy Resources

Awareness of Policy Breaches

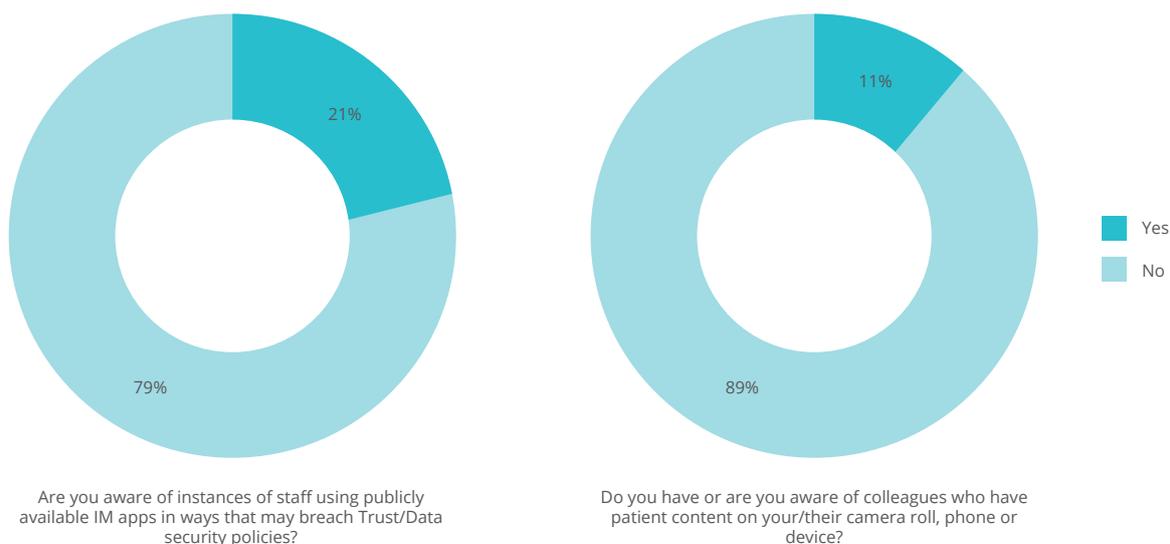
As most Trust policies do not permit any form of instant messaging usage, it could be reasonably argued that simply using such applications constitutes a breach of policy. However, this research aimed to uncover

whether there are degrees to which policy is breached, and how this is affected by cultural acceptance. To that end, participants were asked whether they were aware of colleagues using instant messaging in ways that are expressly against policy, and specifically whether they were aware of colleagues with patient content on a mobile device.

21% stated that they were aware of colleagues using IM in ways that breached data security policies. Familiar, age-based patterns can also be observed in this data set. 34% of those aged 18-24 responded that they were aware of such breaches, compared to 8% of respondents aged 55+. In isolation, it is difficult to distinguish whether this is due to differences in prevalence of data breaches between cohorts, or differences in the definition of a data breach.

However, some clarification can be gained by comparing the results of this question to a second question, specifically around awareness of colleagues with patient content on their device (something which is expressly forbidden). Overall, 11% of respondents - one in ten, or the equivalent of 132,000 NHS staff - stated they were aware of this. However, the variation in responses was lower between age groups when asked about this specific instance. Though the 18-24 year old cohort still reported most patient content (15%), the 55+ group was not that different at 13%.

» Figure 9: Awareness of General Data Security Breaches vs Specific Scenarios



Anecdotal Examples of Data Breaches

One limitation of research conducted to date is that HCPs are hesitant to discuss the ways in which either themselves or colleagues breach policy due to the fear of repercussion. Therefore, though it is widely speculated that misuse of consumer IM occurs, little is known about it.

Taking advantage of the anonymised environment, this survey directly asked participants what examples of misconduct on consumer IM apps they are aware of. It is worth noting that either for the reasons stated above, or because they are not aware of any - many participants chose not to answer this question.

From the answers that were gathered, a number of examples of misuse were cited - although it is important to note that these examples have

.....
I believe there is a balance to be found [to the use of instant messaging applications within the NHS], and am concerned about the risks of data traversing systems outside of public sector control.
.....

- James Rawlinson, Director of Informatics at The Rotherham NHS Foundation Trust

2.43%

of NHS staff have been subject to disciplinary action due to their use of instant messaging apps.

not been verified in any capacity. Eight individuals stated they were aware of cases where patient information had been sent to the wrong person, and in one case this was a personal contact rather than a HCP.

One respondent referenced a case in which 'pertinent' patient details were posted on social media, while another reported pictures of patients being sent to others for 'entertainment purposes'. In other responses there were mentions of staff 'taking [patient] photos without permission', 'sharing [patient] addresses and phone numbers', 'complaining about patients', 'discussing a recently deceased patient', 'unauthorised access to patient details' and 'taking pictures of x-ray images to send to friends'.

Obviously, there is a risk that this can occur on any communication channel, including email and approved IM services such as Microsoft Lync. However, importantly, when misuse of a Trust provided service is reported, it is possible to investigate, determine the validity of the claim and act accordingly.

These investigations are much more difficult (and often impossible to complete) when consumer IM applications are involved, due to the full end-to-end encryption provided. For this reason, it can be argued that they foster a safe space for inappropriate communication and behaviours that are a detriment to patient confidentiality.

The Influence of Disciplinary Action

The main deterrent for such behaviour is the threat of disciplinary action that can range from cautions to dismissal. As such, it is important to determine how often disciplinary action is taken against staff that misuse instant messaging channels.

It was found that 2.43% of all NHS staff, equivalent to 1 in 50, have been subject to disciplinary action due to their use of IM. In real terms, this equates to just over 29,000 employees. However, there are certain groups in which this percentage is significantly inflated. For example, 9.4% of all respondents aged 18-24 have been disciplined as a result of instant messaging.

There is also a significant difference between types of organisation. While 6.4% of staff working within GP or Dental practices have been disciplined over IM, only 0.79% of those working within Acute Trusts have. This can likely be explained by usage patterns which, as indicated in Section 1 of this report, suggest Acute Trusts have a much lower reliance on instant messaging than other organisations.

Out of all staff who use instant messaging applications, 4.26% have been disciplined for using them. Despite this relatively high percentage, it does not seem to be having the desired effect of reducing usage. As highlighted previously in this report, it appears that the number of staff using them is growing by over 5% year on year.

From this, it could be concluded that disciplinary deterrents are not effective and a new approach must be found. Considering the benefits apps offer HCPs, the solution should not be to minimise or limit usage. Instead, NHS Trusts should look towards implementing alternatives that offer the same advantages as consumer messaging apps, whilst protecting confidential patient information. If all information were to be shared across these approved channels, the need for disciplinary action would naturally decrease.

Conclusions

Developing Better Communication

There is strong evidence that the lack of streamlined communication channels is driving healthcare professionals towards consumer IM. Now, the NHS must innovate faster than its own staff.

Every day, healthcare professionals across the NHS are knowingly putting sensitive patient data at risk, not out of malice but necessity. These actions are the result of a system that is failing to support those it relies upon most and is in desperate need of change.

As explored in this report, the growing use of WhatsApp, Facebook Messenger and iMessage is borne out of the pressure HCPs are under to do more with limited time and a lack of sufficient technology. That is not to say, however, that there is no hope for change.

.....
Business-strength applications need to offer the same simplicity & accessibility as those used outside the workplace. Balancing the conformance stick with a desirable, compliant carrot will reap rewards, winning the hearts & minds of the very staff upon whom the responsibility of better care delivery lies.
.....

- Andy Brett, Independent Healthcare Strategy and Enterprise Architect

15% of staff use only Trust provided channels of communication already. It is the 43% of staff that use consumer IM (to varying degrees) who must be persuaded that the reasons to use approved channels outweigh those provided by the systems currently in use.

Clearly, methods employed to date - education and the threat of disciplinary action - have had little impact, with the number of NHS staff using consumer IM continuing to grow by every year. This has led to a strained relationship of reluctant acceptance which is, by its very nature, unsustainable. Eventually, if this continues, there will be a pivotal event that thrusts an unenviable choice upon the NHS; lay blame at the feet of individuals and take action against nearly

half of the workforce, or bear the institutional responsibility for allowing such actions to persist.

Before such an event happens, the use of consumer IM apps in healthcare environments must be stopped. But, as evidenced by this report, this will not be easy and will require a radically different approach.

HCP feedback and needs must be considered so that IT vendors can design, develop and deploy solutions which not only match the capabilities of consumer messaging applications but provide additional benefit that encourages adoption. By ensuring that a robust replacement is in place, enforcement of policy becomes easier and a clear distinction can be made between what is & is not acceptable behaviour.

There will be challenges in realising this vision, such as integrating staff databases between Trusts and providing a fluid user interface that can compete with WhatsApp. But government led initiatives such as the creation of STPs and ACOs are encouraging the collaborative mindset required, and beginning to break down barriers that have traditionally hampered such ideas.

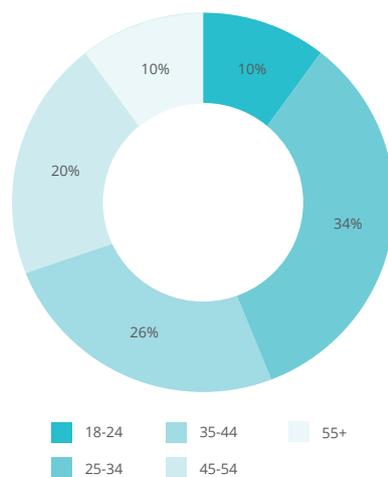
A number of healthcare technology vendors - including CommonTime - are already developing systems designed to combat the issues raised in this report. However, in order to fully address the now culturally embedded reliance on consumer messaging applications, a co-ordinated approach will be required.

IT suppliers, healthcare professionals and NHS policymakers must have an open, honest dialogue to find a way of moving forward that breaks out of a well-established stalemate. It is the hope of this report's authors that the data presented here may begin to stimulate such a conversation.

Appendix A

Research Sample Breakdown

In the interest of transparency, Appendix A provides detail regarding the sample that conclusions drawn in this report are based upon.

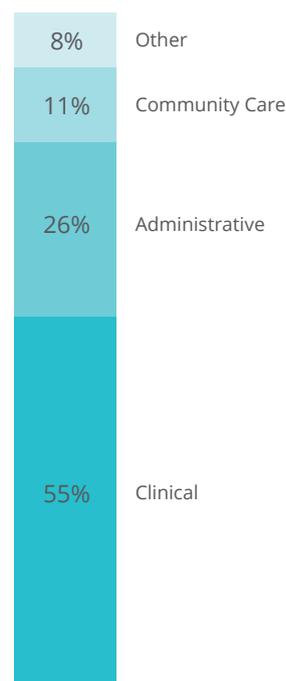


» Figure 10: Age of Survey Respondents

The findings presented in this report are based on a survey of 823 NHS staff. This sample size (0.68% of the population) means that results can be presented with a confidence level of 95% and a 3.5% margin of error.

Within this sample, 10% of respondents were aged 18-24, 34% between 25-34, 26% between 35-44, 20% between 45-54 and 10% were 55+. The average age of survey participants was 39, which is slightly younger than the average age of NHS employees - 43, according to the most recent information published by NHS Employers in 2014.

Geographically, all regions in England are represented. The highest concentration of respondents can be found in the South East (17%), and the lowest in the North East (6%). A total of 10% of all respondents are from Greater London. Wales, Scotland and Northern Ireland were not included within the sample as the differences in governing body and policy may have skewed results.



» Figure 11: Role of Survey Respondents

In addition to every geographic region, all major types of NHS Trust were represented within the sample, however a significant emphasis was placed on organisations that deliver primary and secondary care. Acute Trusts formed the largest percentage of the sample (31%), followed by Community Trusts (21%). Mental Health Trusts were represented by 17%, GP & Dental Practices by 15% and Central Bodies by 10%. Ambulance Trusts accounted for 5% of the sample, and CCGs/ CSUs accounted for 1%.

While individual titles were not taken into consideration, participants were grouped by broad categories describing a range of roles/ functions. A minimum quota of 50% was applied to those in clinical roles, in order to reflect the 54.06% of clinically qualified staff across HSCS (as of March 2017). In practice, 37% of respondents identified as Frontline Clinical employees and a further 18% identified as Clinical Support staff. A further 11% of respondents described their function as community care. 26% of the sample identified as admin or clerical staff, 6% as management and 2% as Information Management & Technology (IM&T).

These demographic breakdowns were chosen as the most relevant groupings through which to analyse results. A number of typical groupings, including education level, socio-economic profile, household composition and gender were not measured as it was believed that these breakdowns would not add any value to the results. Future studies may wish to consider these factors and their bearing on IM usage.

Appendix B

Commentary from Digital Leaders

In order to present a fair and balanced view of the issues raised in this report, CommonTime reached out to a number of digital leaders with an invitation to comment on the findings.

Throughout this report, snippets of statements from NHS digital leaders and industry commentators have been presented, both in support of and challenging the findings. Appendix B lists the quotations in full.

Andy Hadley
Head of IT Development, Service
Delivery & Transformation Directorate
NHS Dorset CCG

“It is no surprise that staff, especially younger and geographically dispersed, are actively using the smartphones they carry and organise life outside of work. A number of commercial alternatives exist, that do manage security, start to integrate with records, and provide other productivity features, but as with the domestic IM tools, they don't yet interoperate.

We need standards based, cheap as chips, ubiquitous instant messaging for the NHS, and for this to integrate well with the clinical records. The NHS needs to step up to enable secure use of technology to empower staff, and this needs to extend to social care and others involved in providing multi-agency health and care.”

Rowan Pritchard-Jones
Chief Clinical Information Officer
*St Helens and Knowsley Teaching
Hospitals NHS Trust*

“For me, the ability to prioritise tasks with the detail of IM is helpful to clinical staff and therefore a driver for use above pagers for example. Yet the drawback remains that such detail of care never makes it into the patient record. Increasing numbers of EPR vendors are creating solutions to support secure messaging as well as recording these tasks in the patient record. It will be critical that Trusts ensure their infrastructure can support mobile devices working in this sophisticated way.”

Martin Wilson
Trust Clinical Lead for IT
The Walton Centre Foundation Trust

“The ability to have ‘group chats’ is perhaps the most obvious benefit, and reflects the clinical reality that we work in teams, and often make decisions as teams. Phone and pager systems of working, [as well as] email, just don't support that clinical workflow particularly if you need a rapid response from multiple team members. For example, we are currently looking at how IM can facilitate a rapid MDT decision about accepting and transferring acute stroke patients into our regional centre.

The obvious gap in using a proprietary IM app is the IG concern, but also the inability to integrate with other clinical systems / EPR. Personally I would also like to see such an app developed in partnership with the NHS, preferably on an Open Source model, to allow standardisation and wider NHS sharing.”

James Rawlinson
Director of Health Informatics
The Rotherham NHS Foundation Trust

“Instant messaging applications are, in many cases, simply an alternative means of communication that are free & easy to use, comparable to a telephone call. Policies of record keeping and patient confidentiality

still apply - whether communication is officially documented itself or by the outcome. However, I believe there is a balance to be found, and am concerned about the risks of yet another data silo”

Dr Alexander Graham
Founding Partner
AbedGraham

“This research confirms my anecdotal suspicions that many clinical end-users are using consumer-oriented instant messaging applications for clinical work and patient data transmission. Furthermore, given this is a self-reported survey, the true number of users doing this may be much higher.”

Andy Brett
Independent Healthcare Strategy and
Enterprise Architect

“Not unreasonably, NHS staff increasingly expect the ease with which they use technology at home to be replicated in the workplace. Gaps in expectations are naturally filled through use of applications they know and love. However, these applications often fall short of making the leap from the home to the business arena, lacking the enterprise level capabilities to meet the more stringent technical, operational and governance requirements of the workplace.

Business-strength applications need to offer the same simplicity and accessibility as those used outside the workplace, combined with a supportive transition and transformation of working practices from one to the other. Balancing the corporate conformance stick with a desirable, accessible, business-compliant carrot will reap rewards, winning the hearts and minds of the very staff upon whom the core responsibility of better care delivery lies.”

Steve Carvell
Head of Public Sector
CommonTime

“Instant messaging has become indispensable, though current concerns centre around issues of governance and data security. There is a rare opportunity here for IT to transform healthcare communication and drive efficiency throughout the NHS. However, for this to be achieved, organisational requirements must be carefully balanced against user needs.”

Endnotes

¹Mobasheri, M., King, D., Johnston, M., Gautama, S., Purkayastha, S. and Darzi, A. (2015). The ownership and clinical use of smartphones by doctors and nurses in the UK: a multicentre survey study. [online] Available at: <http://dx.doi.org/10.1136/bmjinnov-2015-000062>

About CommonTime

Based in Derby, CommonTime has helped organisations deploy mobile communication technology for over 20 years. We have worked with a number of public sector organisations to deliver transformational messaging solutions in complex working environments.

Clients use our secure communication tools every day to make informed decisions in response to critical events. Our systems improve efficiency and deliver vital intelligence to end users, while minimising administrative tasks.

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