

Video Consultation Pilot within an NHS 111 Service and Clinical Assessment Service (CAS)

Document management

Revision History

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Glossary of Terms

Term / Abbreviation	What it stands for
COVID-19	Corona Virus Disease 2019
CPU	Central Processing Unit
DR	Disaster Recovery
DPIA	Data Protection Impact Assessment
FR	Functional Requirements
HSCN	Health & Social Care Network
IG	Information Governance
IUC	Integrated Urgent Care
NHS	National Health Service
NHS Digital	NHS Digital is an executive non-departmental public body, sponsored by the Department of Health and Social Care.
NHSX	NHSX brings teams from the Department of Health and Social Care, NHS England and NHS Improvement together into one unit to drive digital transformation and lead policy, implementation and change.
NFR	Non-Functional Requirements
RPO	Recovery Point Objective
SPOF	Single points of failure
VC	Video Consultation
WAN	Wide Area Network

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1 Executive Summary

Introduction

In response to the COVID-19 Pandemic, NHSX urgently commissioned NHS Digital to complete a Video Consultation (VC) pilot, with an NHS 111 Provider, in order to determine whether:

- It is technically possible to quickly commission a low friction VC capability without having to install equipment at the Provider site.
 - Low friction is defined to mean an ability for a clinician to text a caller with a link that opens a video consultation session directly with the patient without the patient needing to download an app or register for a service.
- VC capability delivers any benefits to the Provider, Clinician or Patient.
- What are the key considerations or potential barriers for delivering video consultation at scale?

Key outcomes

The trial using product example of *GoodSAM Instant On Scene*, accessed via a web browser, demonstrates that there are significant benefits to introducing one-way VC capability to a NHS 111 Provider, Clinicians and Patients. This product was deployed extremely quickly and although the sample size of 45 is small, a summary of some of the key beneficial outcomes are given below:

- For 43 of the 45 video consultations, clinicians reported that VC increased their confidence in their clinical decision making.
- Via the assessment forms clinicians recorded changed outcomes with 8 calls being upgraded and 11 being downgraded. The Provider emphasised this key benefit of “more effective and appropriate triages of these patients by being able to assess face to face resulting in potentially less ambulance/ED outcomes and reduced repeat callers into 111 as they received the right care/advice within the first instance”. The small sample size should be noted.
- Clinicians reported that, for 28 calls, video consultation prevented an onward face to face consultation for the patient.
- For 42 of the consultations, the clinician reported they were able to reach an outcome more quickly using VC. The Provider reported that when a clinician first starts to use VC their calls are slightly longer until they become familiar with the new scripting. Thereafter the call length reduces and “in some cases significantly – in some instances less than 10 minutes per call”, which compares to national average handling time of 15 minutes. The call metrics for the trial included clinicians of different levels of technical expertise and again the small sample size must be noted.
- Overall, the feedback from the NHS 111 Provider that completed the trial was that “clinicians loved it [the VC capability]” and the Provider is looking to quickly implement this capability into operations.

It should also be noted that a second trial was attempted with a different VC product with another 111 Provider. The second trial was aborted because the product was, at the time, unable to work with Apple devices. This highlights a risk that not all products claiming to offer low friction VC capability will work for all receiving patient devices.

This report has been written to offer tools and practical considerations anticipated to be useful to an NHS 111 Provider looking to adopt VC capability.

Potential Barriers

It should be noted that there are potentially barriers to a speedy national implementation, specifically Provider IT infrastructure. The bandwidth into the Provider site will have to be understood and actively managed in order to support VC without impacting on any other services using the same internet bandwidth. These challenges will mean wider rollout of a service will not happen without a rapid assessment of provider capability (training / deployment) and necessary upgrades to local infrastructure (desktop environment and equipment, and network and local compute capacity).

Earlier VC trials had suggested there was some resistance from clinicians to using VC but this trial showed this is largely overcome by using one-way consultations and this is a recommended key requirement.

It should also be noted that the sample size for this pilot was small and, due to time and resource limitations, it has not been possible to trial *GoodSAM Instant On Scene* to the scale of a national roll out of IUC case levels, or complete product assurance testing. The product has a design capable of scaling elastically, however this has not been tested.

Report Addendums

The trial was conducted with clinicians who had two PC screens at their work station. One screen was used to display the Encounter Management System (EMS) and the other the browser initiating and controlling the video consultation. This leads to a recommendation that a clinician would require a PC with two screens. Whilst investigating how this requirement could be mitigated GoodSAM™ advised that their product has a feature called “Picture on Picture” which would allow a clinician to operate as follows:

At the point where the clinician wants to initiate the video call they would need to alt-tab to the browser session with GoodSAM. They would then follow the normal process to start the VC call. When the VC is initiated the user can choose the three dots at the bottom left of the image and select the option "Picture in Picture". This then creates a "floating" window with the video in it, which will remain visible on top of any other applications. So when the clinician uses alt-tab to get back the EMS the video remains visible. The video can also be moved around the screen. This appears workable but has not been tested in this trial.

The workflow within this report and other text has not been updated to reflect this change.

The call metrics were not available at the time of the first release of this report. They have since shown that there is some evidence of some calls have been completed significantly quicker than the national average handling time of 15 minutes and the Executive Summary has been amended accordingly. However, it should be noted that the sample size during this trial is small and call metrics analysis was further complicated because the trial involved clinicians of different levels of technical expertise.

Acknowledgements

NHS Digital and NHSX would like to acknowledge the significant support given by both the NHS 111 Provider and the supplier GoodSAM™ in order to complete this trial. The trial was completed against exceptionally difficult conditions at the Provider site with call volumes quadrupling within two days of the start of the trial, due to the COVID-19 Pandemic. The Provider team's positive 'can do' approach is highly commendable and was very welcome. Similarly, GoodSAM™ are to be commended for giving their time and services free of charge against a background of unprecedented requests for their services. Thank you again.

Note that whilst NHSX, NHS Digital, and the NHS 111 Provider acknowledge the support of GoodSAM™, any reference to their products does not in any way constitute a recommendation or endorsement by the NHS.

2 Introduction

2.1 Purpose of Document

This report has been written in order to document the approach, trial outcomes and key findings from an NHS 111 Provider, Clinician and Patient perspective. Note at the time of report issue we are still awaiting Patient feedback from the 111 Provider.

Considerations for delivering video consultation capability at scale within NHS 111 Providers including potential barriers together with suggested mitigation are also provided.

Additional information is supplied, such as a trial process flow template (Appendix A), GoodSAM Clinical Safety Case Report (Appendix F) and Data Protection Impact Assessment (DPIA) guidance (Appendix B), that is intended to offer some practical assistance to Providers wishing to adopt VC capability.

Key functional and non-functional requirements to aide product choice, together with some procurement considerations area also provided.

This report contains additional background research and evidence, including references to previous VC project work.

The report is intended to be of use to:

- NHSX to offer considerations for how to deliver video consultation at scale.
- NHS 111 Providers seeking to implement VC capability.
- Third parties who me be asked to support a VC trial with a 111 Provider.

2.2 Objectives

In response to the COVID-19 Pandemic, NHSX urgently commissioned NHS Digital to complete a Video Consultation (VC) pilot, within an NHS 111 Provider setting, in order to determine whether:

- It is technically possible to quickly commission a VC capability without having to install specialist equipment at the Provider site.
- The call with the patient/caller is low friction, providing the ability for a clinician to start and end a video call without the patient/caller needing to download an app or register for a service.
 - This was achieved by a text to the caller with a link that opens a video consultation session directly in a standard browser.
- VC capability delivers any benefits to the Provider, Clinician or Patient.
- What are the key considerations or potential barriers for delivering video consultation at scale?

2.3 Approach

NHS Digital surveyed NHS 111 Providers to understand the extent to which VC solutions may already be deployed and to benefit their experiences to date with VC.

NHS Digital compiled a list of functional and non-functional requirements and these can be found in sections 4.3 and 5.1 respectively.

A trial process flow diagram was prepared (Appendix A), and an exercise conducted involving the NHS 111 Provider and the supplier to complete a step by step walk through the process. This exercise also included a representative from the Provider's Information Governance team and aided the development of a DPIA. Note that a Provider should complete a DPIA as part of their normal process for implementing solutions and guidance is given in Appendix B.

Guidance notes for clinicians initiating and completing a video consultation were prepared and these are available for reference in Appendix C.

Two questionnaires were prepared in order to assess the outcome of the consultation from both the clinician and patient perspective. These are shown for reference in Appendix E (Clinician Questionnaire). A summary of these outcomes is given in section 6 of this report.

2.4 Trial Scope

- Sample size – 45 consultations were performed by clinicians in a call back scenario;
- Low friction product used – consultations initiated by a text to the caller with a link on their smartphone opening a session with the clinician without the need to download an app or pre-register for a service; and
- One-way video was used – clinician was not viewable by the caller and removed the need for provider cameras on their desktop.
- No audio was used in the session – caller remained on the phone call and the phone recording was used for audit purposes;
- No recordings of video were made;
- Video consultations via smartphone only - the use of other devices (including tablets, laptops and computers) along with other means to initiate the session (such as via email) were excluded; and
- Video consultations were only initiated by clinicians at the Provider site and not homeworking clinicians.

2.5 Out of Scope

The following items are deemed as out of scope for the trial and this report:

- Recommending any particular supplier, product or service;
- Preparing any indicative costs for products or services;
- Full design assurance of the product and service used in the trial;
- Completing a potential second trial with other provider(s) and a different product; and
- Completing a large volume trial.

3 Research and Evidence

3.1 Background

In just 20 years from now, the UK's population will include 3.5 million people over the age of 85, and many will be over 100 (Office for National Statistics). Technology will assist us in caring for this ageing population, by measuring vital signs, indicating when individuals need to exercise more, eat less, take medication or seek help – often from their own homes, without needing to cross the threshold of the GP surgery or hospital department.

To achieve this transformation of Urgent and Emergency Care (UEC) people need to be directed or connected with the right service to meet their needs and not be sent or conveyed to A&E or other high-end dispositions such as to the GP's unless absolutely necessary. The primary objective is to be able to consult with and treat the patient during the initial interaction through greater use of clinicians in Clinical Assessment Services (CAS). Use of video consultation has been shown, in other care settings, to enhance the consultation process increasing the confidence of clinicians to deliver lower acuity and self-care outcomes.

High-Level Urgent & Emergency Care Objectives and Deliverables

- To provide live alternative digital access routes to 111 services for the public
- To support the reduction of the number of unnecessary referrals to high end dispositions i.e. 999, A&E and GP across NHS 111, integrated urgent care

The overarching objective is that, by 2021, the NHS will have revolutionised the way technology, data and information are used to transform the delivery of England's health and social care services.

The Five Year Forward View (2014) identified three crucial gaps. These are:

- Health and wellbeing: without a greater focus on prevention, health inequalities will widen and our capacity to pay for new treatments will be compromised by the need to spend billions of pounds on avoidable illness.
- Care and quality: Health needs will go unmet unless we reshape care, harness technology and address variations in quality and safety.
- Funding and efficiency: Without efficiencies, a shortage of resources will hinder care services and progress.

The overall objective is to develop a high quality, financially sustainable service that delivers the objectives set out under the Triple Aim:

- Better outcomes
- Better experiences
- Better use of resources

Use of technology will facilitate the transformational change required to achieve the above and use of video consultation technology could in part meet that need.

The Urgent and Emergency Care (UEC) Review 2013 set out the vision for a future system which is safer, sustainable and capable of delivering care closer to home, helping to avoid unnecessary journeys to, or stays in, hospital unless clinically appropriate, so that: People

with urgent care needs receive a highly responsive service that delivers care as close to home as possible, minimising disruption and inconvenience to them and their families; People with more serious or life threatening emergency care needs are treated in centres with the very best expertise and facilities to maximise their chances of survival and a good recovery.

3.2 Research

Qualitative studies using conversation analysis have found that, compared with traditional face-to-face consulting, telephone consultations have a more linear format and tend to focus on a narrow range of pre-planned themes, with less opportunity for the patient to raise issues spontaneously. These rich qualitative findings raise the interesting question of whether the same would be true of video consultations—or whether the addition of high-quality visual medium would emulate the ethos of the face-to-face environment¹.

In 2014/15 NHS England's Learning and Development phase 2 programme was undertaken through collaboration between patients, providers and commissioners with a range of professionals across health care. This programme ignited and demonstrated an appetite for innovation, drawing on the experience and expertise across NHS 111 which acts as the gateway to the urgent and emergency care system. The programme provided a number of insights into the opportunity to do things differently and make significant improvements to the current NHS 111 service.

3.2.1 Virtual Assessment via Smart Devices

Pilot 58 was part of the technical theme and allowed patients to access NHS 111 services via laptops, tablets or mobile phones by downloading specific video consultation software. Patients were able to undertake an assessment and receive a recommendation for the type of service they required. Pilot site used Staffordshire Doctors Urgent Care (SDUC).

The focus of the technical pilots centred around three key overarching themes, which guided the Phase Two NHS 111 Learning and Development programme as a whole:

- To understand the needs of patients using NHS 111.
- To examine the impact of technology and informatics enhancements to the 'standard' NHS 111 service on patient experience and outcomes, as well as overall system effectiveness.
- To understand the value of real-time biometric and multimedia data.
- To understand the needs of patients using NHS 111.

There is little evidence about the use of virtual consultation, the technology required and the effectiveness in an urgent care environment.

It was found that video-based NHS 111 services is acceptable to clinicians and patients who have both demonstrated the ability to accept and adopt this technology in an urgent care interaction. Clinicians involved in the pilot reported positive perceptions of virtual assessment services. The pilot showed insight that a video service could be put in place and that it appeared to be liked by both the small number of patients that participated and NHS 111 clinicians.

¹ <https://bmjopen.bmj.com/content/6/1/e009388>

Recommendation 15 – Virtual Assessment via Smart Devices

NHS 111 and future Integrated Urgent Care Services should adopt virtual assessment via smart devices. Registration should be simple (see Appendix G Learning & Development Phase 2)

4 User Needs and Functional Considerations

4.1 Overview

For NHS 111 providers and Clinical Assessment Services (CASs) which are considering offering a video consultation service, it can be challenging to determine what the best product or service offering is to meet your needs. Drawing on recent experience trialling a video consultation product within an NHS 111 provider, this section sets out considerations around user needs, functional and non-functional aspects.

Whether adopting a waterfall (linear) or agile (iterative) development methodology, key business objectives will be driving any change initiative. Offering a range of means to interact with patients, such as through video consultation, could help to address a business objective of managing increased patient demand on the service. Business objectives and user needs help to shape and drive requirements; a business requirement in agile parlance can be thought of as an epic, whereas stakeholder/functional requirements in agile are termed user stories.

4.2 User Needs

The Government Digital Service's (GDS) first service design principle is to start with user needs². User needs "are the needs that a user has of a service, and which that service must satisfy for the user to get the right outcome for them"³. Extending an NHS 111 provider and/or CAS service provision to include video consultation could impact a range of users (directly and indirectly). The user base for video consultation will be affected by how a service is commissioned and operates, including local population healthcare needs, but may comprise:

- Patients – a specific cohort of patients based on presentations may restrict those offered video consultation by the service
- Carers and third parties – video consultation may not be with the patient themselves, but through a carer (such as a parent/relative) or third party (such as care home staff), who may also be needed to assist the patient with the video consultation
- Clinicians – video consultation may be helpful to clinicians within the service who directly interact with patients, and can also be used for clinician to clinician video consultation interactions (within or outside of the service)
- Clinical queue manager – those managing the queue of patients awaiting a clinician call back may wish to flag patients suitable for video consultation if this is not done on an automated basis

In 2019, NHS England commissioned a project to understand the patient and staff experience of urgent and emergency care and where digital had the potential to make the most impact. This 6-month project was undertaken by NHS Digital in partnership with change agency FutureGov to develop the findings. This work identified a common set of patient and staff needs (Figure 1 and Figure 2) shared by individuals regardless of their situation and role. It is important that a service considers how the staff and patient needs

² <https://www.gov.uk/guidance/government-design-principles>

³ <https://www.gov.uk/service-manual/user-research/start-by-learning-user-needs>

are being met as part of new or ongoing service provision, which would include the potential for the adoption and use of video consultation.

What follows within this chapter is functional and non-functional considerations to help in determining a video consideration offering, within the context of an NHS 111 provider or CAS; however, these need to be considered in light of the specific service user needs (including patients and staff).

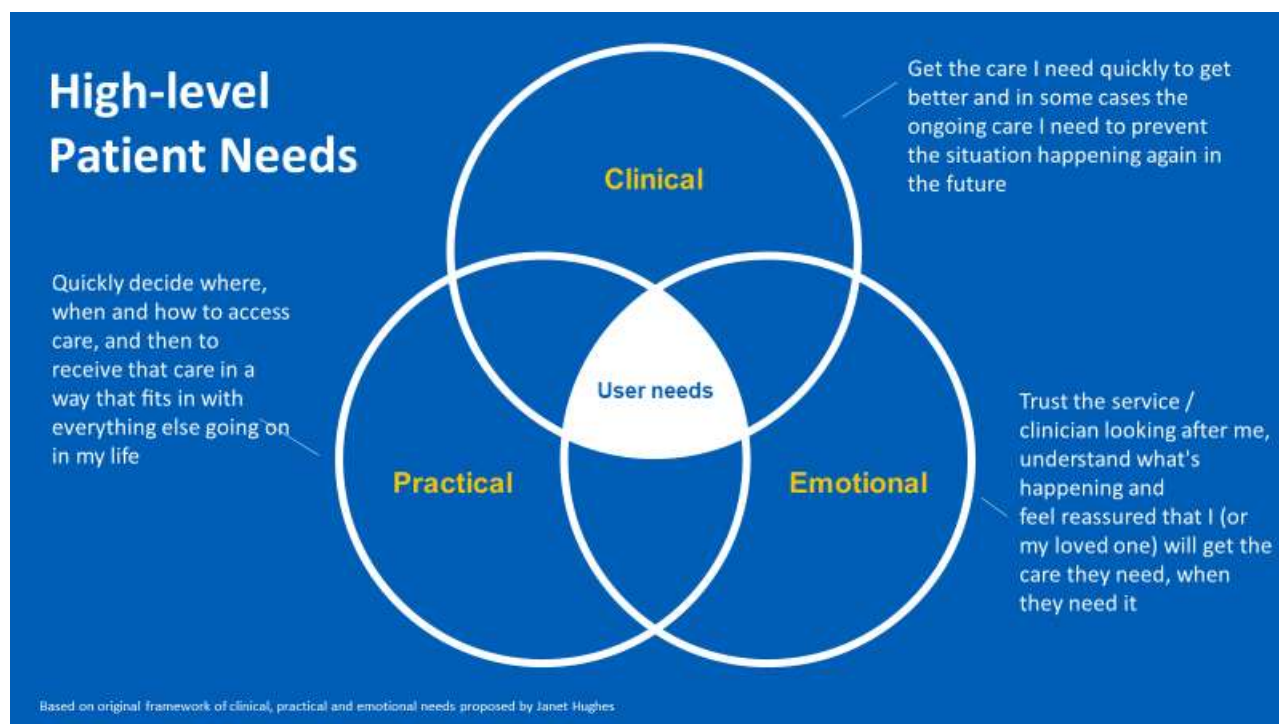


Figure 1 - High-level Patient Needs (taken from 'A service design approach to Understanding the patient and staff experience of urgent and emergency care - Summary report and findings' October 2019)

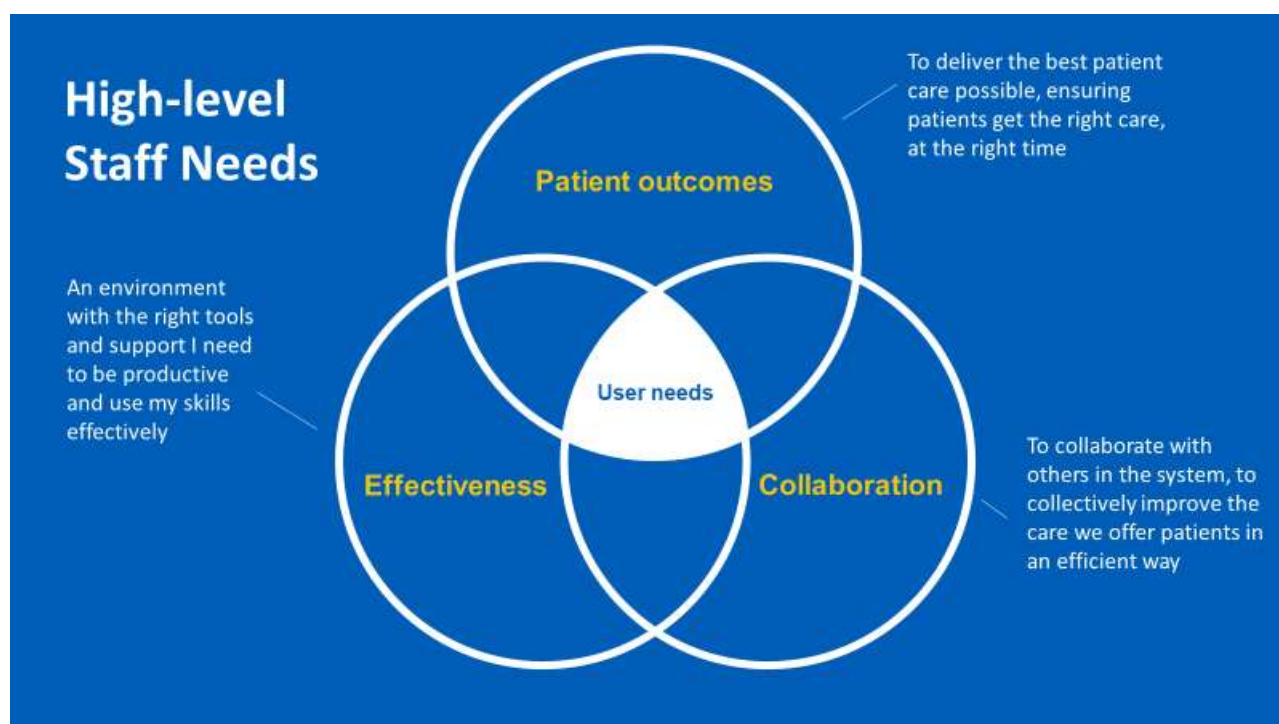


Figure 2 - High-level Staff Needs (taken from 'A service design approach to Understanding the patient and staff experience of urgent and emergency care - Summary report and findings' October 2019)

4.3 Functional Requirements

Functional requirements specify the capabilities that a solution is expected to perform to meet a need. In agile, these are often expressed as user stories⁴ which state the need from the user perspective in the form of: As a <user role> I want <user goal> so that <user benefit>.

There is inherent difficulty in producing a set of functional requirements without understanding local needs (including business objectives and user needs). Services may find the following functional requirements helpful when considering potential video consultation solutions and they can be adapted, based on local needs, to fit the user story approach. This is not intended to be an exhaustive list, but these are functional considerations that have emerged through the video consultation pilot work and other research undertaken as part of this initiative within an NHS 111 Provider. Certain assumptions have been made on behalf of NHS 111 Providers and CASs which differentiate this from other healthcare providers. The need to offer bookable video consultation appointments for patients may be a requirement for GP practices, but is not considered a feature that would be required for NHS 111 Providers and/or CASs. It is essential that services determine their own requirements for video consultation, based on their own business objectives and user needs. Guidance provided in chapter 7 may help draw out further requirements for individual services.

4.3.1 Patient (and Third Party / Carer) Functional Requirements

- a. Ability to operate video consultation without requiring solution download
- b. Ability to operate video consultation without requiring solution registration or log in⁵
- c. Ability to consent to video consultation⁶
- d. Ability to operate video consultation on a range of devices (PC, laptop, tablet, mobile phone (smartphone))
- e. Ability to operate on a range of web browsers⁷
- f. Ability to operate on a range of operating systems⁸

⁴ <https://www.gov.uk/service-manual/agile-delivery/writing-user-stories>

⁵ During the pilot, a video consultation solution was used whereby a clinician would take the caller's mobile number and sent a link via text message to initiate a one-way video consultation session. As part of the video consultation initiation, the caller would consent to share access to their location, microphone and camera. The solution was considered 'low friction' as the caller had to click on a single link to initiate the session and was not required to register or log in to the video consultation solution.

⁶ Whilst it is important to obtain and record patient consent (including third party and carer consent) to the video consultation, it does not necessarily have to be from within a video consultation solution offering. This could be managed and recorded separately, such as obtaining verbal consent (recorded via telephony) and noting this on the patient record.

⁷ The web browsers can be determined locally, but may include Chrome, Firefox, Internet Explorer, Opera, etc. It may also be appropriate to specify which browser version(s) the VC product is expected to operate on.

⁸ The operating systems can be determined locally, but may include Microsoft Windows, macOS, Chrome OS, Android, Apple iOS, etc.

- g. Ability to operate video consultation in accordance with the optimal video quality possible based on the connection and device
- h. Ability to decline video consultation request
- i. Ability to terminate the video consultation from device by a single operation

4.3.2 Clinician Functional Requirements

Requirements marked * are ones that are dependent upon local service needs and may not be required for all settings.

- a. Ability to log in and out of the video consultation solution with own (clinician) credentials, ideally using single sign on
- b. Ability to update video consultation account details
- c. Ability to change password for video consultation solution
- d. Ability to reset forgotten password for video consultation solution
- e. Ability to offer one-way video consultation with a patient, carer/third party or another clinician (within or outside of service)
- f. Ability to offer two-way video consultation with a patient, carer/third party or another clinician (within or outside of service)*
- g. Ability to obtain and record patient consent to video consultation⁶
- h. Ability to add additional clinician(s) and/or third party to consultation to allow multi-way consultations (with multiple clinicians / carers and patient) *
- i. Ability to identify all participants in a multi-way consultation *
- j. Ability to remove one or more participants from a multi-way consultation *
- k. Ability to transfer patient in the current consultation to an alternative clinician *
- l. Ability to terminate the video consultation

In addition to the above key requirements consideration should be given to how the calls are initiated, and if this can be driven by the core 111 Case Management system via APIs.

5 Non-Functional Considerations

5.1 Non-Functional Requirements for Video Consultation services

This section highlights the key considerations for non-functional aspects of deploying a Video Consultation service (a “VC Service”).

Note these considerations are for video services to support clinician consultation with the general public over the internet. These are not intended to cover a set of requirements for video conferencing between NHS clinicians to support operational meetings and clinical reviews.

For any digital service/application delivered into health and social care, there are a set of generic requirements covering the following areas:

- Information Security compliance – service provider security controls and management
- Standards and policy compliance
- Service Operations and Service Level Agreements – systems, processes and personnel to manage the service and contractually agreed service levels
- Technical architecture requirements – design of the technical solution and components to meet non-functional needs as above.

The next sections document the specific needs for a VC service. Each section describes the requirement and also documents the key implications for a VC service.

5.1.1 Information Security compliance

When procuring application services, the areas listed below should be considered as requirements on the service provided by a commercial third-party supplier, regardless of the network connectivity method.

Cloud security principles

The National Cyber Security Centre publishes [guidance on implementing security in cloud applications](#). These principles are useful for all application deployments even if hosted locally.

Suppliers offering services as cloud applications should demonstrate how they meet these principles.

These principles should be used to assess all remotely hosted/cloud hosted applications.

Government frameworks include assessments of services against these principles.

Information Security Management System

A formal Information Security Management System should be in place which covers the scope of the product and services from the supplier.

An Information Security Management System (ISMS) is defined as that part of the overall management system, based on a business risk approach, to establish, implement, operate, monitor, review, maintain and improve information security.

This should be in line with ISO / IEC 27001 Information Security Management but does not require certification against this standard, though this is desirable.

Minimum acceptable levels would be adherence to Cyber Essentials Plus.

Data Security and Protection Toolkit Statement of Compliance

Any commercial third party provider of applications needs to produce a DSP Toolkit Statement of Compliance. This is no longer tied to connection agreements for a specific network, as this applies regardless of the networks used for data transit.

5.1.2 Standards and Policy compliance

There are a set of key Government, Health and Social Care and legislation compliance requirements that services must demonstrate they meet. Not all are applicable to VC services, and each procurement needs to assess which must be covered. Key areas are highlighted here.

H&SC Information Standards Notices

[ISN link](#)

- Clinical Safety Case Report in place to show compliance with DCB0129
- The Data Security and Protection (DSP) Toolkit is an online tool that enables relevant organisations to measure their performance against the data security and information governance requirements – DCB0086

Government standards and policies

- All application/service procurements should follow the government [Technology Code of Practice](#).
- Specific policy for Health is in draft, note that this details many existing standards that should be adhered to: <https://www.nhs.uk/key-information-and-tools/designing-and-building-products-and-services>
- Digital service standards: <https://service-manual.nhs.uk/>
- NHS and social care data: off-shoring and the use of public cloud services

Regulatory requirements

- GDPR

5.1.3 Service Operations and Service Level Agreements

Service Operations and Service Level Agreements detail the need for systems, processes and personnel to manage the service and contractually agreed service levels. Suppliers will often provide catalogues to detail these elements of their service.

Consideration should be given to the following sets of needs; note meeting all of these is not mandatory, it depends on the size of the provider business and the criticality to provider operations of the VC application. Review these categories in terms of what the supplier offers in order to evaluate what meets the operational needs and provides value for money.

Service hours	What service hours support is needed - noting that a business-critical application should match operational hours. That is, if a Provider will use the application 24/7/365, the service should be supported for these hours.
Service levels	<p>Over time, users will become more familiarised with using VC services, this then places more reliance on the service being available and fit for purpose.</p> <p>Higher service levels typically result in higher cost. Having higher SLAs in your application than the SLAs for network connectivity and other infrastructure can result in unnecessary expenditure. You must consider the reliance of a service on your core infrastructure and the impact of service downtime.</p> <ul style="list-style-type: none">• Agree a service uptime SLA- for example 99.99%• Manage downtime or upgrades via Planned Engineering Work (PEW's) processes• Agreement of fix times if the service is unavailable
Service operations and management	<p>For a service to meet the required service levels it is necessary to have a service organisation that meets basic best practice processes for areas such as service desk, service operations (backup and maintenance, for example), service incident management, business continuity and disaster recovery.</p> <p>Consider if the service provider works to established standards such as working to the Information Technology Infrastructure Library (ITIL) framework or having ISO20000 certification.</p>
Service boundary	Check the supplier provided scope of the service boundary, where their responsibilities end and what the customer or another contracted supplier needs to do, especially in terms of providing network connectivity. Use this provided information to check the network, which is planned to be used to connect to the service, is correctly specified.
Delivery support services - deployment and testing	<p>What does the supplier offer in terms of support for project management, deployment and testing of the new application service.</p> <p>Also consider if there is a workable approach to collaboration with any incumbent supplier for migration.</p>
Customer responsibilities	<p>Ensure that all customer responsibilities are documented and understood, especially if there are responsibilities to specify sizing or capacity of the service.</p> <p>There may also be minimum specifications for customer provided equipment (such as LAN/WAN infrastructure checks; local devices such as desktops). The Provider will be responsible for ensuring the local equipment meets the required specifications from the supplier, or service agreements may be breached.</p>
Service transition and exit	Ensure that the approach to exiting the service and transitioning to a new service is documented and any required transitional assistance costs are understood.

5.1.4 Technical Architecture Requirements

The Technical Architecture requirements ensure the solution components design is sufficient to support the other non-functional areas as above.

These cover as follows:

- Technology choice – use of open standards, use of third-party products and services, e.g. cloud services;
- Security – secure design to protect data and user privacy, e.g. use of encryption and credential management;
- Performance and Capacity management – concurrency, scaling and response times;
- Service continuity – design for the uptime requirements, disaster recovery, backup;
- Service integrity – data protection and records management, provision for zero data loss, data retention according to policy, secure destruction of data, data location repository, access control management;
- Supportability – release management/upgrade approach, alerting and monitoring;
- Warranted environment – what client infrastructure and software is required to run the service at provider site; and
- Deployment and Go-live support.

The following table details some specific considerations of these areas for VC services. Assuring these requirements are met should be done via a combination of design review and evidence-based testing.

Technology choice

Use of standard open technology will reduce reliance on specific VC supplier expertise, but also widen compatibility across consumer software such as operating systems and browsers.

- Use technology that uses open standards as far as possible, for example, the use of WebRTC.
- Products should employ video compression algorithms (e.g. H.264 and SVC) to reduce impact on bandwidth with no discernible impact to video call quality.
- Products should employ frame adjustment so that if the bandwidth of the patient and operator are different this does not impact video call quality.
- Products should enable network traversal, meaning they will work on any networks, including 2g, 3g, 4g and 5g. Simplest approach here is to support a ubiquitous protocol for transit such as https.

VC services should not rely on application install for general public devices (patients and carers).

Rather than housing equipment on customer premises, services should be cloud based and can be used seamlessly over both the HSCN and the internet. Ideally, services should be network agnostic, so you can avoid being locked into using an HSCN connectivity service.

Cloud based architectures provide for simpler and more timely and automated scaling and recovery options.

Security

Ensure VC systems can comply to any applicable DSP Toolkit regulations and/or processes including:

- Data location - If VC sessions are recorded, ensure the process for storage of the recordings complies with standard local and national Information Governance policy, such as off-shoring information for any recorded VC call.
- Encryption of data at rest and in transit - [Using TLS to protect data](#)
- Cloud computing and data security - [Cloud storage and data security](#)
- Access control and management

Check that penetration testing is performed by the supplier as per their ISMS.

Audit should be built into the solution, especially if VC cases are to be recorded and stored for this purpose. Storage and access to data needs to be assessed.

Performance and Capacity management

High response times are needed for VC to be usable.

Be clear about volumes – number of users, concurrent sessions and ensure the service chosen is designed to meet these.

Solution scalability

Need to ensure the VC service has adequate response times, and also do a design review to ensure there are no specific areas that could degrade performance under load. This is usually assured via an End-to-End Performance Design Review and testing evidence.

Testing should cover times, stability under load (load test), stability under load over extended time (stability or soak test), user concurrency tests, stress tests to determine architectural and solution limits, scalability tests and general “what-if” type V&P tests.

Consider what testing has already been performed by the supplier and seek evidence of this testing.

Bandwidth

The supplier will provide minimum requirements for the video connection e.g. bandwidth in kbps/user, latency and jitter. Providers will need to make sure the local infrastructure supports the requirements and check that these requirements are accurate in situ.

Performance

Maintains an agreed level of operational quality for the service. Ensuring that there is service monitoring of key network measurements (jitter, latency and packet loss).

Service Continuity

A VC may not be high level criticality to your service if fallback options can be used such as telephony only. However, as clinicians use the service wider and begin to rely on it this may change. Reliability should be built in from day one.

In addition, the reliability of the service needs to consider data and operational continuity:

- Decisions on recording/ retaining video conferences
- Recording VC case details including user activity
- Maintenance of users and configuration

Ensure that consideration is given to hosting the solution with an appropriate level of resilience and reliability.

Reliability

This is assessed via design assurance for SPOF and data loss, disaster recovery including network resilience, RPO.

In addition, review supplier evidence of resilience and failover testing evidence. Consider performing extra testing.

- Assess the capability of the solution to recover from infrastructure component failure.
- Assess the capability of the solution to recover from service / application-based failure.
- Assess any solution / application recovery processes and any associated work instructions required to enable incident triage / service recovery

Backup and disaster recovery

Assess backup and recovery operations (where applicable) to deliver 'point in time recovery'.

Assess the solution, where failover capability is within the design, to recover service on a major failure or outage.

Confirm the availability of a fully documented DR runbook and the content is of an acceptable standard allowing Tech Ops supports team to perform recovery operations.

Supportability *Monitoring and alerting*

Assess the capability of the solution to generate alerts in response to infrastructure and component failures. Monitoring / alerting capabilities should be assessed in conjunction with resilience test activity.

Audit

Create a baseline for normal network activity by performing regular, internal audits of system traffic and call logs. Can the system traffic and call logs be accessed by Provider system administration users?

Release management

Ensure there is a robust process for change and release management.

These processes should cover:

- Deployment and rollout processes
- Planned maintenance
- Automated Build process
- Assessment of whatever tools are available to instigate build / configuration processes
- Software upgrade and patching – including security patches
- Major product enhancements and releases
- Change control

Determine what is covered under change control, e.g. scope of customer functionality requests that are in scope.

Warranted Environment Specification

Ensure the supplier provides minimum specifications for customer provided equipment (such as LAN/WAN infrastructure checks; local devices such as desktops).

Provider will be responsible for ensuring the local equipment meets the required specifications from the supplier, or service agreements may be breached.

Deployment and Go-live support

Ensure that the Go-Live process is adequately planned, including contingency planning. This should cover any support required from VC supplier.

Areas to cover include:

- Cutover and Fallback
- Installation and Configuration
- Network worthiness
- Data Load (unlikely to be required but may be needed for user set-up at scale)

5.2 Assessment of product used in trial against the NFRs

We appreciate the support and insight using GoodSAM™ has provided in informing requirements – user needs, key functionality and non-functional considerations. It is a very simple and effective solution for the interactions we tested.

However, further work would be needed to confirm the use of this or other products at scale in IUC workflows.

The *GoodSAM Instant on Scene* service architecture meets key non-functional needs by design:

- Based on standard web technology, exception being the GoodSAM video compression methods;

- Cloud based architecture with the associated scaling and failover design, and zero downtime upgrades – however this has not been tested at scale and max live volumes have been low to date;
- Designed to support standard client software with no special installations required;
- Impact on desktop memory and CPU is relatively low due to the use of standard browser software;
- Configurable options, including use of one- or two-way video, and storage of video consultations;
- Product is in use in a number of services already, e.g. 999/Ambulance – a level of live testing has been undertaken;
- Product can be embedded in third party systems via APIs – though this was not tested in the trial; and
- Product offers a low friction access method for callers/patients via text and email links launching browser sessions.

The key areas that were not assured in depth are the specific design to support scalability and service support.

The risk of issues here is considered to be low and a controlled rollout, possibly phased increase in volume, that supports using this service as an aid to consultation that can fallback to other methods in the event of failure, could be considered.

6 Video Consultation Pilot Trial Outcomes

6.1 Background

Background to NHS 111 provider and choice as a pilot site for VC.

An NHS 111 Provider was approached as a partner to pilot video consultation. This provider has traditionally shown a willingness to participate in new innovations and developments and has previously supported NHS Digital in discovery work and First of Types. Given the current health emergency of the COVID-19 Pandemic and the pressure this was placing upon the NHS 111 service nationally, working with a provider that would show a level of commitment to what NHS Digital were hoping to achieve was essential in realising the ambitions of the pilot.

6.2 Clinician Findings

In order to capture appropriate feedback from the clinical staff using the video consultation solution, an evaluation form was adapted from previous video consultation work. With the help of the host provider we agreed the number of questions to ask and how the questions should be phrased in order to extract the required information. Given the impact of COVID-19 on the operational performance of the 111 service, NHS Digital had to consider the practicalities of the questionnaire on the user performing the action and therefore presented it as an online form. It is acknowledged that some of the questions within the questionnaire may not provide the level of detail needed to conduct an in-depth evaluation, but they have given the provider and NHS Digital teams a good insight into the use of video consultation and the impact it is having on clinical outcomes (questionnaire available in Appendix E).

To fully measure the impact of video consultation on call time, call metric reports have been extracted. These have been compared with calls of a similar presenting complaint and demographic to fully understand the impact of video consultation within this trial. The key findings are as follows:

- Number of video consultations undertaken by presenting complaint
- Time to initiate video consultation
- Length of time to complete
- Disposition reached using video
- Compared to similar calls, what were the key differentiators when using video?
- Wrap up time

Quotes from the clinicians involved in the video consultation trial are also provided.

6.2.1 Context

In order to set the context of the video trial with the NHS 111 service provider, the following information has been provided.

The clinical staff ratios obtained from the provider are as follows (Table 1). Clinical staff undertaking video consultation during the pilot Nine (9)

Dept/Skill - Clinicians	Employment Contract	FTE	Heads	Total - FTE	Total - Heads
Clinical Advisor	Provider				
	Bank				

Table 1 - NHS 111 provider clinical staff ratios

Number of video consultations performed over the 9-day trial period was 45 which commenced on the 11th March 2020 and completed 20th March 2020.

The unprecedented demand on the service had impacted uptake by wider numbers of clinical staff. Clinical staff taking part in the trial were doing so taking on overtime.

6.2.2 Analysis of Clinician Video Consultation findings

6.2.2.1 Did you feel able to reach an outcome more quickly using video consultation?

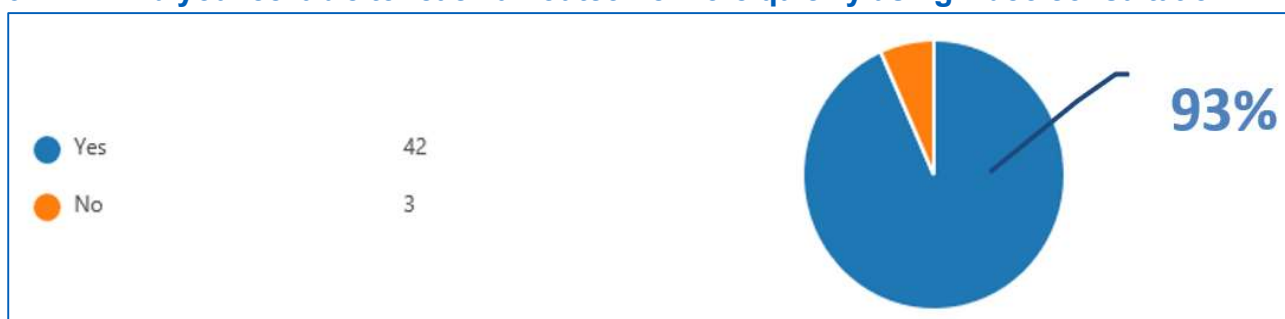


Figure 3 - Clinician VC assessment responses – Question 3

Questionnaire findings shown in Figure 3 have indicated that from the clinician's perspective outcomes could be reached more quickly. Analysis of the call metrics obtained from the 111 Case Management system has identified the following and supports:

Quotes:

"It's just an aid to help us do our assessment a bit quicker... can do a quicker risk assessment"

"A clinical auditor doing calls today; 2nd and 3rd call he did took 6 minutes; average handling time is 15 minutes on Pathways; not having to probe as much; huge difference; focusing on children again; being able to see rashes, see sore knee; see child running around, don't need to go anywhere."

"Not having to probe as much; [made a] huge difference"

6.2.2.2 As a result of the video consultation did you upgrade or downgrade the outcome?

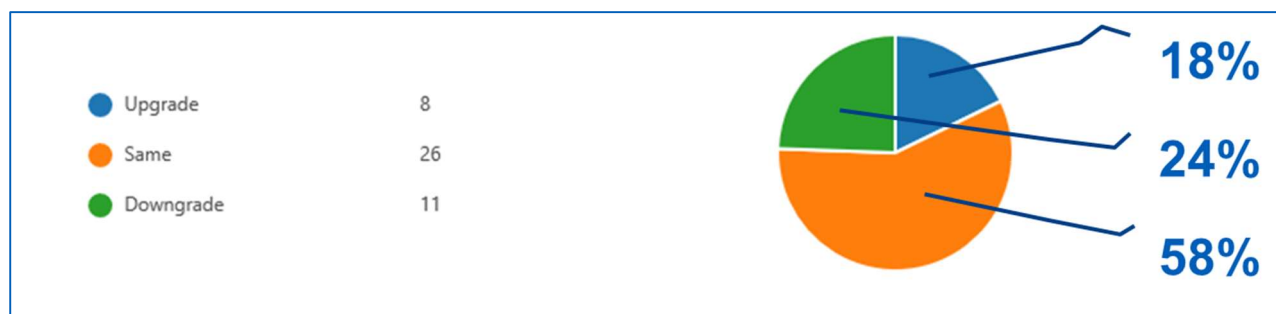


Figure 4 - Clinician VC assessment responses – Question 4

The questionnaire identified that, out of the 9 clinicians performing a video consultation, 58% of calls resulted in no change to the disposition. However, 24% resulted in a downgrade to the system outcome and 18% resulted in an upgrade (Figure 4).

However, there was disparity between what clinicians had reported on the VC assessment forms and what the call metrics drawn from the 111 Case Management system revealed. The call metrics indicated that, of the 40 calls, 13% (n=5) were upgraded compared to 8 reported by clinicians, 15% (n=6) were downgraded, compared to 11 reported on the clinician assessment form, and 29 were considered to be the same from the call metrics compared to 26 reported on the assessment form. Some of this variation may be due to two patient systems being used by clinicians; the following figures are for 40 of the 45 calls.

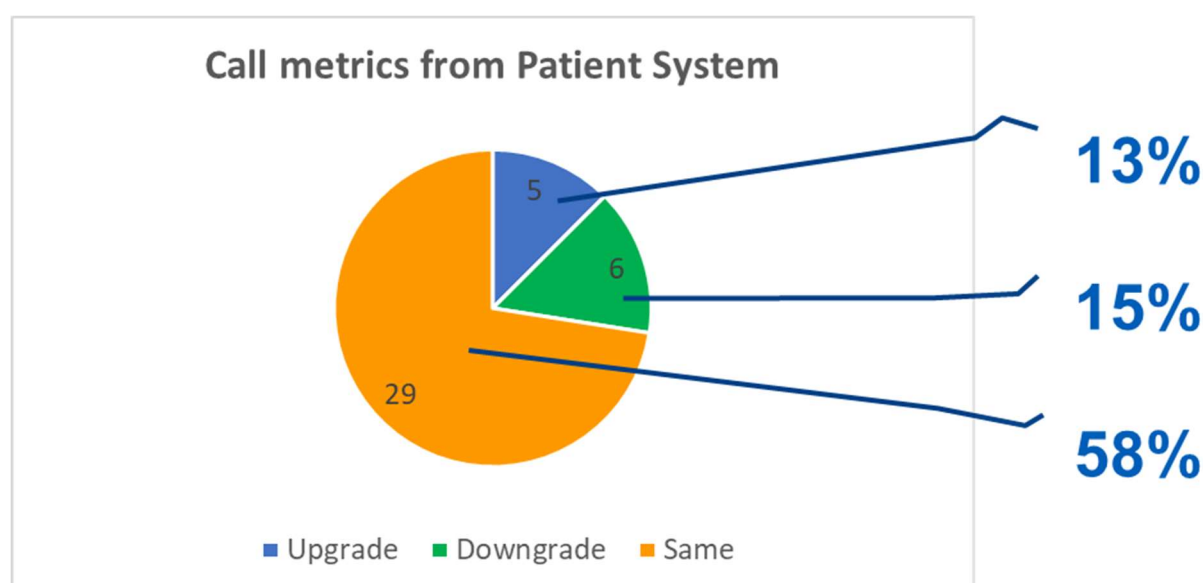


Figure 5 - Changes to disposition by clinicians using call metrics data

Quote:

“child rash – prompt and probe and still send an ambulance; and think perhaps that child doesn’t need an ambulance, see patient on VC and gives you confidence as a clinician that doesn’t need an ambulance and can manage at home”

“Positive feedback; patients quite happy with it; felt quite validated with it. Helped to upgrade and downgrade with it.”

Table 2 shows the reason for the call, the disposition reached through the non-clinical call handler triage and for those call findings for upgrade and downgrade.

Upgrade

Downgrade

Note: With regards **Contact** a Primary Care Service, this indicates patient has to be seen rather than telephone contacts as indicated by **Speak to Primary Care Service**.

Call Reason	Disposition reached by non-clinical call handler	Disposition reached by clinician following assessment
COUGH - 2 DAYS - HIGH TEMP - SINCE LAST NIGHT	Speak to a Primary Care Service within 6 hours (Dx13)	Home Management (Dx25)
Skin Problems	To contact a Primary Care Service within 24 hours (Dx08)	Home Management (Dx25)
RASH – TODAY	To contact a Primary Care Service within 6 hours (Dx06)	Home Management (Dx25)
HIGH TEMP - LETHARGIC - NOT DRINKING PROPERLY - SINCE TODAY MORNING	Speak to a Primary Care Service within 2 hours (Dx12)	To contact a Primary Care Service within 2 hours (Dx05)
HIGH TEMP OF 38, COUGH - 3 DAYS	Speak to a Primary Care Service within 1 hour (Dx11)	Attend Emergency Treatment Centre within 1 hour (Dx02)
COUGH FEVER 1 WEEK	Speak to a Primary Care Service within 12 hours (Dx14)	To contact a Primary Care Service within 24 hours (Dx08)
COUGH // HIGH TEMP - CORONAVIRUS CONCERN	Speak to a Primary Care Service within 6 hours (Dx13)	To contact a Primary Care Service within 6 hours (Dx06)
COUGH 3 WEEKS NOT EATING VOMITING DIABETIC	To contact a Primary Care Service within 6 hours (Dx06)	To contact a Primary Care Service within 12 hours (Dx07)
CHICKEN POX START 1 WEEK (NEARLY GONE) // COUGH STARTED LAST NIGHT // TEMP OF 38.8 /PREV RESPIRATORY PROBLEMS // COVID-19 CONCERN	Home Management (Dx25)	To contact a Primary Care Service within 24 hours (Dx08)
COUGH 3 DAYS, WORSENER, HIGH TEMPERATURE SINCE YESTERDAY, WHITE SPOTS ON BACK OF THROAT YESTERDAY.	Speak to a Primary Care Service within 6 hours (Dx13)	To contact a Primary Care Service within 6 hours (Dx06)
COLD AND COUGH, BREATHLESS - 4 DAYS	Speak to a Primary Care Service within 1 hour (Dx11)	Speak to Clinical Assessment service 1-hour COVID risk (Dx1112)

Table 2 - Comparisons of dispositions from initial non-clinical call handler compared to disposition following clinician assessment from the 111 Case Management system

6.2.2.3 Did the use of video consultation increase your confidence in your clinical decision making?

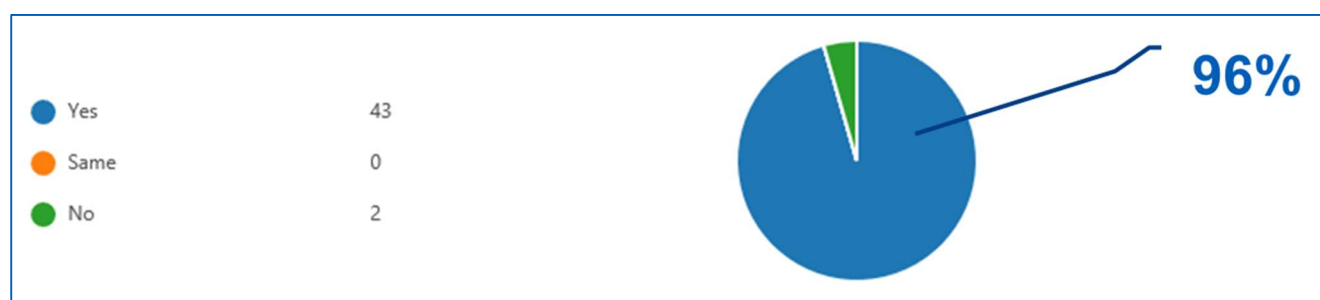


Figure 6 - Clinician VC assessment responses – Question 5

Based on the 9 clinicians taking part in the trial, the pilot has identified that using video to aid in the clinical assessment of patients has had a positive impact on the confidence of clinicians and has positively supported their decision-making allowing them to reach outcomes for the patient with greater confidence and clinical understanding and reasoning.

Video adds supplementary information to assist in critical thinking skills when clinical decisions and reasoning are formulated, resulting in potentially improved outcomes for the patient as well as delivering the system outcomes with greater clinical confidence.

Quotes:

“...that actually what found is this tool really develops clinician confidence to make accurate clinical decision making”

“Confidence building, able to make accurate clinical decisions; really important to project; when clinicians use it, it is ease of use, but it is also confidence building.”

6.2.2.4 Did you benefit from being able to see the patient?

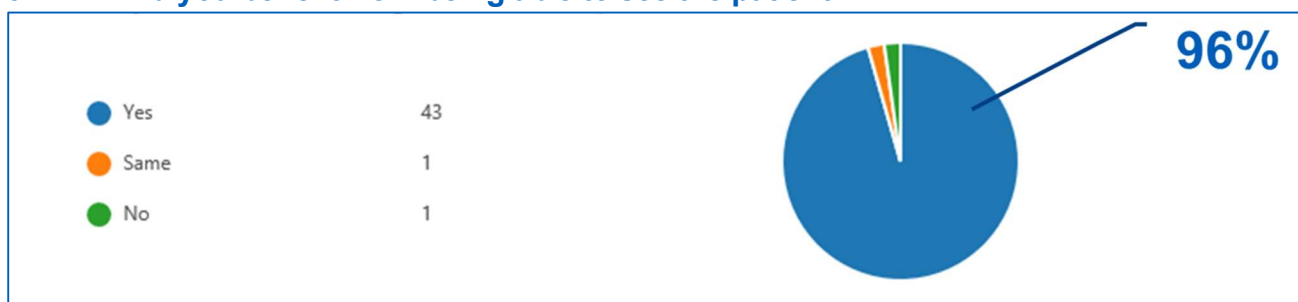


Figure 7 - Clinician VC assessment responses – Question 6

The responses from the questionnaire clearly demonstrate that clinicians felt they benefited from having the capability to see the patient during the assessment. This has helped remove the need for additional questions in order to extract salient clinical history and reduced the need for probing questions around the patient problem. In addition, the video allowed clinicians to see nonverbal signs, again allowing them to target specific questions. Overall, video has allowed clinicians to focus on key areas of concern for the patients' presenting complaint.

The use of one-way video also presented benefits within the 111 environment, as follows:

- Protects the identification of the clinicians
 - Unlike General Practice, the 111 providers do not know the patient and behaviours and it was asserted that one-way upheld some degree of staff safety.
- Prevents the operational activity within the contact centre from been seen by the patient
 - It was asserted that the busyness of the setting could be a distraction to the patients inhibiting their engagement
- Potential to prevent patient's attachment with specific members of the clinical team
 - Frequent callers
- Allows video consultation to be undertaken in any area of the contact centre mitigating the need for a separate area

Due to the operational impact of COVID-19, further interviews with clinicians have not been possible which may have allowed the team to gain further clarity and understanding of the benefits.

Quotes:

“Done a call this morning with a little boy; just so lovely as I could see this boy wasn’t seriously ill just by looking at him; mum saying he’s really sick but could see he’s playing”

“Lovely rapport I had with the patient [patient was waving at her over VC]”

“Also gave a bit of help to see things that weren’t discussed in original assessment and could include in assessment”

6.2.2.5 Has this video consultation prevented an onward face to face consultation for the patient?

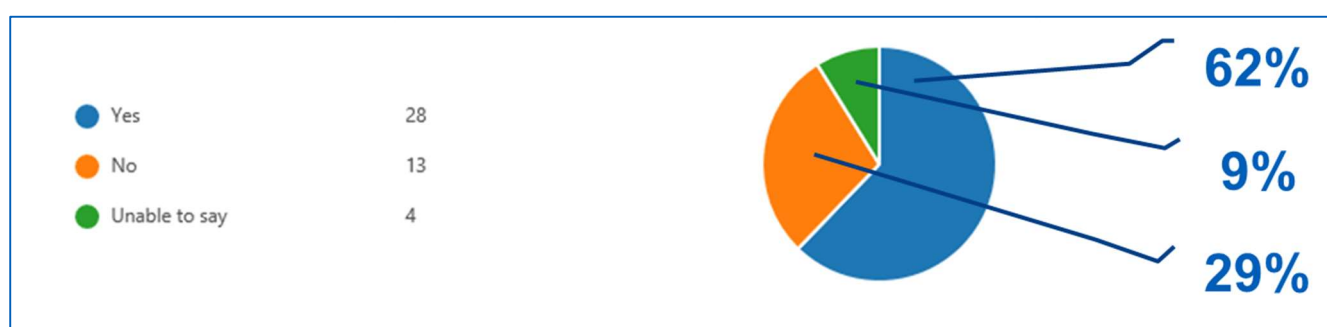


Figure 8 - Clinician VC assessment responses – Question 7

The call metrics have indicated that using video supports the pathways system outcome, however there are certain clinical presentations whereby the use of video has resulted in the patient receiving a homecare disposition rather than asking the patient to speak to primary care.

6.2.2.6 Do you feel video consultations provides an alternative channel where physical face to face would have needed to be considered?

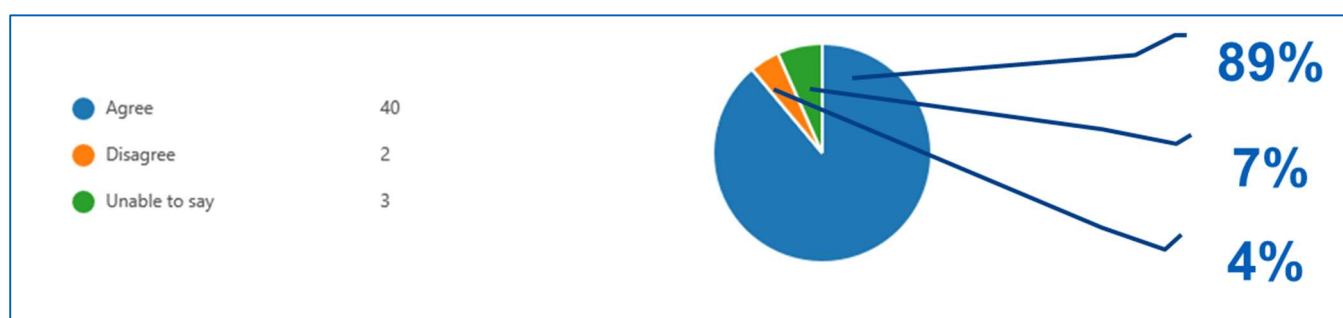


Figure 9 - Clinician VC assessment responses – Question 8

During the trial, clinicians decided when to initiate the video consultation based on the call reason/clinical presentation. It appears the clinical staff were able to use the technology to

effectively assess clinical presentations, and appropriately deal with presentations which otherwise may have required a physical face to face assessment. These presentations are categorised as follows:

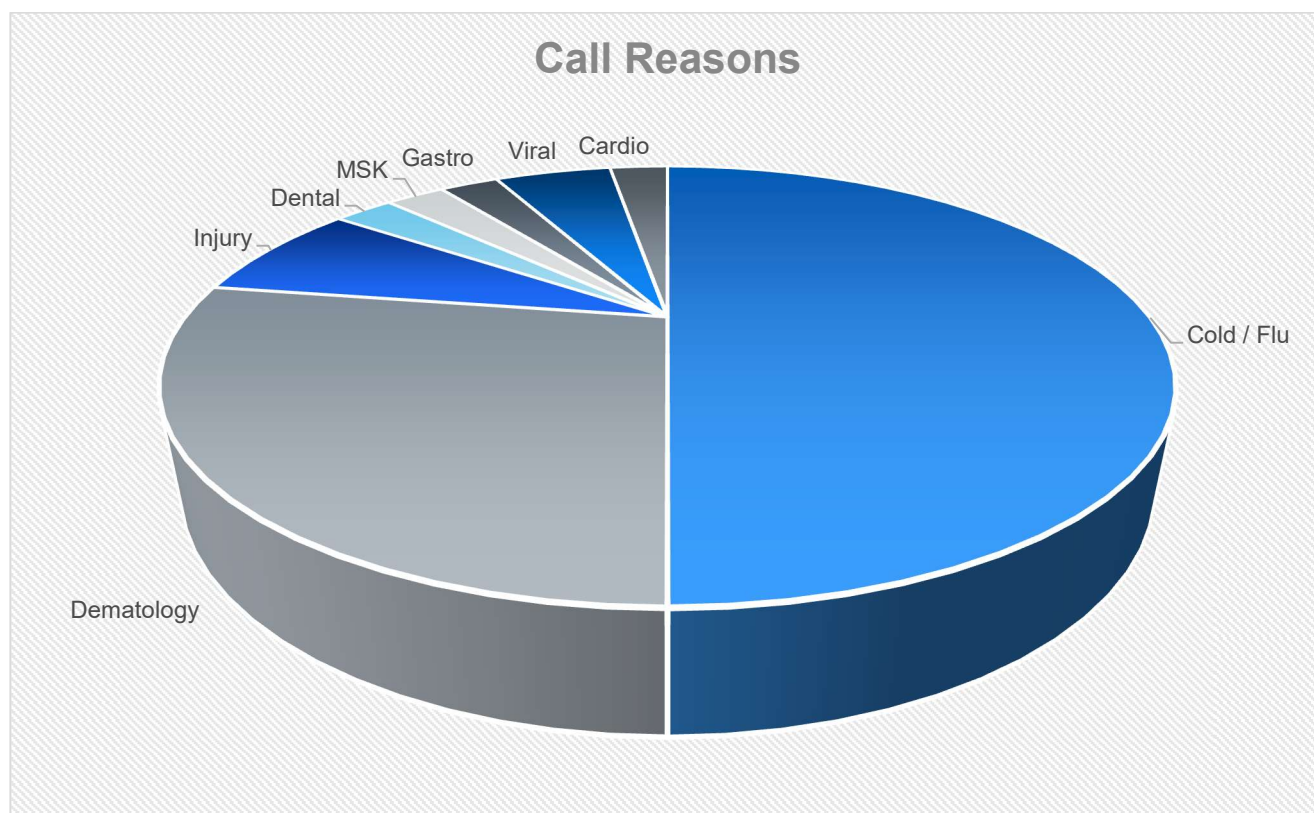


Figure 10 - Call Reasons

6.2.2.7 Did you find the video consultation system easy to use?



Figure 11 - Clinician VC assessment responses – Question 9

The findings of the questionnaire clearly demonstrate that the system used was easy to use for the majority of clinical staff. Initial set up and configuration may have caused some issues for the minority, but these were rectified by GoodSAM™ and local IT on day 1 of the trial.

Quote:

“absolutely loves it; can’t believe how simple it is”

6.2.2.8 Did the video consultation system work throughout the call?

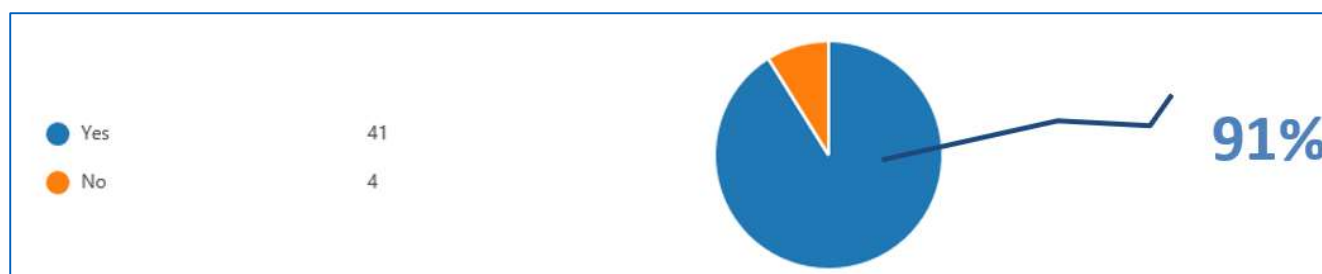


Figure 12 - Clinician VC assessment responses – Question 10

In the majority of cases the VC worked throughout the call, however there were some clinical staff that had issues.

On exploration of the issues, it was identified that these were attributed to the following: patients' mobile phone camera clarity, video frozen, sound was lost, configuration on initial set up.

Quote:

“Really happy with it, found it was very easy to use. Have been a few technical issues but think it’s due to patient and mobile signal rather than [VC] product”

6.2.2.9 Was the video quality acceptable?

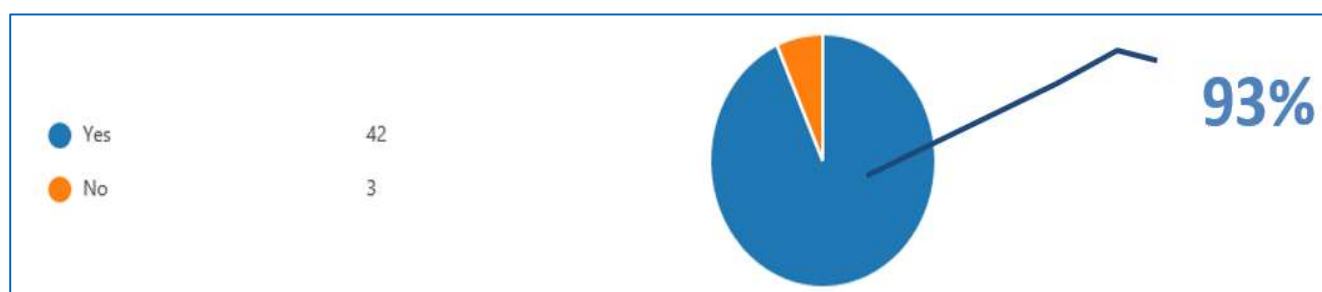


Figure 13 - Clinician VC assessment responses – Question 11

In the majority of cases, the VC quality was acceptable, however there were some clinical staff that had issues with the quality of the video and this was specifically regarding rash presentations. However, the video image did provide enough information to rule out any clinical concerns.

The issue was considered to be with the patient’s connection and staff were advised to refresh the screen which appeared to have resolved the issue in the majority of cases. Having the telephony throughout as well gave clinicians confidence as always having a fall-back option.

6.2.2.10 How would you rate your overall experience of video consultation?

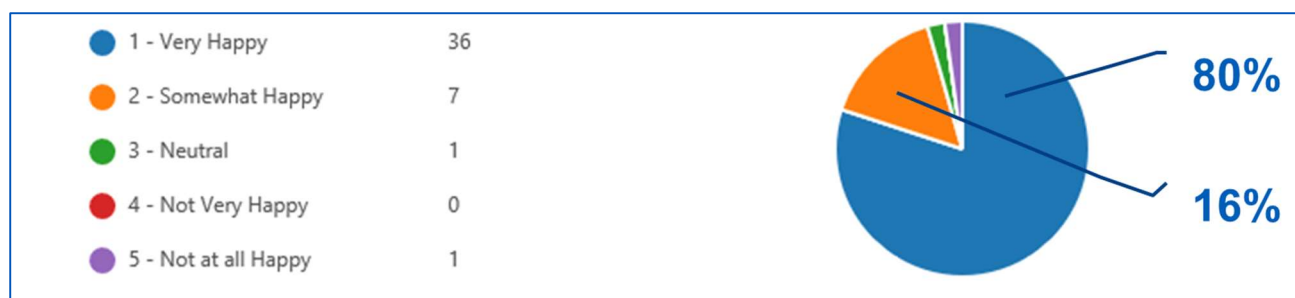


Figure 14 - Clinician VC assessment responses – Question 12

Overall, the clinical staff have found their experience of using video consultation to be positive (96% Very Happy or Somewhat Happy).

One member of the clinical team had their experience overshadowed by a technical issue, i.e., there was no facility to enter the patients mobile telephone number. This may have been due to a delay in the screen appearing. The clinician continued the call using routine telephony.

The staff involved in this pilot were members of the clinical team and had shown a keen interest to be involved and allocated to the pilot on overtime.

Furthermore, the clinicians have seen the benefits of video and have championed its use with peers, which has driven additional interest in the pilot.

Specific feedback provided by clinicians as part of the assessment is available in Appendix C.

Quotes:

“Taken pressure off – quite stressful here at the moment; to have something helpful and new been beneficial and positive for them.”

“really helpful, absolutely buzzing with it to be fair”

“Had an absolutely brilliant time trialling it”

“If we don’t get it would be really disappointed”

“Been really well received... Clinicians don’t want it to go”

“Might help with staff retention”

6.2.3 Patient Findings

Working closely with the provider and their Information Governance colleagues we discussed several ideas of how the patient feedback could be gathered. The team collectively agreed that we should ask patient feedback questions directly to the patient at the end of the video consultation. The team considered that not all patients may be asked due to the several reasons, such as the anxiety level of the patient or the urgency of the problem. Therefore, it was decided that requesting patient feedback would be at the

discretion of the clinician. It was agreed that the clinical staff would only ask three patient feedback questions: two closed questions and one open question (Appendix E – Patient Feed Back). The responses would then be documented in the 111 Case Management system allowing for a report to be run.

Due to operational pressures, it had not been possible for the NHS 111 provider to make the results from the patient feedback available to us in time for publication of this report. Anecdotally, the patient experience seems to have been very positive and we hope to receive the patient feedback results at some point in the future.

7 Considerations for adoption of Video Consultation within NHS 111 and Clinical Assessment Services

7.1 Product Choice - Key considerations

Whilst NHSX, NHS Digital, and the NHS 111 provider wish to acknowledge the support of GoodSAM™, any reference to their products does not in any way constitute a recommendation by the NHS.

We do appreciate the support and insight using GoodSAM™ has provided in informing requirements – user needs, key functionality and non-functional considerations. It is a very simple and effective solution for the interactions we tested. However, further work would be needed to confirm the use of this or other products at scale in IUC workflows.

Key areas to consider:

- One-way video consultation while maintaining initial telephony call back is highly effective. Clinician observing patient one-way works. This does exclude use for certain types of cases, but also:
 - Removes the need for camera and microphone equipment at provider end;
 - Provides greater privacy for the clinician and caller;
 - Means the current phone call back is there as the main audio connection and as a fallback in case of video failure and audit; and
 - Is favoured by clinicians and supports their buy-in for video consultations. Additionally, one Provider commented that they get regular callers and do not want to create a situation where a patient develops an attachment to an individual clinician.
- Using the GoodSAM™ product feature “Picture on Picture” appears to mitigate the need for a clinician to require two PC screens. This appears workable but has not been tested in this trial. See Executive Summary Report Addendum for additional information.
- IUC user login must be simple – user session must remain open for the duration of a session (user shift between breaks) and user must be able to easily reset sessions.
- General public access must be low friction – should not require app download and simple link to start the video session is imperative.
- Products should employ one-time use method to enable VC – removes the need for a Provider mobile telephone number and the potential issue of a patient being able to call back to a mobile or app tied to the clinician user.
- Product in the trial was not integrated out-of-the-box with the core case management system (e.g. Adastra / Cleo / Cleric / TPP) – need to have the video application open outside of this core application. Consider products with APIs that could support greater integration with core 111 Case Management system.
- Products should be cloud based to support rapid rollout – no local product deployment required to introduce the service.
- Reliance on one product nationally (or a small set of products) will introduce risk in the service model – consider how support to suppliers can provide adequate 24/7 support.
- Solutions need to have design assurance to a level required to support deployment at the scale. The product tested in trial has a design capable of scaling elastically, however this has not been tested to the scale of a national rollout of IUC case levels.

7.2 Provider capability and infrastructure – Key considerations

The approach to the functional and workflow requirements has aimed to minimise the impact of introducing video sessions on the local provider facilities and infrastructure.

However, introducing this as a service will impact locally regardless of product choice.

Providers are under real pressure to keep existing processes working with overstretched resources, there are some key risks to introducing new functionality at this stage.

The introduction of new technology to support the current operating restrictions needs to be done while minimising impact on existing processes and technology in order to ensure continued operations.

These challenges will mean wider rollout of a service will not happen without rapid assessment of provider capability (training / deployment) and necessary upgrades to local infrastructure (desktop environment and equipment and network and local compute capacity).

Provider infrastructure limitations mean this cannot be rolled out to full user concurrent use without upgrades with associated risk of changes and lead times to implement.

7.2.1 Operational video consultation considerations

There are some basic operational considerations that should be reviewed when implementing video conferencing services.

- Ensure compliance to any applicable Information Governance and Data and Security Protection (DSP) Toolkit regulations and/or processes. This should form part of a DPIA as needed (see Appendix B). The supplier should feed into the DPIA regarding what information is stored (based on provider need).
- The VC solution should be configured in such a way that it is compliant with local information security controls and policies. This will require planning, risk assessment as well as auditing and continuous monitoring.
- If VC solution is not configured to meet policy requirements, then it may not align with compliance and audit requirements and may expose the organisation to additional risks. Ensure that an appropriate risk assessment is carried out to mitigate any potential issues.
- If VC sessions are recorded, ensure the process for storage of the recordings complies with standard local and national Information Governance policy, such as off-shoring information. This applies if they stored on local provider infrastructure or within VC supplier Cloud solutions.
- The 111 Provider should ensure that they have a Clinical Safety Case in place for their service that includes risk impact from the supplier safety case.
- Local VC usage policy should ensure users of the service comply to basic "do's and don'ts" in using the VC, such as recording of sessions with confidential information.
- User guidance and training:
 - Users understand the process for booking VC sessions
 - Ensuring that users have the necessary training and manuals to maximise their usage of the VC service.
- Helpdesk assistance for end users

- Robust change management processes, including training and user onboarding.

7.2.2 Infrastructure considerations

Deploying VC solutions has implications on:

- Provider desktop equipment – need to rapidly assess if these can be upgraded to support video sessions; and
- Networking and infrastructure in using video consultations will usually need capacity increases and potentially upgrades to support greater resilience.

Lead time to increase capacity and add new features in local infrastructure is likely to be the critical time factor in rollout.

7.2.2.1 Concurrency and locations

Consider the following volumetric and deployment scope:

- Concurrency of usage - how many users will be using the system at once?
- Usage profile scenarios - with whom will users be having conferences, patients only?
- How many end locations of the business will be required to have a VC service installed?
- Will the VC service span across the entire business locations or selected sites?
- If not rolled out across the entire business, is there scope to expand the roll out to other sites in the future?

Issue will be the impact of this scope on local infrastructure and the supplier service

- Consider load/stress testing product in conjunction with provider IT infrastructure
- Desktop minimum specification required to support VC

7.2.2.2 Desktop infrastructure

An IUC clinical assessment follows standard protocols management, including the management of the case and recording the consultations notes. These are completed in the core 111 Case Management system with the triage embedded.

The video consultation process needs to complement this workflow and so, in simple terms, be initiated outside of the workflow and used by the clinician while they are still recording case details as normal.

To do this it is recommended that the VC service supports:

- The use of standard operating systems and applications (e.g. web browsers);
- Implementation at scale should not require user webcams (one-way video); and
- It will be preferable to initiate a call via integration using an API from the 111 Case Management system to avoid rekeying errors and time.

Issues will arise if the user desktop equipment is not adequate to run the new VC application. Consideration needs to be given to the following:

- Desktop equipment – minimum operating system version and type, browser version and type, and memory and CPU speed requirements to run the service. As a minimum, an application run in Chrome will need circa 50MB memory;
- Most providers will run a standard desktop build with versions of applications controlled. They may run a virtual desktop service that has backend infrastructure capacity, e.g. with shared memory pool, that may need capacity and software upgrades. There may also be

issues with space and power for equipment including central server equipment, such as VDI equipment;

- Should new screens be required for users then this may have an impact on office desk space and power requirements; however, these requirements may be unlikely, see comment in Executive Summary Addendum; and
- In the event an additional screen is required, depending on product chosen, there may be an impact on provider infrastructure.

Depending on product chosen, there may be an impact on provider infrastructure

Consider all the issues that may impede upgrades:

- Ability to secure additional desktop hardware for NHS use – there may be a national shortage;
- Due diligence with providers on power and desk space limitations;
- Consider if new temporary office space / reconfiguration is possible; and
- Consider the approach to remote working and video conferencing.

7.2.2.3 Network and security infrastructure

A chosen VC service is either:

- Locally hosted;
- Hosted as a cloud service in the internet; or
- Hosted as a service accessed over HSCN.

Limitation of network access infrastructure, e.g. firewalls, network bandwidth capacity, to support the required number of concurrent users may be an issue in any of these scenarios.

Remotely hosted options network traffic to cross local WAN infrastructure and then to egress points on HSCN (and the associated internet gateway) or local internet gateways.

The current bandwidth, latency and jitter measures of the network route from the provider site to the service should be checked to see if it is adequate.

All options will require an upgrade for large scale use of video conferencing. Current infrastructure, by good design balanced with budget, should be sized at peak volumes with circa 10-20% headroom. Many providers operate at higher limits than this, and also video consultation may overload this capacity on specific links.

In addition, potential SPOF in network configuration at provider sites should be assessed. For example, internet access is not necessarily designed as critical part of infrastructure at present, but reliance on video consultation access in the public cloud may require new designs to improve network resilience.

Upgrades on network links and boundary infrastructure, such as routers and firewalls, will be necessary for wider rollout; and impacts on current live operations and lead times for procurement and installation need to be considered:

- Due diligence with providers on network connectivity bandwidth – to cover HSCN if access by that route or internet / ISP provision if by that route;
- Firewall egress capacity – to check the throughput of provider firewalls to include issues around traffic checks (e.g. deep packet analysis);
- Fast track any plans for infrastructure upgrades / replacements and capacity enhancements on firewalls and network links;
- Potential to fast track upgrades through existing call off arrangements, HSCN framework or standard network frameworks;

- Consider impact of remote working – will users working out of office location be accessing the video services over the remote access service. This may impact overall performance with multiple hops and bandwidth requirements. Remote access services are commonly provided over the same HSCN/internet network access points as video consultation traffic. Implementing wider rollout and use of remote access services will require an impact assessment of the video consultation solution. This may need more than upgrades to existing equipment and infrastructure but full replacement and redesign.

7.3 Embedding Video Consultation in Clinical Practice

7.3.1 Background

There are numerous studies on the use and effectiveness of video consultation in clinical practice. Whilst there are a number of studies on the use of video consultation within primary care, there are few studies in the use within urgent and emergency care settings.

Where considerations around patient and clinical needs (Figure 1 and Figure 2 in chapter 4) are addressed, video consultations are considered to be safe and popular with some patients and staff⁹. It has also been used effectively in clinician to clinician interactions¹⁰ to support decision making.

A 2018 study, commissioned by NHS England around the use of online consultations within GP services¹¹, found the key incentive to adopt online approaches was funding to implement (n=707, 83.4%), although the following aspects also rated highly:

- reassurance around clinical risk (n=655, 77.2%)
- ability to test/trial systems in practices first (n=632, 74.5%)
- reassurance about information security (n=616, 72.6%)

Support and training were also considered important factors in the adoption of a new service. In terms of general public perception, 67% said they would be interested in having an online consultation with a GP/other health professional in the future (19% said they would not be interested and 12% were unsure). Nearly 3% said they were already using this through their existing provider or used a private provider. The preferred device for accessing online services was a smartphone (52%), closely followed by a PC or laptop (51%) and tablet (34%).

Clearly the success of video consultation within an NHS 111 provider or CAS is to ensure the service is embedded into clinical practice and operational procedures and stakeholder engagement are key to this. In recent video consultation guidance, produced in response to COVID-19 for primary care services, it states “Such initiatives tend to be more successful if the mindset is “improving a service” rather than “implementing a technology””¹².

⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5930173/>

¹⁰ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3950891/>

¹¹ <https://www.england.nhs.uk/wp-content/uploads/2019/09/online-consultations-reserach-summary-of-findings.pdf>

¹² <https://bjjplife.com/wp-content/uploads/2020/03/Video-consultations-a-guide-for-practice.pdf>

7.3.2 Clinician Engagement

There is evidence that some clinicians are reluctant to use video consultation technology, which may be down to inexperience and lack of training¹³ or issues with equipment or technology^{14,15}. Clinicians have also expressed concerns about risks and inaccessibility associated with the use of video consultation^{11,16, 17}, the impact on workload¹⁷, concerns around information governance^{17,18}, or simply not being engaged. Engaging clinical staff from the start of trials or improvement work is helpful and important. They can help shape a project to ensure that it is practical, sensible and do-able. They are in a good position to advise on what may or may not work in practice.

Clearly, it is important that the usability of any video consultation solution is considered from the perspectives of both patients and clinicians. It is important that clinicians are engaged in the consideration and implementation of video consultation, understanding the benefits and supporting the development of the process around how this can be embedded in clinical practice within the service. This could include agreeing what patient presentations are appropriate for the use of video consultation.

7.3.3 Process to support video consultation

During the pilot of video consultation within an NHS 111 provider, a process was developed which went through a number of iterations as we worked with the team to agree what would work best from a patient, clinician and operational perspective. A generic version of the process model is available in a number of formats in Appendix A.

A key factor in developing the process for the pilot was to make it as simple as possible for all involved, which included choices around how the technology was to operate.

Starting with the patient, a further 3 roles within the service were involved as are outlined by the 'swim lanes' (horizontal rows) on the process model indicating who is involved at each step. After contacting the service, the assumption is that an initial triage will be undertaken by a non-clinical call handler (within or outside of the service) and that most calls requiring clinician assessment would join a queue. It is expected that there would be a role within the service to monitor the clinical queue.

During the trial, a small cohort of clinicians were brought in on overtime specifically to take part in the video consultation pilot, which meant that the operational impact of the trial was

¹³

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6495459/pdf/10.1177_2055207619845831.pdf

¹⁴ <https://www.hindawi.com/journals/ijta/2014/143824/>

¹⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3950891/>

¹⁶

<https://www.health.org.uk/sites/default/files/Virtual%20online%20consultations%20BMJ%20article.pdf>

¹⁷ <https://bjgp.org/content/bjgp/66/648/e460.full.pdf>

¹⁸ <https://www.journalslibrary.nihr.ac.uk/hsdr/hsdr06200#/full-report>

minimised. Implementation challenges were also reduced through this small-scale and simplified approach, such as:

- Training limited to the pilot cohort
- Technological barriers minimised:
 - Not all computers within the service were equipped with dual screens, which could be mitigated by the GoodSAM “Picture in Picture” product feature. This appears workable but has not been tested. See Executive Summary Report Addendum for additional information.
 - Only one-way consultation was offered, so video technology provision was not required from the provider side

Due to the need to retain recording through the existing telephony channel, the clinician would phone the patient in the first instance and this would help establish whether a video consultation was appropriate and feasible, such as verifying that the patient was in a suitable location to carry out a video consultation and that the clinical presentation was appropriate for VC. If the patient objected to video consultation for any reason, then the standard telephony process would be followed, otherwise, the clinician would access the video consultation solution and, using the patient’s mobile number, send a link via text to the patient so that the video consultation session could be initiated. For simplicity purposes, only video consultations via smartphones (initiated via text message) were offered and the use of other devices (including tablets, laptops and computers) along with other means to initiate the session (such as via email) were excluded.

The clinician would read out a script contained within the guidance produced for the trial (Appendix D), which has been adapted to remove specific reference to the video consultation product used (denoted with []). This included guidance pertaining to the sharing of location, ensuring that the patient had suitable connectivity and confirming that the video consultation would not be recorded¹⁹.

If the video consultation initiation was successful, then the clinician would verify the patient details, which would include details of any carer or third party. If at any point, including initiation, the video consultation was unsuccessful, then the standard telephony process would be followed. At the end of the consultation, patients willing to provide feedback on the use of video consultation were asked a small set of questions and their responses were recorded on the patient system.

The video consultation session was ended followed by the telephony session. The clinician recorded the standard encounter details on the patient record along with any specific observations from the video consultation. The clinician also completed an online evaluation form developed for the pilot (the results from which can be viewed in Appendix E).

¹⁹ For the purposes of the pilot, it was agreed that the video consultation would not be recorded but that the patient interaction would be captured as normal through the telephony recording. Services would need to determine whether recording of the video consultation is required based on local and national protocols.

7.4 Procurement Considerations

At the time of writing this report, it is not specifically known what procurement route will be followed; nevertheless, some considerations are shown below that are intended to offer some guidance to 111 Providers procuring video consultation capability.

7.4.1 Points to Note

- Providers will need to follow their own procurement rules in relation to sourcing a Video Consultation supplier aligned to commissioning guidance around this technology
- Providers will need to satisfy themselves whether the current situation will allow them to follow any accelerated procurement considerations (legal advice maybe sought)
- There are sufficient government frameworks and options to allow for providers to source these from existing routes rather than any formal open tender or new competition
- Many suppliers are offering free of charge services to the NHS to support COVID-19, which may be good for a short term solution but it would be useful to be upfront on any ongoing commercial costings after the free of charge term is up and to remove any issues around tie in.

The procurement routes do not address the technical, security, information governance, etc. of solutions and this will have to be considered by 111 Providers.

Suggested routes, in no order of preference:

Potential Routes to Market	Further information (Link)	Considerations
Existing Contracts	Existing suppliers of technology may be able to provide this capability (if not already) under existing contracts or with minor changes to their contracts.	Quick, existing relationships with suppliers; limited risk; ease.
Digital Marketplace (GCloud)	https://www.digitalmarketplace.service.gov.uk/g-cloud/search?q=video%20consultation There are a number of suppliers such as GoodSam / Attend Anywhere, EMIS, Iplato available via this route.	Pricing set; shortlisting process to be followed; supplier terms need reviewing; can be quick.
Digital Care Services Framework	Online Consultation Suppliers are available under this framework	Focus on Primary Care; available for all providers to use; currently going through fast track assurance to support primary care.

NHS England e-consultation Dynamic Procurement System	https://www.england.nhs.uk/digitaltechnology/digital-primary-care/commercial-procurement-hub/dynamic-purchasing-system/	Mini competition required; no fast track process;
Accelerated Procurement (direct award)	Local rules	Potential of challenge
Crown Commercial Technology Products 2	Covers a range of hardware or software products https://www.crowncommercial.gov.uk/agreements/RM3733	Supplier list long; mini competition required;

7.5 Considerations for Delivering VC at Scale

The table below contains a summary list of potential barriers to delivering video consultation at scale with suggested mitigation plus other items to consider.

Limitation

Existing Provider infrastructure may prevent adoption of this or similar products, specifically:

- Clinicians may need two screens. Product feature “Picture on Picture” appears workable but has not been tested. See Executive Summary Report Addendum for additional information.
- Provider site bandwidth and firewall capacity will have to be understood and actively managed in order to support VC without impacting on any other services using the same internet bandwidth.
- Providers need to determine whether upgraded memory and CPU for desktops to support video calls (virtual desktop central capacity or physical hardware) is required.

The example product here, *GoodSAM Instant On Scene*, has not been tested at scale within the pilot. Although it is noted that this product is live and used by other services.

Potential Mitigation

NHSX or NHS Digital commission an infrastructure deep dive at each Provider site.

Determine whether the product feature “Picture on Picture” requires testing to understand if it is suitable mitigation to a clinician needing two screens.

NHSX to ensure assurance is commissioned on scalability of use for product(s) selected.

Next steps for supporting national adoption of VC by all NHS 111 Providers is not defined.

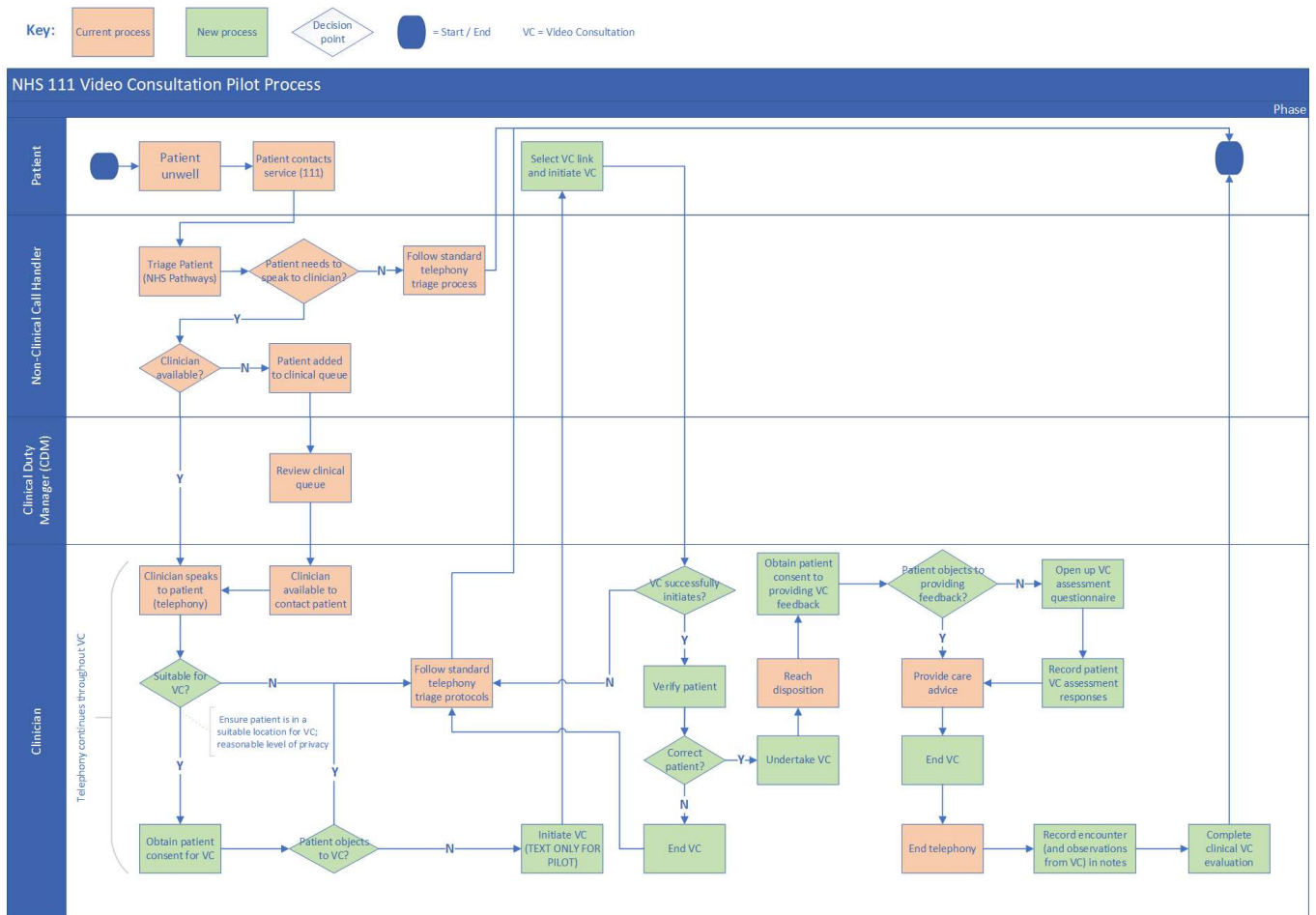
NHSX to review and set out a plan for supporting adoption of VC by all NHS 111 Providers.

A phased larger volume should be considered. The Provider who supported this trial is interested in adopting VC capability. They may support a trial at volume and would be a 'warm start trial at volume' while another trial could be started at a completely different Provider.

Performing a detailed market/product analysis was out of scope for the NHS Digital team.

To follow within this report are key functional and non-functional requirements that may be used by NHSX to commission market/product analysis.

Appendix A. Illustrative Video Consultation Pilot Process Model



This process model is available in other formats, on request.

Appendix B. Illustrative Data Protection Impact Assessment (DPIA)

Guidance on completing / amending DPIAs with templates are available here:

<https://ico.org.uk/media/about-the-ico/consultations/2258461/dpia-template-v04-post-comms-review-20180308.pdf>

<https://ico.org.uk/media/for-organisations/documents/2258857/dpia-template-v1.docx>

It should be noted that in order to complete this trial a DPIA was prepared for the GoodSAM product. Should a 111 Provider wish to use the GoodSAM product it may be possible to share this DPIA. Please contact the report authors to discuss further if required.

Appendix C. Post-VC comments and feedback provided by clinicians

Further comments/feedback provided by clinicians in post-video consultation assessment

SCREEN FROZE A MINUTE INTO THE ASSESSMENT HOWEVER VERY USER FRIENDLY- SEEING THE PATIENT WAS HELPFUL WHEN JUDGING THE EXTENT OF HIS 'FEVER' I.E LOOKING AT ANY PHYSICAL SIGNS (SWEATING, WEARING LIGHT CLOTHING) ON THIS OCCASSION WAS NOT A MAJOR BENEFIT, DID NOT CHANGE OUTCOME OR INFLUENCE TIMELY MANNER HOWEVER THERE IS DEFINATLEY A BENEFIT TO IT.

SYSTEM LOADED- WHEN I ATTEMPTED TO CONNECT THERE WAS NO BOX POPPING UP TO INSERT THE TELEPHONE NUMBER- A WHILE LATER THE BOX WAS THERE HOWEVER I HAD TO MOVE ON WITH THE CALL THIS SURVER WOULD MAYBE NEED A BUTTON FOR N/A AS I COULD NOT MOVE ON WITHOUT TICKING A BUTTON ON QUESTION 11 FOR EXAMPLE EVEN THOUGH VIDEO DID NOT CONNECT

SYSTEM WORKED FINE- ANSWERS ARE NOT A TRUE REFLECTION AS PATIENT DECLINED RIGH BEFORE I SENT THE INVITE- UNABLE TO TYPE TELEPHONE NUMBER IN FROM KEYBPARD - NEEDED TO COPY AND PASTE IT

Was a great call- patient and caller felt more involved- I could up grade my decision to a speak to outcome- GP wanted patient assessed due to corona symptoms despite no travel or contact criteria met- video call enabled me to see how lethargic and pale/sickly the little boy was and confirmed he needed medical input

Face to face in this case showed me an unexpected reaction to pain that the patient did not verbalise

PATIENT WAS ADVISED TO WAIT TO SPEAK TO CLINICIAN WITHIN 2 HRS- NO ACTUAL ONWARD DISPOSITION-

DUE TO MY OBSERVATIONS I WAS HAPPY THAT HE NEEDED NO FORWARD REFERRAI

Excellent call and easy to assess the patient, removed any clinical risk that is sometimes difficult to do with none visual calls. confident that your assessment and outcome is appropriate.

NOT 100% CLEAR TO ASSESS THE PATIENTS BLISTERED RASH, THE PICTURE QUALITY WAS AFFECTED, HOWEVER STILL ASSISTED IN A SAFE CLINICAL ASSESSMENT.

VIDEO FROZE AND LOSS OF SOUND THROUGH THE ASSESSMENT, HAD TO DISCONNECT AS ALSO LOST CISCO CALL.

able to create a clearer clinical assessment of the patient symptoms which assisted in decision making and ruling out cardiac pain in presentation downgrading the assessment.

Some technical difficulties

Child with burn- invaluable as would otherwise be unable to visualise extent of burn. Answers given did not match the clinical picture- burn was more extensive than described to HA. Safeguarding required to be completed due to nature of injury - Video conferencing has assisted to make this decision due to actually being able to see wound on child

Assisted in assessing breathing problems in child. Often parents find it difficult to describe breathing problems in young children,

Child with burn from radiator- initially described as waxy - IE - Full thickness burn on analysis- is in fact partial thickness- easier to make decision when actual injury has been seen. Burns are often difficult for people to describe as they are unfamiliar with the appearance of underlying skin tissues - which can often be visible following severe burns

Beneficial in this case to see child- eye discharge- home management/pharmacy appropriate in this case- beneficial to use videocall to ensure disposition is appropriate and child does not need to see PC for eyedrops- Home management/pharmacy appropriate in this case

Avoided ED with breathless child. Fits coronavirus criteria so home management with telephone consultation with GP would be ideal- and is safe on visual analysis of patient considering symptoms-

Mother concerned about child - diagnosed pneumonia - also has rash on legs- has improved but remains itchy - explained following videocall of no concern- improving with moisturising cream - continue this treatment as required - face to face consultation not necessary as chest symptoms improving and rash of no concern. Mother reassured following clinician review of rash that it is "nothing serious"

Pt initially stated wound did not need re-dressing to diabetic foot ulcer - on analysis- significant strikethrough on dressing- on the bottom of his foot so he was unable to see- gone from home management to pcs 6 hours as needs re-dressing

Mother concerned about child. Unsure if breathless, has had chickenpox. On analysis; chicken pox improving, not breathless, eliminated need to contact GP for further input, home management and isolation appropriate.

Some confusion over degree of breathlessness in child, mother stating child is breathless at rest. On analysis- not breathless at rest, playing around room, primary care telephone consultation appropriate in this circumstance- child does not need to go to ED.

Nervous parent with unknown rash - on examination - urticarial rash likely caused by reaction to something home management- mother states much more reassured now someone has seen rash and assessed properly.

Concerned mother- child new to home oxygen - unsure of machine being used- due to me being familiar with machine able to identify its' purpose and reassure safe to leave at home- clinically safe and avoids input from specialist hospital team/GP

FIRST EXTERNAL VIDEO CALL BUT COULD SEE THAT THE PATIENT WAS QUITE WELL I WAS A BIT NERVOUS

Concerned mother- stating child's chest is breathless - on analysis - happy healthy baby- does not need ED intervention- family/ child currently self isolating- able to continue to do so- do not need to take child to ED- ambulance response avoided

Breathless child- mother reassured after clinician review that his breathing is not life threatening

Child with difficulty in breathing- father concerned she is breathless at rest, on examination- not breathless at rest, does not require ambulance. Self isolation as ?COVID case- avoided ambulance attendance in this instance. Appropriate for GP OOH.

not a crystal picture for looking at a skin rash, however enough to see it was not concerning.

GREAT FIRST VIDEO CALL HOWEVER IT WAS A RASH AND STILL DIFFICULT TO SEE WITH QUALITY OF VIDEO AND LIGHT. HOWEVER I WAS REASSURED IT WAS NOT A SERIOUS SYMPTOM OF THE PATIENT'S CONDITION.

EXCELLENT TOOL FOR DIAGNOSING ORAL RASH AND ONWARD OTC TREATMENT.

Excellent trial on first call

felt more confident in my outcome, as I was able to see the condition, it was as bad as the patient had stated, therefore outcome lower than expected.

VERY HELPFUL BEING ABLE TO SEE AN UNWELL CHILD

Appendix D. Guidance notes for Providers and Clinicians using Video Consultation

D1 MVP Governance and Clinical Safety

MVP Governance and Clinical Safety

1.1 Information Governance

The main ethical issue is data management and governance.

Are there rules around video consultation that differ to telephone consultation? In that other people may see the consultation take place, does it need to be done in a dedicated video consultation room or will the current call centre model work with some modifications? How will this then work in terms of supervision, needing additional assistance.

What can the patient see – can they see other people in the room where the clinician is completing the video consultation? Can they see information they should not be able to see?

Consent forms - do we incorporate guidance issued by the General Medical Council on the video-recording of consultations for research purposes, including an opportunity to withdraw consent after the consultation? (see Appendix)

Much of the following has been taken from the QIPP Digital Technology – Online Meetings Services: IG Guidance of March 2012. (See Appendix D1.3)

Following documents may be of use

- GMC guidance using visual & audio recordings (see Appendix D1.1)
- RCGP Consent Form (Appendix D1.2)

In summary there are 3 main areas to consider:

- 1) Meeting preparation – to ensure the meeting will be run safely
- 2) Issuance of a privacy statement – this will vary if the meeting is being recorded
- 3) Safe storage and data protection if an audio / visual recording of the meeting is made

For both the meeting scenarios the following are suggested as core tenets; F

Existing professional standards and organisational policies for records and record keeping are followed; as for current face to face meetings.

Informed patient consent has been obtained – this may require a meeting in person to ascertain patient capacity and any specific safeguarding controls.

All care professionals, at least, are participating from private areas.

The security risks of the local IT infrastructure, for example the desktop, are understood and accepted.

The online meeting service has been assessed as meeting the required level of security and confidentiality.

For meetings involving patients

The consultation is scheduled, initiated and run, by the clinician. Because the patient is participating it is assumed that patient identifiable data will be discussed. Therefore the clinician must take reasonable steps to protect this information before, during and after the meeting. For example the clinician should ensure they are sat somewhere where their conversation could not be overheard or their computer screen observed. The recommendation, and default position, is that audio visual recordings of meetings are not made. However if the meeting is recorded, then the recording must be treated as part of the clinical record.

Privacy statement

It is important that attendees are aware of why information is being shared or collected during the meeting and with whom, where it will be stored (if it is), and for how long.

This is conveyed to the attendees at the start of the meeting or consultation by the verbal privacy notice. If this is not clear and its implications are not understood by all then cancelling the meeting should be considered.

As a minimum the verbal privacy notice used at the start of the online meeting or consultation must:

Tell the attendees who you are / your organisation is

What you are going to do with the information;

- who will be able to access it
- who it will be shared with and why

In addition it could:

Outline how to access the data

How the data will be kept

- Will it be secure?
- Will it be kept in England or within the EU?
- How long the data will be kept for

An example privacy statement for a consultation is given below;

During the course of this online meeting information may be shared or collected with other attendees about you and your treatment.

Any such information will be held in confidence and its use is covered by the Data Protection Act as well as the NHS Care Record Guarantee, which governs how the NHS can use your data.

Information will only be used by and shared with those who have a legitimate need to access the information to provide health care.

[If the meeting is recorded the following should be added...]

Any recording made of the meeting will be held in England and will be treated under the same rules as the rest of your medical record.

[If the recording is to be transcribed add the following...]

A transcription will be made using the recording. Once the transcription has been added to the medical record all copies of the recording will be permanently deleted.

If you do not want information about you to be held and used in this way please make this clear to the meeting organiser prior to the commencement of the meeting.

There is a potential concern about patients either recording the meeting themselves or asking for a copy of the recording, potentially using a Subject Access Request. For reference the QIPP Digital Technology – Online Meetings Services: IG Guidance of March 2012 document is attached. It also has details of the legal framework behind this e.g. Data Protection Act, Common Law Duty of Confidentiality, NHS Care Records Guarantee. (See Appendix 2)

1.2 Clinical Governance & Clinical Safety

Clinical governance of the pilots will encompass the quality assurance, quality improvement and risk and incident management. NHS Digital and its provider partners and suppliers will work collaboratively to safeguard high standards of patient care during the use of the video consultation technology.

Health care organisations have a duty to the communities they serve for maintaining the quality and safety of care.

During the development and implementation of the pilots structures, systems and processes will need to be considered in order to demonstrate evidence that standards are upheld. New process may need to be developed as the pilots progress and NHS Digital will monitor this to ensure learning and best practice is shared.

Newly identified risks and their mitigation will be shared with others taking part in the pilots to ensure we develop shared learning.

1.3 Clinical Safety

Supplier evidence of compliance with DCB0129

In order to show compliance with DCB0129 all suppliers of video technology must produce a clinical safety case for their product and associated Hazard log. Suppliers must have a named Clinical Safety Officer who has reviewed and signed off the Clinical Safety Case. On request of the NHS provider or other NHS organisation the Clinical Safety Case and Hazard Log must be shared.

Where there is direct involvement in a project by NHS Digital suppliers will be requested to present their Clinical Safety Case and Hazard Logs to the NHS Digital Clinical Safety Group before it can be implemented

Provider evidence of compliance with DCB0160

In order to ensure clinical and information governance process are upheld. Each provider establishing Video Consultation must comply with DCB0160. The provider should have a named Clinical Safety Officer and should produce their own clinical safety case report for the technology to be adopted and hazard Log.

Any transferred risk from the supplier to the provider must be mitigated.
Any transferred risks from the provider to the supplier must be mitigated

The safety documentation templates are available from NHS Digital on the following link
<https://digital.nhs.uk/services/solution-assurance/the-clinical-safety-team/clinical-safety-documentation>

1.4 Security Considerations

- Supplier must show evidence of an approved security audit (i.e. ISO 27001).
- All data in transit/rest must be encrypted.
- Secure connection to patient.
- All systems must be GDPR compliant.
- All systems must be NIS compliant: 14 Principles (awaiting further clarification).
- All web interfaces are security tested.

Additional IG related question to be asked

- 1) Does the supplier (and all processors involved) meet DSPT standards or have ISO27001?
 - a. Yes
 - b. No
- 2) Where does the solution/product record any personal/confidential data (e.g. IP addresses) ?
 - a. None recorded
 - b. UK only
 - c. EEA only
 - d. Outside the EEA
- 3) Does the supplier (and all processors involved) comply with GDPR and the Data Protection Act 2018?
 - a. Yes
 - b. No
- 4) Will any of the clinician's personal data (e.g. phone number) be visible to the patient?
 - a. Yes
 - b. No
- 5) Is the video recorded automatically?
 - a. No
 - b. On the clinician's system
 - c. On the solution supplier's system
 - d. On the patient's device
 - e. On a combination:
 - i. b+c
 - ii. b+d
 - iii. c+d
- 6) Can the video be recorded?
 - a. No
 - b. On the clinician's system
 - c. On the solution supplier's system
 - d. On the patient's device
 - e. On a combination:

- i. b+c
 - ii. b+d
 - iii. c+d
- 7) How is the appointment noted in the patient record (event, plus clinician name/role)?
 - a. Automatically by the GP's principal system
 - b. A prompt to the clinician to record
 - c. No prompt or automation
- 8) Does the supplier commit to completing the full GP IT Futures assurance process?
 - a. Yes
 - b. No

Appendices

Appendix D1.1 GMC Guidance: Making and using visual and audio recordings of patients

https://www.gmc-uk.org/-/media/documents/Making_and_using_visual_and_audio_recordings_of_patients.pdf_58838365.pdf

Appendix D1.2 RCGP Consent form for video/digital recording for training purposes

<https://heeoee.hee.nhs.uk/sites/default/files/videorelease.pdf>

Appendix D1.3 QIPP Online meeting services: Information Governance guidance

https://www.networks.nhs.uk/nhs-networks/qipp-digital-technology-and-vision/documents/QIPP-20DT-20OMS-20IG-20Guidance-1.pdf/file_popview

Copies of these appendices can be supplied upon request.

D2 Guidance Notes for providers and clinical staff initiating a video consultation

Guidance Notes for providers and clinical staff initiating a video consultation

Provider

- The lead clinician affirms that medical defence organisation covers this activity.
- The IG lead affirms that the provider has provided adequate security measures and policies in place to safeguard information and patient security
- The Supplier Safety Case and Hazard Log must be requested to ensure they comply with DCB0129
- The clinical safety officer for the organisation has identified and mitigated any potential clinical risks or issues with the use of video consultation within their clinical setting following DCB0160
- Patient Privacy: Video consultation should be set up in specific consulting rooms / private areas in the call centre that is designated for that specific purpose
- As the video technology cannot be promoted within the current host system or NHS Pathways content, the clinician will require an additional screen to view the patient. This will allow the clinical content (e.g. NHS Pathways) to be viewed at all times by the clinician whilst consulting the patient via video. This will ensure the questions are addressed consistently and that any relevant clinical documentation can be carried out, without the need to flick between screens.
- Verbal Privacy Notice is drafted: The setting up of the video call between a clinician and patient needs to be agreed between the two parties. Prior to using the technology, the NHS Provider should agree on the standards wording to advise the patient of how the call will be managed
- Develop process and policy for use of video consultation
 - Develop process for when VC fails

Clinical Staff

- It would be advisable to capture both mobile and landline telephone numbers for the patient if available in case of broad band failure or other issues with the mobile phone of the patient.
- It is the responsibility/choice of the individual clinician to decide on the suitability of using the video technology (as opposed to face-to-face consultation in surgery or patient's [care] home setting; or telephone or email consultation) per presenting complaint for each patient.
- The clinician must check that the patient has a suitable device to support a video consultation.

- Ensure the patient is in a suitable location that is private for the consultation to take place
- Once the video is initiated the clinician must check the identity of the patient following local process
- Any additional information that is not captured during the use of the CDS solution must be documented within the patient encounter record to ensure the clinical record is accurate and up to date.
- Where a video consultation fails the clinician should attempt to call the patient back and if this fails use an alternative number.

D3 Guidance Notes for providers and clinical staff during a video consultation

Guidance Notes for providers and clinical staff during a video consultation

During the call (once you have established that video consultation may assist your triage/assessment and the patient is in suitable location):

- Advise the patient, *"It would be extremely useful if we could see you. We are able to do this via your phone camera. Are you happy for us to do this?"*
- *Can you confirm that you are on Wi-Fi or have sufficient data for a video call?*
- *I am going to send you a link via text message. When you click the link a video call will start. You do not need to download anything, the video is not recorded and the link will expire as soon as we end the video call. Your phone will ask to share access to your location, microphone and camera. Please say yes to all requests and please stay on the call and put your phone to speakerphone."*
- [Instructions to initiate the video consultation session]
- Re-confirm the patient's mobile number and enter it in the box [product specific guidance - (with no spaces & you do not need a 9 before the number)]. Read out the mobile number back to the patient before allowing the text to send to ensure this is the correct mobile number.
- [Further guidance regarding the video consultation product]
- If the caller is unable to find the message containing the link while they are on the phone you may need to advise them to swipe up/down to access their text messages. If they are still unable to locate the message, abandon the video consultation [instructions on how to end the video consultation session] and continue telephone triage following normal procedures
- Once video consultation commences, confirm again that you are speaking with the patient/caller
- During the call, if video consultation becomes inappropriate or no longer feasible/helpful then abandon the video call and continue telephone triage following normal procedures
- End the video call once you have completed your clinical triage and continue the conversation using telephone only

At the end of the call:

- Advise the patient, *"the video will now disconnect. Please remain on the telephone call and do not hang up the phone so we can continue our conversation"*
- Once you have given advice and completed your call, explain that video consultation is a pilot and ask the caller if they are willing to answer three simple feedback questions (select "Video Conf Survey" button in Adastra):
 1. Did you find the video consultation easy to use? Yes/No
 2. How much do you think the video consultation helped with your call today? (1-5)
 3. Would you recommend the 111 video consultation service to a friend or family member? Yes/No
- Document in free text box "VC completed"
- Remember that your call may be audited so ensure you record your assessment fully so that anything which was not revealed on the audio recording is documented in your notes
- Ensure that you end the video call before ending telephone call

After the call:

- Complete the online Clinician feedback form at the end of each call
- Ensure you log out of [the video consultation product] before closing down Microsoft [internet browser] at the end of your shift

Appendix E. Clinician and Patient Outcome Assessment Questionnaires

Appendix E1 Clinician questionnaire

Age and Gender

Clinical presentation/ call reason

Incoming Disposition

Final Disposition

Clinician type (nurse, paramedic, midwife, etc.) performing VC

MTS or Pathways used?

Did you feel able to reach an outcome more quickly using video consultation?

Yes

Same

No

As a result of the video consultation did you upgrade or downgrade the outcome?

Upgrade

Same

Downgrade

Did the use of video consultation increase your confidence in your clinical decision making?

Yes

Same

No

Did you benefit from being able to see the patient ?

Yes

Same

No

Has this video consultation prevented an onward face to face consultation for the patient?

Yes

No

Unable to say

Do you feel video consultations provides an alternative channel where physical face to face would have needed to be considered?

Agree

Disagree

Unable to say

Did you find the video consultation system easy to use?

Yes

No

Did the video consultation system work through the call?

Yes

No

Was the video quality acceptable?

Yes

No

How would you rate your overall experience of Video consultation?

Very
Happy

Somewhat
Happy

Neutral

Not very
Happy

Not at all
Happy

1

2

3

4

5

Any other comments / feedback?

Appendix E2 Patient feedback questionnaire

Patient Feed Back

Working with the provider team and their IG colleagues it was agreed to limit the patient evaluation questions to 3. Responses would be documented in the Adastra system allowing them to be accessed via a report.

The following 3 questions for patients were agreed.

1. Did you find video consultation easy to use?
2. How much do you think the video consultation helped your call today?
3. Would you recommend the 111video service to a friend or family member?

Appendix F. GoodSAM Clinical Safety Case Report

This appendix is available on request.

Appendix G. Learning & Development Phase 2

This appendix is available on request.