TECHNOLOGY ENABLED CARE

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CYMRU

Chapter 3: Technology Issues & Clinical Efficacy

Phase 1 Survey Data – Patients, Families & Clinicians

NHS Wales Video Consultation Service Evaluation

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This Data Is the Ownership of Technology Enabled Care Cymru and their Funders The Welsh Government.

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When using the data as a source please reference the Authors and owners of the data appropriately

For example:

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The Relationship between the Technical and Clinical Efficacy of Video Consulting

Perspectives of Patients/Families & Clinicians

This chapter outlines a thematically analysed dataset of the 'live' end of consultation data, to provide an overview of some of the benefits of using video consultations which can be impacted on by the technical difficulties experienced by patients/families and clinicians, and the impact this may have on clinical efficacy.

The analysis demonstrates that one of the largest benefits of video consultations (VC) is that it allowed clinicians to view their patients' home environment, which came with a range of benefits such as increased insight into the patients' situation and surroundings and higher levels of patient comfort. However, there were also challenges and caveats to consider such as background noise and poor lighting.

Benefits of Using Video Consultations
Insight

Clinicians had the unique opportunity to gain valuable insight into their patients' home environment, which helped facilitate appropriate clinical decisions. VC therefore allowed the patient to show the clinician relevant aspects of their home environment, which subsequently contributed to the efficacy of the consultation;

> *"Being able to see the products at home and in the [food] cupboard"* *(Dietician Clinician, ABUHB).*

This was particularly beneficial during the COVID-19 pandemic, where in many circumstances, face-to-face appointments were non-viable;

> *"Patient shielding due to health risks - able to view his environment and his responses to questions throughout the consultation"* (Anaesthetics, BCUHB).

However, the patients' ability to do so was sometimes met with unanticipated technology related problems;

"Client had difficulty holding iPad at the correct angle to show the occupational therapists around their home" (Acute Medicine, ABUHB).

Patient Comfort

Other benefits include the patients comfort and ability to *"relax"* within their own home, this was noted as particularly useful when the clinician had to deliver potentially upsetting news;

"We were able to deliver upsetting news to a patient in an environment where she felt safe and had nursing staff that she built trust with her" (Trauma and Orthopaedics, ABUHB).

Furthermore, parents noted that their children (the patient) were far more relaxed within their home environment, which resulted in a more effective appointment.

"Really happy with how it was, I think I and my child was more relaxed and therefore the appointment was more effective" (Paediatrics and Child Health, SBUHB).

This suggests that VC can add value to the clinical experience instead of just matching it during times of need (e.g., COVID-19 pandemic). This was mirrored within the patient data also, with many patients arguing a specific preference for VC:

"It is so much easier to have a video consultation from home as I get quite apprehensive and anxious when I attend appointments at the hospital so this service is excellent for me. Thank you!" (GP Patient, BCUHB).

However, there were minor and infrequent concerns noted surrounding privacy, and how the GP office for example offers a safe space to confide in

a professional. This suggest that this could potentially discourage some patients from disclosing important and clinically relevant information and should therefore be factored into the decision as to whether VC is suitable for that patient or circumstance;

> *"I would prefer to speak to a doctor in person and in private. Privacy is not always possible due to my partner working from home and having children with additional needs."* (GP Patient, HDUHB)

Challenges of using Video Consultations
Background noise

Some clinicians reported to be "*distracted*" by background noise in the patients' home, which at times, disrupted the quality of the call;

For example, it was reported that;

> *"There was a constant static sound in the background which interfered with the quality of the sound."* (Psychiatry, ABUHB)

> *"Sound kept breaking up - think my microphone was picking up background noise and cutting out client."* (Psychiatry, ABUHB)

Sometimes, the sound was from younger family members or pets, who were perhaps less likely to understand that they should maintain quiet for the duration of the call and thus less likely to manage during novel situations such as these;

> *"Background noise from siblings."* (Speech and Language, ABUHB)

Nevertheless, many other clinicians argued that the background noise had little impact on the success of the VC.

For example, it was noted that;

> *"Two people on call, worked well even with background noise."* (Paediatrics and Child Health, SBUHB)

Patients also mentioned that background noise *would* make communicating with the clinician *"difficult"*, and *could* prevent accessibility among patients with specific symptomology;

> *"Worked really well as connection was good. If connection wasn't as good it would be different as my daughter struggles with sensory issues and background noise would be a problem".* (Paediatrics & Child Health, ABUHB)

Lighting

Another distraction that was reported by clinicians was that of poor lighting, which at times exacerbated poor picture quality;

> *"Patient had poor camera quality on mobile device and the lighting in their room made video difficult."* (General Practitioner, ABUHB)

This was often caused by the patient sitting in front of a window;

> *"Couldn't see very well because child sitting in front of window. Lots of noise with siblings in background made appointment difficult"* (Speech and Language, ABUHB)

Which made their facial expressions and body language difficult to see;

> *"Dark and unclear".* (Pain Clinic, no specified Health Board)

However, this was not mirrored in the patient feedback. With 25% of clinicians working from home (showing in the full analysis of live data – Chapter 1), it is plausible that the home environment could be better tailored to suit the video consultation if patients were given instructions on how to do so.

Technical Problems

Across all Health Boards it appeared that the clinical efficacy and suitability of video consultation was highly dependent on the extent to which the technology worked. For a video consultation comparable with that of a face

to face consultation and to reach sufficient levels of patient and clinician satisfaction, the process would need to exhibit minimal technical problems. This theme was split into two sub-themes; connection (1) and device (2), which are discussed in reference to the specialties and patient sub-groups they most prominently impacted according to the results of the current analysis.

Connection
Visual Quality

Whilst video consultations were frequently praised for their ability to capture visual information in comparison to telephone consultations, a detailed observation was often less easily obtained in comparison to face to face consultations. For example, physiotherapists were able to see a;

> *"Visual demonstration of patient performing exercises [and therefore] able to correct and give advice"* (Physiotherapist, SBUHB)

> *"Which allowed the patient to obtain and maintain "correct and effective technique"* (Physiotherapist Clinician, SBUHB).

However, the efficacy of demonstrations were oftentimes inhibited by technical problems. For example, if the patients' device had low quality visual acuity, then clinicians were less likely to be able to examine subtle movements;

> *"[VC was carried out] on the patient's phone, they can't see details of small movements like pelvic tilts, so had to modify a bit"* (Physiotherapist Clinician, SBUHB).

Moreover, the benefits of visual observation were also noted among other specialties and Health Boards. For example, two clinicians' in Swansea Bay University Health Board mentioned how they were able to;

> *"Observe manual handling aspect of care provision clearly in order for me to give advice"* (Occupational Therapy, SBUHB).

However, Dermatologists found it;

> *"Difficult to see any detail of skin condition."* (Dermatologist Clinician, SBUHB).

Freezing

Furthermore, freezing was a common complaint among clinicians and patients alike. Frequent freezing caused the fluidity of the movements to be disrupted, creating a barrier for patients when attempting to replicate;

> *"I froze on the screen so the patient couldn't see me demonstrating exercises."* (Physiotherapy, SBUHB)

However, where there was a lack of technical problems, VC was able to facilitate patient and clinician satisfaction. For example, one clinician wrote;

> *"Good picture & sound quality. Adequate assessment of wound & movement. Patient able to see & practice exercises under supervision & appropriate information and advice provided, which will be followed up with written information. Patient expressed satisfaction at consultation".* (Physiotherapy, SBUHB)

Delay

Common auditory problems experienced across all Health Boards include *"time lag",* characterised by a delay in either the sound or the video. This caused problems for Speech and Language Therapists in Aneurin Bevan University Health Board (ABUHB), whereby one clinician reports to have experienced difficulty hearing;

> *"Subtle differences in speech sounds"* (Speech and Language, ABUHB).

Speech assessments of this nature were further inhibited by any technical problems experienced, such as time lag.

> *"Video out of sync with audio [which made it] really difficult to complete a speech sound assessment"* (Speech and Language, ABUHB).

Again, when the quality of the connection was sufficient, clinicians were able to conduct adequate speech assessments;

"Picture and sound good. Full speech assessment completed and child discharged." (Speech and Language, ABUHB).

The time lag also caused difficulty for patients who found it *"hard to understand what was being said"* (Speech and Language, ABUHB) due to the delay.

This was particularly relevant among the deaf community, whereby the delay in speech prevented the patient from being able to effectively lip-read;

"Delay with the video between all 3 callers, making it hard for my deaf son to follow and lip-read". (Audiovestibular Medicine, SBUHB)

However, it is important to note that in this particular example, the connection was further disturbed by a third party joining the call. Nonetheless, video consultation allowed the clinician and patient to communicate in sign-language;

"Being able to speak/sign with everyone on screen. The fact that no app was needed to participate makes this an easier way of communicating with patients." (Audiovestibular Medicine, SBUHB).

Device
Many clinicians and patients encountered device-related problems which meant that the consultations were reported as less satisfactory (e.g., okay or poor quality rating). In many circumstances, device-related problems meant that either the device had to be changed or the consultation had to be abandoned.

Browser
Both clinician and patient encountered problems which inhibited their ability to access Attend Anywhere on their default browser selection;

"[The patient] tried to use iPad so we could talk on mobile but said it wasn't compatible... Had to abandon call and use phone." (Cardiology, HDUHB)

In this example, the patient had to change their device in order to continue with the consultation. It is important to note, however, that during the course of the pandemic the platform has successfully made Attend Anywhere accessible across a broader range of alternative browsers. Although, the current data captures the opinions of clinicians and patients since the evaluations initial launch in March 2020. Therefore, the findings may not be representative of Attend Anywhere currently.

Camera Angle

An effective camera angle was considered an important factor in the efficacy of the consultation. In circumstances where the patient was prepared, the consultation was considered successful;

"Patient well prepared and positioned camera appropriately for hand examination" (Physiotherapy, ABUHB).

However, this was not always possible, and as a result the clinicians' ability to assess the problem area was hampered;

"Patient had difficulty keeping hand / wrist in front of camera." (Physiotherapy, SBUHB)

Furthermore, the device which the patient was using was important;

"Patient was using phone so was difficult to position for assessment." (Physiotherapy, SBUHB)

However, there was no consensus among clinicians at to what device offered the best results.

Note: Since this time, a question has been added to the survey exploring the types of devices used, so this can be explored further in Phase 2 analysis.

Troubleshooting Attempts

Clinicians reported attempts to troubleshoot any technical problems encountered throughout the duration of the call. However, sometimes their methods were insufficient and the consultations were subsequently abandoned. Troubleshooting methods were divided into two sub-themes; technical and family involvement, each with unique barriers and facilitators.

Technical

Refreshing and Re-connecting

Technical troubleshooting attempts included a number of techniques employed by either clinician or patient to maintain or establish the technical quality of the call.

Examples of which include refreshing the page, as per the instructions of the Attend Anywhere trainer. Refreshing the page had varying levels of success. For some patients and clinicians, it worked to promptly resolve the issue;

> *"The system worked really well, just a couple of snags with connection issues (audio and frozen video) but a refresh worked."* (General Practitioner)

For others, the problems continued;

> *"Refreshed the screen from both sides and ended the call and restarted but problems persisted."* (Psychiatry, HDUHB)

In circumstances where the refresh failed to resolve the technical problem, they would resort to leaving and re-entering the call, or even "*logging off and logging back in*" in the case of the clinician.

Changing Device

In order to combat browser issues, the clinician or patient would sometimes have to use a different device;

> *"Couldn't get it to work on iPad so switched to the phone"* (No specified specialty, no specified heath board,).

This meant that the patient need not download another browser onto their initial device.

> *"Initial contact in trying to connect caused a problem. My laptop uses Firefox Browser, switched to MacBook and worked fine"* (Physiotherapy, SBUHB)

Using Video and Telephone together

One of the more common troubleshooting techniques was to utilise both video and telephone consultation at the same time to compensate for the lack of audio experienced during the appointment;

> *"I was unable to hear patient - so had to phone and use video for visual" (Physiotherapy, HDUHB)*

Family Involvement

The clinicians reported improvising with the resources available to the patient at home, and oftentimes this meant utilising family members, and particularly mothers, to help with the consultation. This strategy was particularly relevant in paediatric specialties;

> *"Sound quality was quite poor throughout - had to rely on Mum to indicate if child had said target correctly"* (Speech and Language, ABUHB).

The mothers' role varied depending on the nature of the assessment, however it would often involve clarifying information which was unclear due to the nature of VC;

"Difficulties sharing assessment materials as they had to be brought right up to the screen and when the child pointed it was hard to know what she was pointing at but mum was able to comment" (Speech and Language, BCUHB).

This was also necessary in circumstances where the connection was of sufficient quality;

"Excellent quality good enough to do a speech assessment (with a little help of clarification from mum)" (Speech and Language, ABUHB).

However, this troubleshooting technique didn't always work and relied on high levels of co-operation between clinician, patient and mother;

"Directing patients' mother to move foot was ineffective." (Physiotherapy, No specified Health Board)

Summary

To summarise, it appears that for many clinicians and patients, the clinical efficacy of the consultation relies heavily on how well the technology works. Without the fundamental components needed to facilitate technological fluency (e.g., technological literacy, adequate connection and access to a working device), many clinicians had to resort to troubleshooting techniques. With the help of family members and the refresh button, many clinicians were able to continue the call with adequate efficiency and effectiveness.

Moving forward, it is recommended that to improve the use and value of video consulting in Wales, more investment is required to help facilitate many of the technological problems by improving connectivity and WIFI and to increase the provision of technological devices, and also to ensure that clinicians and patients are both trained and supported to use video consultations in order to optimise the best clinical outcomes.