Transforming outpatient care:
Assessment of Grampian's Digital Appointments

Study ACORN: Asynchronous Consultations Research for NHS

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NHS Grampian

Background

During the pandemic, healthcare changed. Some face-to-face appointments were replaced by video or telephone consultations, and this has continued in many settings ever since.

This has further been adapted to ‘asynchronous consultations’ which put simply means patients complete an online form containing important questions about their health that are then picked up by a healthcare professional.

There are benefits and downsides to this way of working and this study looked at both so that we can get a good understanding of how effective this new form of outpatient appointment is. Learning about the best ways to successfully develop and use it, as well as its effects on staff and patients, can help the NHS decide if and how they should use these appointments more widely.

A team including researchers from the University of Aberdeen, innovation leaders from NHS Grampian, and members of the public conducted this project. They held discussions with the public, interviewed NHS staff, surveyed and interviewed patients, and reviewed data collected by the NHS about the new service.

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Why is this Important

Before the pandemic healthcare organisations had started to use remote patient-to-provider communication methods, such as video, instant messaging, and email. We know that in Scotland, health services started expanding the use of video calls for doctor's appointments before the COVID-19 pandemic. The pandemic accelerated their use, allowing patients to receive care without having to attend in-person appointments which also relieved the strain on the healthcare system.

Asynchronous consultations, where healthcare professionals and patients do not need to be available at the same time, offer an alternative way of communicating to synchronous methods such as in-person meetings and video conferences and it has since been adopted by some NHS health boards.

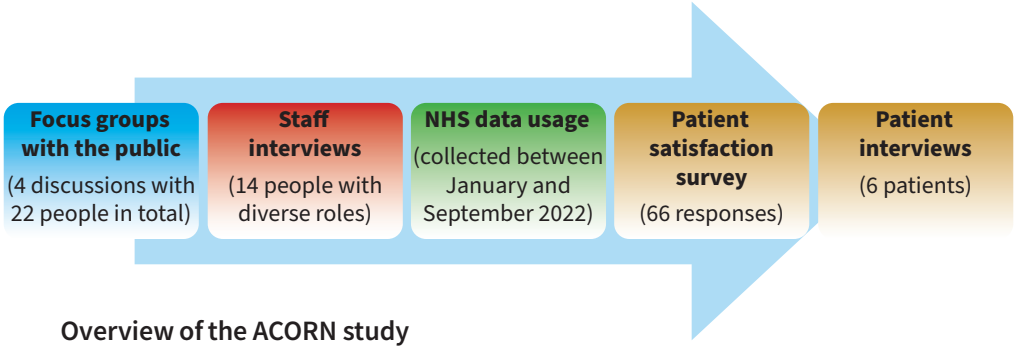
Research has already been done on asynchronous consultations that has shown in some conditions that the quality of treatment patients are offered is the same as would have been had they met in person. It has also been shown to reduce costs.

However, before we decide if using outpatient asynchronous consultations should stay a regular part of healthcare, we need to tackle issues with technology, teaching people how to use it, making sure the right systems are in place, the laws around it, and how much it costs. For that need to understand how to make this new way of seeing the healthcare professional work, see how people are adjusting to it, and check what effects it is having.

We got a chance to do this when the Dermatology Department at Aberdeen Royal Infirmary started using this new appointment system in May 2020, which NHS Grampian refers to as 'digital appointments'. Then, because of the pandemic, they also started using it in the Gastroenterology (stomach and gut) and Pain Management Departments in December 2021.

What did we do?

We talked to the staff and the patients, had group discussions with the public, and did a survey to see if patients liked it. We also looked at who and how many people were using it in different departments. We wanted to hear what people thought and if the new service was making a difference. The study was conducted from April 2021 to September 2022.



Overview of the ACORN study

More on Asynchronous Consultations

Asynchronous consultations, also known as store-and-forward or online consultations, operate without a patient and a healthcare professional being available at the same time. This is how they work in NHS Grampian:

Information collection: Within 5 days, the patient provides the information asked for. They may be asked to respond online to questions about their health or upload photos. Some other systems also allow patients to upload videos.

Information submission: The patient then checks and submits this information via a web-based secure platform.

Review by a healthcare provider: A doctor, nurse, physiotherapist or other specialist from the outpatient clinic reviews the information when convenient. They evaluate the information within a set period of time, perhaps 14 days or so.

Follow-up questions: During the review period, the healthcare professional may follow up with additional questions based on the patient's response. This back-and forth can continue until the issue is clarified.

Response and recommendations: The healthcare provider sends back their opinion on the best next steps. These could include further tests, treatments, or the patient might not need any further contact. The response is saved on the platform for both the patient and specialist to access, and the general practitioner receives a copy of it.

The benefit of asynchronous consultations is that they do not require scheduling a specific time for both parties to be present, making it more convenient for both patients and healthcare providers. It is especially appropriate for non-emergency situations or for initial or follow-up assessments.

How have we done it?

We asked questions looking into public readiness, and staff and patient experiences. We also measured patient satisfaction and the effect on health inequalities and explored patterns in this new service usage. Here is some more detail about how this was done:

Group Discussions

included individuals prone to digital exclusion, such as those with low income, older people, and people with disabilities.

Staff experiences

were gleaned from interviews with key informants, including clinical leads, administrators, and technical experts.

We used a method called qualitative analysis where we organised what people told us into different themes. It is like grouping things by themes to see common patterns. To define our themes, we used theories, which are ideas that explain how something works. By using these theories, we can add to what we already know, and find new connections between things.

Patient experiences

were gathered through a satisfaction survey and follow-up interviews with survey responders. We tried to talk to patients from various departments, but in the end, only those from the Pain department accepted our invitation.

Service usage data

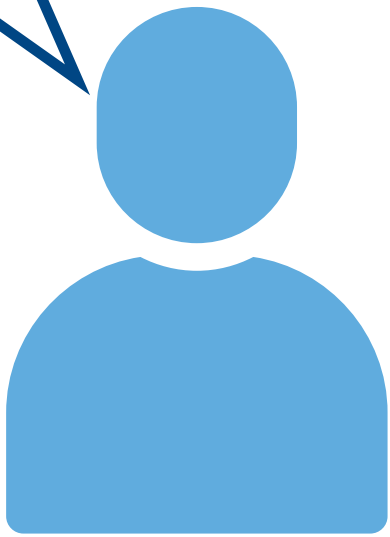
was analysed with a focus on demographics, non-attendance rates, and acceptance of the service.

The NHS Grampian gathered data on how many people used this new service. We also wanted to know if there were any differences among people who used digital appointments, especially between males and females, older and younger people, and between people who lived in more and less deprived areas. Through a satisfaction survey, we found out how people felt about being offered this new service and what they thought about the quality of care they received.

What have we found out?

A member of the public said:

“I think it’s a good idea and it would benefit a lot of folks, especially folk out of town as well like you said, Peterhead or up and down the coast and that.”

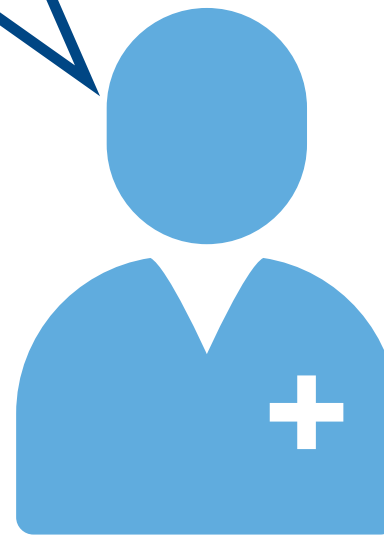


Here is what the public thought about this new service:

- The pandemic significantly influenced people's digital technology habits, leading to more remote consultations and rapid digital innovations However, there are concerns about potential negative effects on society, such as 'technology addiction' and reduced human interactions.
- Participants in the focus groups expressed positive attitudes towards asynchronous consultations. While some preferred face-to-face consultations, they acknowledged the usefulness of asynchronous consultations for certain aspects of care, such as triage and monitoring patients with long-term conditions.
- Various advantages of asynchronous consultations were mentioned, including improved access, efficiency, time and travel savings, flexibility for clinicians, and the need to avoid assumptions about difficulties in using the service. On the other hand, downsides were also discussed, such as language barriers, lack of internet connectivity or adequate devices, inability to conduct physical examinations, challenges for people with cognitive or developmental disabilities, potential for urgent issues being missed, loss of human contact and empathy, fragmentation of care, and the possibility of increased anxiety due to waiting for replies.
- Practical barriers to using asynchronous services, such as lack of equipment and skills, could be addressed through community-funded programmes or by providing alternative communication methods. Data privacy and confidentiality concerns should also be addressed to ensure trust in the system.
- The importance of tailoring the service to individual needs and preferences was emphasised, ensuring that it remains optional, and being mindful of potential feelings of being undervalued or excluded by those who cannot use the service. The concern was that digital exclusion and opt-out options could worsen health inequalities.

The project's success was summarised by a staff member who said:

"In the face of all the adversity and challenges that the work has faced, the fact that that still is getting used and patients are still buying into shows that it can be done".



Here's what the staff thought about creating and using the new service:

Characteristics of the innovation:

- Adopters were motivated to roll out the innovation based on the assessment that it could provide more flexibility to clinicians, convenience to patients, and improve information sharing.
- Early concerns included digital exclusion, adding an extra step to the care pathway, and a potential loss of human contact.
- Staff believed that the innovation could be modified to meet different needs, especially when the design and deployment were controlled locally.

Staff-related tasks and challenges:

- Additional work tasks related to appointment booking and management processes were identified, such as manual record-keeping and chasing up patients.
- Manual selection of patients from waiting lists and cold calls was seen as ineffective.
- Familiarity with the technology and growing confidence promoted more efficient use of the system over time.

Outer context:

- The pandemic created a favourable environment for telemedicine but also increased demand and competition for resources.
- The video consultation service called 'Near Me' served as a benchmark for the asynchronous consultations system.

System antecedents and organisational readiness:

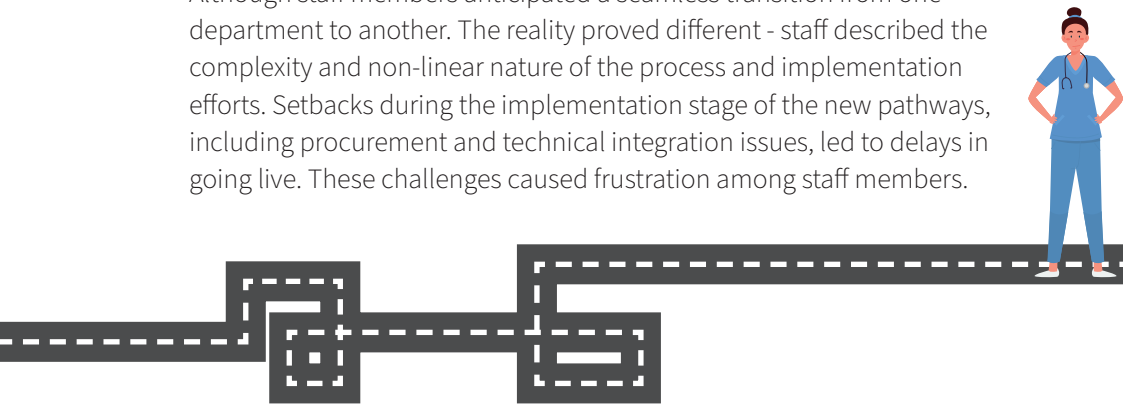
- The organisation was viewed as receptive to telemedicine and innovations, with a recognised need for a new care model and an emphasis on innovation.
- There was a need for a more clearly articulated strategic vision, defined roles, and responsibilities for innovation teams, and streamlined processes.

Adopters - staff and patients:

- The innovation was developed and implemented by motivated and innovative clinicians who worked across professional boundaries.
- Patient selection and targeting were important, considering condition type, demographic characteristics, and lifestyle factors.
- Patients' understanding and managing their expectations were crucial for good uptake.

Assimilation by the system:

- The dermatology system had a relatively smooth implementation due to being centrally driven as part of a national pilot project.
- Although staff members anticipated a seamless transition from one department to another. The reality proved different - staff described the complexity and non-linear nature of the process and implementation efforts. Setbacks during the implementation stage of the new pathways, including procurement and technical integration issues, led to delays in going live. These challenges caused frustration among staff members.

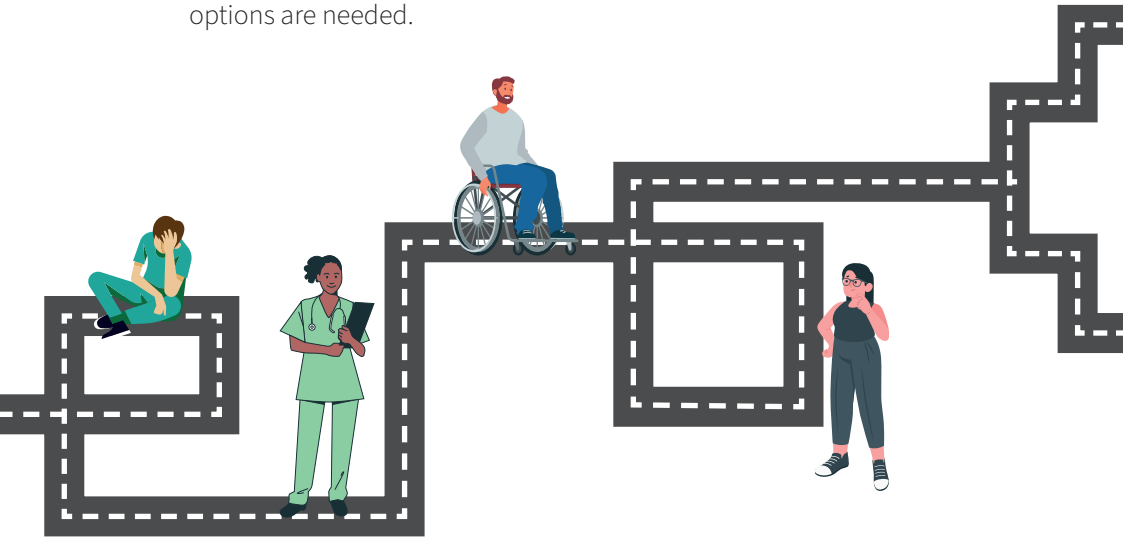


Implementation and routinisation:

- Decision-making was devolved locally, but there were regrets about not addressing admin staff's concerns early on.
- The implementation required significant human resources and administrative input, with dedicated time for various roles.
- Delays and technical issues prompted reflections on the role of innovation and transformation teams and the need for clear descriptions of roles and agreements.

Perceived consequences:

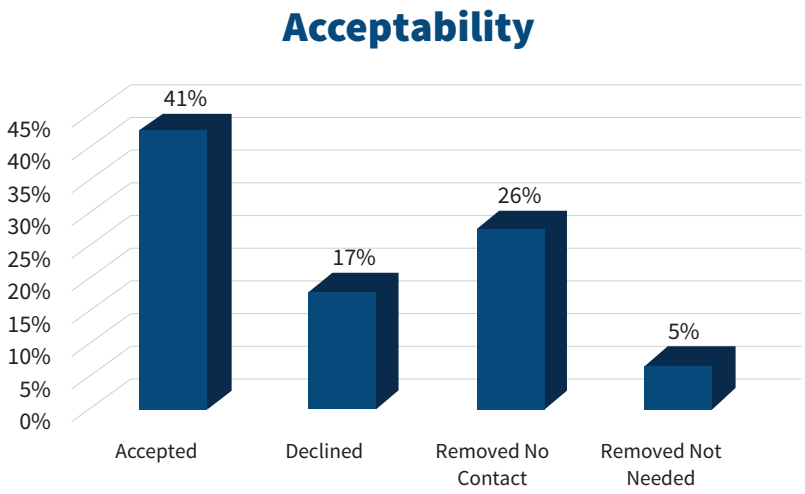
- Confidence in the success of the dermatology system improved over time with increased uptake.
- Some pathways were viewed as better accepted by patients than others, and the success of the system was considered dependent on how well it fits the existing administrative process flow.
- The new system was viewed as useful to many patients, but alternative options are needed.



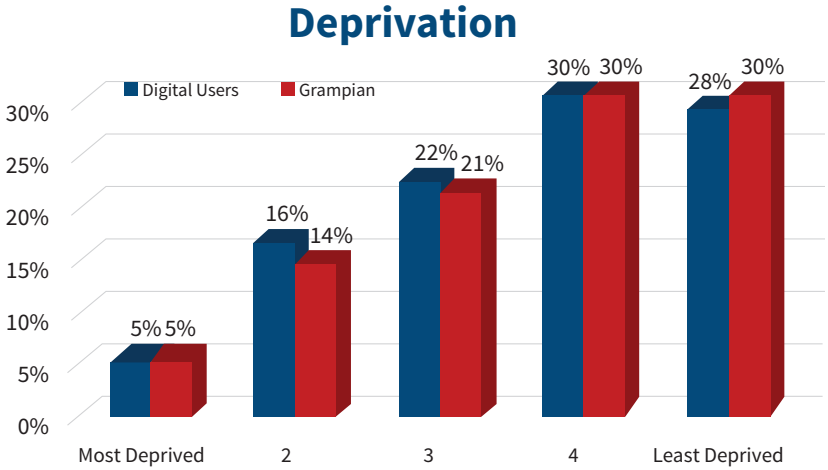
The analysis of this new service usage showed:

- A total of 1709 appointments were offered to 1417 people between January and September 2022.

- An audit conducted between February and July 2022 revealed that most people offered digital appointments accepted them. Only a small proportion (17%) declined a digital appointment. Of those who did not receive digital appointments, 31% either did not respond to the clinic letter offers or believed they no longer required a consultation. This indicates a generally positive acceptance of digital appointments among patients.

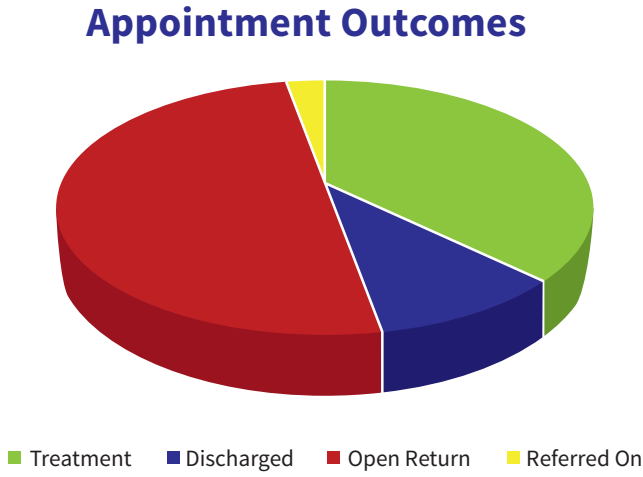


- The demographic profile of those who opted for digital asynchronous appointments was diverse, with a wide range of ages represented Most users were females (56%), and the majority were of white British ethnicity (79%). The socioeconomic distribution of those who chose the digital appointment service was similar to the overall population profile in the Grampian region.



- Initially, the DNA (Did Not Attend) rates for digital appointments were relatively high in the pain and gastroenterology services but decreased over time. The overall DNA rate during the evaluated period was 14%, higher than the typical DNA rates observed in face-to-face clinics. The rates were comparable across different deprivation categories, except for the least deprived category, which had a lower DNA rate.

- The clinical outcomes of digital appointments varied, with patients receiving different types of outcomes such as treatment, discharge, or open return appointments. The distribution of outcomes across different deprivation categories did not show evidence of inequality, although those from the most deprived communities were less likely to be discharged compared to those from the least deprived communities.



- The satisfaction survey showed that initially, only 50% of people were happy with the offer of digital appointments, but after the consultation, a similar proportion (52%) were happy with this approach. However, there was a discrepancy between the percentage of people who felt involved in the outcome of digital appointments and those who believed it was important to be involved in healthcare decisions. Despite this, most patients rated the quality of care delivered as excellent or good.

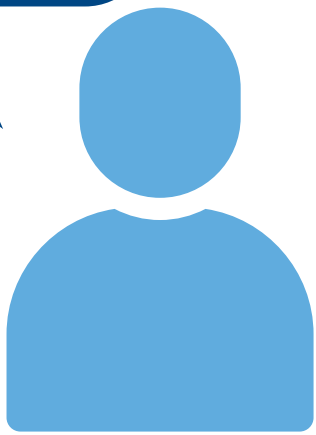
- Using digital appointments in NHS Grampian helped reduce travel. Since the region covers a vast area, many patients had to cover large distances to access specialist care. With this approach, there was a decrease of 44,712 miles in travel. This not only made things more convenient for patients but also helped in reducing greenhouse gas emissions, causing the planet to warm up. We estimate that 44,712 miles could save approximately 18.06 metric tons of CO2 emissions.

Travelling

Estimated reduction of 44,712 miles compared to traditional face-to-face appointment, which is an equivalent of circling Earth 1.8 times.

A user found the new service helped her express herself better:

“I had time to sit down and actually read the question and properly kind of, not prepare answers, but kind of rethink what my answers would be. Honestly, I think that would probably better the relationship because the doctors have a better understanding of the answers to the questions that they gave”.



Here's what patients thought about using this new service:

- In interviews about digital appointments, people generally saw them as a useful addition to traditional in-person consultations. They liked the convenience of saving time on travel and how easy it was to share information. However, some were concerned that these digital interactions might weaken human connections, preferring face-to-face communication for building trust with their doctors.
- Many interviewees found the written format of digital appointments beneficial. It allowed them to review responses and express their thoughts in their own words, leading to being better understood by healthcare professionals. On the other hand, some participants believed physical contact with a clinician was necessary for better understanding and care. They worried that written communication could lead to a loss of meaning or hinder their ability to fully express themselves.
- Four main factors influencing the ease of using digital appointments were identified. These included difficulties accessing timely care, individual abilities, the patient's condition, and technical issues. Limited digital literacy, cognitive impairments, and language barriers could make it challenging for some individuals to use the service. Technical problems like broken links or poor internet connection also led some to seek in-person or telephone consultations as alternatives.
- Participants highlighted a crucial area for improvement – the comprehension of the service and treatment terminology. They had trouble remembering specific phases and didn't always fully grasp the purpose of digital appointments. To enhance the experience, clearer communication and better explanations of the process were needed.

Suggestions for future adopters of this service

This study suggests that asynchronous consultations could have an important role to play in the future of the NHS. Below are considerations that we believe would make the process of adoption in the real world smoother for staff and a better experience for patients.

Patients

Engaging the public in new ways of delivering care is understandably challenging at times. The extent to which organisations, services, and clinics invest time and effort in seeking patients' support and guidance, as well as the extent to which they make the use of technology as user-friendly as possible, will be key determinants of how successfully asynchronous consulting is adopted into business-as-usual care.

- The provision of clear, concise and easy-to-understand information is crucial in helping patients decide if digital appointments best suit their needs, and if so, how they can engage in this type of service option. A "care navigator" or similar role, responsible for all aspects of communication between services and patients, ensuring people keen to use this approach move easily from one step to the next and answering any questions, appears to be invaluable.
- Involving patients in helping to decide how best to implement new technologies such as asynchronous appointments, and early improvement cycles, will likely result in better engagement from the public. It is important that how technology is used, where possible, considers diverse needs and preferences. Services should establish open feedback channels, allowing patients to share concerns, experiences, and suggestions. Seeking public advice and guidance early in the design and development of patient-facing technology products is best practice.
- There needs to be adequate resources allocated to enable services to be able to respond quickly to technology issues hindering patient engagement. This includes simple challenges like patients not being able to navigate the use of products through to substantial technical failures.
- It is likely that asynchronous consulting technologies will remain an option only for the foreseeable future. Services should continue offering different ways in which health care can be provided. We found no evidence that, compared to

our least deprived communities, our most deprived populations engaged less frequently with appointments delivered using technology. However, it seems reasonable to assume that digital exclusion is occurring across all communities, perhaps due to digital literacy or access to suitable home technology. Services interested in adopting digital appointments should be thoughtful about the fact that the cost-of-living crisis may mean digital exclusion increases in our most deprived communities. Guiding patients towards community-funded educational programmes to help them engage in digital appointments may be helpful.

Organisations

Organisational support is crucial to the successful adoption of asynchronous consulting technology. Senior staff will often be required to ensure sufficient resources including staff time are allocated to facilitate the change from business as usual and to unblock substantial barriers to progress.

- Implementing innovative products into one or more services poses a challenge similar to any significant service or pathway redesign. Adequate project management staff, whole service engagement and protected time for this, improvement science approaches and careful consideration of how best to implement technology in ways that minimise disruption to the administrative system are all crucial to success. Innovation does not simply absorb smoothly from one service to the next; almost always, some variation of the above process is necessary. Therefore, it will often be prudent for organisations to recognise the need for flexibility in the products used to deliver services, such as asynchronous consultations.
- It is important that organisations are thoughtful about the implementation of innovation technologies. Inevitably, some services, clinics or populations will be better suited than others. Even when there is a strong alignment between innovation products and services, clinics and populations, there will likely be members of these communities who need alternative ways of engaging with health care.

- Continuously monitoring the impact and performance of asynchronous consultation services is essential. Key performance indicators should include patient uptake rates, patient satisfaction and other feedback information, demographics of users, staff views, and the impact on overall service efficiency. Standard quality assurance strategies can be used to ensure services make the best possible use of this technology.

Staff

Asynchronous consulting cannot be successfully implemented without the support, guidance and help of all service staff. Their day-to-day knowledge about how their service works, the population they serve, and the administrative systems used to deliver care are all imperative to the successful adoption and integration of asynchronous consulting products. Failure to meaningfully engage staff can lead to low enthusiasm, poor progress, and suboptimal delivery to patients.

- It is extremely important that asynchronous consulting technology does not make the work of staff more burdensome and time-consuming. They should be intimately involved in designing any changes to processes and pathways to minimise disruption and maximise potential efficiency savings. It is worth teams considering how best to align the flexibility of asynchronous consulting technologies with the flexibility of staff roles and job plans. A major focus should be dovetailing onboarding to asynchronous appointments with the administrative processes of managing waiting times, booking appointments, and providing high-quality information to patients about their options.
- Frontline staff will be well placed to identify which service or clinic populations may be most suitable for asynchronous consulting, initially. An improvement method approach may be best suited in the medium term as services roll out to new populations and subgroups.
- Service or clinic staff will be best placed to tailor asynchronous consulting approaches to their specific populations or subgroups. Devising question sets and deciding whether to include photographic and video information from patients should generally be guided by the team. On the other hand, cross-

organisation or even nationally agreed-upon question sets might be appropriate at times. In general, a large number of questions is not advisable, and using photographs or videos when a condition has visible symptoms or is challenging to describe is good practice. Incorporating a real-time safe messaging system to clarify what information is being asked for seems particularly effective, especially for new patients.

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