NIHR | Applied Research Collaboration West

University of BRISTOL
Centre for Academic Primary Care

The impact of remote consultations on personalised care

Evidence briefing

Commissioned by the Personalised Care Institute

Cindy Mann
Andrew Turner
Chris Salisbury

May 2021

Contents

Executive summary

Background

The context in which healthcare is delivered has changed dramatically over the past year. The critical need to minimise face-to-face contact to reduce infection risk during the COVID-19 pandemic has led to the rapid implementation of various forms of remote consultation. Now that a more considered evaluation is possible, it is important to consider the implications of remote consultation for the quality of healthcare provision and relationships between healthcare providers and patients before these changes become normalised as 'usual care'. The focus of this briefing document is the effect of remote consultation on the way that clinicians and patients interact to achieve personalised care.

Personalised care is intended to provide care that addresses what matters to the patient in an efficient and convenient way that minimises burden on the patient and also on the healthcare system. Personalised care recognises the autonomy and expertise of patients and supports them in managing their health day-to-day using the resources available to them and supplementing those resources where possible. The main components of personalised care include shared decision-making, care and support-planning, supported self-management, and social prescribing and community-based support.

In this briefing document, we summarise the evidence to date on the benefits, challenges and suitability of the various methods of remote consultation, including purposes for which it is best suited and its suitability for meeting the healthcare needs of different segments of the population. We particularly focus on those to whom personalised care is likely to be most important, who are generally people with complex health care needs and long-term physical or mental health conditions. We then consider the implications of this evidence for provision of personalised care.

Remote consulting and personalised care

We have defined remote consulting as any situation in which the patient and clinician are not in the same room. This includes synchronous methods, such as consultations by telephone or video-call, and asynchronous methods such as electronic consultations using online forms, email and text messaging. Prior to COVID-19, uptake of remote consulting was very low, apart from use of the telephone. One barrier to wider use was the perception by both patients and clinicians of face-to-face consultations as the gold standard for providing care. In addition, concerns about workload, safety, technology limitations experienced within systems and by healthcare staff, and lack of training in how to manage remote consultations, made healthcare staff reluctant to consult remotely.

Different forms of consultation have different advantages and disadvantages for different patient groups. Remote consultations have advantages for some people by not requiring the person to travel to the health professional's place of work and avoiding the difficulties that may be imposed by distance, poor mobility, experience of social stigma or difficulties with social interaction. However, 'digital first' contact, whereby the use of an online form is required to access care, has disadvantages for those who have difficulty with internet use through lack of skills or technology. Remote consultations have disadvantages in situations when physical

examination is necessary and observing patient behaviour and non-verbal cues are important. Flexibility in offering patients a choice of modes of consultation for different problems can address these issues.

In general, remote consultation is more suitable for clearly-defined straightforward problems than 'complex' or poorly defined ones. Use of remote consulting mostly requires the prior definition of a reason for consulting, which may not always be easy to formulate. This leads to potential for increased work by both health professional and patient if the problem turns out not to be suitable for the means of consultation into which the patient has been channelled.

There are also concerns about the effect on the interaction with the patient. Health professionals and patients may fear loss of the breadth and depth of assessment that is possible with a face-to-face consultation and evidence confirms that alternatives are less rich in information. It can be harder to establish rapport and trust over the telephone when visual cues are lacking and video, while providing a better approximation to face-to-face, is still inferior in interactional terms. Both are found more satisfactory when the clinician and patient are already known to each other. In situations that are sensitive, serious, or complex, face-to-face consultations are preferable, whereas remote consultations may provide more rapid access to advice for previously known or relatively straightforward acute problems or administrative issues.

People with long-term conditions, for whom personalised care can be most beneficial, usually have ongoing and changing support needs. They often attend multiple consultations in primary and secondary care to review the management of their conditions. Remote consultation methods can offer advantages to people with long-term conditions who need urgent advice when their condition changes. Although not well-developed in the UK, videoconferencing could facilitate communication between the patient and multiple members of the team involved in their care. Patients with complex long-term conditions mostly prefer to see or speak to a clinician who knows them and has an overview of their medical history. This avoids having to repeat their story too often and receiving conflicting medical advice from clinicians unaware of their other conditions. This need for continuity of care may be positively or negatively affected by remote means of consultation, depending on how they are implemented. A person with complex needs is likely to need a face-to-face consultation to establish a care and support plan but may be happy with telephone, text or email follow-up for support, once a good relationship has been established with a consistent health care provider, if and until the situation changes. Flexibility in the way people can access care would support personalised care.

Conclusion

There is a tension between the policy priorities of digital first and personalised care. Factors that can mitigate this include providing choice and flexibility for patients in how they access health care, and operating procedures that prioritise continuity of care and face-to-face appointments for those with more complex needs or who find it difficult to access remote care. Remote consultations are not inherently good or bad but can have advantages and disadvantages depending on how they are implemented. To deliver the policy priority of personalised care in an environment where a greater proportion of consultations are conducted remotely, there will need to be a new approach to training healthcare professionals to undertake remote consultations that focuses on relationship building and the therapeutic aspects of the interaction.

Introduction

The environment in which healthcare is delivered has changed dramatically over the past year due to the COVID-19 pandemic. The pandemic caused a huge shift towards more remote consultations and accelerated the adoption of online and video consultations. This was driven by the need to minimise face-to-face contact and thereby minimise the infection risk to patients and healthcare staff. Before the pandemic, the vast majority of consultations between patients and doctors were made face-to-face, although telephone consultations represented a significant minority of consultations in primary care.[1-3] Since the pandemic, remote consultations have become the norm in primary care and many secondary care settings. Before normalising the shift to remote consultations in future 'usual care', the unintended consequences need to be considered, alongside the potential benefits.[4,5] There is an opportunity to optimise provision of healthcare so that it benefits both providers and recipients.

The introduction of remote consultations can be understood in the context of a longer-term policy expectation that the means of accessing healthcare will shift to a Digital First model.[6] Although prior to the pandemic, remote consultation systems had been introduced in both primary[7] and secondary care,[8] implementation had been slow due to a combination of technological difficulties, professional resistance, and low uptake from patients.[9] The critical need to minimise face-to-face contact during the pandemic has swept away previous resistance to remote consultation and resulted in its rapid implementation in various forms.[1,10-12] However, these changes have occurred generally without the benefit of carefully considered technological strategies, protocols and training.[9,13]

Alongside the policy of digital first models of access to health care, there has also been a parallel drive to promote personalised care.[14] The fundamental principle of personalised care is to provide individually tailored healthcare as a partnership between a person and their health care provider(s). The main components of personalised care include shared decision-making, care and support-planning, supported self-management, and social prescribing and community-based support. Underlying those components are complex considerations about what is best for each person, taking their whole context into account, prioritising the perspective of the person.

This briefing document considers the potential implications for personalised care of the move to remote consulting. Because of the diversity of people and their health needs, personalised care means that flexibility in delivery of health care, whatever the context and situation, is necessary. There are implications for all types of health professional, in the whole range of work contexts and situations they encounter, including primary and secondary care, mental health care, maternity and end-of-life care, and care throughout the life-course for both acute and chronic conditions.

In what follows, we have prioritised evidence from peer reviewed research. The field of remote consulting is beset with a large number of case reports of variable quality from early adopter sites and product vendors. Claims of impact are based on uncertain data and not compared against similar control groups. Where possible we have cited published reviews that incorporate findings from multiple sites, and we have highlighted findings that are consistent in the literature.

Much of the evidence about the implications of remote consulting for personalised care has come from primary care, where working practices have been transformed over the last year.

However, remote consulting has also been introduced in several specialities in secondary care, pre-dating the pandemic and much more extensively since. Some of this secondary-care evidence is context-dependent, since the tasks to be achieved vary in different conditions and patient groups. In this review we will consider evidence from secondary care where it is generalisable beyond a specific speciality.

We have defined remote consulting as any situation in which the patient and clinician are not in the same room. This includes synchronous methods, such as consultations by telephone or video-call, and asynchronous methods such as electronic consultations using online forms, email and text messaging. Other forms of digital health care such as online computerised cognitive behaviour therapy (CBT), apps to support behaviour change and self-management, remote monitoring and online appointment bookings and reminders have also become increasingly common. Although these may be components of health care and self-management support that contribute to personalised care, they mainly fall outside the scope of this report. Remote forms of contact which are primarily intended as triage (to briefly assess the problem and direct the patient to an appropriate route to care, for example NHS 111) are outside the scope of this review. However, we recognise that there is a blurred boundary between triage and consultation, as discussed later.

In this document, we first summarise the evidence to date on the benefits, challenges and suitability of the various methods of remote consultation, including the purposes for which it is most appropriate and its suitability for meeting the healthcare needs of different segments of the population. Next, we examine the implications of these findings for the delivery of the fundamental principles and main components of personalised care. We have kept in mind that a flexible approach is essential to accommodate diverse patient needs and preferences, achieve efficiency, address different aspects of care provision and accomplish various purposes. We particularly focus on those to whom personalised care is likely to be most important, who are generally people with complex health care needs and long-term (chronic or non-communicable) physical or mental health conditions. For people with multiple long-term conditions, the principle of empowering them through working in partnership with them is particularly important.[15,16]

Lastly, we highlight training considerations, in which we include conditions for successful implementation of remote consultation and make recommendations for successfully adopting methods of remote consultation to deliver personalised care.

Remote consulting

Background and usage

The four modalities of remote consultation used in the UK pre-COVID-19 primary care were video, telephone, email and online forms (e.g. eConsult or askmyGP), with one-way text messaging also used for appointment reminders and sending results. Pre-COVID-19, the overwhelming proportion of remote consultations were conducted by telephone, which accounted for 13-14%[2,3] of all GP consultations. Consultation using video in the UK was very rare. In a survey of 319 general practices that took place in 2015, no practices were using video consultations and 86% of practices had no intentions to implement them. Only 6% of practices had used email consultation and 53% had no plans to introduce this, compared with 66% that used telephone consultations.[13]

Before the pandemic, the use of online consulting tools such as askmyGP (https://askmygp.uk/) or eConsult UK (https://patients.econsult.health/) was also very low,[17] but increasing (see https://askmygp.uk/live/) Even where practices had promoted these tools, many experienced very low patient uptake.[17] Several other studies supported these findings of very low uptake of e-consultations and video consultations before the pandemic and explored the barriers to wider implementation and uptake. Unfamiliarity, inadequate technology, lack of training, and concerns about safety, confidentiality, quality of care, workload and inequity of access undermined policy efforts to promote alternatives to face-to-face consultations.[7-9,17-22] Notwithstanding, the NHS Long Term Plan[23] and the five year framework for GP contract reform[24] committed practices to offering video consultations to patients from April 2021 and online consultations from April 2020.

The picture changed radically in March 2020 when general practices implemented predominantly remote consulting to reduce contagion of COVID-19. Most GP practices stopped face-to-face appointments as the first point of contact, only seeing patients face-to-face when essential following a telephone or video consultation or completion of an online written assessment. A study examining how 21 general practices in south-west England changed the way they delivered care in the pandemic, reported a rapid change to 90 per cent remote GP consulting (46 per cent for nurses) in April 2020, compared with only 31 per cent in April 2019. The largest post-lockdown increase was in telephone consulting, which increased to over 85% of all GP consultations during the first 3 months of the pandemic. The number of consultations by video or e-consultations remained very low, each accounting for less than 1% of all consultations, although this is probably an underestimate.[1]

It should be noted that there are important limitations to the evidence about consulting patterns in primary care. Counts of consultation types are likely to be unreliable due to the way in which consultation and appointment types are recorded in GP computer systems and variability in how individual GPs and practices use them. However, the major shift from face-to-face consultations towards telephone consultations, with minimal use of video consultations, is clear. The use of e-consultations still appears to be low in many practices, but high in some other practices which use e-consultations as the first point of contact for almost all consultations (https://askmygp.uk/live/).

Evidence about users of online and video consultation tools prior to the pandemic consistently showed that they tended to be younger, affluent, educated and working adults,[25-29] generally those who are used to using internet technology. The use of telephone consultations, which have been commonly used for some time, varies little according to demographics.[22] Older adults are much more likely to use telephone consultations, than online and video,[29] and there is some evidence that older adults also favour email consultation if they have internet access, especially if they are disabled or housebound.[4] Access to technology is clearly a consideration, but it is far from the only one and it is not easy to predict who will prefer or be able to manage different means of remote access to healthcare.[30]

Impact

Research into the impact of remote consulting on outcomes shows a mixed picture. There is a lack of high-quality evidence in all areas, including around effects on health outcomes compared to face-to-face consultations.[17,22,31-33] Remote consulting can potentially compromise care if, for example, emails are missed,[34] or the problem cannot be clearly conveyed using a form. Access to face-to-face consultations could also be negatively affected, since 'digital-first' systems mean that a large proportion of a GP's working day is taken up with

telephone calls and responding to electronic messages, greatly reducing the time available for people who need a face-to-face consultation.

Whether use of remote means increases or decreases demand, workload and cost in primary care is a subject of debate. Evidence suggests that 'digital-first' approaches are unlikely to reduce the volume of workload in primary care,[35] although they may help practices to manage workload by diverting it to different professionals or different consultation modalities. In one study the staff cost of dealing with an e-consultation was higher compared to a standard GP face-to-face consultation.[17] This was mainly because significant time was spent dealing with e-consultations and because most online consultations resulted in GPs needing to follow up with a telephone (32%) or face to face (38%) appointment, which could duplicate workloads. If face to face consultation was had, it was not shorter than if a patient only had a face-to-face consultation.[17]

Digital first approaches have potential to increase workload by making visible unmet demand that was constrained by the number of appointments available in conventional appointment systems.[35] The (cost-)effective implementation of remote consulting systems is partly related to the amount of planning and clarity of purpose and procedures that precedes implementation.[9] There is some consensus, applicable to all contexts, that factors supporting successful adoption of remote means include training, suitable IT systems, clarity around rationale and purpose, planning and preparation including involvement of stakeholders.[4,8,22,32]

Use in secondary care

In secondary care, remote means to visualise skin lesions have been used for some time,[36-38] and, in the UK, use of video consultation has also been evaluated in some other specialities. In one large study of the use of video consultations in secondary care before the pandemic, between 2% and 22% of consultations were being undertaken remotely by participating clinicians in diabetes, antenatal diabetes and hepatobiliary and pancreatic cancer secondary care.[8] Patients and clinicians in this study and in a study of orthopaedic remote care reported some benefits, without negative effects on safety if used appropriately.[8,39] Since COVID-19, there have been an increased number of reports on the use of video consultation in a wide range of secondary care specialities, considering patient satisfaction and suitability in diverse conditions such as orthopaedics, psychiatric care, diabetes, cancer and many others.[10,40-43] In North America, much of the evidence prior to COVID-19 is about online communication systems between primary and secondary care clinicians,[44,45] where an electronic tool known as eConsult (different from the similarly-named tool used in UK primary care) has been used to improve access to specialist advice and reduce wait times.[46]

Triage

Triage systems have also become widely used to manage demand,[47,48] but with some concerns over the consequences of misaligned communication when the patient's problem does not fit well with the algorithm the call handler is attempting to follow.[49,50] Since COVID-19, because of the widespread introduction of 'telephone-first' arrangements in primary care,[51] there has been an increased blurring of the boundary between pure triage, such as that offered by NHS 111 and informally by GP receptionists, and other ways of prioritising and sifting demand for healthcare of various types. Approaches including the use of online forms which are assessed by a GP, or the requirement to first have a telephone call with a clinician before arranging a face-to-face consultation, fall somewhere between pure triage and traditional GP

consultations. In triage the problem has to be formulated beforehand, whereas in traditional GP consultations the patient could turn up to see their GP without first having to disclose the reason for the appointment.[52] Requiring people first to have a telephone conversation with their GP or complete an online form with details of the reason for their consultation request, allow the GP to form a judgement on the type of response needed, including whether to offer a face-to-face appointment, effectively introducing an element of triage.[51] However, the telephone call may lead to discussion of a problem and provision of advice, and therefore become a consultation which fulfils the patient's need.

There are inevitably advantages and disadvantages to all the various means of providing remote consultations. Although all could provide some increased convenience and flexibility for patients, the various methods may be more suited to some people and purposes than others.[4,9,22,34]

Suitability for different purposes

There is some evidence about which tasks are most suitable for different kinds of remote consulting, although overall the evidence is weak and we lack a nuanced understanding of which alternatives to face-to-face consultations should be used, for whom and in which situations.[7,32,53] However, there are some consistent findings in the literature.

Asynchronous remote consultations have been found to be most useful for straightforward enquiries such as administrative tasks or simple one-off health queries, or for straightforward routine follow-up enquiries.[17,22,32,34,54] In one study, administrative requests, such as fit notes, repeat prescriptions and test results were the most common reason for completing an e-consultation (using the eConsult platform), but around 70% of all online consultations requests led to a face-to-face or telephone consultation.[17] The advantage for patients was that they were able to get a quick response, with an average response time by practices of one day.

Both asynchronous and synchronous remote consultations (e.g., telephone, video) are considered to be less suitable for complex, sensitive or potentially distressing consultations. When the patient and clinician know each other, video or telephone consultations can build on previous knowledge and rapport and be almost as good as face-to-face for many purposes.[26] Face-to-face consultation is often needed for new, complex or potentially serious or severe acute problems, especially if a physical examination is required.[7,17,18,20,54-58] Where purely visual assessment can meet the need, sending a photograph by email or messaging services or using video can potentially improve access for medically under-served populations,[38] including in dermatology[37] and ocular emergencies.[59]

Suitability for different patient groups

The different features of the various tools make them more or less appealing or suitable to various patient groups. For example, email, e-consultation or telephone triage by a clinician may improve access to timely advice for people requesting same-day or urgent consultations in the context of long waits for a face-to-face consultation. Remote consultations can potentially benefit those who are unable to readily access healthcare due to distance, mobility or difficulties travelling.[4]

Both email and e-consultation offer an advantage for people at work, who may be unable to make themselves available or to find a private space for telephone or video consultation when convenient for the healthcare provider. Systems in which patients make a request for a

clinician to telephone them back can be very inconvenient for anyone who cannot be available all day to take a confidential telephone call which could arrive at any time. These patients might find email or online consultation more convenient because they can write their queries when it suits them and take time to compose them.[4 54]

Some patients who find telephone communication difficult (such as patients with language and learning difficulties) [56,57] may also find asynchronous digital communication preferable because it provides time to construct the message and, if necessary, find help with interpretation.[4,25,60] Those who experience communication barriers such as hearing impairments can benefit from written asynchronous consultation as well.[7,32] Email can aid communication by allowing patients to convey their concerns in a considered, explicit and detailed way.[34]

Remote consultations may be less stressful for some people with mental health problems [26,27,60] or who experience stigma in attending a GP practice or find it uncomfortable to be in the clinician's professional space.[29,60] Patients with anxiety, those wanting to raise sensitive issues or who have had negative experiences raising such issues face-to-face in the past may find it easier and preferable to consult using written means.[4,25,26,32] Some studies have found that some patients communicate more freely through remote means and thus it can enhance trust.[28] However, any means requiring people with mental health problems to put their concerns into words may also create a barrier.[60]

Barriers such as a lack of access to technology will clearly disadvantage some people. Other patients may find digital means of communication difficult or use of the technology artificial or stressful. On the other hand, experience of using email has shown that some older people with internet access may prefer communicating by email, especially if they have mobility or access problems, contrary to some health professionals' assumptions and concerns around health access equity.[22,32] Remote consultation of all kinds may be less suitable for people with complex situations unless their general situation is already known to the healthcare professional consulting with them.[22,32] This highlights the importance of seeking patients' views, offering choice and avoiding assumptions about preference.[30]

Health care provider perspectives

There are a range of potential benefits that health care providers and policy makers hope to gain from remote consultations, such as improved convenience and access for patients, and improved efficiency and workload management for providers.[7,22,34]

The introduction of telephone first systems can deliver large reductions in the length of time waiting for a consultation, but with variable impact on workload[35,56] potentially increasing it longer-term through increased demand.[57] The fears about increased demand and workload are significant factors inhibiting adoption of various remote technologies. For example, providers have expressed fears that online consultation forms might be used to consult where otherwise there would not have been a consultation request[54] and some clinicians are selective about which patients are offered email access, fearing overuse.[34] These concerns are supported by experience in the US, where offering virtual consultations by email, telephone and video increased the total number of consultations but without any reduction in office consultations.[61,62] Another concern is about duplication of work, as when telephone appointments or an e-consultation cannot resolve the problem and a subsequent face-to-face appointment is required.[22,54] Evidence shows that this effect is substantial, helping to explain why remote consulting is more likely to increase than decrease workload.[35] Furthermore,

many clinicians express concerns about equity of access, suggesting that some patients will experience disadvantage by not being able to use remote means of accessing care.[22] Unintended consequences were also experienced following introduction of online consultation forms as they could be used by patients to circumvent the appointment system and avoid the queue for an appointment.[22,54,63]

As well as concerns about patients' access to technology, some staff also express concerns about their own ability to use the technology adequately,[9] although as a result of widespread adoption during the COVID-19 pandemic, this concern may be much less prevalent. Some of these concerns could be addressed by overcoming technical problems[55] and with training to use the technology. Training is also needed in how to conduct a remote consultation and what should guide the choice of alternative means and when to use them.[53] Training is often neglected[7] but is strongly recommended.[8,25,64]

Other concerns are about the quality of care that can be provided by remote means. In terms of quality of clinical decision-making and safety, again, the evidence is equivocal making it difficult to draw conclusions.[31,65] There is a lack of evidence of harm rather than evidence of no harm and very little evidence about effect on health outcomes.[22,28,32] The lack of the full sensory range of means of assessment that is available in face-to-face consultations inevitably leads to concern that symptoms or clues might be missed.[55] To compensate, safety-netting is a standard part of remote consultation, including triage. The ability to observe subtle visual cues is particularly important in assessing mental health, which would make video consultations preferable to other digital means but generally inferior to face-to-face. For patient problems that require visual assessment of symptoms (for example, a rash), one recent study found that the combination of telephone consultation plus uploaded digital photograph of the problem often provided information for clinicians that was as good or better than video consultations that could be affected by poor video quality, and connection and set up delays and difficulties.[1] The facility to add attachments and photographs to online consultations is also valued by patients.[4] Other studies have found that video consultations appear to be safe and effective but qualified this as applying to patients who are judged to be suitable for video consultation in the first place,[65,66] or those who already knew their clinician.[8] All the alternatives are described as being better suited to simple problems and generally the more complex or serious the problem, the greater the need for face-to-face or its closest alternative, which is video.[18,20,22,26,55]

Most studies report adequate or high clinician satisfaction with remote consultations. However, there is a sense that remote interactions always fall short of face-to-face and there are concerns that the doctor-patient interaction can be diluted or undermined[7] although little is known about the effect on the patient/clinician relationship.[4] Greater effort is required to establish rapport and trust during a video consultation than during face-to-face[53] and video consultations are enhanced if this rapport has been established prior to their use.[8,26]

In a study of the implementation of various forms of remote consultation prior to the Covid-19 pandemic, Atherton et al explored the rationales used by general practice to explain their introduction. This showed that these rationales were often vague and sometimes inconsistent, and not necessarily shared by members of the same practice, which could cause confusion about their use.[7] Expectations were perhaps also somewhat unrealistic due to the promotion of online systems by policymakers and system providers at that time, which referred to the potential for saving time, reducing workload and increasing efficiency[24] without clear evidence for this. Financial incentives were also available, increasing motivation to try out online systems.[7]

Clinicians have varying beliefs about which patients are most suitable for remote consultations.[7] Some expressed the opinion that patients with English as a first language are more suitable for telephone consultations than those without, and suggested that it is easier to conduct telephone consultations with patients that they considered 'sensible'.[7,34] One study identified that GPs may judge which patients can be trusted not to overuse email access before inviting them to communicate by email.[34]

Fundamentally, many clinicians feel that face-to-face remains the 'gold standard',[67] and that without in-person contact with patients, a core part of the motivation for working in primary care would be lost.[52]

Patient perspectives

Evidence about patient perspectives is scarcer than that reporting health professional perspectives.[32] Studies of alternative means to face-to-face consultations in primary care were often conducted as small-scale pilot projects with early adopters of the technology, and prior to COVID-19 both provider and patient uptake was very low.[9,17,20,21,54,68] This is particularly the case for patient uptake, where tools were implemented as an *additional* route for patients to access care, rather than the only or preferred route, as in true *digital-first* access models. Low uptake was in part attributable to patients being unaware of the options. Another contributory factor is that receptionists assumed people would prefer face-to-face if available, meaning other options were only offered as a second-best option.[7,69]

Many studies of pilots show reasonable levels of patient satisfaction, especially when use of remote means, whether video, telephone or e-consultation, results in quicker contact with a clinician.[18,32,33,67] Qualitative research suggests that speed of access to a clinician, rather than the mode of consultation, is most important.[33] In a survey of patients choosing to register with the 'GP at hand' service in London (based on a digital first model), patients expressed more satisfaction with this service than with their previous general practice.[33] However, it is important to note that this service attracts a very specific (young, affluent) segment of the population, who are more likely to choose this service because conventional models are less convenient for them.

An important consideration for patients is the amount of control they have over access to healthcare. This covers not only being able to get a timely response but also being empowered to communicate their concerns. People interviewed about use of email consultations reported that it offered the opportunity to bypass the receptionist and access their clinician directly.[34] This meant they did not have to call at 8.30 in the morning to secure an appointment, in practices which restricted appointment booking in that way. To some it also gave a feeling that they were getting more personal care by having a direct link with their clinician and avoided having to explain their concern to the receptionist.

Demographic factors may also be associated with patient preferences However, in a randomised controlled trial in the USA in 2010, in which access to video technology was not dependent on the patient's circumstances, there was no evidence that age or gender predicted patient satisfaction with video consultations in primary care.[70] Generally, satisfaction rates with video consultations are high,[31] although there are circumstances in which both patients and clinicians agree that video is not appropriate.[67] These circumstances include the need for physical examination, as in for example, gastrointestinal, respiratory or musculoskeletal conditions or in complex situations.[70] Satisfaction is also inevitably affected by the technical quality of the video connection, to which video is more susceptible than other remote means.[26]

We have previously discussed how different patient characteristics such as mental health and communication difficulties may be associated with advantages and disadvantages from remote consultations. Those with complex conditions in general are less likely to choose remote consultations, such as video consultation,[33] or GP at Hand via smartphone.[71] Digital means such as e-consultation are most likely to be used for quick, straightforward administrative requests by those with internet familiarity. For anything else, there remains a perception among both patients and clinicians that face-to-face is the gold standard.

To some extent there is a hierarchy in terms of quality of consultation and preference, with face-to-face as the overall undisputed top choice, and video next, but the hierarchy is subject to many qualifying factors determined by the individual context. Consequently, estimates of user satisfaction require interpretation in light of differences between patient groups, since patient characteristics, including health conditions, socioeconomic and demographic context and purpose of the consultation are all relevant to the acceptability and feasibility of remote consultation.[22] All remote consultation options potentially offer improved convenience and access, if the technology is readily available, familiar and works well, but each of the four broad categories, face-to-face, telephone, video and e-consultation (asynchronous form filling or messaging) offers advantages and disadvantages to different groups of the population.

The relative lack of evidence about patient views and the rapid service-led implementation of remote consultation as a response the pandemic, have led to calls to ensure the patient voice is sufficiently heard in the way alternatives to consultation are designed and used in future.[72-74] Patients and clinicians may differ in the benefits they perceive. What is convenient and desirable for the clinician or practice may not be for the patient and vice versa. Where this balance is struck, has a strong bearing on the provision of personalised care.

Personalised care

Background and ethos

The concept of personalised care has some overlap with related concepts such as patient-centred or person-centred care but places less emphasis on the therapeutic effect of the health care professional as a person and more on their communication and inter-personal skills. The concept of personalised care was first introduced in the NHS in 2018,[75] as a fundamental principle to underpin healthcare in a context in which the norm was face-to-face care. It is now a central part of the NHS Long Term Plan.[23]

In parallel with initiatives to promote personalised care, other policies were being developed to encourage digital consultations and other services in the NHS, on the grounds that many people used and expected to use digital means to access the information and services they wanted.[76] This can be seen as compatible with the personalised care agenda to provide health care organised around the person in a way that matches their needs and preferences. Personalised care also aims to provide care that supports the person to live as well as possible with their health conditions according to their priorities, needs and preferences, considering the whole context of their life.[14] In keeping with this aim, people with long-term conditions and complex health needs have been prioritised to receive personalised care[23] but are less likely to be among the younger more affluent, employed and well-educated people who are most at ease with digital means of accessing health care.[25-29]

Personalised care is negotiated between a person and their care provider, with empathy, in a relationship characterised by trust and respect, in which the person feels seen, heard and

recognised as a person.[77] It works best when the person and their care provider know each other and are prepared.[78-80] Importantly, personalised care is delivered from the standpoint that patients are partners in their care. This includes recognising their individuality, autonomy and expertise and supporting them in managing their health day-to-day, using the resources available to them, and supplementing those resources where required.[14] Personalised care should be orientated around the person's long-term goal for their life[77] and give them as much control as they want. If successful, this approach to care will be safe and efficient, minimising burden on the person and on the healthcare system.

Flexibility is key to meeting the underlying principle of personalised care, that it should be driven by the individual person's needs and preferences. Understanding personalised care as a human service provided by one person to another, rather than seeing it as a consumer product, helps to keep the focus on the element of collaboration and co-production necessarily involved to adequately meet the unique needs of the recipient.[81] An early paper on the principles of personalised care described the necessary shift in mind-set, which 'requires health care professionals to abandon traditional ways of thinking and behaving, where they see themselves as the primary decision-makers'.[79] Instead, they are asked to work collaboratively with patients in proactive, preventative and holistic ways to optimise the patient's health. Health professionals should empower the patient to take an active part in identifying their health needs and health goals and work in partnership with the patient to decide the plans and access the support the patient needs to meet their goals.[82] This includes drawing on the patient's own resources as well as social and community support in a 'more than medicine' approach based on genuine collaboration and co-production of health that involves both the individual and their community.[83] Implementing personalised care is complex and cannot be reduced to its constituent parts and a set of actions, although there are actions that are characteristic of personalised care. However, the way the actions are performed and the motivations from which they arise are equally important.

Evidence

The evidence for personalised care is patchy and inconclusive, mainly because it is an amalgam of components which have been evaluated separately. This is unsurprising given the challenge of implementing and evaluating such a complex approach, which includes an ethos, enacted in relationships and attitudes, as well as techniques and actions, such as shared decision-making. The effectiveness of personalised care is likely to be mediated by mechanisms such as self-efficacy, patient activation, engagement and empowerment, which are not clearly differentiated constructs[84] and influenced by health literacy, opportunity and capability. Self-management, self-efficacy and patient activation are all associated with improved health outcomes[85-87] and patients most value self-management support that is orientated to what matters most to them and to their individual personal situation.[88] Therefore, the effectiveness of personalised care should be evaluated with reference to all these elements. In contrast, much of the evidence for personalised care reflects the traditional approach to healthcare and focuses on single diseases with disease-specific health status measures as the outcomes of interest.[78] The evidence that does exist tends to measure the effectiveness of the component parts of personalised care either individually or in various patchwork combinations: priority-setting, shared decision-making, goal-setting, self-management support and collaborative care. In short, the evidence for personalised care tends to measure the parts rather than the whole, and the most that can be concluded is that the more components are included, the better the outcomes.[78,89,90]

In the next section we will consider the compatibility of remote consultation with the overall ethos of personalised care.

Implications of remote consultations for general ethos

The UK government is promoting 'digital first' access to health care,[91] and there is widespread recognition that COVID-19 may be a watershed for general practice, presenting both threats and opportunities as a result of the accelerated move to remote means of consulting. Decisions need to be made now about how many of the changes brought about by this move should be retained.[5,92] The problem-focused, transactional nature of many remote consultations as a means of providing healthcare contrasts with the ethos of personalised care and raises fundamental questions about the compatibility between these two policy priorities. The transactional nature of digital first consultation models in particular, is reinforced by the way they require patients to specify in advance the reason for their consultation, with the implication that this is expected to be a single and well-defined reason. Systems such as eConsult, which use algorithms requiring patients to answer a series of questions, leave little scope for ambiguity or uncertainty. The potential conflict between digital first and personalised care is further highlighted by the way remote consultations are promoted to clinicians as a way of improving efficiency and managing workload rather than improving the quality of the consultation.

A study of GPs' views found that most GPs were prepared to adopt text messaging and email for tasks such as repeat prescriptions, sending test results and appointment reminders but had much greater reservations about using remote means for consultations.[93] The reasons included that remote consultation dilutes the therapeutic relationship and that face-to-face contact was important for job satisfaction, because general practice is a specialty that doctors go into because they enjoy inter-personal interactions. Similarly, a study of practice managers in Scotland found that those working in practices with a personalised care ethos were more likely to have reservations about the introduction of remote consultations.[94] Many clinicians are instinctively resistant to the idea of 'remote by default'.[52] The reasons given often come back to the fundamental value of the therapeutic effect of a face-to-face interaction between clinician and patient[95] that can more effectively convey empathy, attention and understanding of the patient's experience. The clinician's physical presence and touch can also be a powerful reassurance to someone who is in distress.[96] While it is clearly possible for a clinician to convey genuine empathy and presence during a synchronous remote consultation, it will be much harder without already knowing the person.

Greenhalgh and Rosen describe the clinical consultation as more than 'a mere transaction. It is a social - indeed psychodynamic – interaction, involving a series of micro-level judgements, orientated around the question "What is the best course of action for this patient, at this time, given all the issues at play?"'.[92] Agledahl et al describe 'the moral offence' patients experience, despite the courteousness and competence the doctor has displayed, 'when their existential concerns are ignored'.[97] The suggestion is that competently addressing the clinical symptoms is not enough and that patients want to be seen and responded to holistically. A recent book by Roger Neighbour[98] has a quote on the flyleaf that states 'The most important thing is to find out what is the most important thing' (attributed to Zen master Shunryu Suzuki).

In addition, doctors have been trained to believe that face-to-face assessment, including physical examination when necessary, is essential to minimise the risk of missing an important diagnosis. Points made to support these arguments include the need to be in each other's physical presence to read subtle visual cues of expression and body language, and that much

information can be obtained from watching a patient enter and leave a consulting room. Clinicians will refer to the number of times they have experienced the most significant piece of information being disclosed just as the patient is about to leave the room.[52] Doctors are also conscious that failure to diagnose or misdiagnosis is the most common reason for malpractice claims[99] and this is harder to defend if a physical examination has not been carried out.

Patients echo some of these concerns. A survey undertaken during the pandemic in the UK found that patients understood the need to provide care remotely and have tried to minimise demands on the NHS.[74] However, the majority share the perception of health care professionals that the system should not permanently switch to remote by default and that remote consultations are most suitable in situations where the problem is relatively simple. More than two thirds of patients (68%) have concerns that their health professional would not be able to assess them appropriately remotely. This survey also identified a range of other situations that respondents felt would make remote consultations unsuitable, such as mental health problems.[74]

Personalised care requires a complex exchange of information between the person and their clinician, which is enhanced by an in-depth knowledge of the person by the clinician. Video consultations are generally easier when the clinician and patient know each other[26] and health outcomes are generally better when patients experience empathy from their clinicians,[100] which may be harder to convey by remote means. A comparison of telephone and face-to-face consultations revealed that telephone consultations were shorter, presented fewer problems and included less data gathering, counselling/advice and rapport building than face-to-face consultations.[58] A similar but more recent study, comparing video as well as telephone and face-to-face consultations, confirmed these findings with regard to both video and telephone consulting.[55] Telephone and video consultations were lower on two dimensions of consultation quality than face-to-face: seeking health understanding and placing the problem in a psychosocial context. Lifestyle advice was given more often during face-to-face consultations, compared with video or telephone. These findings suggest that remote consultations are less likely to provide care that is personalised.

Considering these disadvantages, perhaps the best way of approaching the question of the effect of remote consultation on personalised care would be to ask what benefits there might be to personalised care. If remote consultations are used more frequently, but only in situations to which they are best suited and allowing patients to choose the mode that suited them best, it could increase efficiency and equitable access to care. Increased efficiency might free up time for longer face-to-face consultations, thus enhancing opportunities for personalised care. Longer consultations, combined with continuity of care, could also lead to patients consulting less frequently,[5] freeing up more time. Evidence to support this hypothesis is not yet available, but it should be a priority for future research.

Personalised care is supported by continuity of care, but this has been declining for some time.[101,102] There are strong arguments to support continuity of care, including a reduced risk of hospital admission among those experiencing the highest continuity of care versus those with least continuity.[103] Patients with complex medical needs and with multimorbidity, who are the main intended beneficiaries of personalised care, almost always prefer to see a clinician who knows them. Remote consulting can be used to either support or undermine continuity. Digital first systems can be used to direct patients to their usual doctor for electronic messages and telephone or face-to-face consultations. Some patients experienced an improvement of continuity during COVID-19 but for others it worsened as practices merged lists in response to the crisis and prioritised access over continuity.[1] This may have been due to

a combination of systems being set up hastily and clinicians and practices being under more pressure. Continuity of care is an example of where careful planning may make the difference between detrimental and beneficial use of internet technology.

There are other ways in which remote means of consultation can support personalised care. Patients can feel email gives them special access and personalised care as it bypasses the receptionist and puts them in control of making direct contact with their doctor[22,34] but this may be perceived as a threat by the general practice.[63] Rules of engagement may need to be established to ensure clarity and reduce the risk of clinicians perceiving misuse by the patient and patients feeling anxious that they may be bothering the GP too much.[34] The need to negotiate with receptionists, use waiting rooms, travel to the surgery and be in the professional space of the clinician can all be disempowering. The use of remote means such as email and video can overcome these barriers.[60]

Personalised care has choice and partnership at its heart. Consequently, a major concern in the effect of the move towards remote consultation on personalised care is the extent to which patient preferences are considered. Patient consultation is clearly important prior to the implementation of remote consultation systems in individual practice, to understand the needs and preferences of the local practice population. It is also important to avoid assumptions about individuals and where possible to provide a choice of means of access to care, based on patients' preference rather than that of the practice. If patients are provided with information and choice over the way they access healthcare and the means to exercise that choice, with support where necessary,[53] the goal of personalised care is far more likely to be met.

In this section we have considered the compatibility of fundamental principles of personalised care with the rapid move to remote consultation and ways in which the ethos of personalised care can be supported when implementing remote consultation modalities. In the next two sections we consider the way specific components of personalised care might be supported or undermined.

Shared decision-making and care and support planning

Both shared decision-making and care and support planning require time to share and interpret information and understand the range of factors that might influence a patient's preference. Both require a complex exchange of information and negotiation premised on in-depth understanding of the patient's situation. As previously noted, this is more likely to happen in face-to-face consultations than telephone or video consultations, which tend to be less information-rich and give less attention to relationship building.[55,58] While clinicians seemed satisfied with clinical decision-making in a review of video consultations,[67] there is a lack of evidence about whether patients feel adequately heard and involved in decisions.

Preparation is beneficial for shared decision-making and care and support planning. Email and other e-consultation systems can support preparation and extend the time over which the decision can be made. It allows for preliminary exchange of information, time to consider it and for the patient to formulate what they wish to say. It allows both parties to prepare for a discussion by telephone, video or face-to-face, potentially improving the efficiency of these consultations.[7,54] The free text nature of email gives it an advantage over e-consultation methods, which rely on structured forms and algorithms, by allowing freer expression and more wide-ranging information conveyed in nuanced ways. Farr et al. found that use of online forms could undermine shared decision-making,[18] although there may be other advantages to the more focused structure of online forms.

If the practice makes suitable arrangements, continuity of care can be supported in remote consultations,[32] which would make it easier to undertake shared decision-making and care and support planning in the shorter time generally available for video and telephone consultations. The more detailed knowledge of the patient resulting from continuity of care means that less time is needed for the patient to explain their situation and share information. The quality of the interaction is important and pre-existing rapport and trust will help the patient to share their preferences, needs and concerns, leading to better shared decision-making and care and support planning. One potential benefit of video-consultations is that they can allow the clinician to see the patient's home context and be introduced to their family (who may be providing positive or negative support). This might offer a benefit over face-to-face discussion in the clinician's place of work, not only because of the additional contextual information,[43] but also because it can help to re-balance the relationship in favour of the patient. However, care must be taken to protect confidentiality when consultations take place with patients remotely whether at home or at work as they may not be in a private space. Equally the safeguarding needs of vulnerable patients must be considered.

Although telephone and video consultations are more likely to focus on simple and single problems,[55,58] they do offer advantages for people who need specialist care in addition to primary care, like people with multimorbidity. Models of care have been developed in other countries which are based on video conferencing and allow simultaneous consultation with a patient's primary care physician and specialist, or multi-disciplinary team, and thus facilitate holistic care and improved care co-ordination.[104,105]

Support for self-management

Digital consultations have potential to offer support for self-management, for example by encouraging patients to take more control of their health or for the practice to monitor it more closely by use of home monitoring. During COVID-19 more people have used blood pressure machines at home or performed their own foot checks.[43] Nurses have described arrangements for reviewing long-term conditions during COVID-19 as beneficial to having discussions about self-management. The physical tests required for management of long-term conditions are first done separately face-to-face and the review subsequently takes place by telephone. This means the telephone conversation can focus on the self-management support rather than obtaining clinical information.

Information to support self-management is readily available on the internet for those that are able to access it. However, those with the greatest need for self-management support are also those living in deprived areas who have a disproportionate level of complex health needs and are the least likely to have internet access. Bakhai and Atherton recommend considering how internet access and use of technology might be supported among disadvantaged groups[25] to improve equity of access to health care.

Educational needs

The principles of personalised care place a responsibility on both patient and health providers to achieve the best health outcomes possible. Using alternatives to face-to-face care to provide personalised care successfully will require different and/or new skills,[64] as well as preparation. The challenges of communicating remotely by video or telephone need to be considered, since establishing an adequate rapport, obtaining sufficiently rich information, conveying attention and empathy to the patient, and accurate understanding may all be more

difficult.[53] The health provider also has a responsibility when using remote consultation means to ensure that patients have the resources to optimise the opportunity and exercise their own responsibility. In the case of remote provision of healthcare, this means helping to provide the necessary support to use the technology.

There are several recent papers that provide guidance and recommendations on setting up remote consultation systems, including what should be considered in choosing the form of consultation to use for a given situation and how to facilitate patient use.[4,8,25,32,92] Again, flexibility is key and willingness to switch from one mode to another, or to face-to-face in certain situations is important. Situations that might make this necessary include difficulty with the technology, uncertainty about the diagnosis or severity of illness, if the patient has communication difficulties, if it is the first consultation for a new chronic illness, if there are serious issues, or if bad news needs to be conveyed.[53]

Priorities for training and implementation

Drawing together the discussion so far, suggests several priorities for the implementation of remote consulting to support personalised care and for the training of health professionals:

- Given that the groups who most need personalised care are also those who often have the greatest difficulties with technology, the implementation strategy needs to give attention to making access as simple as possible, not presuming access to fast and reliable hardware, and providing support to enable people to use the technology (e.g. phone support to help people overcome problems with internet access, passwords etc.).
- This review has highlighted the importance of continuity of care and patient-doctor relationships in promoting personalised care, and that remote consulting is easier once a relationship is already established. This implies the need for remote consultation systems to encourage consultation with a known doctor or nurse.
- The skills needed to conduct a remote consultation differ from those involved in face-to-face consultations, and many clinicians have not had specific training in conducting remote consultations. It is important to make extra efforts to establish rapport and check the person is in a suitable environment for a consultation. Developing suitable training and supporting clinicians to undertake this training should therefore be a priority.
- The nature of remote consulting, and the way it has been promoted as a means of increasing efficiency, means that these consultations are shorter, less information-rich and involve discussion of fewer problems than face-to-face consultations.[55,58] Training in communication skills for remote consultation needs to include the importance of going beyond the immediate presenting problem to also consider other underlying factors, management of other ongoing problems, and opportunistic health promotion. Strategies for safety-netting are also particularly important when it has not been possible to examine the patient.
- The use of structured online forms in asynchronous remote consultations also tends to encourage a transactional consultation. This may be appropriate when the patient's needs are simple but will be inappropriate when the patient's needs are complex, multiple or ill-defined. This implies the importance of allowing options for people who cannot or do not want to describe their problems in simple terms by completing an online form.

- There is a lack of clarity about the purpose of remote consultations, and some dissonance between the aims and aspirations of patients, clinicians and policy makers.[22] There is a tension between the aims of improving access to care for patients while also managing GP workload, and also improving personalised care. One way in which this tension is manifest is in digital-first policies which restrict the ways in which patients can access care, for example by mandating the use of e-consultation systems or requiring a telephone consultation before a face-to-face consultation. This might be necessary during the pandemic, with the need to reduce face-to-face contact, but needs more justification after the pandemic. Allowing patients a range of options in how they access care would appear to be more aligned to the philosophy of personalised care. If the right means are used for the right reasons in the right circumstances, there is significant potential for supporting rather than undermining personalised care.

Summary/conclusion

Remote consultation creates challenges for health care staff and organisations in three key domains: IT infrastructure, organisational routines and workflow, and the interactional work required for a successful remote consultation.[106] Implementation of remote consulting involves the whole system, and in GP practices receptionists are a crucial part of this.[69] People in an organisation should therefore take time to consider what they are trying to achieve, engage all stakeholders, including patients, plan carefully and ensure access to suitable training. Personalised care is challenging, even when face-to-face, and it too requires whole system engagement. Health professionals must be fully present, using advanced communication skills to pick up nuanced communication about need and preference and engage the patient in partnership to manage their health, using priority-setting and negotiation to arrive at shared goals and plans. This is more challenging when consulting remotely. All health care personnel should recognise that remote forms of consultation require additional skills for the practice of personalised care and undertake training that focuses on relationship building and the therapeutic aspects of the interaction within remote consultations. Additional important considerations include the need to offer choice and flexibility to maximise the potential advantages and minimise the risk of compromising the care or disadvantaging certain patient groups.

Further reading

Four pieces of work between them comprehensively cover the ground of this evidence briefing and we recommend reading them for more detail on the multiple issues that should be considered in implementing remote consultations.

Atherton H, Ziebland S. What do we need to consider when planning, implementing and researching the use of alternatives to face-to-face consultations in primary healthcare? *Digit Health* 2016; **2**: 2055207616675559-.

Greenhalgh T, Rosen R. Remote by default general practice: must we, dare we, should we? *British Journal of General Practice* 2021

Rodgers M, Raine G, Thomas S, Harden M, Eastwood A. Informing NHS policy in 'digital-first primary care': a rapid evidence synthesis. *NIHR Journals Library* 2019; **12**: 12.

Wherton J, Shaw S, Papoutsi C, Seuren L, Greenhalgh T. Guidance on the introduction and use of video consultations during COVID-19: important lessons from qualitative research. *BMJ Leader* 2020: leader-2020-000262

Acknowledgements

We would like to thank Sarah Dawson for doing literature searches to identify the evidence for this review, and Jeremy Horwood, Mairead Murphy and Pauline Foreman for their very helpful comments in reviewing a draft of the report.

Sarah Dawson, Andrew Turner and Chris Salisbury are supported by the National Institute for Health Research Applied Research Collaboration West (NIHR ARC West).

This work was commissioned by the Personalised Care Institute. The views expressed here are those of the authors and not necessarily those of the Personalised Care Institute, NIHR or the Department of Health and Social Care.

References

1. Murphy M, Scott LJ, Salisbury C, et al. Implementation of remote consulting in UK primary care following the COVID-19 pandemic: a mixed-methods longitudinal study. *Br J Gen Pract* 2021; **71**(704): e166-e77.
2. NHS Digital. Appointments in general practice; March 2021. 2021. https://digital.nhs.uk/data-and-information/publications/statistical/appointments-in-general-practice/march-2021, https://digital.nhs.uk/data-and-information/publications/statistical/appointments-in-general-practice/march-2021.
3. Hobbs FDR, Bankhead C, Mukhtar T, et al. Clinical workload in UK primary care: a retrospective analysis of 100 million consultations in England, 2007-14. *Lancet* 2016; **387**(10035): 2323-30.
4. Atherton H, Ziebland S. What do we need to consider when planning, implementing and researching the use of alternatives to face-to-face consultations in primary healthcare? *Digit Health* 2016; **2**: 2055207616675559-.
5. Gray DP, Freeman G, Johns C, Roland M. Covid 19: a fork in the road for general practice. *BMJ* 2020; **370**: m3709.
6. NHS England. Digital First Primary Care. 2020. https://www.england.nhs.uk/gp/digital-first-primary-care/, https://www.england.nhs.uk/gp/digital-first-primary-care/.
7. Atherton H, Brant H, Ziebland S, et al. Alternatives to the face-to-face consultation in general practice: focused ethnographic case study. *Br J Gen Pract* 2018; **68**(669): e293-e300.
8. Greenhalgh T, Shaw S, Wherton J, et al. Real-World Implementation of Video Outpatient Consultations at Macro, Meso, and Micro Levels: Mixed-Method Study. *J Med Internet Res* 2018; **20**(4): e150.
9. Baines R, Tredinnick-Rowe J, Jones R, Chatterjee A. Barriers and Enablers in Implementing Electronic Consultations in Primary Care: Scoping Review. *J Med Internet Res* 2020; **22**(11): e19375.
10. Barkai G, Gadot M, Amir H, Menashe M, Shvimer-Rothschild L, Zimlichman E. Patient and clinician experience with a rapidly implemented large-scale video consultation program during COVID-19. *Int J Qual Health Care* 2021; **33**(1).
11. Scott J. Continued progress but growing concerns about the future: emerging insights about video consultations. 2020. https://q.health.org.uk/blog-post/continued-progress-but-growing-concerns-about-the-future-emerging-insights-about-video-consultations/, https://q.health.org.uk/blog-post/continued-progress-but-growing-concerns-about-the-future-emerging-insights-about-video-consultations/.
12. Joy M, McGagh D, Jones N, et al. Reorganisation of primary care for older adults during COVID-19: a cross-sectional database study in the UK. *Br J Gen Pract* 2020; **70**(697): e540-e7.
13. Brant H, Atherton H, Ziebland S, McKinstry B, Campbell JL, Salisbury C. Using alternatives to face-to-face consultations: a survey of prevalence and attitudes in general practice. *Br J Gen Pract* 2016; **66**(648): e460-6.
14. NHS England. Comprehensive model of personalised care. 2019. https://www.england.nhs.uk/personalisedcare/comprehensive-model-of-personalised-care/2019).

15. Stafford M, Steventon A, Thorlby R, Fisher R, Turton C, Deeny SR. Understanding the health care needs of people with multiple health conditions: The Health Foundation, 2018.
16. The Taskforce on Multiple Conditions. Just one thing after another. Living with multiple conditions. 2018. https://richmondgroupofcharities.org.uk/just-one-thing-after-another-living-multiple-conditions, https://richmondgroupofcharities.org.uk/just-one-thing-after-another-living-multiple-conditions.
17. Edwards HB, Marques E, Hollingworth W, et al. Use of a primary care online consultation system, by whom, when and why: evaluation of a pilot observational study in 36 general practices in South West England. *BMJ open* 2017; **7**(11): e016901.
18. Farr M, Banks J, Edwards HB, et al. Implementing online consultations in primary care: a mixed-method evaluation extending normalisation process theory through service co-production. *BMJ open* 2018; **8**(3): e019966.
19. Atherton H. Use of email for consulting with patients in general practice. *Br J Gen Pract* 2013; **63**(608): 118-9.
20. Marshall M, Shah R, Stokes-Lampard H. Online consulting in general practice: making the move from disruptive innovation to mainstream service. *BMJ* 2018; **360**: k1195.
21. Cowie J, Calveley E, Bowers G, Bowers J. Evaluation of a Digital Consultation and Self-Care Advice Tool in Primary Care: A Multi-Methods Study. *Int J Environ Res Public Health* 2018; **15**(5).
22. Atherton H, Brant H, Ziebland S, et al. The potential of alternatives to face-to-face consultation in general practice, and the impact on different patient groups: a mixed-methods case study. *Health Serv Deliv Res* 2018; **6**.
23. NHS England. The NHS long term plan. https://www.longtermplan.nhs.uk/online-version/, https://www.longtermplan.nhs.uk/online-version/.
24. NHS England. General Practice Forward View (GPFV). 2016. https://www.england.nhs.uk/publication/general-practice-forward-view-gpfv/, https://www.england.nhs.uk/publication/general-practice-forward-view-gpfv/.
25. Bakhai M, Atherton H. How to conduct written online consultations with patients in primary care. *BMJ* 2021; **372**: n264.
26. Donaghy E, Atherton H, Hammersley V, et al. Acceptability, benefits, and challenges of video consulting: a qualitative study in primary care. *Br J Gen Pract* 2019; **69**(686): e586-e94.
27. Mallow JA, Petitte T, Narsavage G, et al. The Use of Video Conferencing for Persons with Chronic Conditions: A Systematic Review. *Ehealth Telecommun Syst Netw* 2016; **5**(2): 39-56.
28. Mold F, Hendy J, Lai YL, de Lusignan S. Electronic Consultation in Primary Care Between Providers and Patients: Systematic Review. *JMIR Med Inform* 2019; **7**(4): e13042.
29. Parker RF, Figures EL, Paddison CA, Matheson JI, Blane DN, Ford JA. Inequalities in general practice remote consultations: a systematic review. *BJGP open* 2021; **5**(3).
30. Eccles A, Hopper M, Turk A, Atherton H. Patient use of an online triage platform: a mixed-methods retrospective exploration in UK primary care. *Br J Gen Pract* 2019; **69**(682): e336-e44.
31. Ignatowicz A, Atherton H, Bernstein CJ, et al. Internet videoconferencing for patient-clinician consultations in long-term conditions: A review of reviews and applications in line with guidelines and recommendations. *Digit Health* 2019; **5**: 2055207619845831.
32. Rodgers M, Raine G, Thomas S, Harden M, Eastwood A. Informing NHS policy in 'digital-first primary care': a rapid evidence synthesis. *Health Serv Deliv Res* 2019; **7**.
33. Salisbury C, Quigley A, Hex N, Aznar C. Private Video Consultation Services and the Future of Primary Care. *J Med Internet Res* 2020; **22**(10): e19415.
34. Atherton H, Pappas Y, Heneghan C, Murray E. Experiences of using email for general practice consultations: a qualitative study. *Br J Gen Pract* 2013; **63**(616): e760-7.
35. Salisbury C, Murphy M, Duncan P. The Impact of Digital-First Consultations on Workload in General Practice: Modeling Study. *J Med Internet Res* 2020; **22**(6): e18203.
36. Trettel A, Eissing L, Augustin M. Telemedicine in dermatology: findings and experiences worldwide - a systematic literature review. *J Eur Acad Dermatol Venereol* 2018; **32**(2): 215-24.
37. Mehrtens SH, Shall L, Halpern SM. A 14-year review of a UK teledermatology service: experience of over 40 000 teleconsultations. *Clin Exp Dermatol* 2019; **44**(8): 874-81.
38. Leavitt ER, Kessler S, Pun S, et al. Teledermatology as a tool to improve access to care for medically underserved populations: A retrospective descriptive study. *J Am Acad Dermatol* 2016; **75**(6): 1259-61.
39. Davey MS, Coveney E, Rowan F, Cassidy JT, Cleary MS. Virtual Fracture Clinics in Orthopaedic Surgery - A Systematic Review of Current Evidence. *Injury* 2020; **51**(12): 2757-62.
40. Morrison C, Beattie M, Wherton J, et al. Testing and implementing video consulting for outpatient appointments: using quality improvement system thinking and codesign principles. *BMJ open quality* 2021; **10**(1): e001259.
41. Gilbert AW, Booth G, Betts T, Goldberg A. A mixed-methods survey to explore issues with virtual consultations for musculoskeletal care during the COVID-19 pandemic. *BMC Musculoskelet Disord* 2021; **22**(1): 245.
42. Patel S, Douglas-Moore J. A reflection on an adapted approach from face-to-face to telephone consultations in our Urology Outpatient Department during the COVID-19 pandemic - a pathway for change to future practice? *BJU Int* 2020; **126**(3): 339-41.
43. Quinn LM, Davies MJ, Hadjiconstantinou M. Virtual Consultations and the Role of Technology During the COVID-19 Pandemic for People With Type 2 Diabetes: The UK Perspective. *J Med Internet Res* 2020; **22**(8): e21609.

44. Ahmed S, Kelly YP, Behera TR, et al. Utility, Appropriateness, and Content of Electronic Consultations Across Medical Subspecialties. *Ann Intern Med* 2020; **172**(10): 641-7.
45. Hensel JM, Yang R, Rai M, Taylor VH. Optimizing Electronic Consultation Between Primary Care Providers and Psychiatrists: Mixed-Methods Study. *J Med Internet Res* 2018; **20**(4): e124.
46. Liddy C, Moroz I, Mihan A, Nawar N, Keely E. A Systematic Review of Asynchronous, Provider-to-Provider, Electronic Consultation Services to Improve Access to Specialty Care Available Worldwide. *Telemed J E Health* 2019; **25**(3): 184-98.
47. Lewinski AA, Rushton S, Van Voorhees E, et al. Implementing remote triage in large health systems: A qualitative evidence synthesis. *Res Nurs Health* 2021; **44**(1): 138-54.
48. Boggan JC, Shoup JP, Whited JD, et al. Effectiveness of Acute Care Remote Triage Systems: a Systematic Review. *J Gen Intern Med* 2020; **35**(7): 2136-45.
49. Morgan JI, Muskett T. Interactional misalignment in the UK NHS 111 healthcare telephone triage service. *Int J Med Inform* 2020; **134**: 104030.
50. Murdoch J, Barnes R, Pooler J, Lattimer V, Fletcher E, Campbell JL. The impact of using computer decision-support software in primary care nurse-led telephone triage: interactional dilemmas and conversational consequences. *Soc Sci Med* 2015; **126**: 36-47.
51. NHS England. Advice on how to establish a remote 'total-triage' model in general practice using online consultations v3.; 2020.
52. Checkland K. Who needs to see a doctor face-to-face. 2021. https://lshtm.cloud.panopto.eu/Panopto/Pages/Viewer.aspx?id=f303f047-86db-4b55-beac-ace70101f38a, https://lshtm.cloud.panopto.eu/Panopto/Pages/Viewer.aspx?id=f303f047-86db-4b55-beac-ace70101f38a.
53. Car J, Koh GC, Foong PS, Wang CJ. Video consultations in primary and specialist care during the covid-19 pandemic and beyond. *BMJ* 2020; **371**: m3945.
54. Banks J, Farr M, Salisbury C, et al. Use of an electronic consultation system in primary care: a qualitative interview study. *Br J Gen Pract* 2018; **68**(666): e1-e8.
55. Hammersley V, Donaghy E, Parker R, et al. Comparing the content and quality of video, telephone, and face-to-face consultations: a non-randomised, quasi-experimental, exploratory study in UK primary care. *Br J Gen Pract* 2019; **69**(686): e595-e604.
56. Newbould J, Abel G, Ball S, et al. Evaluation of telephone first approach to demand management in English general practice: observational study. *BMJ* 2017; **358**: j4197.
57. McKinstry B, Campbell J, Salisbury C. Telephone first consultations in primary care. *BMJ* 2017; **358**: j4345.
58. McKinstry B, Hammersley V, Burton C, et al. The quality, safety and content of telephone and face-to-face consultations: a comparative study. *Qual Saf Health Care* 2010; **19**(4): 298-303.
59. Kilduff CL, Thomas AA, Dugdill J, et al. Creating the Moorfields' virtual eye casualty: video consultations to provide emergency teleophthalmology care during and beyond the COVID-19 pandemic. *BMJ Health Care Inform* 2020; **27**(3).
60. Huxley CJ, Atherton H, Watkins JA, Griffiths F. Digital communication between clinician and patient and the impact on marginalised groups: a realist review in general practice. *Br J Gen Pract* 2015; **65**(641): e813-21.
61. Ashwood JS, Mehrotra A, Cowling D, Uscher-Pines L. Direct-To-Consumer Telehealth May Increase Access To Care But Does Not Decrease Spending. *Health Aff (Millwood)* 2017; **36**(3): 485-91.
62. Pearl R. Kaiser Permanente Northern California: current experiences with internet, mobile, and video technologies. *Health Aff (Millwood)* 2014; **33**(2): 251-7.
63. Carter M, Fletcher E, Sansom A, Warren FC, Campbell JL. Feasibility, acceptability and effectiveness of an online alternative to face-to-face consultation in general practice: a mixed-methods study of webGP in six Devon practices. *BMJ open* 2018; **8**(2): e018688.
64. Laukka E, Huhtakangas M, Heponiemi T, et al. Health Care Professionals' Experiences of Patient-Professional Communication Over Patient Portals: Systematic Review of Qualitative Studies. *J Med Internet Res* 2020; **22**(12): e21623.
65. Shaw SE, Seuren LM, Wherton J, et al. Video Consultations Between Patients and Clinicians in Diabetes, Cancer, and Heart Failure Services: Linguistic Ethnographic Study of Video-Mediated Interaction. *J Med Internet Res* 2020; **22**(5): e18378.
66. Shaw S, Wherton J, Vijayaraghavan S, et al. Advantages and limitations of virtual online consultations in a NHS acute trust: the VOCAL mixed-methods study. *Health Services Delivery of Research* 2018; **6**(21).
67. Thiyagarajan A, Grant C, Griffiths F, Atherton H. Exploring patients' and clinicians' experiences of video consultations in primary care: a systematic scoping review. *BJGP open* 2020; **4**(1): bjgpopen20X101020.
68. Casey M, Shaw S, Swinglehurst D. Experiences with online consultation systems in primary care: case study of one early adopter site. *Br J Gen Pract* 2017; **67**(664): e736-e43.
69. Brant HD, Atherton H, Bikker A, et al. Receptionists' role in new approaches to consultations in primary care: a focused ethnographic study. *Br J Gen Pract* 2018; **68**(672): e478-e86.
70. Stahl JE, Dixon RF. Acceptability and willingness to pay for primary care videoconferencing: a randomized controlled trial. *J Telemed Telecare* 2010; **16**(3): 147-51.
71. Roland M. General practice by smartphone. *BMJ* 2019; **366**: l4713.
72. National Voices, Healthwatch, Traverse. The Dr will Zoom you now. 2020. https://www.nationalvoices.org.uk/sites/default/files/public/publications/the_dr_will_zoom_you_now_-_insights_report-min.pdf,

https://www.nationalvoices.org.uk/sites/default/files/public/publications/the_dr_will_zoom_you_now_-_insights_report-min.pdf.
73. Crellin N, Sherlaw-Johnson C, Hutchings R, et al. 10 practical lessons for implementing digital innovations – learning from the Care City test bed: The Nuffield Trust, 2021.
74. Britain Thinks. Britain thinks: patients and public 2021. https://britainthinks.com/wp-content/uploads/2021/03/Richmond-Group_Phase-2-full-report_FINAL-30.03.21.pdf, https://britainthinks.com/wp-content/uploads/2021/03/Richmond-Group_Phase-2-full-report_FINAL-30.03.21.pdf.
75. Abrahams C. Helping people to age well in the NHS Long Term Plan: a big challenge and an exciting opportunity. NHS; 2018
76. Bauer J. Transforming healthcare in the digital age. Transforming healthcare in the digital age: NHS UK; 2018.
77. Berntsen G, Hoyem A, Lettrem I, Ruland C, Rumpsfeld M, Gammon D. A person-centered integrated care quality framework, based on a qualitative study of patients' evaluation of care in light of chronic care ideals. *BMC Health Serv Res* 2018; **18**(1): 479.
78. Coulter A, Entwistle VA, Eccles A, Ryan S, Shepperd S, Perera R. Personalised care planning for adults with chronic or long-term health conditions. *Cochrane Database Syst Rev* 2015; 10.1002/14651858.CD010523.pub2(3): CD010523.
79. Coulter A, Roberts S, Dixon A. Delivering better services for people with long-term conditions. Building the House of Care. 2013. https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/delivering-better-services-for-people-with-long-term-conditions.pdf, https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/delivering-better-services-for-people-with-long-term-conditions.pdf.
80. Roberts S, Eaton S, Finch T, et al. The Year of Care approach: developing a model and delivery programme for care and support planning in long term conditions within general practice. *BMC Fam Pract* 2019; **20**(1): 153.
81. Batalden M, Batalden P, Margolis P, et al. Coproduction of healthcare service. *BMJ Qual Saf* 2016; **25**(7): 509-17.
82. Karazivan P, Dumez V, Flora L, et al. The patient-as-partner approach in health care: a conceptual framework for a necessary transition. *Acad Med* 2015; **90**(4): 437-41.
83. Ridge K. The team bringing wellness back to a community at the edge. 2019. https://www.longtermplan.nhs.uk/blog/the-team-bringing-wellness-back-to-a-community-at-the-edge/, https://www.longtermplan.nhs.uk/blog/the-team-bringing-wellness-back-to-a-community-at-the-edge/.
84. Fumagalli LP, Radaelli G, Lettieri E, Bertele P, Masella C. Patient Empowerment and its neighbours: clarifying the boundaries and their mutual relationships. *Health Policy* 2015; **119**(3): 384-94.
85. Peters M, Potter CM, Kelly L, Fitzpatrick R. Self-efficacy and health-related quality of life: a cross-sectional study of primary care patients with multi-morbidity. *Health Qual Life Outcomes* 2019; **17**(1): 37.
86. Hibbard JH, Greene J. What the evidence shows about patient activation: better health outcomes and care experiences; fewer data on costs. *Health Aff (Millwood)* 2013; **32**(2): 207-14.
87. Bayliss EA, Bosworth HB, Noel PH, Wolff JL, Damush TM, McIver L. Supporting self-management for patients with complex medical needs: recommendations of a working group. *Chronic illness* 2007; **3**(2): 167-75.
88. Burton CD, Entwistle VA, Elliott AM, Krucien N, Porteous T, Ryan M. The value of different aspects of person-centred care: a series of discrete choice experiments in people with long-term conditions. *BMJ open* 2017; **7**(4): e015689.
89. Flanagan S, Damery S, Combes G. The effectiveness of integrated care interventions in improving patient quality of life (QoL) for patients with chronic conditions. An overview of the systematic review evidence. *Health Qual Life Outcomes* 2017; **15**(1): 188.
90. Vermunt N, Harmsen M, Westert GP, Olde Rikkert MGM, Faber MJ. Collaborative goal setting with elderly patients with chronic disease or multimorbidity: a systematic review. *BMC Geriatr* 2017; **17**(1): 167.
91. Department of Health and Social Care. Health secretary: driving digital in the NHS. 2020. https://www.gov.uk/government/news/health-secretary-driving-digital-in-the-nhs, https://www.gov.uk/government/news/health-secretary-driving-digital-in-the-nhs.
92. Greenhalgh T, Rosen R. Remote by default general practice: must we, dare we, should we? *Br J Gen Pract* 2021.
93. Hanna L, May C, Fairhurst K. The place of information and communication technology-mediated consultations in primary care: GPs' perspectives. *Fam Pract* 2012; **29**(3): 361-6.
94. Hanna L, May C, Fairhurst K. Non-face-to-face consultations and communications in primary care: the role and perspective of general practice managers in Scotland. *Inform Prim Care* 2011; **19**(1): 17-24.
95. Balint M. The Doctor, His Patient and the Illness. London: Churchill Livingstone; 1957.
96. Kelly M, Svrcek C, King N, Scherpbier A, Dornan T. Embodying empathy: A phenomenological study of physician touch. *Med Educ* 2020; **54**(5): 400-7.
97. Agledahl KM, Gulbrandsen P, Forde R, Wifstad A. Courteous but not curious: how doctors' politeness masks their existential neglect. A qualitative study of video-recorded patient consultations. *J Med Ethics* 2011; **37**(11): 650-4.
98. Neighbour R. Consulting in a Nutshell: A practical guide to successful general practice consultations before, during and beyond the MRCGP: CRC Press; 2020.

99. Wallace E, Lowry J, Smith SM, Fahey T. The epidemiology of malpractice claims in primary care: a systematic review. *BMJ open* 2013; **3**(7): e002929.
100. Derksen F, Bensing J, Lagro-Janssen A. Effectiveness of empathy in general practice: a systematic review. *Br J Gen Pract* 2013; **63**(606): e76-84.
101. Roland M. Continuity of care: betrayed values or misplaced nostalgia. *Int J Integr Care* 2012; **12**: e200.
102. Levene LS, Baker R, Walker N, Williams C, Wilson A, Bankart J. Predicting declines in perceived relationship continuity using practice deprivation scores: a longitudinal study in primary care. *Br J Gen Pract* 2018; **68**(671): e420-e6.
103. Tammes P, Purdy S, Salisbury C, MacKichan F, Lasserson D, Morris RW. Continuity of Primary Care and Emergency Hospital Admissions Among Older Patients in England. *Ann Fam Med* 2017; **15**(6): 515-22.
104. Boeckxstaens P, Brown JB, Reichert SM, Smith CNC, Stewart M, Fortin M. Perspectives of specialists and family physicians in interprofessional teams in caring for patients with multimorbidity: a qualitative study. *CMAJ Open* 2020; **8**(2): E251-E6.
105. Trabjerg TB, Jensen LH, Sondergaard J, Sisler JJ, Hansen DG. Cross-sectoral video consultations in cancer care: perspectives of cancer patients, oncologists and general practitioners. *Support Care Cancer* 2021; **29**(1): 107-16.
106. Wherton J, Shaw S, Papoutsi C, Seuren L, Greenhalgh T. Guidance on the introduction and use of video consultations during COVID-19: important lessons from qualitative research. *BMJ Leader* 2020: leader-2020-000262.