



Kate Parker

Matthew Chia

Remote Working in Dentistry in a Time of Crisis – Tools and their Uses

Abstract: This article provides an overview of tools which enable remote working in Dentistry. It assesses the availability of tools for use in three areas of remote working in healthcare: video conference calls between professionals, apps for patients to send photographs to clinicians and platforms for telemedicine clinics and highlights the main features of common tools.

CPD/Clinical Relevance: Remote working in healthcare has become increasingly popular during the COVID-19 pandemic and an understanding of how this remote working can be utilized in Dentistry, and the associated benefits, is relevant to all clinicians.

Dent Update 2020; 47: 515–526

Coronavirus Disease 2019, or more commonly COVID-19, is a global healthcare crisis with an unprecedented number of deaths and countries taking extraordinary action to try and control the spread of the virus.^{1,2} During COVID-19, healthcare resources have been directed to fight the pandemic with the cancellation of the majority of routine medical treatment and the cessation of routine Dentistry.³ In the United Kingdom, COVID-19 has led to the implementation of countrywide measures to curb the spread

of the virus and to help save lives, including; social distancing, self-isolation and shielding.¹ To enable these social distancing measures, the use of technology has allowed flexible and remote working. This has been embraced in healthcare and implemented in a variety of contexts during this time of crisis.

Technology for remote working in healthcare

Although remote working is already used in many industries, it has not previously been widely used in healthcare. During COVID-19 it has been necessary to rethink many conventional ways of working, including utilizing remote working with the use of; video conference calling for professionals, apps that allow patients to share photographs with clinicians and the use of telemedicine clinics. When using these tools it is imperative that the highest standards of patient care are maintained, which is emphasized by the General Medical Council statement that 'digital and technological advances may present a more convenient way for patients to access healthcare, but it is important that these services do not compromise standards of care

and patient safety'.⁴

Video conference calling for professionals

Video conference calls allow individuals or groups of people to participate in a call with real time audio and visual input, which is beneficial compared to an audio telephone call as it simulates a traditional face-to-face meeting with the associated advantages of building rapport, aiding understanding and facilitating discussions.⁵ However, there are limitations associated with video calling, including; lack of physical face-to-face contact, delay in the audio-visual feedback and the need for appropriate technology and internet connection to host the call effectively.⁶

Apps for patients sharing photographs with clinicians

Sharing photographs between friends and family is common practice, however, the use of apps for patients to share photographs with clinicians is currently less common. Nevertheless, in times when patients are unable to attend appointments, it may be

Kate Parker, BDS(Hons), BA(Hons), MJDF RCS(Eng), MOrth RCS(Eng), FDS(Orth) RCS(Eng), Orthodontic Senior Specialty Registrar, Eastman Dental Hospital and Croydon University Hospital and **Matthew Chia**, BDS, MFDS RCS(Eng), MSc, MOrth RCS(Eng), FDS(Orth) RCS(Eng), Consultant Orthodontist, Clinical Lead in Orthodontics and Restorative Dentistry, Croydon University Hospital, 530 London Road, Thornton Heath CR7 7YE, UK.

| Topic | Search Terms Used |
|--|--|
| Video conference calling for professionals | <ul style="list-style-type: none"> ■ Video call ■ Video conference ■ Video conferencing ■ Video conference call ■ Video group call |
| Apps for patients to share photographs with clinicians | <ul style="list-style-type: none"> ■ Patient share photos/photographs with clinician ■ Patient share photos/photographs with doctor ■ Share patient photos/photographs ■ Patient share photos/photographs ■ Share clinical photos/photographs ■ Share medical photos/photographs |
| Telemedicine clinics | <ul style="list-style-type: none"> ■ Telemedicine ■ Teledentistry ■ Teleconsultation ■ Video consultation ■ Patient video consultation ■ Video clinic ■ Patient video call |

Table 1. The search terms used for each topic.

| Google | Bing | App Store | Google Play |
|-----------------|-----------------|-----------------|-----------------|
| BlueJeans | Babble Cloud | BlueJeans | Google Duo |
| FaceFlow | FaceFlow | Google Hangouts | Google Hangouts |
| Google Duo | Free Conference | Go to Meeting | Go to Meeting |
| Google Hangouts | Google Hangouts | Hola | Hola |
| Go to Meeting | Go to Meeting | House Party | Microsoft Teams |
| Microsoft Teams | Microsoft Teams | Microsoft Teams | Skype |
| Pow Wow Now | Skype | Skype | Video Duo |
| Skype | Video Duo | We Chat | We Chat |
| Zoom | Zoom | Zoom | Zoom |

Table 2. The main results for video conference calling for professionals.

helpful for patients and clinicians to be able to use such platforms to facilitate clinicians giving advice to patients in the absence of a traditional appointment.

Telemedicine clinics

The ability to have a video consultation with a patient can be useful when patients are unable to attend a face-to-face appointment or to obviate the need to attend an appointment.^{7,8} Video consultations are referred to as 'telemedicine' clinics, which describes any 'medical service provided remotely via information and communication

technology'.⁴

Telemedicine can reduce clinic space requirements, decrease costs and improve the efficiency of a service.^{9,10} When compared to telephone consultations, video consultations have the benefit of allowing the clinician to gain visual information and diagnostic clues, as well as the advantage of the therapeutic presence of the clinician being greater than via an audio telephone call.¹¹ Clinicians and patients communicate by video in the same way as an in-person consultation, with both reporting high levels of satisfaction.¹²⁻¹⁴ Telemedicine is only

appropriate in certain circumstances and clinicians should always ensure that the same standards of care are given in both video and face-to-face consultations.⁴

Data Protection

The General Data Protection Regulation (GDPR) applies to the processing, handling and storage of data within the European Union.¹⁵ Therefore, when using technology for remote working in healthcare, it is essential that the GDPR rules and regulations are complied with. It is advisable that all devices are appropriately secured, that two-factor

| Tool | Features |
|-----------------|---|
| Google Hangouts | <ul style="list-style-type: none"> ■ Good integration with Gmail ■ Free and paid options available ■ No limit to meeting duration ■ Up to 10 individuals can participate in the same meeting or up to 25 individuals with Google App for Work ■ Can share screens |
| Go to Meeting | <ul style="list-style-type: none"> ■ Not associated with a specific operating system ■ Free and paid options available ■ No limits to meeting duration ■ Up to 25 individuals can participate in the same meeting ■ Prices start at £9.50 per month – as price increases more individuals can participant in meetings and more ability to share and collaborate on documents ■ Can share screens ■ Virtual whiteboard ■ Can record meetings and have searchable transcript |
| Microsoft Teams | <ul style="list-style-type: none"> ■ Fully integrated with Office 365 ■ Used in collaboration with NHS Mail ■ Free with Office 365 ■ No limit to meeting duration ■ Simple to create 'teams' within an organization, more complex to create 'teams' outside an organization ■ Up to 10,000 individuals can participate in the same meeting ■ Can see up to four video screens at the same time ■ Can share screens ■ Can collaborate on documents ■ Can blur background to minimize distractions ■ Can record meetings and have searchable transcript |
| Skype | <ul style="list-style-type: none"> ■ Provided by Microsoft ■ Free ■ No limit to meeting duration ■ Up to 50 individuals can participate in the same meeting ■ End to end encryption ■ Can share screens ■ Unable to collaborate on documents ■ Can record meetings which are stored for up to 30 days |
| Zoom | <ul style="list-style-type: none"> ■ Not associated with an operating system and can be used with any operating system ■ Free and paid options available ■ Free option – 40 minutes limit to meeting duration ■ Different price options have different limits to meeting duration and number of participants allowed ■ Up to 1000 meeting participants and 10,000 viewers ■ Can see up to 49 video screens at the same time ■ End to end encryption ■ Can share screens ■ Can share documents without having to upload files ■ Can have virtual background or blur background to minimize distractions ■ Can record meetings and have searchable transcript ■ Can have a meeting room where meeting participants wait before being let into the meeting by the host ■ Can create different breakout groups within the same meeting |

Table 3. The main features of the five most common tools for video conference calling for professionals.

| Google | Bing | App Store | Google Play |
|-------------------|-------------------|---------------|--------------|
| AppwoRX | AppwoRX | Clinical Cam | AppwoRX |
| Capture Proof | Clinical Cam | Epitomyze | Clinical Cam |
| Epitomyze | Epitomyze | iConnect | Epitomyze |
| Hospify | Hospify | MedShare | Hospify |
| Med Photo Manager | Med Photo Manager | MedXStream | MedShare |
| Pic Safe | MedXStream | myBody myData | Pic Safe |
| Rx Photo | Pic Safe | Pic Safe | RxPhoto |
| The Doctor | RxPhoto | RxPhoto | Smart Share |
| Zen Snap | Share Smart | Share Smart | The Doctor |

Table 4. The main results for apps for patients to share photographs with clinicians.

authentication is used for accessing any apps or platforms that contain patient information, and that no patient data is stored on any mobile devices.¹⁶

During COVID-19, the National Health Service (NHS) produced specific information governance guidance in consultation with the Information Commissioner’s Office on the use of information technology during the pandemic.^{17,18} The guidance advises that, during the pandemic, clinicians are permitted to use personal devices to communicate with patients and host video consultations and that ‘off-the-shelf’ applications can be used where there is no practical alternative and if the benefits outweigh the risks.^{17,18}

Aim

The aim of this article is to assess the availability of tools for remote working in dentistry and to summarize the characteristics of the most common tools available.

Materials and method

The three main topics assessed were:

1. Video conference calling for professionals;
2. Apps for patients to share photographs with clinicians;
3. Telemedicine clinics.

Common search terms for each topic were established by the authors and piloted. The final search terms used are shown in Table 1. The search terms were entered into Google, Bing, the Apple App Store and Google Play search functions on 3/4/2020 and the

results were recorded and assessed. Any non-English results were excluded. The results were assessed by the two authors (KP and MC) and a third assessor was consulted to mediate and achieve a consensus in cases of disagreement. The five most common results for each topic were then assessed in more detail with information collated on their main functions.

Results

Overall, the four different search platforms used returned largely similar results for the different search terms used for each topic and there was consistent agreement between the assessors regarding the most common results for each topic.

Video conference calling for professionals

The main results for video conference calling for professionals for the four different search platforms are shown in Table 2.

The five most common results across the different search platforms were: Google Hangouts, Go to Meeting, Microsoft Teams, Skype and Zoom, all of which were found on all four of the search platforms. The salient features of these tools are shown in Table 3.

The five most common tools for video conference calling had many similarities, including allowing multiple individuals to participate in the same meeting with audio and visual feedback, and allowing users to share screens. The main differences were: if meeting participants could collaborate on

documents, if meetings could be recorded, and if meetings were encrypted. Some tools are free to download whilst others have different payment options, with the main differences being that, as the price increases, more participants can join a meeting and the limits of meeting durations are increased or removed.

Apps for patients to share photographs with clinicians

The main results for apps for patients to share photographs with clinicians for the four different search platforms are shown in Table 4.

The five most common results across the different search platforms were: Clinical Cam, Epitomyze, Hospify, Pic Safe and RxPhoto, the main features of which are shown in Table 5.

The results for apps for patients to share clinical photographs with clinicians were variable. Some of these results were for apps designed specifically for this use such as Hospify and Pic Safe, however, more often the results found were for apps aimed at clinicians using their mobile phones to take photographs rather than using traditional medical photography equipment (Clinical Cam, Epitomyze, RxPhoto).

Telemedicine clinics

The main results for telemedicine clinics for each of the four search platforms are shown in Table 6.

The five most common results

| Tool | Features |
|--------------|---|
| Clinical Cam | <ul style="list-style-type: none"> ■ App designed for clinicians taking clinical photographs on their mobile phone ■ Data stored securely ■ All data regularly deleted from mobile device ■ Can document patient consent ■ Can securely transfer photographs to email ■ Service has to be paid for |
| Epitomize | <ul style="list-style-type: none"> ■ App designed for clinicians taking clinical photographs on their mobile phone ■ Allows standardized photographs to be taken ■ Can capture, securely store and share photographs ■ Unlimited data storage ■ Service has to be paid for |
| Hospify | <ul style="list-style-type: none"> ■ App designed for patients to share photographs with clinicians ■ Approved and recommended by NHS App Library ■ Free ■ Users telephone numbers and email addresses are not revealed, therefore clinician and patient confidentiality is protected ■ Can create groups of users to share photographs and messages ■ End to end encryption ■ Messages and photographs are accessed using a 6 digit code ■ Messages and photographs are automatically deleted from the server after delivery and from mobile phones after 30 days ■ Web based version of the app also available – stores data for longer and is designed for healthcare organizations ■ Hospify Hub also available – for teams of people using mobile and web version, free for up to 10 users, different payment plans for more users |
| Pic Safe | <ul style="list-style-type: none"> ■ App designed for patients to share photographs with clinicians ■ Free ■ Documents patient consent ■ As well as photographs, audio and video files can be recorded and sent ■ Encrypts files prior to sending and deletes all data after sending ■ Files can be sent securely via email, text message or WhatsApp ■ Data can be securely transferred to hospital server and uploaded to patient medical records |
| RxPhoto | <ul style="list-style-type: none"> ■ App designed for clinicians taking, cataloguing and managing clinical photographs ■ Allows high quality photographs to be taken using mobile phone ■ Designed as an alternative to conventional medical photography hardware ■ Has positioning templates to facilitate taking consistent photographs ■ Digital patient consent forms available ■ Photographs can be annotated and marked up ■ Photographs are encrypted and stored on the Cloud ■ Service has to be paid for |

Table 5. The main features of the five most common tools for apps for patients to share photographs with clinicians.

found across the search platforms were: Attend Anywhere, EMIS Health, LIVI Connect, Nye Phone and Ortus i-Health, the most salient features of which are shown in Table 7.

The search results for tools for telemedicine clinics were varied, with the most common tools providing a range of functions, however, the majority of results did have the feature of enabling telemedicine clinics and could be used within an existing service.

Discussion

At present there are a large number of different tools available to enable remote working which provide a range of different functions. Platforms to enable conference calling between multiple individuals using live video and audio input and feedback are commonly available. There are many different providers of such tools, all of which were easy to find using the search platforms used. The ease of identifying such

tools for conference calling may be due to their common use across multiple industries.

The most common tools for conference calling had largely similar features, with the minor differences not obvious without a more in-depth assessment. The main differences between the platforms were the number of individuals who could participate in a meeting, the number of individuals that can be seen on screen at

| Google | Bing | App Store | Google Play |
|----------------------|-----------------|-------------------------|----------------|
| AMC Health | accuRx | Babylon Health | Babylon Health |
| Attend Anywhere | Attend Anywhere | Cyber Clinic | Cyber Clinic |
| Babylon Health | e-clinic | LIVI Connect | Docly |
| ClineCall Healthcare | Egton | Mend Telemedicine | Digital GP |
| CureMD | EMIS Health | my GP | LIVI Connect |
| EMIS Health | LIVI Connect | MyMD | ManageMyHealth |
| Egton | MDLive | Patient Journey Connect | my GP |
| MDLive | Nye Phone | The GP Service | Push Doctor |
| Nye Phone | Ortus i-Health | Video Doctor | The GP Service |
| Ortus i-Health | Wellola | Wellola | Wellola |

Table 6. The main results for telemedicine clinics.

any one time and the ability to share and collaborate on documents. All platforms are straightforward to use and therefore may be chosen based on an individual's requirements, personal preference and any existing use within organizations.

During COVID-19, many meetings, collaborations and teaching episodes have used video conference calling, where previously these were carried out face-to-face. This has demonstrated the flexibility in how video calling can be utilized in healthcare. Depending on the success of this during COVID-19, it will be interesting to see if its use becomes common practice following COVID-19.

The results for apps designed for patients to share photographs with clinicians were varied, with only some of the results being for apps or tools designed for this purpose. Apps that were designed for clinicians to take photographs were commonly found and such apps were not designed for patient use. These results have been included as it accurately reflects the search results and shows that it was not easy to find apps or tools aimed for patient use. This may be a common difficulty facing patients and clinicians when searching for such tools.

The search topic with the least consistent results was telemedicine clinics. This may be due to a lack of sensitivity of the search terms used, less availability of telemedicine software or telemedicine being less commonly searched for. Unfortunately, the specific features of the software often only became clear after in-depth assessment, so it may be challenging for clinicians to find the appropriate

tool for their desired use. The ideal position would be to have an agreed consensus and recommendation for a telemedicine software or platform in Dentistry.

Overall, there is much evidence in medicine to support the use of telemedicine, with Table 8 summarizing the benefits for patients and for clinicians.^{19,22} A recent study in Restorative Dentistry found that remote consultations can provide a safe and effective consultation and were not inferior to in-person consultations.²³ It also reported high levels of acceptability for patients and clinicians.²³

The cited limitations and barriers of telemedicine are: technological problems, set-up costs, staff training and the decreased interaction of patients with healthcare professionals.^{19,21} For remote working and telemedicine to become successful in routine practice, the appropriate technological infrastructure and clinical protocols are required to ensure effective patient management and to prevent the over or under prescription of care.^{19,20}

During the COVID-19 pandemic, many individuals have implemented using technology in new ways to enable remote working. These new ways of working have the potential to allow Dentistry to benefit from remote working in ways that were previously not realised.

Suggested applications of remote working in Dentistry

Videoconferencing: These have traditionally

been used in Medical Multidisciplinary Team (MDT) clinics, but these can be used for Dental MDTs in hospital. They may also be utilized by the primary care practitioners to gain referral advice from secondary care units or specialists. This format also allows real-time sharing of information and radiographs and images. Finally, it can build professional relationships between colleagues and strengthen clinical networks.

Patient photographs: This can enhance and supplement the diagnosis when giving advice remotely for routine or emergency care.

Telemedicine clinics: This can enhance and supplement the diagnosis when giving advice remotely for routine or emergency care combined with both the clinical history and physical signs. It may also build a rapport and professional relationships between the patients and clinicians.

Conclusion

COVID-19 has brought about an increased utilization of technology which enables remote working in Dentistry. Following the resolution of COVID-19, it will be interesting to see if these new and innovative ways of working are maintained and if there are any subsequent fundamental changes to some of our working practices.

Declaration of Interests

No potential conflicts of interests were reported by the authors.

| Tool | Features |
|-----------------|--|
| Attend Anywhere | <ul style="list-style-type: none"> ■ Designed to be used alongside existing hospital systems ■ Used widely across NHS Scotland and many NHS Trusts in England ■ Patient does not need to download any software, accessed via internet link which can be pinned to practice/hospital website ■ Can be used on any device ■ Patients enter a private online waiting room whilst waiting for their consultation ■ Secure and patient data is not stored ■ Can share screens with patient ■ Can write notes to patient ■ Costs of the service are unclear |
| EMIS Health | <ul style="list-style-type: none"> ■ Used by some NHS GP practices and some primary and secondary care providers in Scotland ■ Primarily an electronic healthcare records management system ■ Allows patient records to be linked and multiple professionals can access and contribute to patient records to ensure joined up care ■ Allows video consultations ■ Video consultations can be recorded to allow the clinician to refer back to the recording afterwards if required ■ Costs of the service are unclear |
| LIVI Connect | <ul style="list-style-type: none"> ■ Platform that enables clinicians to have video consultations with patients ■ Video consultation is started by a secure link being sent to patient ■ End to end encryption of video consultations ■ No data is stored ■ Costs of the service are unclear |
| Nye Phone | <ul style="list-style-type: none"> ■ Enables telephone and video calls to patients ■ Can be integrated with existing NHS systems ■ Accredited by NHS Digital ■ Widely used by many NHS GPs ■ Can be used on any device ■ Does not reveal any personal details or telephone numbers, therefore maintains patient and clinician confidentiality ■ Fully compliant with GDPR and information governance guidelines ■ Free |
| Ortus i-Health | <ul style="list-style-type: none"> ■ Used by some NHS Trusts including Barts Health ■ Patients have a mobile phone app and providers have a web portal ■ Costs of the service are unclear |

Table 7. The main features of the five most common tools for telemedicine clinics.

| Clinician | Patient |
|-------------------------------------|---|
| Improved clinical networks | Limiting the risk and spread of infection |
| Increased quality of services | Minimizing travel |
| Develop communication with patients | Improved access to care |
| Reduced patient non-attendance | Reducing stress |
| Cost-effective and efficient | Promoting self-care and prevention |
| Reduced administrative workload | Enhanced communication and convenience |
| Good experience and satisfaction | Good experience and satisfaction |

Table 8. The benefits of telemedicine for clinicians and patients.

EASTMAN DENTAL INSTITUTE



PART TIME, ONLINE distance-learning



Perfect for the busy practitioner who wants to study whilst working

- Periodontology MSc
- Dental Hygiene MSc
- Sports Dentistry MSc



Not sure?
Try one of our
online CPD short
courses first!

www.ucl.ac.uk/eastman/study

eastman DENTAL INSTITUTE

References

1. Government UK. Coronavirus. Available at <https://www.gov.uk/coronavirus> (Accessed: April 2020).
2. National Health Service. COVID-19. Available at <https://www.england.nhs.uk/statistics/statistical-work-areas/covid-19-daily-deaths/> (Accessed: April 2020).
3. National Health Service. COVID-19 and Urgent Dental Care. Available at <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/04/C0282-covid-19-urgent-dental-care-sop.pdf> (Accessed: April 2020).
4. General Medical Council. Regulatory Approaches to Telemedicine. Available at <https://www.gmc-uk.org/about/what-we-do-and-why/data-and-research/research-and-insight-archive/regulatory-approaches-to-telemedicine> (Accessed: April 2020).
5. Communication iCloud. 10 Business Benefits of Video Conferencing. Available at <https://www.communiccloud.com/blog/10-business-benefits-of-video-conferencing> (Accessed: April 2020).
6. ezTalks. Advantages and Disadvantages of Video Conferencing. Available at <https://www.eztalks.com/video-conference/advantages-and-disadvantages-of-video-conferencing.html> (Accessed: April 2020).
7. Chan WM, Woo J, Hui E, Hjelm NM. The role of telenursing in the provision of geriatric outreach services to residential homes in Hong Kong. *J Telemed Telecare* 2001; **7**: 38–46.
8. Gray LC, Edirippulige S, Smith AC *et al*. Telehealth for nursing homes: the utilization of specialist services for residential care. *J Telemed Telecare* 2012; **18**:142–146.
9. ezTalks. Top 6 Benefits of Video Conferencing in Healthcare. Available at <https://www.eztalks.com/video-conference/benefits-of-video-conferencing-in-healthcare.html> (Accessed: April 2020).
10. Mega Meeting. The Modern House Call: The Benefits of Video Conferencing in Healthcare. Available at <https://www.megameeting.com/news/benefits-of-video-conferencing-in-healthcare/> (Accessed: April 2020).
11. Greenhalgh T, Koh GCH, Car J. Covid-19: A Remote Assessment in Primary Care. *Br Med J* 2020. doi: 10.1136/bmj.m1182. Epub ahead of print.
12. Yeung A, Johnson DP, Trinh N-H, Weng W-CC, Kvedar J, Fava M. Feasibility and effectiveness of telepsychiatry services for Chinese immigrants in a nursing home. *Telemed J E Health* 2009; **15**: 336–341.
13. Wade V, Whittaker F, Hamlyn J. An evaluation of the benefits and challenges of video consulting between general practitioners and residential aged care facilities. *J Telemed Telecare* 2015; **21**: 490–493.
14. Guan WJ, Ni ZY, Hu Y *et al*. China Medical Treatment Expert Group for Covid-19. Clinical Characteristics of Coronavirus Disease 2019 in China. *N Engl J Med* 2020. doi: 10.1056/NEJMoa20002032. Epub ahead of print.
15. Information Commissioners Office. Guide to the General Data Protection Regulations (GDPR). Available at <https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/> (Accessed: April 2020).
16. Institute of Medical Illustrators. Available at <https://www.imi.org.uk/> (Accessed: April 2020).
17. Information Commissioners Office. Data Protection and Coronavirus. Available at <https://ico.org.uk/about-the-ico/news-and-events/news-and-blogs/2020/03/data-protection-and-coronavirus/> (Accessed: April 2020).
18. National Health Service X. Covid-19 Information Governance Advice for Health and Care Professionals. Available at <https://www.nhs.uk/key-information-and-tools/information-governance-guidance/health-care-professionals> (Accessed: April 2020).
19. GP. How Video Consultations can benefit Patients and the NHS. Available at: <https://www.gponline.com/video-consultations-benefit-patients-nhs/article/1401346> (Accessed: May 2020).
20. 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): e586–594.
21. 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. Southampton (UK): NIHR Journals Library; 2018 Jun.
22. NHS England. GP Online Services: The Key Benefits. Available at: <https://www.england.nhs.uk/gp-online-services/learning-so-far/key-benefits/> (Accessed: May 2020).
23. Martin N, Shahrabaf S, Towers A, Stokes C, Storey C. Remote clinical consultations in restorative dentistry: a clinical service evaluation study *Br Dent J* 2020; **228**: 441–447.