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REVIEW ARTICLE

Telemedicine and smart working: Spanish adaptation of the European Association of Urology recommendations[☆]



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Abstract

Introduction: Telemedicine provides remote clinical support through technology tools. It can facilitate medical care delivery while reducing unnecessary office visits. The COVID-19 outbreak has caused an abrupt change in our daily urological practice, where teleconsultations play a crucial role.

Objective: To provide practical recommendations for the effective use of technological tools in telemedicine.

Materials and methods: A literature search was conducted on Medline until April 2020. We selected the most relevant articles related to “telemedicine” and “smart working” that could provide valuable information.

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Results: Telemedicine refers to the use of electronic information and telecommunication tools to provide remote clinical health care support. Smart working is a working approach that uses new or existing technologies to improve performance. Telemedicine is becoming a useful and fundamental tool during the COVID-19 pandemic and will be even more in the future. It is time for us to officially give telemedicine the place it deserves in clinical practice, and it is our responsibility to adapt and familiarize with all the tools and possible strategies for its optimal implementation. We must guarantee that the quality of care received by patients and perceived by them and their families is of the highest standard.

Conclusions: Telemedicine facilitates remote specialized urological clinical support and solves problems caused by limited patient mobility or transfer, reduces unnecessary visits to clinics and is useful to reduce the risk of COVID-19 viral transmission.

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PALABRAS CLAVE

COVID-19;
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Telemedicina;
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Telesalud;
Videoconsulta

Telemedicina y trabajo inteligente: adaptación al español de las recomendaciones de la Asociación Europea de Urología

Resumen

Introducción: La telemedicina ofrece un soporte clínico remoto utilizando herramientas tecnológicas. Puede facilitar la atención médica al tiempo que reduce las visitas innecesarias a la consulta. La pandemia COVID-19 ha provocado un cambio brusco en nuestra práctica urológica diaria convirtiéndose en algo muy necesario el acto de la teleconsulta.

Objetivo: Proporcionar recomendaciones prácticas para el uso efectivo de herramientas tecnológicas en telemedicina.

Materiales y métodos: Se realizó una búsqueda en la literatura en la plataforma Medline hasta abril de 2020; seleccionamos los artículos más relevantes relacionados con «telemedicina» y «trabajo inteligente» que podrían proporcionar información útil.

Resultados: La telemedicina se refiere al uso de la información electrónica y a las herramientas de telecomunicaciones para proporcionar apoyo clínico remoto a la atención médica. El trabajo inteligente es un modelo de trabajo que utiliza tecnologías nuevas o existentes para mejorar el rendimiento. La telemedicina se está convirtiendo en una herramienta útil y necesaria durante la pandemia COVID-19 e incluso más allá de la misma. Es hora de que formalicemos y demos el lugar que se merece a la telemedicina en nuestra práctica clínica y es nuestra responsabilidad adaptar y conocer todas las herramientas y posibles estrategias para su implementación de una manera óptima, garantizar una atención de calidad a los pacientes y que dicha atención sea percibida por pacientes y familiares como de alto nivel.

Conclusiones: La telemedicina facilita la atención clínica urológica especializada a distancia y resuelve problemas como las limitaciones en la movilidad o el traslado de los pacientes, reduce las visitas innecesarias a las clínicas y es útil para reducir el riesgo de transmisión viral de la COVID-19.

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Introduction

The current COVID-19 pandemic has put our health system under great pressure, causing dramatic changes in our daily lives. Many countries have imposed restrictions on mobility and social life in an effort to control the virus spread. These protective measures have considerably conditioned the way we are practicing medicine. Health care has been forced to adapt quickly, and recommendations have even been published to help classify urological surgeries according to their priority.¹⁻⁹

Many centers are rapidly converting their on-site activity into telemedicine, which has become the new reality for most of them.¹⁰ It is expected that many patients will spend long periods of confinement at home, and the

onset or worsening of urological symptoms or the interruption of follow-up can generate anxiety and feelings of helplessness. Today, one in 10 people in the world are over 60 years old; and this number is expected to double by 2050.¹¹ Although urological diseases affect a wide spectrum of age groups (from prenatal age to advanced age), many urological diseases are found in patients at high risk of COVID-19 infection, and in those with poor evolution (advanced age, male gender, etc.).¹² As such, it is desirable to reduce unnecessary face-to-face and emergency room visits in order to avoid unnecessary contacts, thus protecting patients and reducing the burden of health care and resource consumption. It is clear, therefore, that many aspects of health care can be addressed through technology.⁵

As telemedicine has been used in previous epidemic outbreaks, it has been rapidly incorporated as a solution to monitor patients with COVID-19, and to continue with specialized care in several countries. Examples include patients isolated in Taiwan during the SARS epidemic in 2003, the pandemic H1N1 influenza in 2009, and patients infected with H7N9 influenza in 2013 in China.^{5,6,10-13} Many legal, privacy, and billing issues are involved, but these are being rapidly resolved because of the COVID-19 crisis.^{14,15}

It is difficult to predict how long will the pandemic last, and social distancing may become the “new normalcy” in our society. Even when this pandemic is over, telemedicine offers potential advantages, such as patient convenience and reduced vehicle emissions. It is time to formalize the role of telemedicine in the daily clinical practice of urology, and it is our responsibility to make efforts to adapt and familiarize with all the instruments and possible strategies for its optimal implementation.^{16,17} Our goal is to provide practical recommendations for an appropriate and effective use of technology tools in virtual medicine.

Materials and methods

This review will examine the current scenario in which telemedicine is used for daily urological practice. Extensive literature research has been conducted on original articles and reviews using the Medline database and grey literature up to April 2020. We searched for the following terms: “COVID-19 outbreak” and/or “smart working” and/or “telemedicine” and/or “telehealth” and/or “urology”. The combination of “COVID-19 outbreak” with each of the other terms resulted in 149 related articles. The coherence of these recommendations is affected by the inherent lack of strong evidence in urology.

Results

Characteristics and considerations

Telehealth refers to the use of electronic information and telecommunication tools to provide remote clinical care support, professional and public health education, and health administration.^{5,15,18} Telemedicine is used for remote clinical services such as diagnosis and monitoring.^{19,20} Smart working is a work model that uses new or existing technologies to improve performance: it is linked to the concepts of flexibility and teleworking. Any innovative idea is applicable and defends the concept of working from any place: cafeterias, coworking spaces and especially, home. Smart working is used by companies in different areas such as finance, support services and consultancy.^{21,22} Telehealth (including telemedicine) can be carried out through any communication technology such as email, telephone, messaging, calls, video calls, video transmission, data storage, images, video conferencing and webinars. However, the implementation of these technologies requires addressing issues related to privacy, reimbursement, and other organizational issues.^{4,5,15,18}

Benefits of telemedicine during the COVID-19 Pandemic

1. Reduces the spread of coronavirus (SARS-CoV-2) from symptomatic or asymptomatic infected patients
2. Reduces infection of healthy people
3. Reduces contamination to workers and hospital surfaces
4. Healthcare professionals who are positive for COVID-19 or at high risk for complicated COVID-19 infection can potentially work while on home confinement
5. Patient visits to the hospital are those which are really necessary, and their efficiency can possibly increase with time and practice
6. Recent data on patient satisfaction show that patients are accepting telemedicine to a surprising degree, particularly for follow-up consultations.^{23,24}

Telemedicine and the benefits of smart working beyond the COVID-19 pandemic

Air pollutants emitted by traffic contribute to respiratory diseases. Vehicle emissions contribute to greenhouse gases that lead to climate change. Teleworking avoids commuting, reducing these emissions and helping to improve regional air quality and to protect the environment at the same time.²⁵

Buildings use energy to heat, cool and light offices and to run equipment. Office buildings account for almost 1/5 of all commercial energy consumption and almost 3/4 of that amount is used for lighting, heating, cooling and powering office equipment. A reduced amount of office space will probably reduce emissions from electricity use. The net savings depend on changes in the use of space and equipment at the office and telework location.

Teleworking can indirectly increase productivity, as it allows workers to avoid distractions and replace commuting time with working time.²⁶

How to pursue telemedicine and smart working in urology?

Telemedicine is a team effort that includes urologists, nurses, administrative staff, interdisciplinary coordination with other services such as laboratory, radiology and oncology, and health informatics technicians.

Access to patient records and data

Records and data must be electronic in compliance with privacy and data protection regulations. In the European Union (EU), these processes must be in accordance with the General Regulation of Data Protection (GDPR). It also addresses the exportation of personal data outside the EU. The GDPR aims to give individuals control over their personal data and simplify the regulatory environment for international business by unifying rules within the EU.²⁷ Each country, region, health system and hospital has its own program to securely manage data from medical records, images, diagnostics and laboratory tests. It is desirable that they can be accessed from any computer/device and location, even from home; if this option is not available, the hospital administration

should consider providing remote access to the Virtual Private Network (VPN).

Patient scheduling

It is convenient to provide patients with different methods to schedule their visit, including websites, emails, phone numbers or through mobile applications. A prior call, text message or email reminder from the clinic team is recommended to ensure that the patient knows how to access the visit and that the necessary records are available. Patients can upload medical records directly into their file via a phone or computer so that physicians can view their tests or imaging results from other facilities during the visit. A patient appointment must be generated and managed with the help of the tele-nursing team and administrative staff, making your scheduling process more flexible.

How to contact patients and make a telehealth visit?

Patients can be contacted via a simple phone call, video call, email, text message, specific software or through a mobile application. The most interactive way seems to be a video visit, which allows practitioners to perform a limited physical exam by instructing the patient telematically. However, platforms with the ability to perform video consultations with secure data protection may be limited in many countries due to privacy, billing, and cost issues. In addition, some patients may have difficulty connecting to a video consultation due to technical problems. In such a case, a phone call may be the best option. Available telemedicine applications alone are often less interactive and may not have sufficient support compared to a comprehensive telemedicine platform (Fig. 1).

How to triage patients in telemedicine?

The best way to manage teleconsultation is based on the creation of a good triage process. The classification of patients into groups is crucial, for example: (1) first consultation or follow-up of oncological versus non-oncological diseases; (2) an acute condition for consultation (e.g., urinary tract infection, costal pain, hematuria); (3) patients who need a complementary in-person test (e.g., cystoscopy or imaging tests such as ultrasound or CT); (4) patients who really need to visit the emergency room or outpatient office for a procedure (e.g., catheterization for acute urinary retention or renal colic with fever); and, (5) patients with a diagnosis that would require surgical intervention.

In a globalized world, patients may need translation services. However, this is not directly available on some telemedicine platforms such as EPIC® (EPIC, Verona, USA). Institutions should make an effort to provide patients with interpreting services to facilitate communication.

Informed consent in the clinical record

It is important to document all data in the clinical record in the way of an on-site medical history. The note should

include a disclaimer, such as “this visit is provided with the patient’s consent”.

Management of complementary diagnostic tests

In a clinical setting, the request for diagnostic laboratory or imaging tests can be managed through the virtual private network. Many patients will need laboratory or imaging test requests, some of them with relative urgency. Files should be safely sent through secure e-mails on a regular basis. One example of a secure encrypted application is Doximity, which offers various ways to reach patients from cell phones while protecting personal number.²⁸

The COVID pandemic is limiting patient mobility and health resources. The request for complementary tests must be made in a rational way, considering that many hospital departments and laboratories with diagnostic purposes (e.g. radiology) are working under exceptional conditions and serving primarily COVID-19 patients during this critical time period. Deferring nonurgent laboratory and imaging tests should be considered, depending on the clinical priority of the test, patient age and health status, and the local COVID-19 situation.^{10,24,29,30}

Follow-up consultation

At the follow-up visit, the telehealth team should make sure that the results of the complementary tests are available to the practitioner. Once results are available and clinical decisions can be made, it is recommended to send the reports to the patient and further appointments should be scheduled. In the current pandemic, it is understandable that follow-up visits for low-risk patients may be scheduled later than usual.

Telemedicine platforms

It is convenient to rely on a platform that combines secured data management, access to electronic records, as well as the ability to allow video visits. There is a need for integrated telehealth platforms in many European countries (within a legal frame). Currently, there are commercially available platforms such as EPIC® (EPIC, Verona, WI, USA) medical record system and NHS Attend Anywhere®.¹⁰ During the outbreak, EPIC is being used successfully in the United States. However, the response capacity for rapid implementation of such platforms during a pandemic period is limited in many countries due to costs and regulations (Table 1).

How to interact with other members of the telemedicine team?

Continuous communication with the team is crucial, for which regular channels such as calls, emails and messaging are used. Online applications such as Zoom®, Hangouts® and Skype® can be used for video conferencing, although this may depend on country restrictions, and special care should be taken when sharing data. The use of Zoom® has

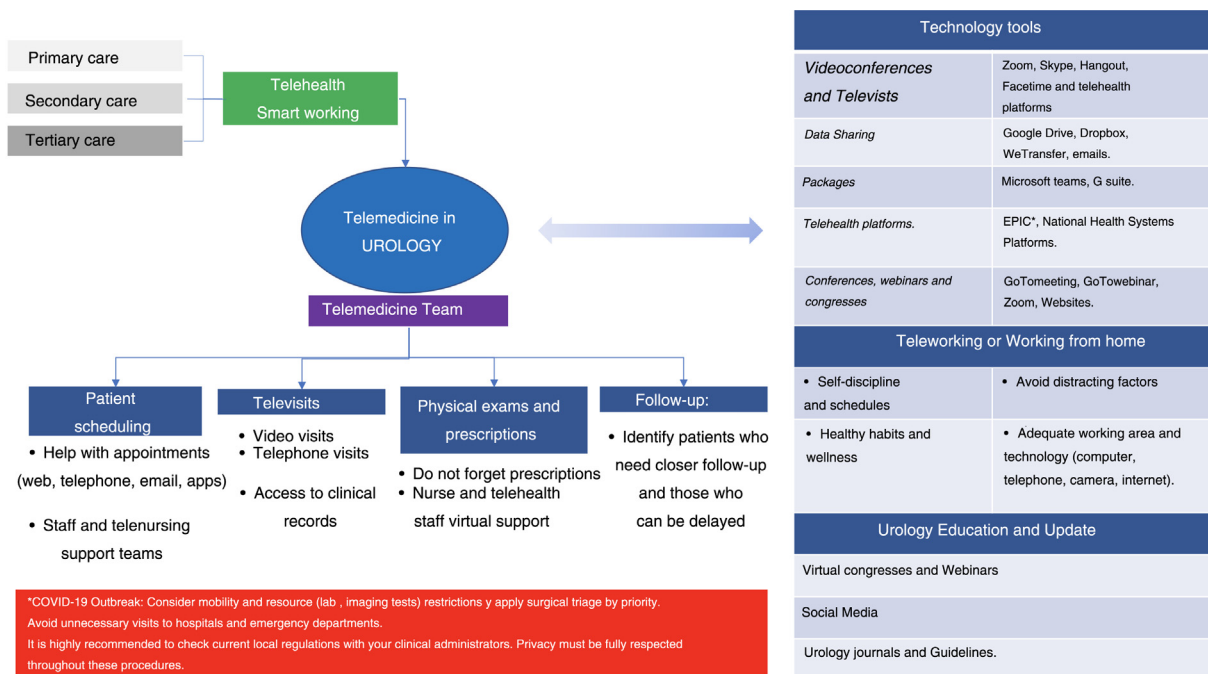


Figure 1 Telemedicine and telehealth applications in urology.

Table 1 Telehealth platforms capabilities.

	EPIC	NHS attend anywhere
Access to medical records	Yes	Yes
Connection to the National Health System	NA	Yes
Connection to hospital/clinic VPN	Yes	Yes
Video visit capability	Yes	Yes
Doctor’s access to lab test/images/prescriptions	Yes	Yes
Safety in compliance with privacy regulations	Yes	Yes
Billing in compliance with regulations	Yes	Yes
Patient consent form	Yes	Yes
Patient information	Yes	Yes
Translation services	No	No

NA = not applicable; NHS = National Health System; VPN = virtual private network.

increased during the COVID-19 pandemic, with millions of people teleworking around the world. This has caused us to be concerned about privacy. Currently, the Zoom® service does not support end-to-end encryption for video and audio content.³¹ Several paid corporate packages, such as Microsoft® Teams® and G Suite, offer email services with business domains, storage capacity and spreadsheets that allow real-time updates, chat channels, agendas, calendars and video conferencing tools for business groups with better performance than free versions with an increasing number of users. It is recommended to use secured applications in terms of privacy, and to create securely encrypted databases for patient follow-up tasks, which can be updated and shared with the entire team. Consult your clinical administrators and familiarize yourself with local regulations before adopting these technologies.

Working from home

Working from home requires self-discipline, order and organization. It is advisable to have scheduled activities, patient agenda and respect time in the same way as in face-to-face visits. Prepare an adequate work area at home that protects patients’ confidentiality and with available technology (computer, internet connection, video camera and microphone), as well as wearing professional clothing. Maintain good communication and enthusiasm with the team, as well as healthy habits and routines to improve productivity.^{21,22}

Virtual learning in urology

The year 2020 is an exceptional year, as the annual congresses of the European Association of Urology (EAU), the

American Association of Urology (AUA) and the Spanish Association of Urology (AEU) were physically suspended and have become entirely virtual due to the COVID-19 pandemic. Today, learning and sharing knowledge through virtual platforms is more compelling than ever.^{32,33} In this sense, several virtual platforms have been created, including social networks such as Twitter®, Facebook® and Instagram®, as well as urological webinars organized by the different associations.^{34–37} Several platforms can be used to create webinars and congresses. Among others, Log-Meln (<https://www.logmeininc.com/>) offers platforms such as GoToMeeting, GoToWebinar and GoToTraining that allow organizing webinars, meetings and virtual congresses in a relatively easy way, with accessible prices and complying with European regulations on data protection. There are also simpler alternatives, such as live streaming through online applications and platforms such as Facebook®, Instagram® or Zoom®, which can be options for broadcasting video conferences. Privacy must be fully respected within these processes.

Privacy and billing

Adherence to the data protection regulation is essential. It is advisable to use secured communication channels to protect the confidentiality of patient data. Platforms provided by each institution are most recommended.¹⁸ Privacy and billing regulations vary across different regions and countries and have complicated after by the rapid evolution of the COVID-19 situation.^{14,15} Once more, it is strongly advised to check on the local regulations with your clinical administrator.

Limitations and risks

One of the limitations of teleconsultations is that a physical exam cannot be performed in the conventional way. However, a physician-directed self-examination may be a reasonable option, especially in video visits.^{4,14} Moreover, it is not possible to obtain diagnostic tests (such as urine analysis, post-void residual urine measurement, laboratory tests) during the visit either, and these tests must be conducted independently.

Telemedicine billing conditions vary between countries and are complicated; however, changes in telehealth regulations are being considered, and we should be encouraged to study and adapt them to each country and region.

Confidentiality is another issue; however, it can be solved by following the recommendations, using the appropriate channels and common sense. Regulatory considerations on confidentiality are also being addressed: patients should be notified about the current protections and a disclaimer should be included in clinical documentation.

Some urologists may not have previous experience with telework and telehealth; potential challenges include scheduling virtual visits, team meetings, self-discipline, distractions from remote working, feelings of loneliness, loss of motivation, depression, disruptions to family life within the home, and creating a professional distance working environment.

Good practice recommendations on telemedicine and smart working

These recommendations aim to provide best practices for the implementation of telemedicine in urology. The COVID-19 pandemic is changing rapidly, and these recommendations should be constantly updated.

1. Stay current on innovative strategies and learn how to manage platforms and tools that enable communication with patients, communication with other team members, and secured data exchange.
2. Provide patients with different methods to schedule appointments. Contact them in advance to agree on the date and time and provide them with instructions on how to access the teleconsultation or virtual visit. Provide a telephone number for urgent consultations and alert symptoms and avoid unnecessary visits to the hospital.
3. During video visit: have a calmed and private environment, make sure that the patient does too. Preferably the patient should be alone or with a family member to help with technical issues. Computers are preferable to cell phones. Make sure that the background is quiet and not disturbing, and that there is proper lighting and good quality audio. The camera should be placed at eye level. Wear professional attire as you would in other clinical settings. Manage your body language and analyze the patient's body language. Offer advice when performing guided physical self-examinations. For patients who cannot set up a video visit for technical reasons, a phone call may be an alternative.⁴
4. Not having a specific application is not a reason to avoid telemedicine. Even a simple phone call and access to medical records, managed by a urologist or nurse, can help address urologic issues and concerns during a pandemic emergency.
5. Hospital telephones should be used for telephone calls. If you use your personal cell phone, make sure your personal number is not being revealed. There are options for the management of this issue, such as the Doximity application.
6. Triage patients using common and clinical sense.^{1–3}
7. Send reports, prescriptions, perform laboratory tests, imaging tests, and schedule in-person procedures (e.g., cystoscopies) if necessary, with the support of a nursing and/or administrative telemedicine team.
8. Maintain constant communication with the team.
9. Become familiar with the available options for email, videoconferencing, calendars, social networks, packages, telehealth platforms, and webinar platforms. Consult with administrators about local regulations before adopting these technologies.
10. Follow privacy and billing regulations in your country and region.
11. If you are a healthcare provider, self-discipline is crucial. Set schedules and avoid distractions when you are working, as if you were in an on-site job.⁴ Create healthy routines and keep motivation high. Find balance with any family member at home.

Table 2 Inappropriate telemedicine behaviors.

Misconduct	Example
Not asking for consent to televisit	Not informing change from on-site visit to online visit at the beginning of the consultation
Communicating sensitive information through improper channels	Informing a diagnosis of cancer through a text message
Not using proper channels under the privacy and billing laws of the country	Billing a consultation as face-to-face using channels or applications outside of the country's laws
Not sending reports and prescriptions that have been offered	Not sending treatment prescription taken on a regular basis
Inappropriate televisit and WFH	Wearing informal clothes, and using a nonprivate environment to inform the patient
Not properly managing a patient who needs face-to-face care	Not recommending face-to-face care to a patient with lumbar pain and fever

WFH = work from home.

12. Keep academically current by following the virtual congresses, webinars, guides and articles from the official channels of the urological associations (<https://uroweb.org/>) (www.aeu.es). Exchange knowledge and ideas through social media.^{15,18}
13. Schedule update scientific meetings by videoconferrence. Discuss relevant clinical cases and new strategies with novel situations.
14. Try to generate and share quality content for the population and patients. Remember that you are a health professional and that there is a substantial need to disseminate high quality health information, especially during a public health crisis.

Try to comply with recommendations, follow your local policies and avoid misconduct (Table 2).

Challenges and future directions

In the current scenario, we must make efforts to ensure the viability of telemedicine and smart working. These tools are useful during this crisis and are probably here to stay. It is the duty of national and regional associations, as well as the urology departments of each institution, to find strategies adapted to their local situation. We must look for simple and effective strategies in the short term and make plans for the medium and long term. No one currently knows how to return to "normal clinical practice" when the incidence of COVID-19 decreases.

Everything seems to indicate that on-site visits are going to be restricted for an indeterminate period of time, and we have to evolve rapidly with telemedicine and virtual medicine. One important issue is access to healthcare, which can be problematic for people in rural areas; this is another population that can benefit in the long term from further expansion of telemedicine.³⁸

Institutions should develop telehealth programs according to the needs of each department. This includes defining the types of services to be offered (e.g., first consultations, follow-ups, rapid test reading or imaging...). The planning phase comes after defining the needs, where dead-

lines and task lists are created to launch and maintain the telemedicine program. It includes the following steps:

1. Defining the objective of the patients and diseases to be included in the program and the timetables to be followed (e.g., monitoring of low risk prostate cancer, BPH with low to moderate symptoms...).
2. Select enthusiastic and motivated people and provide specific training.
3. Determine the hours needed to complete the tasks and create an implementation schedule.
4. Discuss and create the materials needed to build the telemedicine program.

The final phase is implementation and feedback. The implementation of a telemedicine program implies an organizational change in the departments, and as every change, this one involves people. Technology is a cornerstone of telemedicine programs; however, successful implementation requires the ability to build the best team.

Conclusions

Telemedicine and smart working provide specialized clinical support for urologists at a distance using technological tools as a logistically viable alternative to on-site consultation. This novel medical practice reduces unnecessary visits to medical facilities and is useful for reducing the risk of transmission in the current COVID-19 pandemic. In addition, both personal and social considerations (e.g., greenhouse gas emissions, greater efficiency) may support the continued use of telemedicine when applicable, even beyond the COVID-19 pandemic.

Conflicts of interest

The authors declare having no conflicts of interest.

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