

Evidence Brief: Telemedicine

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Produced by the HEE Knowledge Management team Evidence Briefs offer a quick overview of the published reports, research, and evidence on a workforce-related topic.

Date of publication: February 2023

Please acknowledge this work in any resulting paper or presentation as:

Evidence Brief: Telemedicine. Hannah Wood, Katie Nicholas and Elaine Watson. (2023). UK: Health Education England Knowledge Management Team

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Key publications – the big picture

[Building our future digital workforce](#)

Source: Health Education England

Key to our work is establishing a [workforce planning model](#) for our health informatics workforce – those who work in data, digital, technology and knowledge - so we can understand both our current workforce, the demand for our future workforce and to develop a comprehensive plan to bridge the gaps.

[Digitally-enabled primary and outpatient care will go mainstream across the NHS](#)

Source: NHS Long Term Plan

Digital technology will provide convenient ways for patients to access advice and care. For patients and staff the starting point is interoperability of data and systems, as set out in [Chapter Five](#). Then, building on progress already made on digitising appointments and prescriptions, a digital NHS ‘front door’ through the [NHS App](#) will provide advice, check symptoms and connect people with healthcare professionals – including through telephone and video consultations.

[The Digital, Data and Technology Playbook](#)

Source: UK Government

This document sets out key policies and guidance for how digital projects and programmes are assessed, procured and delivered.

[Shaping the future of digital technology in health and social care](#)

Source: The King’s Fund

The potential of digital technology to transform the health and social care system has still not been realised, though the Covid-19 pandemic has caused a rapid shift towards the remote delivery of care through online technologies.

[The Topol Review](#)

Source: Health Education England

The Topol Review outlined recommendations to ensure the NHS is the world leader in using digital technologies to benefit patients. It will involve implementing technologies such as genomics, digital medicine, artificial intelligence and robotics at a faster pace and on a greater scale than anywhere else in the world.

Case Studies

[Digital innovation and organizational changes in the healthcare sector: Multiple case studies of telemedicine project implementation](#)

Publication date: 2023

The goal of the paper is to shed light on the characterization of leverages and barriers, as well as the related managerial actions for change implemented in a context whereby the diffusion of telemedicine remains limited.

[Case study: Using telemedicine to help to improve access to healthcare for prisoners in Surrey](#)

Publication date: 2022

Telemedicine has successfully been used within prisons in the USA, but so far it has not been successfully implemented in the English prison system in the small number of pilots that have taken place. There is no current evidence of why it was not successful. This is where research can help fill in the gaps.

[Improving flows of health information to care homes](#)

Publication date: 2021

As part of the NHS England 'Personalised Health and Care 2020' programme, one of the aims was to "give care

professionals and carers access to all the data, information and knowledge they need". This includes giving care providers direct access to selected patient data, provided that consent is given, through NHS IT systems and infrastructure.

[Case study: Harnessing technology for quicker stroke care](#)

Publication date: 2021

New artificial intelligence (AI)-driven imaging support software which has the potential to deliver huge benefits to hundreds of stroke patients each year and significant cost savings to the NHS has been implemented at the Royal Berkshire NHS Foundation Trust (RBH).

HEE Star

More resources and tools are available by searching for 'technology' in the [HEE Star](#)

HEE National Data Programme

HEE staff can look at the [National Data Warehouse \(NDL\)](#) SharePoint site to find out more about datasets and Tableau products.

Published Peer Reviewed Research

Leadership and strategy

[How have remote and digital approaches impacted continuity? A mixed-studies systematic review](#)

Publication date: 2023

The dearth of evidence around continuity in a remote and digital context is troubling. Further research should explore the links between the shift to remote care, continuity and equity, using real-world evaluation frameworks to ascertain when and for whom continuity adds most value and how this can be enabled or maintained.

[Healthcare Built Environment and Telemedicine Practice for Social and Environmental Sustainability](#)

Publication date: 2023

The practice of telemedicine started at the beginning of the 20th century but has never been widely implemented, even though it is significantly sustainable compared to traveling to healthcare. However, the ongoing COVID-19 pandemic pushed organisations and patients to accept this technology.

[A multi-stakeholder approach is needed to reduce the digital divide and encourage equitable access to telehealth](#)

Publication date: 2023

To improve equity of access to telehealth, we need to reduce the digital divide through a multi-stakeholder approach. This article proposes practical steps to reduce the digital divide and encourage equitable access to telehealth. Enabling more equitable access to telehealth requires improvements in digital health literacy, workforce training in clinical telehealth, co-design of new telehealth-enabled models of care, change management, advocacy for culturally appropriate services, and sustainable funding models.

[Leadership in the context of digital health services: A concept analysis](#)

Publication date: 2022

Leadership attributes concerned leaders' behaviour, roles and qualities. Antecedents concerned informatics skills and

competence, information and tools, understanding care systems and their complexity and education. Consequences related to organization, professionals and patient and care.

[Editorial: Telemedicine: is the new normal fit for purpose?](#)

Publication date: January 2022

At the start of this year, [NHS England](#) recommended that at least 25% of outpatient appointments should be by telephone or video for the foreseeable future. But although the time and cost-saving advantages to both health systems and patients are clear, the suitability of telemedicine to rheumatological services remains uncertain.

[Perspectives from leadership and frontline staff on telehealth transitions in the Los Angeles safety net during the COVID-19 pandemic and beyond](#)

Publication date: 2022

Patient, clinic, and health system level factors must be considered when disseminating telehealth services across the safety net. Participant discussions illustrated how multilevel facilitators and barriers influenced the feasibility of video visits and other telehealth encounters.

[Outcomes of a Student-Led Telemedicine Clinic in Response to COVID-19](#)

Publication date: 2022

Through a retrospective cohort study, we determined that student triage decision was associated with patient outcomes, including hospitalization status, COVID-19 test administration, and COVID-19 test result. These results quantify the outcomes of a student-led telemedicine clinic to combat the ongoing pandemic and may serve as a model for implementation of similar clinics to alleviate mounting health care system burden.

[A Blueprint for the Conduct of Large, Multisite Trials in Telemedicine](#)

Publication date: 2021

Critical issues of ensuring leadership and buy-in, appropriate funding, and diverse and representative trials are identified and described, as well as challenges related to clinical, informatics, regulatory, legal, quality, and billing. The lessons learned from these studies were used to create a blueprint of key aspects to consider for the design and implementation of multisite telemedicine trials.

[Ten statements to support nurse leaders implement e-health tools for nursing work in hospitals: A modified Delphi study](#)

Publication date: 2021

Implementation of e-health tools for nursing work is complex in health settings and requires careful examination of multiple factors and interactions between clinicians, tools, service users and the health organisation. This research proposes ten statements to support nurse leaders with decisions about implementing e-health tools to support nursing work in hospitals.

[Understanding factors that enabled digital service change in general practice during the Covid-19 pandemic](#)

Publication date: 2021

This independent report was commissioned by the Department of Health and Social Care. The views in the report are those of the authors and all conclusions are the authors' own.

[Telemedicine takes centre stage during Covid-19 pandemic](#)

Publication date: 2020

The COVID-19 pandemic continues to spread rapidly and overwhelm health systems around the world. To cope with this unprecedented usage of healthcare resources, increasingly novel solutions are being brought into the fray. Telemedicine

has been thrust into the spotlight in the fight against COVID-19 and is being employed in many different ways to better tackle the challenges. Telemedicine will likely have a more permanent place in traditional healthcare delivery long after COVID-19 is over as users and providers recognise its utility.

[The long road to patient co-production in telehealth services](#)

Publication date: 2019

The NHS Near Me service, which offers online consultations to remote communities in Scotland, heavily involved patients in its development, reports Lynn Eaton, but services can always go further in striving for equal partnership with patients.

Implementation and effectiveness

[Telehealth utilization during the Covid-19 pandemic: a systematic review](#)

Publication date: November 2021

This study aims to review telehealth literature comprehensively since the pandemic started. It also aims to map the research landscape into a coherent taxonomy and characterise this emerging field in terms of motivations, open challenges and recommendations.

[Digital technology-based telemedicine for the covid-19 pandemic](#)

Publication date: July 2021

In this state-of-the-art review, we gain insight into the potential benefits of demonstrating telemedicine in the context of a huge health crisis by summarizing the literature related to the use of digital technologies in telemedicine applications. We also outline several new strategies for supporting the use of telemedicine at scale.

[An overview of the effect of telehealth on mortality: A systematic review of meta-analyses](#)

Publication date: 2023

Telehealth is recognised as a viable way of providing health care over distance, and an effective way to increase access for individuals with transport difficulties or those living in rural and remote areas. While telehealth has many positives for patients, clinicians and the health system, it is important that changes in the delivery of health care (e.g. in-person to telehealth) do not result in inferior or unsafe care. In this review, we collate existing meta-analyses of mortality rates to provide a holistic view of the current evidence regarding telehealth safety.

Surgery

[Innovations and Implementation of Telemedicine in Surgical Clinics Beyond COVID-19: A Narrative Review](#)

Publication date: 2023

Advanced telecommunication technology has enabled telemedicine to become an effective and safe form of health care delivery, with high consumer and provider satisfaction. Innovative protocol and technology developments have addressed the limitations of telemedicine. Sophisticated and familiar medical software integrates with electronic medical records to automate and streamline documentation, consent, and billing processes. Surgical clinics are investing in telehealth workflow co-ordination and information technology support to troubleshoot any technical difficulties as well as education for providers and consumers to address technology illiteracy.

[Telemedicine in orthopaedics and trauma surgery during the first year of COVID pandemic: a systematic review](#)

Publication date: 2023

Various successful applications of telemedicine have already been reported in orthopaedics and trauma surgery, with a

strong increase in scientific output during the COVID-19 years 2020–2021. Whether the advantages of such an approach will lead to a relevant implementation of telemedicine in everyday clinical practice should be monitored after the COVID-19 pandemic.

[Delivery of urological services \(telemedicine and urgent surgery\) during COVID-19 lockdown: experience and lessons learnt from a university hospital in United Kingdom](#)

Publication date: 2023

Hospitals and urologists can benefit from the model used by our hospital to mitigate the impact and prioritise patients most in need of urgent care. Reorganisation and flexibility of healthcare delivery is paramount in these troubled times and will allow clinical activity without compromising patient safety.

[Telemedicine in oculoplastic and adnexal surgery: clinicians' perspectives in the UK](#)

Publication date: 2022

Telemedicine has become an integral part of the oculoplastic service delivery since the COVID-19 pandemic its use is likely to continue. Further development of digital infrastructure and improvement of clinical examination capabilities are required to enable its wider adoption.

[Use of telehealth by surgical specialties during the covid-19 pandemic](#)

Publication date: March 2021

Results from this study showed that telehealth use grew across all surgical specialties in Michigan in response to the COVID-19 pandemic. While rates of telehealth use have declined as in-person care has resumed, telehealth use remains substantially higher across all surgical specialties than it was prior to the pandemic.

[Telemedicine in cardiovascular surgery during COVID-19 pandemic: A systematic review and our experience](#)

Publication date: 2020

Overall, the use of virtual consultations and remote monitoring is feasible and best placed to support these patients via triaging and postoperative monitoring. However, TM can be limited by the need of sophisticated technological requirement and patients' educational and know-how computer literacy level.

Stroke/TIA

[Cost effectiveness analysis of the East of England stroke telemedicine service](#)

Publication date: 2023

Integrating a telemedicine service improves thrombolysis rates in out-of-hours acute stroke care and is associated with NHS and social care savings and QALY gains. Telemedicine is a cost-effective approach to delivering stroke care to remote communities with limited access to stroke specialists.

[Telemedicine for neurological diseases: A systematic review and meta-analysis](#)

Publication date: 2022

The aim was to systematically review the effectiveness and safety of telemedicine combined with usual care (in-person visits) compared to usual care for the therapeutic management and follow-up assessment of neurological diseases.

[Prehospital video triage of potential stroke patients in North Central London and East Kent: rapid mixed-methods service evaluation](#)

Publication date: 2022

This study showed that prehospital video triage was usable, acceptable and safe in stroke care, but it did require clinician

training, stable network connection and appropriate back-up processes.

[Considerations for the Implementation of a Telestroke Network: A Systematic Review](#)

Publication date: 2022

The application of telestroke has matured considerably since its inception in 1999. The use of telestroke is now recommended in several published guidelines. Consequently, jurisdictions without a telestroke service are seeking practical information on the best approach to implement telestroke.

[Hyperacute stroke thrombolysis via telemedicine: a multicentre study of performance, safety and clinical efficacy](#)

Publication date: 2022

The results from this large hyperacute telestroke cohort indicate two important points for clinical practice. First, telemedicine via a hubless horizontal model provides a clinically effective and safe method for delivering hyperacute stroke thrombolysis. Second, improved door-to-needle times were offset by a concerning rise in prehospital timings.

[Delivering telemedicine consultations for patients with transient ischaemic attack during the COVID-19 pandemic in a comprehensive tertiary stroke centre in the United Kingdom.](#)

Publication Date: Oct ,2021

Our analysis showed that during the pandemic, our telemedicine consultations of TIA patients were not associated with an increased 3-month rate of recurrent TIA/stroke or cardiovascular hospital admissions.

[Stroke Care in the United Kingdom During the COVID-19 Pandemic](#)

Publication date: 2021

Assuming that the true incidence of acute stroke did not change markedly during the pandemic, hospital avoidance may have created a cohort of untreated stroke patients at risk of poorer outcomes or recurrent events. Unanticipated improvements in stroke care quality should be used as an opportunity for quality improvement and to learn about how to develop resilient health care systems.

[Establishment of an internationally agreed minimum data set for acute telestroke](#)

Publication date: 2020

The acute telestroke minimum dataset provides a recommended set of variables to systematically evaluate acute telestroke programmes in different countries. Adoption is recommended for new and existing services.

[The Association Between Stroke Mortality and Time of Admission and Participation in a Telestroke Network](#)

Publication date: 2020

Our study found that the hour of arrival for acute ischemic stroke is linked with in-hospital mortality in large hospitals, with patients more likely to die if they arrive during the nighttime hours as compared to the daytime hours. Telestroke participation is linked with lower odds of hospital mortality in all hospitals.

Physical activity and rehabilitation

[A scoping review of foot and ankle telemedicine guidelines.](#)

Publication date: 2023

This review suggests the development of foot and ankle telemedicine guidelines with recommendations on how they can better provide accessible care to their patients, making foot and ankle care management not only a hand-on-one but also reachable virtually, where applicable.

[Policy brief: Framework to guide Allied Health Professional telehealth patient consultation guidelines and training](#)

Publication date: 2023

The intended purposes of this policy brief are to: (1) present key telehealth domains that should be considered when designing telehealth guidelines for patient consultations, and (2) present areas in which AHPs should be trained prior to providing telehealth consultations.

[Patient Outcomes of Virtual Foot and Ankle Telephone Clinics during COVID-19 Pandemic: One Year Experience](#)

Publication date: 2023

The financial savings calculated during the study period was about £25000 (\$30,000). Virtual telephone clinic consultations are safe, efficient and cost effective with good patient satisfaction outcomes. It is an alternative or can be conducted adjunct to face to face consultations with adequate planning, training, good communication skills and proper documentation.

[Telehealth interventions for physical activity and exercise participation in postpartum women: A quantitative systematic review](#)

Publication date: 2023

With the minimal assessment of health-related outcomes, there is limited scope to assess the effectiveness of these interventions for postpartum women. Future research interventions need to be reported according to a validated trial reporting system and focus on relevant health related outcomes including postpartum depressive symptoms, quality of life, cardiovascular fitness, muscular strength and body composition.

[Increasing Use of Telemedicine for Neurological Disorders During the COVID-19 Pandemic: A Mini-Review](#)

Publication date: 2023

Conclusively, this article supports the idea that telemedicine is an effective tool for providing specialized healthcare for patients with neurological conditions while adhering to social distancing or lockdown policies instituted during the COVID-19 pandemic. Government and medical/healthcare authorities, physicians and healthcare providers need to work together to expand the adoption of telemedicine applications, even after the COVID-19 crisis.

[Virtual Healthcare Solutions for Cardiac Rehabilitation: A Literature Review](#)

Publication date: 2023

Efficacy outcomes with virtual cardiac rehabilitation sometimes improve on the centre-based outcomes, however, superior clinical efficacy may not necessarily be the only outcome of interest. The promise of virtual cardiac rehabilitation includes the potential for increased user adherence and longer-term patient engagement. If these outcomes can be improved, that would be a significant justification for using this technology.

[Telehealth for Parkinson disease patients during the COVID-19 pandemic: the TeleParkinson study](#)

Publication date: 2023

Patient recruitment, attendance, and technical issues rates were 61.3%, 90.5%, and 13.3%, respectively, with good scores of patient acceptance and satisfaction with the study intervention. The telehealth intervention improved physical activity, including the number of walks for at least 10 continuous minutes ($p = 0.009$) and the number of moderate-intensity activities lasting at least 10 continuous minutes ($p = 0.001$).

[Telerehabilitation for physical disabilities and movement impairment: A service evaluation in South West England](#)

Publication date: 2022

Telerehabilitation holds promise in health and social care, but it is necessary to share good practice to ensure it is safe, effective and accessible. We collated information and recommendations that informed the content of the Telerehab Toolkit (<https://www.plymouth.ac.uk/research/telerehab>), a practical resource for practitioners, patients and carers, with a focus on remote assessment and management of physical disabilities and movement impairment.

[Telehealth provision across allied health professions \(AHP\): An investigation of reimbursement considerations for its successful implementation in England](#)

Publication date: 2022

The use of telehealth is not new, however, its recent ubiquity in the National Health Service (NHS) led to the realization that telehealth can offer people a more tailored elective pathway. Resulting in the UK government declaring that digital technology is fundamental to future patient care with a commitment to deliver “at-scale virtual consultations.”

[Telemedicine and virtual respiratory care in the era of COVID-19](#)

Publication date: 2022

As we emerge from the pandemic, the balance of remote versus face-to-face consulting, and the specific role of digital health in different clinical and healthcare contexts will evolve. What is clear is that telemedicine in one form or another will be part of the “new norm”.

[An evaluation of the provision of oncology rehabilitation services via telemedicine using a participatory design approach](#)

Publication date: 2021

Positive aspects regarding telemedicine provision were highlighted including reduced financial and time burden on patients, and increased flexibility for both staff and patients. The

key concerns included digital exclusion, safety, communication and patient choice. Four co-design groups have been established to enact changes in these priority areas.

[Digital Health Rehabilitation Can Improve Access to Care in Spinal Cord Injury in the UK: A Proposed Solution](#)

Publication date: 2020

Lack of specialist beds, inadequate finance and shortage of skilled staff make it difficult for Spinal Cord Injury Centres (SCICs) in the United Kingdom (UK) to admit all newly injured individuals. Length of stay of those admitted can be too brief.

[Social care and nursing homes](#)

[Digital health technology: factors affecting implementation in nursing homes](#)

Publication date: 2020

Three broad themes emerged from the interviews: improving communication; engaging with DHT and retaining humanised care; and introducing DHT and protecting data security. The co-creation workshop participants formulated the LAUNCH process model, a nurse-led, stepped approach supporting DHT implementation in nursing homes.

[The use and impact of digital COVID-19 tracking in adult social care: a prospective cohort study of care homes in Greater Manchester](#)

Publication date: 2023

The use of the COVID-19 symptom tracker in care homes was not maintained except in Locality 1 and did not appear to reduce the COVID-19 spread. COVID-19 cases in care homes were mainly driven by care home local-area COVID-19 cases and infections among the staff members. Digital deterioration trackers should be co-produced with care home staff, and local

authorities should provide long-term support in their adoption and use.

Primary care

[Synchronous Home-Based Telemedicine for Primary Care: A Review](#)

Publication date: 2023

Facilitators included proper technology, training, and reimbursement policies that created payment parity between telemedicine and in-person care. Barriers included technological issues, such as low technical literacy and poor internet connectivity among certain patient populations, and communication barriers for patients requiring translators or additional resources to communicate.

[Admission avoidance for older adults facilitated by telemedicine during the COVID-19 pandemic.](#)

Publication date: 2023

The coronavirus pandemic has disproportionately affected older adults and has provided an incentive to find alternatives to emergency department attendance to avoid unnecessary exposure to the SARS-CoV-2 virus. To address this issue, a specialist geriatric multidisciplinary team at Queen Elizabeth Hospital set up a novel telemedicine approach to the ambulance service with the aim of reducing unnecessary emergency department attendance for older adults. This study provides a service evaluation in its first year of use.

[Primary health care during the COVID-19 pandemic: A qualitative exploration of the challenges and changes in practice experienced by GPs and GP trainees](#)

Publication date: 2023

Several key changes to general practice occurred as a result of the COVID-19 pandemic, including a rapid uptake of

telemedicine. The pandemic exposed the strengths and limitations of normal general practice and highlighted the importance of workplace camaraderie. These findings contribute to the evidence base used to adapt PHC infrastructures as we emerge from the pandemic.

[Evaluation of the Near Me consulting service in Scotland during Covid-19](#)

As part of Scotland's response to the COVID-19 pandemic, the use of the Near Me video system to access appointments for health and social care was rapidly scaled up at the outbreak of the pandemic. Now, a report by experts from Oxford University has concluded that using the technology has helped to reduce the risk of infection and allowed for continued service provision.

[Expansion of telehealth in primary care during the COVID-19 pandemic: benefits and barriers](#)

Publication date: 2021

This article examines the benefits of telehealth, including continuity of care, convenience of access to care, screening and triaging, and social distancing and disease prevention. The utilization of telehealth and financial implications are discussed, including reimbursement and cost-effectiveness.

[Telehealth Palliative Care in Nursing Homes: A Scoping Review](#)

Publication date: 2023

Although limited in scope and quality, the current evidence for telehealth palliative care interventions shows promise for improving quality and outcomes of serious illness care in NHs. Future empirical studies should focus on intervention effectiveness, implementation outcomes (eg, managing technology), stakeholders' experience, and costs.

Secondary care

[Have telemedicine consultations been beneficial as follow-up appointments for people with multiple sclerosis?](#)

Publication date: 2023

This study showed that the rapid uptake of telemedicine during the Covid-19 pandemic was useful to maintain regular reviews of people with MS. However, given the small sample size and limited age range, further research will be required to ascertain whether people with MS find telemedicine follow-up appointments as beneficial as face-to-face appointments.

[Telephone versus face-to-face clinics for the management of new rhinology referrals: a retrospective cohort study](#)

Publication date: 2023

No abstract available.

[Bringing hospital care home: Virtual Wards and Hospital at Home for older people](#)

Publication date: 17th August 2022

This document summarises the current landscape of Virtual Wards from the perspective of healthcare for older people, and provides advice to BGS members looking to set up such services for older people living with frailty.

[Are telephone consultations the future if the NHS? The outcomes and experiences of an NHS urological service in moving to telemedicine?](#)

Publication date: March 2021

This study demonstrates high overall satisfaction with the use of telephone consultations among urology patients. For some patients, telephone consultations are more suitable and may be utilised more frequently in the future. However, it is clear that in selected cases face-to-face consultations are required for safe, comprehensive clinical assessment.

[Safety of video-based telemedicine compared to in-person triage in emergency ophthalmology during COVID-19](#)

Publication date: 2021

We demonstrate comparable patient safety of videoconsultations at one-month follow-up to in person review. The service is acceptable to patients and reduces the risk of COVID-19 transmission. We propose that videoconsultations are effective and desirable as a tool for triage in ophthalmology.

[Using telemedicine to improve access, cost and quality of secondary care for people in prison in England: a hybrid type 2 implementation effectiveness study](#)

Publication date: 2020

Implementation and use in English prison settings has been limited to date despite political drivers for change. We plan to research the implementation of a new prison-hospital telemedicine model in an English county to understand what factors drive or hinder implementation and whether the model can improve healthcare outcomes as demonstrated in other contextual settings.

Medicines and misuse disorders

[Key implementation factors in telemedicine-delivered medications for opioid use disorder: a scoping review informed by normalisation process theory](#)

Publication date: 2023

Telemedicine could improve access to medications for opioid use disorder (MOUD). Telemedicine-delivered MOUD (TMOUD) has expanded substantially in response to the restrictions imposed by the COVID-19 pandemic on in-person clinical contact, yet this expansion has not happened consistently across all health systems and countries.

[Provision of drug and alcohol services amidst COVID-19 pandemic: a qualitative evaluation on the experiences of service providers](#)

Publication date: 2022

This study demonstrates the multifaceted impact of the COVID-19 pandemic on UK-based D&A service provisions. The long-term impact of reduced supervision on Substance Use Disorder treatment and outcomes and any effect of virtual communications on service efficiency, patient-provider relationships and treatment retention and successes are unknown, suggesting the need for further study to assess their utility.

[Rapid design and implementation of a virtual pain management programme due to COVID-19: a quality improvement initiative](#)

Publication date: 2022

This report demonstrates how a remotely delivered PMP, fully in line with national guidance, was rapidly developed and implemented in a hospital setting for patients with chronic musculoskeletal pain. We also discuss the relevance of our findings to the issues of cost, patient experience, patient preferences and inequities of access in delivering telerehabilitation for chronic pain.

[The Efficacy of Tele-Monitoring in Maintaining Glycated Haemoglobin Levels in Patients with Type 2 Diabetes Mellitus: A Systematic Review](#)

Publication date: 2022

The findings of this review show that telemedicine may be effective in managing blood glucose in patients with type 2 diabetes. However, factors such as educational level of patients, attitude and costs may limit its application in primary care. More studies are required to fully establish the effectiveness of Telemonitoring in managing patients with type 2 diabetes.

[Influence of synchronous primary care telemedicine versus in-person visits on diabetes, hypertension, and hyperlipidemia outcomes: a systematic review.](#)

Publication Date: 2022

A systematic review of the literature found few studies comparing clinical outcomes resulting from synchronous telemedicine versus in-person office visits, but the existing literature showed that in the primary care setting, telemedicine was not inferior to in-person visits for the management of diabetes, hypertension, or hypercholesterolemia. These results hold promise for continued use of telemedicine for chronic disease management.

[Telehealth and access to medications in an era of COVID-19. Experience from virtual clinics for patients with severe asthma on biologics](#)

Publication date: 2021

Many patients were satisfied with telemedicine, so this could be used to deliver routine outpatient tertiary care post-pandemic. However, during the lockdown, some patients did not receive scheduled biologic therapy and had insufficient medications. Thus, logistics around supplying medications, and biologics must be considered in plans preparing for a second wave of COVID-19. Teaching patients to self-inject biologic therapy should be considered.

[Telemedicine-delivered treatment interventions for substance use disorders: A systematic review](#)

Publication date: 2021

Overall, studies suggest high patient satisfaction and telemedicine potentially effective.

Mental health

[Telemental health for clinical assessment and treatment](#)

Publication date: 2023

Results indicate that telemental health assessment and clinical outcomes are similar compared with in-person care but there is much unexplained variability, as well as evidence that patient clinical and demographic characteristics can influence these findings.

[The use of telemedicine in forensic psychiatry – a quick scoping review of literature from the time of the COVID-19 pandemic](#)

Publication date: 2023

A search identified 8 relevant pieces of recent literature that explored this subject. Particular themes were discovered throughout the literature relating to the following topics: pre-COVID experience, accessibility, adoption, staff attitudes, patient attitudes, effectiveness, technological factors, safety, legal and ethical issues, and patient suitability. Despite the wide implementation of videoconferencing facilities for remote consultations, there is concern regarding the lack of clinical and legal guidelines and formal training available to professionals.

[The impact of the COVID-19 pandemic on perinatal services and maternal mental health in the UK](#)

Publication date: 2023

The pandemic has contributed to increased rates of mental illness among pregnant and new mothers in the UK. Although the long-term implications are largely unpredictable, it is important to anticipate increased prevalence and complexity of symptoms, which could be hugely detrimental to an already overburdened National Health Service.

[A Telehealth and Telepsychiatry Economic Cost Analysis Framework: Scoping Review](#)

Publication date: 2023

The evaluation of telehealth and TP has focused on access, quality, patient outcomes, feasibility, effectiveness, outcomes, and cost. Cost-effectiveness, cost-benefit, and other analytic models are more common with telehealth than TP studies, and these studies show favorable clinical, quality of life, and economic impact.

[Impact of the COVID-19 pandemic on remote mental healthcare and prescribing in psychiatry: an electronic health record study](#)

Publication date: 2021

The COVID-19 pandemic has been associated with a marked increase in remote consultation, particularly among younger patients. However, there was no evidence that this has led to changes in psychiatric prescribing. Nevertheless, further work is needed to ensure that older patients are able to access mental healthcare remotely.

[Implementation, Adoption, and Perceptions of Telemental Health During the COVID-19 Pandemic: Systematic Review](#)

Publication date: 2021

Implementation of telemental health allowed some continuing support to the majority of service users during the COVID-19 pandemic and has value in an emergency situation. However, not all service users can be reached by this means, and better evidence is now needed on long-term impacts on therapeutic relationships and quality of care, and on impacts on groups at risk of digital exclusion and how to mitigate these.

[Implementing a Digital Tool to Support Shared Care Planning in Community-Based Mental Health Services: Qualitative Evaluation](#)

Publication date: 2020

Findings highlight the importance of congruence between staff, organization, and external policy priorities and digital technologies in aiding intervention engagement, and the need

for ongoing training and support of those intended to use the technology during and after the end of implementation interventions.

Cardiovascular disease and hypertension

[Nurse-led telehealth intervention effectiveness on reducing hypertension: a systematic review](#)

Publication date: 2023

Nurse-led interventions delivered remotely have a positive effect in lowering the blood pressure of patients with hypertension. Further research is required to support strategies that will deliver the best continuous, quality, and cost-effective nursing care.

[The evolution of digital health technologies in cardiovascular disease research](#)

Publication date: 2023

With increasing amounts of novel technologies becoming available and more patients taking part in remote health care monitoring, further evaluation and research into digital technologies, including their long-term effectiveness, is needed. Furthermore, emerging technologies, which are evaluated and/or validated should be considered for implementation into clinical practice as treatment and prevention modalities for CVD.

[Patient and caregiver experiences with a telemedicine intensive care unit recovery clinic](#)

Publication date: 2022

The study results enhance the understanding of patient and caregiver experiences with a telemedicine ICU-RC. Participants' narratives helped to formulate recommendations to improve telemedicine ICU-RC delivery and content.

Acceptability of this intervention indicates the potential for wider implementation of telemedicine ICU-RCs to reach more ICU survivors.

[Telemedicine: Benefits for Cardiovascular Patients in the COVID-19 Era](#)

Publication date: 2022

There is still room to improve the remote identification and investigation of heart disease, provide an accurate diagnosis and therapeutic regimen, and update regulations and guidelines to the new realities of technological progress in the field.

[Efficacy of telemedicine for the management of cardiovascular disease: a systematic review and meta-analysis.](#)

Publication Date: 2022

Telemedicine including both remote disease monitoring and consultation might reduce short-term cardiovascular-related hospitalisation and mortality risk among patients with heart failure.

[Pros and cons of telemedicine: implications in cardiology and cardiovascular medicine](#)

Publication date: 2022

We gathered that telemedicine has been attributed a considerable attention in managing cardiac/cardiovascular conditions; nevertheless, further studies with solid designs are still needed to confirm its validity/utility within these specialties.

[Implementation of a mHealth solution to remotely monitor patients on a cardiac surgical waiting list: service evaluation](#)

Publication date: 2021

The emergence of COVID-19 resulted in postponement of nonemergent surgical procedures for cardiac patients in London. mHealth represented a potentially viable mechanism

for highlighting deteriorating patients on the lengthened cardiac surgical waiting lists.

Paediatric/ young people

[The Feasibility and Acceptability of Remote Videoconference Use of the Brief Developmental Assessment Tool for Young Children with Congenital Heart Disease](#)

Publication date: 2023

The acceptability of the remote use of the BDA for the developmental screening of children with CHD will allow for the possibility of increased screening for more children and earlier identification of developmental problems, both during and after COVID-19 restrictions.

[Autistic young people's experiences of remote psychological interventions during COVID-19](#)

Publication date: 2023

Thematic analysis of responses identified challenges/barriers, benefits, facilitators, and factors perceived to cause variability in experiences of remote delivery. These broadly echoed those identified in existing literature, but their underlying reasons had not been explored before and some were novel. Novel findings mostly surrounded difficulties navigating a new social system online, and the intensity of the social interaction feeling reduced remotely.

[Impacts of health care service changes implemented due to COVID-19 on children and young people with long-term disability: A mapping review](#)

Publication date: 2023

Reduction of face-to-face care and usual provision had a huge impact on children and families. Adoption of telehealth provided continuity for the care and management of some conditions.

There was limited evidence of changes to mental health services, transitions of care, social care, or child-reported satisfaction or acceptability of service changes.

[Utilisation of telemedicine in paediatric cardiac emergencies during the COVID-19 pandemic: How to set it up, develop and sustain in Collaboration with citizens as stakeholders](#)

Publication date: 2022

The Welsh Paediatric Cardiology Telemedicine Service has demonstrated its true utility, such that acute cardiac emergencies relating to even ductusdependent major congenital heart anomalies can be attended and managed in the most effective way by online interactions between a paediatric cardiologist and local paediatricians. This study paves the way for the use of live tele-echocardiography in the diagnosis of major cardiac anomalies without the need for the specialist being physically present.

[Effectiveness of delivering evidence-based eating disorder treatment via telemedicine for children, adolescents, and youth](#)

Publication date: 2022

This study determined the effectiveness of enhanced Family-Based Treatment (FBT+) delivered using telemedicine for children and adolescents with eating disorders. Participants had a confirmed eating disorder diagnosis, lived in states where treatment was available, and lived with a family member willing to participate.

[Parent/Caregiver Views of the Effectiveness of Speech-Language Pathology for Children Born With Cleft Palate Delivered via Telemedicine During COVID-19](#)

Publication date: 2022

Most parents reported that they felt SLP delivered via telemedicine during the first few months of the COVID-19 pandemic in the UK was at least "somewhat effective." It is

important to interpret this in the context of there being no other method of service delivery during this time and that this study only represents families who were able to access SLP delivered via telemedicine. Further work is needed to identify which children with cleft palate might benefit from SLP delivered via telemedicine to inform postpandemic service provision.

[Paediatric and adolescent asthma: A narrative review of telemedicine and emerging technologies for the post-COVID-19 era](#)

Publication date: 2021

Although there are gaps in the current knowledge, there is evidence demonstrating the important role of telemedicine in management of childhood and adolescent asthma. However, there is an urgent need for healthcare researchers and policymakers to focus on improving the technologies and address the disparities in accessing novel technology-based management strategies to improve asthma care.

[The perceived impact of COVID-19 and associated restrictions on young people with epilepsy in the UK: Young people and caregiver survey](#)

Publication date: 2021

Results indicate that the pandemic and associated restrictions have had a negative impact on young people with epilepsy. Perceived increases in seizures, reluctance to go to hospital and cancelled investigations are likely to impact on epilepsy management. The wider psychosocial impact is also likely to be significant with increases in child and caregiver mental health problems in an already vulnerable group.

[Telehealth for Children With Epilepsy Is Effective and Reduces Anxiety Independent of Healthcare Setting](#)

Publication date: 2021

In our cohort, some children with epilepsy experienced increased seizures and worsening behavior during the first 9 months of the current pandemic. In addition, our data suggest that telemedicine might reduce parental anxiety symptoms, and families who experienced telehealth were more positive and open to similar appointments in the future.

[Children with congenital colorectal malformations during the UK Sars-CoV-2 pandemic lockdown: an assessment of telemedicine and impact on health](#)

Publication date: 2021

In the follow-up of children and adolescents with CCM during the first UK lockdown using telemedicine we found that over half had stable health conditions. Patients needing additional care could not be predicted by the severity of their disease or their bowel function alone.

Educating the workforce and role development

[Students' and tutors' experiences of remote 'student-patient' consultations](#)

Publication date: 2023

Greater clinical risk was perceived in remote consulting, which had potential to negatively impact students' psychological safety. Frequent debriefs could ameliorate this risk and positively impact student-doctor relationships. Student autonomy and independence increased due to greater participation and responsibility. Pre-selection of patients could be helpful but had potential to expose students to lower complexity patients.

[Teleconsultation in health and social care professions education: A systematic review](#)

Publication date: 2023

Teleconsultation education is a legitimate way to expose students to telehealth. High satisfaction rates, increased knowledge and confidence in use indicate the positive impact this learning has on students. Nevertheless, further high-quality research and guidance for educators are warranted.

[Revisiting the nursing metaparadigm: Acknowledging technology as foundational to progressing nursing knowledge](#)

Publication date: 2023

Nurses may become active agents in novel developments rather than passive adopters, continuing our legacy of patient advocacy through new knowledge generation. Emerging and continuing nurse leadership has set the stage for the next era of nurse-led innovation and technology development, which provides an opportunity to embed technology as a core aspect of the nursing metaparadigm.

[Social and Emotional Development in a Telehealth-Based Ambulatory Care Skills Course](#)

Publication date: 2022

These findings suggest value in using role modelling, telehealth-based simulations, and teaching assistant feedback on pharmacy students' social and emotional development.

[Do UK Allied Health Professionals \(AHPs\) have sufficient guidelines and training to provide telehealth patient consultations?](#)

Publication date: 2022

UK NHS AHP services are not fully equipped with clear and comprehensive guidelines and the skills to deliver telehealth. Vulnerable people are excluded from current guidelines, which may widen health inequalities and hinder the success of the NHS digital transformation. The absence of national guidelines highlights the need for uniform AHP telehealth guidelines.

[Digital health must be better integrated into medical education](#)

Publication date: 2022

Digital health must be better integrated into our medical education and developed throughout the curriculum. As digital natives, medical students should be consulted on the design of digital health education, and we should push for better training within our medical schools. We must be equipped with the technological, legal, and ethical skills to prepare for a digital future and to ultimately provide the best care for our patients.

[Nurse Practitioner Student Perceptions of a Multimodal Telemedicine Clinical Course](#) Abstract only*

Publication Date: 2021

Nursing educators should integrate multimodal telemedicine experiences into curricula, addressing multiple learning phases through experientially designed simulation trainings.

[Exploration of implementation, financial and technical considerations within allied health professional \(AHP\) telehealth consultation guidance: a scoping review including UK AHP professional bodies' guidance](#)

Publication date: 2021

This study identified gaps in current guidelines, which showed similarities as well as discrepancies with the guidance for non-AHP healthcare professionals and revealed that the existing guidelines do not adequately support AHPs delivering telehealth consultations.

[What Matters to Us: Impact of Telemedicine During the Pandemic in the Care of Patients With Sarcoma Across Scotland.](#)

Publication Date: 2021

Telemedicine in sarcoma care is favorable from both clinician and patient perspectives. Utilization of telemedicine for patients with rare cancers such as sarcomas is an innovative approach

to the delivery of care, especially considering the time and financial pressures on patients who often live a distance away from specialist centers. Patients and providers are keen to move toward a more flexible, mixed system of care.

[Virtual Interactive Surgical Skills Classroom: A Parallel-group, Non-inferiority, Adjudicator-blinded, Randomised Controlled Trial \(VIRTUAL\)](#)

Publication date: 2022

VCT provides greater accessibility and resource efficiency compared to FFT, with similar educational benefit. VCT has the potential to improve global availability and accessibility of surgical skills training.

[A UK-wide survey looking at teaching and trainee confidence in teledermatology: a vital gap in a COVID-19-induced era of rapid digital transformation?](#)

Publication date: 2020

Our survey found that only 15% of respondents felt slightly confident in their ability to deal with teledermatology referrals and almost all (96%) felt more teaching was needed.

[Integration of Technology in Medical Education on Primary Care During the COVID-19 Pandemic: Students' Viewpoint](#)

Publication date: 2020

Even in the absence of face-to-face teaching and clinical placements, students have been able to hone their medical knowledge and soft skills through these virtual, simulated consultations. They have been exposed to a new consultation style while in a safe and collaborative learning space.

[Perceptions of medical students towards online teaching during the COVID-19 pandemic: a national cross-sectional survey of 2721 UK medical students](#)

Publication date: 2020

Online teaching has enabled the continuation of medical education during these unprecedented times. Moving forward from this pandemic, in order to maximise the benefits of both face-to-face and online teaching and to improve the efficacy of medical education in the future, we suggest medical schools resort to teaching formats such as team-based/problem-based learning. This uses online teaching platforms allowing students to digest information in their own time but also allows students to then constructively discuss this material with peers. It has also been shown to be effective in terms of achieving learning outcomes.

[Addressing the Covid-19 Burden on Medical Education and Training: The Role of Telemedicine and Tele-Education During and Beyond the Pandemic](#)

Publication date: 2020

During the transition from conventional in-person or classroom teaching to tele-delivery of educational programs, medical students have to navigate various social, economic and cultural factors which interfere with their personal and academic lives. This is especially relevant for those from vulnerable, underprivileged or minority backgrounds.

[Telehealth in Mental Health Nursing Education: Health Care Simulation With Remote Presence Technology.](#) Abstract only*

Publication Date: 2019

These results illustrate the feasibility of using a remote presence robot in an educational simulation environment. Remote presence in clinical simulations can contribute to workforce preparation to apply telehealth-enabled communication in PMHN settings.

Workforce and service user perspectives

[Older Adults' Satisfaction with Telemedicine During the COVID-19 Pandemic: A Systematic Review](#)

Publication date: 2023

Older adults were satisfied with telemedicine during the COVID-19 pandemic. Patients were in favor of telemedicine compared to in-person visits, but the evidence support for this preference was limited. Factors influencing satisfaction were identified and categorized under four main categories: system-related factors, patient-related factors, socioeconomic factors, and factors related to the nature of the medical intervention.

["It Took Away and Stripped a Part of Myself": Clinician Distress and Recommendations for Future Telepalliative Care Delivery in the Cancer Context](#)

Publication date: 2023

Participants described multidimensional clinician distress as a primary experience in delivering telepalliative care during the COVID-19 surge, characterized by competing loyalties (e.g., institutional obligations, ethical obligations to patients, resentment and distrust of leadership) and feelings of disempowerment (e.g., guilt in providing subpar support, decisional regret, loss of identity as a provider).

[Barriers and enablers to telehealth use by physiotherapists during the COVID-19 pandemic](#)

Publication date: 2023

The findings of this study suggest that the delivery of community and outpatient physiotherapy via telehealth during the COVID-19 pandemic was an initial challenge. Growing knowledge, confidence and ability to problem solve barriers enabled physiotherapists to move along the continuum of 'fear' to 'triumph' as the pandemic progressed.

[Mothers' perspectives on the potential use of video-calling during early labour in the United Kingdom and Italy: A qualitative study](#)

Publication date: 2023

Two themes emerged: 1) women's expectations of video-calls' content and features; 2) technological challenges and solutions. Mothers responded positively to the concept of video-calling in early labour. Receiving guidance, information on coping with pain and advice on timely access in early labour was perceived as key. Women highlighted the importance of accessible, reliable and user-friendly technology.

[Virtual care and the impact of COVID-19 on nursing: A single centre evaluation.](#)

Publication Date: 2022

Virtual care and remote working were implemented to accommodate the restrictions imposed because of the pandemic. The benefits of these changes to nurses and patients support these being business as usual. However, clear policies are needed to ensure that nurses feel supported when working remotely and there are robust assessments in place to ensure virtual care is provided to patients who have access to the necessary technology.

[Patients' experiences of, and engagement with, remote home monitoring services for COVID-19 patients: A rapid mixed-methods study](#)

Publication date: 2022

Remote home monitoring models place responsibility on patients to self-manage symptoms in partnership with staff; yet, many patients required support and preferred human contact (especially for identifying problems). Caring burden and experiences of those living alone and barriers to engagement should be considered when designing and implementing remote home monitoring services.

[Meaningful patient and public involvement in digital health innovation, implementation and evaluation: A systematic review](#)

Publication date: 2022

PPI is largely viewed as valuable and essential in digital health innovation, but rarely practised. Several barriers exist for both innovators and patients, which currently limits the quality, frequency and duration of PPI in digital health innovation, although improvements have been made in the past decade.

[Digital Technologies and the Role of Health Care Professionals: Scoping Review Exploring Nurses' Skills in the Digital Era and in the Light of the COVID-19 Pandemic](#)

Publication date: 2022

Further advancing nurses' readiness in adopting telemedicine requires an integrated approach, including combination of technical knowledge, management abilities, soft skills, and communication skills.

[Parent/Caregiver Views of the Effectiveness of Speech-Language Pathology for Children Born With Cleft Palate Delivered via Telemedicine During COVID-19](#)

Publication date: 2022

Most parents reported that they felt SLP delivered via telemedicine during the first few months of the COVID-19 pandemic in the UK was at least "somewhat effective." It is important to interpret this in the context of there being no other method of service delivery during this time and that this study only represents families who were able to access SLP delivered via telemedicine.

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Telemedicine in sarcoma care is favorable from both clinician and patient perspectives. Utilization of telemedicine for patients with rare cancers such as sarcomas is an innovative approach to the delivery of care, especially considering the time and financial pressures on patients who often live a distance away from specialist centers. Patients and providers are keen to move toward a more flexible, mixed system of care.

[Clinical effectiveness of and family experience with telephone consultation in a regional pediatric neurosurgery center in the United Kingdom](#)

Publication date: 2021

The findings suggested that 1) new patients should be offered FTF appointments; 2) follow-up TCs should be offered to families when possible; and 3) clinicians should develop their skills in conducting TCs.

[Women's experiences of a telemedicine abortion service \(up to 12 weeks\) implemented during the coronavirus \(COVID-19\) pandemic: a qualitative evaluation](#)

Publication date: 2021

Novel study findings were three-fold: (1) participants valued the option of accessing abortion care via telemedicine and emphasised the benefits of providing a choice of telephone and in-person consultation to suit those with different life circumstances; (2) the quality of abortion care was enhanced by the telemedicine service in relation to access, comfort and flexibility, and ongoing telephone support; (3) participants described being comfortable with, and in some cases a preference for, not having an ultrasound scan.

[Taming the chaos: NHS professionals' perspective of using video consulting during COVID-19 in Wales.](#)

Publication Date: 2021

This study provides evidence of general positivity, acceptance and the success of the VC service in Wales. Future research studies will now be able to explore and evaluate the implementation methods used within this study, and investigate their effectiveness in being able to achieve better outcomes through VC.

[Staff experience of rapid implementation of telemedicine: informing future service redesign.](#) Abstract only*

Publication Date: 2021

Remote consultations are an accepted medium for staff to deliver physiotherapy consultations. However, future development of telemedicine services must be informed by this experience and take staff experiences into consideration.

[Use and impact of virtual primary care on quality and safety: The public's perspectives during the COVID-19 pandemic](#)

Publication date: 2021

Interest in future use was highest for telephone consultations (55.9%), patient-initiated digital services (56.1%), secure messaging systems (43.4%), online triage (35.1%), video consultations (37.0%) and chat consultations (30.1%), although significant variation was observed between countries and patient characteristics.

[District nurses' views on and experiences with a telemedicine educational programme in palliative care.](#) Abstract only*

Publication Date: 2020

The use of an inter-professional telemedicine educational programme to teach palliative care to district nurses is beneficial. However, programmes should be designed for interactivity and address varying educational needs. Key-nurse roles require managerial and IT support to optimise knowledge dissemination.

[Telemedicine during COVID-19: a survey of Health Care Professionals' perceptions.](#)

Publication Date: 2020

The most common barrier in remote consultation was the inability to access patient records raised by 37% of respondents. However, 73% of respondents felt that patients understood their medical condition and the instructions given to them over the phone, and 70% agreed that videoconference consultations would add to patients care. Telemedicine can be used for selected groups of patients in the post COVID-19 era, and the HCPs carrying that should have the sufficient experience and knowledge expected to operate these clinics.

[The infrastructure of telecare: implications for nursing tasks and the nurse-doctor relationship.](#) Abstract only*

Publication Date: 2019

The article explores how relational infrastructures ascribe the professions they constitute (nurses and doctors) functions of power and accountability and highlights the ethical problem of the nurse being given greater responsibility while simultaneously becoming more dependent on the doctor.

Sustainability and the environment

[Health Care and Climate Change—Telemedicine's Role in Environmental Stewardship](#)

Publication date: 2023

The sheer magnitude of the climate change problem often results in decision paralysis. With telemedicine as an example, the study by Patel et al reminds us that individuals and institutions can still make a substantial impact on our health care system's carbon footprint.

[Estimated Carbon Emissions Savings With Shifts From In-Person Visits to Telemedicine for Patients With Cancer](#)

Publication date: 2023

While the health care community advocates broadly for climate change policy, medical professionals can look within care practices to assess their contribution to carbon dioxide (CO₂) emissions, and provide solutions wherever possible. Telemedicine can help in mitigating climate change by providing care from a distance.

[Very rapid decarbonization of primary care: could learning from COVID pandemic help us prepare?](#)

Publication date: 2023

The COVID pandemic, as a threat which emerged from nature, highlighted the interdependence between the environment and human health and society. Our response to the pandemic has transformed healthcare and this transformation provides potentially valuable lessons for those looking to meet climate targets.

[Action plan for the mitigation of greenhouse gas emissions in the hospital-based health care of the Hellenic Army](#)

Publication date: 2022

Significant emission reduction potential could also be achieved by the replacement of face-to-face hospital visits by telemedicine, primarily by reducing transport-associated emissions.

[Does telemedicine reduce the carbon footprint of healthcare?: a systematic review.](#)

Publication Date: 2021

The carbon footprint savings range between 0.70–372 kg CO₂e per consultation. However, these values are highly context specific. The carbon emissions produced from the use of the telemedicine systems themselves were found to be very low in comparison to emissions saved from travel reductions. This

could have wide implications in reducing the carbon footprint of healthcare services globally.

[Impact of a University-Based Outpatient Telemedicine Program on Time Savings, Travel Costs, and Environmental Pollutants](#)

Publication date: 2017

There were 19,246 consultations identified among 11,281 unique patients. Telemedicine visits resulted in a total travel distance savings of 5,345,602 miles, a total travel time savings of 4,708,891 minutes or 8.96 years, and a total direct travel cost savings of \$2,882,056. Telemedicine consultations resulted in a total emissions savings of 1969 metric tons of CO₂, 50 metric tons of CO, 3.7 metric tons of NO_x, and 5.5 metric tons of volatile organic compounds.

Diversity, inclusion and ethics

[Disability and Social Inclusion: Lessons From the Pandemic](#)

Publication date: 2023

The coronavirus pandemic necessitated rapid, radical changes to global systems, structures, and organisations across all areas of life, including education, healthcare, and social services. These changes were something of a double-edged sword. On the one hand, widespread adoption of the kinds of remote-working technologies long advocated for by disabled people opened up possibilities for inclusion. On the other, some people's inability to access such technologies, together with increased social isolation, exacerbated forms of exclusion.

[Promoting racial equity in digital health: applying a cross-disciplinary equity framework](#)

Publication date: 2023

Golden et al. evaluate structural racism in their recent paper focused on reproductive health. They recommend a framework to Remove, Repair, Restructure, and Remediate. We propose

applying the framework to three areas within digital medicine: artificial intelligence (AI) applications, wearable devices, and telehealth. With this approach, we can continue to work towards an equitable future for digital medicine.

[What is the efficacy and effectiveness of telemedicine intervention for Deaf signing populations in comparison to face-to-face interventions? A Systematic Review](#)

Publication date: 2022

After the screening of full text articles, only two met the inclusion criteria for the review (both concerned telemedicine and mental health interventions). However, they do not fully answer the review's research question. Therefore, the evidence gaps, including the effectiveness of the intervention for Deaf people, such as whether psychological therapy using telemedicine made a difference or not when compared to face-to-face therapy.

[Ethics, Guidelines, Standards, and Policy: Telemedicine, COVID-19, and Broadening the Ethical Scope](#)

Publication date: 2022

The coronavirus crisis is causing considerable disruption and anguish. However, the COVID-19 pandemic and consequent explosion of telehealth services also provide an unparalleled opportunity to consider ethical, legal, and social issues (ELSI) beyond immediate needs.

[Locked out: Digitally excluded people's experiences of remote GP appointments](#)

Publication date: 2021

The move to more digitally-led healthcare has worked well for some but excluded others over the past year. Our report explores how people have been excluded and what needs to happen to get the care they need.

[Which ethical values underpin England's National Health Service reset of paediatric and maternity services following COVID-19: a rapid review](#)

Publication date: 2021

Embedded in the theme of staff and patient safety is embracing new ways of working, such as the rapid roll out of telemedicine. On assessment, many sources did not explicitly consider how ethical principles might be applied or balanced against one another. Weaknesses in the policy sources included a lack of public and user involvement and the absence of monitoring and evaluation criteria.

[The need for feminist intersectionality in digital health](#)

Publication date: 2021

In this Viewpoint, we show that because of lower access and exclusion from app design, gender imbalance in digital health leadership, and harmful gender stereotypes, digital health is disadvantaging women—especially women with racial or ethnic minority backgrounds. Tackling digital health's gender inequities is more crucial than ever.

[British South Asian Patients' Perspectives on the Relevance and Acceptability of Mobile Health Text Messaging to Support Medication Adherence for Type 2 Diabetes: Qualitative Study](#)

Publication date: 2020

There is increasing recognition that health interventions that are culturally adapted to the needs of specific groups are more likely to be relevant and acceptable, but evidence to support the effectiveness of adapted interventions is limited and inconclusive.

Competency Frameworks

[A Framework for Competencies for the Use of Mobile Technologies in Psychiatry and Medicine: Scoping Review](#)

Publication date: 2020

This framework borrows from existing competency framework domains in telepsychiatry and social media (patient care, medical knowledge, practice-based learning and improvement, systems-based practice, professionalism, and interpersonal skills and communication) and added domains of mHealth clinical decision support, device/technology assessment/selection, and information flow management across an electronic health record platform.

[A Digitally Competent Health Workforce: Scoping Review of Educational Frameworks.](#)

Publication date: 2020

Digital health training initiatives should focus on competencies relevant to a particular health care worker group, role, level of seniority, and setting. The findings from this review can inform and guide digital health training initiatives. The most prevalent competency domains identified represent essential interprofessional competencies to be incorporated into health care workers' training.

[It's not just FaceTime: core competencies for the Medical Virtualist](#)

Publication date: 2019

Every passing year sees more use cases of virtual care described—the once sporadic use of the virtual medium by organizations and their clinicians is becoming ubiquitous. This movement of the practice of medicine into a new sphere of virtual care will require a large cohort of clinicians to practice as medical virtualists on a fulltime basis or be acquainted with the medium and qualified to practice for periodic use.

[The Need to Implement and Evaluate Telehealth Competency Frameworks to Ensure Quality Care across Behavioral Health Professions](#)

Publication date: 2018

Much more input is needed from various stakeholders, including the leadership of intraprofessional and interprofessional boards and accreditation bodies, to move toward consensus

[A Framework of Interprofessional Telebehavioral Health Competencies: Implementation and Challenges Moving Forward](#)

Publication date: 2018

Interprofessional telebehavioral health (TBH) competencies have been developed to standardize training and improve the quality of TBH care. The seven identified interprofessional TBH competency domains and three levels of expertise (novice, proficient, and authority) are briefly described. More in depth descriptions and examples of several of the competency domains are presented to illustrate what the competencies look like in practice. Some of the challenges faced in using such a competency framework are discussed.

[Academy of Medical Royal Colleges: E-health Competency Framework](#)

Publication date: 2011

Clinical leadership and strong clinical engagement are well documented determinants of successful eHealth initiatives. Traditional clinical training does not always equip medical and dental practitioners with the knowledge and skills required to understand how eHealth can be used to improve outcomes for patients, clinicians or organisations or to work collaboratively as part of a multi-professional eHealth team.

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