Question

What clinician-led virtual-care services can be used to replace in-person care in hospital-based ambulatory care settings?

What we found

We used the following framework to organize findings in relation to the most commonly used types of synchronous and asynchronous virtual-care technologies (video, audio and secure messaging), the conditions in hospital-based ambulatory settings that account for the highest volumes of care, the impacts on quadruple-aim metrics, and key implementation considerations:

- types of technology used for clinician-patient interactions
  - synchronous
    - video
    - audio
  - asynchronous (secure messaging);
- conditions that are the focus of ambulatory care
  - complex conditions
  - mental health and substance use
  - pregnancy (i.e., antenatal and postnatal visits)
  - cancer (i.e., cancer-care visits)
  - conditions requiring surgery (i.e., pre- and post-operative consultations);
- impacts on quadruple-aim metrics
  - patient, family and caregiver experiences (including equity considerations)
  - health outcomes (including equity considerations)
  - costs and cost-effectiveness
  - provider experiences; and
- implementation considerations.

Of the 79 evidence documents we identified as being relevant to the question, we found 21 that provided highly relevant evidence in relation to one or more of the above categories:

- eight full systematic reviews;
- four rapid reviews;
- three guidelines developed using some type of evidence synthesis and/or expert opinion; and

<div style="border:1px solid #000; padding:10px;">

Box 1: Our approach

We identified documents addressing the question by searching the guide to key COVID-19 evidence sources from 28 to 31 July 2020. Given that we were interested in non-COVID-19-focused literature about the question, we also searched Health Systems Evidence and ACCESSSS for relevant documents.

We searched for guidelines that were developed using a robust process (e.g., GRADE), full systematic reviews (or review-derived products such as overviews of systematic reviews), rapid reviews, protocols for systematic reviews, and titles/questions for systematic reviews or rapid reviews. Single studies were only included if no relevant systematic reviews were identified.

We appraised the methodological quality of full systematic reviews and rapid reviews using AMSTAR. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that: 1) the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial, or governance arrangements within health systems; and 2) quality-appraisal scores for rapid reviews are often lower because of the methodological shortcuts that need to be taken to accommodate compressed timeframes.

We identified experiences from large hospital networks in the U.S. (which has extensive experience with virtual care before and after COVID-19) and in Canada by reviewing their websites as well as commentaries found through our search of COVID-19 sources of single studies

This rapid evidence profile was prepared in three days to inform next steps in evidence synthesis, guideline development and/or decision-making related to the question that was posed.

</div>

- six single studies that provide additional insight into how virtual care has been implemented during the COVID-19 pandemic.

We outline in Table 1 the key findings from the highly relevant evidence documents, with the full systematic reviews arrayed from higher to lower quality and with some of these reviews noted as having search dates that would miss key recent studies (e.g., one review is based on a search from 2013 and another from 2014).

Table 1: Overview of key findings from highly relevant evidence documents focused on clinician-led virtual-care services that can be used to replace in-person care in hospital-based ambulatory care settings

Type of document	Key findings from highly relevant evidence documents
Guidelines developed using a robust process (e.g., GRADE)	No highly relevant guidelines developed using a robust process (e.g., GRADE) were identified
Full systematic reviews	Telephone interventions provide a convenient way of supporting self-management of cancer-related symptoms with most evidence relating to depression, anxiety, emotional distress and fatigue, however little information was available related to cost savings (AMSTAR rating 10/10; literature last searched January 2019)
	Referral accuracy for teledermatology for high-risk lesions when compared to face-to-face is relatively high, however, for low-risk lesions it is significantly more variable and requires face-to-face verification (AMSTAR rating 10/10; literature last searched August 2016)
	Telerehabilitation, with high levels of patient satisfaction and improvement in physical activity and functional status, was a practical alternative to conventional face-to-face rehabilitation therapy in patients following total knee arthroplasty (AMSTAR rating 7/10; literature last searched 2014)
	Application of telemedicine in emergency rooms (ERs) included: 1) telemedicine for diffuse patient populations that typically present in ERs; 2) telemedicine in the context of minor treatment clinics for patients with minor injuries or illnesses; 3) the use of telemedicine to connect providers in ERs to medical specialists for consultations on patients with specific conditions; and 4) current studies reported positive findings in clinical processes, outcomes, and user satisfaction (AMSTAR rating 5/9; literature last searched September 2013)
	Real-time video telemedicine in the emergency department was an application with significant potential, but was still lacking evidence supporting improved patient outcomes (AMSTAR rating 4/9; literature last searched 15 February 2016)
	Telemedicine delivered via single-wire networks is unable to guarantee good quality and service and may need additional technological improvements; further the review found that quality of experience was often overlooked and requires evaluation to measure improvement (AMSTAR rating 4/9; literature last searched 2018)
	Pre- and post-use of telemedicine for neurosurgery appears promising for patient management, however some failures were reported due to technological difficulties or patients requiring further face-to-face evaluations (AMSTAR rating 3/9; literature last searched 6 April 2020)

Type of document	Key findings from highly relevant evidence documents
	There is good support for teleneuropsychology assessments for older adults throughout the duration of the COVID-19 pandemic; in addition the review provides an outline of viable procedures for teleneuropsychology (AMSTAR rating 3/9; literature last searched 2017)
Rapid reviews	Internet-delivered cognitive behavioural therapy is effective for reducing depression and anxiety symptoms, as well as improving patient quality of life (AMSTAR rating 7/9; last updated 22 July 2019)
	While there is not enough evidence to support the use of a digital mental health intervention for children, it has shown to improve depression and anxiety symptoms in adults, with web-based interventions having shown the most significant effects (AMSTAR rating 5/9; literature last searched 11 June 2020)
	Evidence on telerehabilitation (using synchronous video software) and surgical procedures were in favour of it for patients following total knee and hip arthroplasty, as well as telephone follow-up for patients after myocardial revascularization (AMSTAR rating 3/9; published 16 July 2020)
	The strongest evidence for telehealth is available for the acute management of ischemic stroke via telehealth and for the monitoring and management of chronic disease such as diabetes and heart failure (2/9 AMSTAR rating; published 28 May 2020)
Guidelines developed using some type of evidence synthesis and/or expert opinion	Key principles for the management of dermatology patients remotely during COVID-19 pandemic include: 1) streamline skin-cancer patients on two-week wait pathways, using teledermatology to triage referrals and book patients directly to surgery where possible; 2) manage urgent, on-call patients and in-patient referrals using secure email or mobile messaging apps where possible; 3) redirect new patients through Advice and Guidance services where possible rather than referral; 4) manage referred patients by switching face-to-face clinics to teleconsultation (with or without video consultation) where possible for new and follow-up patients; 5) optimize remote access to allow dermatology staff to continue to provide patient care from home if required; 6) facilitate virtual staff team meetings to coordinate patient care; and 7) establish patient-consent policies for receiving, reviewing and storing patient images from healthcare professionals and patients (British Association of Dermatologists; last updated 17 June 2020)
	Virtual-visit guidelines are detailed for midwives, including: 1) considerations for virtual visits (understanding professional obligations, identifying a virtual-visit solution, complying with privacy and security requirements, onboarding clients, assessing needs, ensuring the settings for video visits is private and secure, and ensuring appropriate resources are available); 2) taking steps to conduct a virtual visit (confirm identity, obtain consent for virtual visit, document the clinical encounter, provide needed prescriptions and document the visit); 3) signing up for the Ontario Telemedicine Network (OTN); and 4) choosing a platform for the virtual visit (Doxy, FaceTime, Medeo, OTN, Skype, Telephone or Zoom) (Association of Ontario Midwives; last updated 25 March 2020)
	Guidance is provided on patient evaluation and use of laboratory testing by healthcare practitioners via virtual assessment (phone, telehealth or regionally available platforms) for the management of ambulatory heart failure patients (Canadian Cardiovascular Society COVID-19 Rapid Response Team; published in 2020)

Type of document	Key findings from highly relevant evidence documents
Single studies that provide additional insight into how virtual care has been implemented during the COVID-19 pandemic	Virtual telehealth treatments were implemented for tobacco-dependent cancer patients in a New York City hospital, and there was significant improvements in patient engagement in ambulatory tobacco-treatment services with greater attendance at scheduled telehealth visits than in-person visits, bedside hospital counselling visits were transformed into inpatient telephone visits with high levels of sustained patient engagement, and group telehealth services were launched rapidly to increase capacity and provide greater psychosocial support for cancer patients struggling with tobacco dependence (published 9 July 2020)
	A study of the impact of an adapted telemedicine Objective Structured Clinical Examination (OSCE) on telemedicine-specific training competencies of residents in three areas of telemedicine competency (technical proficiency; virtual information gathering, including history, collateral information collection, and physical exam; and interpersonal communication skills - both verbal and nonverbal) found that residents expressed enthusiasm for telemedicine training, but had concerns about their preparedness for telemedicine practice and the need for further competency and curricular development (published 8 July 2020)
	A uniform obstetric protocol for all low-risk patients was developed during the COVID-19 pandemic in Florida by adapting a virtual-care model (OB Nest) to reduce in-person visits and incorporate telehealth visits into the schedule of prenatal care, which has been found to have high patient satisfaction, lower stress, and includes: a combined virtual prenatal-care protocol that combines eight in-person visits with six virtual nursing visits; an asynchronous online portal for questions and education; an online community for patients moderated by nurses; patients being provided with blood pressure cuffs and fetal dopplers (published 20 June 2020)
	It is crucial to maintain a human presence during virtual visits, which can be done by including video capability, ensuring comfort for both patient and physician, being prepared, acknowledging current anxieties and stress, finding creative ways to communicate via body language through the camera, clearly delivering medical information and thoroughly explaining the assessment and plan, and showing support (published 19 June 2020)
	National guidelines in the United States for maternity care were developed, and emphasized designing care delivery around essential services using in-person care for services that cannot be delivered remotely and offering video visits for other essential services, and creating flexible services that allow patients to tailor support to meet their needs through opt-in programs; then this rapidly transitioned to a new model during the COVID-19 pandemic with four in-person visits, one ultrasound visit, and four virtual visits (the 4-1-4 prenatal plan) which required an implementation process that focused on: 1) training providers; 2) engaging patients; and 3) advocating for policies to support sustainable change (published 17 May 2020)
	A four-day roadmap for emergency scaling up of virtual care in the outpatient setting (using EPIC as the electronic health record system and MyChart as the patient portal, with Vidyo integrated into both for secure video connection) at the Amsterdam University Medical Centres is outlined, which progressed from the appointment of a crisis policy team and expansion of available digital infrastruturee (iPads), to creation, testing and refinement of a video-consultatioin pathway (day 2), merging the tested and refined pathway with the live environment in the electronic healthrecord system (including distribution of iPads to providers and real-time support) (day 3), to providing the first video consultation (day 4) (published 14 April 2020)

In the U.S., we examined eight large hospital networks (Cleveland Clinic, Dartmouth-Hitchcock Health System, Johns Hopkins, Kaiser Permanente, Massachusetts General Hospital, NYC Health + Hospitals, and Providence Health and Services), all of which had extensive virtual-care services in place prior to the pandemic. However, it was noted that four of the hospital networks have had to increase their capacity to provide virtual services as a result of the COVID-19 pandemic. At Kaiser Permanente, the majority of virtual services are telephone-based, although other options including email and chat services as well as synchronous video visits are available. The Mayo Clinic, NYC Health + Hospitals and Providence Health Services operate similarly, while Dartmouth-Hitchcock Health System and Johns Hopkins rely more heavily on video consultations. During the pandemic, NYC Health + Hospital transitioned visits with all ancillary team members (e.g., chronic disease nurses, nutritionists, and social workers) as well as some administrative roles to be telephone-based. Specific virtual-care programs used to provide virtual services across the hospital network include: Cleveland Clinic Express Care Online, Doximity Dialer, Facetime, Google Duo, Mayo Clinic Express Care Online, Microsoft Teams, MyChart, Virtual ExpressCare, and VirtualVisit SBR Health App. Virtual services provided across U.S. hospital networks include:
- initial COVID-19 consultations (Kaiser Permanente);
- cancer screening (e.g., colorectal cancer) (Kaiser Permanente);
- management of and monitoring of various chronic conditions (Kaiser Permanente; Providence Health and Services; Johns Hopkins; Cleveland Clinic);
- management and monitoring of various complex conditions (Kaiser Permanente; Mayo Clinic; Providence Health and Services; Johns Hopkins; Cleveland Clinic);
- virtal cardiac rehabilitation (Kaiser Permanente);
- virtual dermatology (Providence Health and Services);
- virtual oncology services (Providence Health and Services);
- virtual pediatric care (Dartmouth-Hitchcock Health System);
- virtual psychiatry, mental health and behavioural services (Providence Health and Services);
- virtual triaging for local emergency rooms (Dartmouth-Hitchcock Health System); and
- virtual medical rounds (Massachusetts General Hospital).

At the pan-Canadian level, Canada Health Infoway has released a report that examines the experiences of patients shifting to virtual services and, in general, finds that they are less satisfied with virtual visits than in-person visits, and tended to be more satisfied with telephone consultations than synchronous video or asynchronous messaging. At the provincial level, we analyzed 10 hospital networks across four provinces, namely British Columbia, Alberta, Ontario and Quebec. Hospital networks are using a range of platforms to conduct virtual-care services including Microsoft Teams, Ontario Telemedicine Network, Vivify Pathways, Zoom for Healthcare, REACTS for synchronous video consultations, and telephone for synchronous audio-only consultations. In response to the pandemic, hospital networks have expanded their virtual offerings and are providing a range of ambulatory services using synchronous video and audio including:
- virtual consultations for cancer patients who have tested positive for COVID-19 (University Health Network (UHN) - Princess Margaret Cancer Centre);
- virtual cardiac rehabilitation program (Vancouver Hospital and Health Science Centre);
- virtual management and monitoring for heart failure (UHN);
- virtual oncology services (UHN);
- virtual peri-operative care management and monitoring (UHN);

- virtual post-operative care for cardiac and vascular surgey (Hamilton Health Sciences)
- telepsychiatry (UHN; Centre hospitalier de l'Universite de Montreal);
- drug-addictions services (Centre hospitalier de l'Universite de Montreal);
- virtual prenatal checkups (London Health Sciences Centre; Centre hospitalier de l'Universite de Montreal);
- virtual triage for pediatric urgent and emergency care (London Health Sciences Centre); and
- telephone line for triage with nursing staff (Centre hospitalier de l'Universite de Montreal).

Additional details for those who want to know more are in Table 2 (the type and number of all documents that were identified), Table 3 (for experiences from large hospital networks in the U.S.), and Table 4 (for experiences from large hospital networks in Canada). In addition, we provide a detailed summary of our methods in Appendix 1, the full list of included evidence documents (including those deemed of medium and low relevance) in Appendix 2, abstracts for highly relevant documents in Appendix 3, and hyperlinks for documents excluded at the final stage of reviewing in Appendix 4.

Table 2: Overview of type and number of documents that were identified

Type of document	Total	Type of technology used	Conditions that are the focus of ambulatory care	Type of outcomes assessed	Implementation considerations
Guidelines developed using a robust process (e.g., GRADE)	14	• Synchronous – Video: 14 • Synchronous – Audio: 14 • Asynchronous (secure messaging): 0	• Complex conditions: 7 • Mental health and substance use: 1 • Pregnancy (or antenatal and postnatal visits): 2 • Cancer (or cancer-care visits): 1 • Conditions requiring surgery (pre- and post-operative consultations): 4	• Patient, family and caregiver experience: 0 • Health outcomes: 0 • Costs and cost-effectiveness: 0 • Provider experience: 0	0
Full systematic reviews	33	• Synchronous – Video: 22 • Synchronous – Audio: 15 • Asynchronous (secure messaging): 21	• Complex conditions: 4 • Mental health and substance use: 1 • Pregnancy (or antenatal and postnatal visits): 3 • Cancer (or cancer-care visits): 4 • Conditions requiring surgery (pre- and post-operative consultations): 7	• Patient, family and caregiver experience: 18 • Health outcomes: 20 • Costs and cost-effectiveness: 9 • Provider experience: 10	6
Rapid reviews	13	• Synchronous – Video: 10 • Synchronous – Audio: 7 • Asynchronous (secure messaging): 2	• Complex conditions: 7 • Mental health and substance use: 3 • Pregnancy (or antenatal and postnatal visits): 0 • Cancer (or cancer-care visits): 0 • Conditions requiring surgery (pre- and post-operative consultations): 2	• Patient, family and caregiver experience: 3 • Health outcomes: 7 • Costs and cost-effectiveness: 2 • Provider experience: 2	4
Guidelines developed using some type of evidence synthesis and/or expert opinion	4	• Synchronous – Video: 3 • Synchronous – Audio: 4	• Complex conditions: 2 • Mental health and substance use: 0 • Pregnancy (or antenatal and postnatal visits): 1 • Cancer (or cancer-care visits): 0	• Patient, family and caregiver experience: 1 • Health outcomes: 1	0

Type of document	Total	Type of technology used	Conditions that are the focus of ambulatory care	Type of outcomes assessed	Implementation considerations
		• Asynchronous (secure messaging): 3	• Conditions requiring surgery (pre- and post-operative consultations): 0	• Costs and cost-effectiveness: 1 • Provider experience: 0	
Protocols for reviews that are underway	5	• Synchronous – Video: 5 • Synchronous – Audio: 4 • Asynchronous (secure messaging): 0	• Complex conditions: 1 • Mental health and substance use: 2 • Pregnancy (or antenatal and postnatal visits): 0 • Cancer (or cancer-care visits): 0 • Conditions requiring surgery (pre- and post-operative consultations): 2	• Patient, family and caregiver experience: 0 • Health outcomes: 0 • Costs and cost-effectiveness: 0 • Provider experience: 0	1
Titles/questions for reviews that are being planned	2	• Synchronous – Video: 0 • Synchronous – Audio: 0 • Asynchronous (secure messaging): 0	• Complex conditions: 0 • Mental health and substance use: 0 • Pregnancy (or antenatal and postnatal visits):0 • Cancer (or cancer-care visits): 0 • Conditions requiring surgery (pre- and post-operative consultations): 0	• Patient, family and caregiver experience: 0 • Health outcomes: 1 • Costs and cost-effectiveness: 1 • Provider experience: 0	1
Single studies in areas where no reviews were identified	8	• Synchronous – Video: 8 • Synchronous – Audio: 6 • Asynchronous (secure messaging): 1	• Complex conditions: 1 • Mental health and substance use: 0 • Pregnancy (or antenatal and postnatal visits): 2 • Cancer (or cancer-care visits): 1 • Conditions requiring surgery (pre- and post-operative consultations): 0	• Patient, family and caregiver experience: 4 • Health outcomes: 1 • Costs and cost-effectiveness: 0 • Provider experience: 2	4

Table 3: Experiences from large hospital networks in the United States with using virtual care for ambulatory care settings

Primary locations(s) of hospital or hospital network	Hospital or hospital network	Key findings
Multiple states (California, Colorado, Georgia, Hawaii, Maryland, Oregon, Virgina, Washington D.C., and Washington)	Kaiser Permanente	• Kaiser Permanente (a consortium of for-profit and not-for-profit entities) has built on existing virtual-care infrastructure to accommodate their 12.4 million members across eight states. Currently, the hospital network averages 80% telehealth appointments compared to 15% telehealth appointments prior to the emergence of COVID-19. ○ The majority of the virtual-care services are telephone based, while other options include: email communication and chat service communication with clinicians; patient-to-clinician integrated video visits; online prescription refills by patients; health education through the patient portal; remote patient monitoring for blood-pressure measurements (with feedback from their care teams); and virtual cardiac rehabilitation and initial screening programs (e.g., colorectal cancer). • The organization has adopted a 'virtual first' strategy for suspected COVID-19 cases and non-cases, where potential patients are encouraged to schedule a telephone or video appointment with their clinician in order to be triaged for testing or for an in-person visit. For confirmed COVID-19 cases, clinicians can remotely check patients at home with thermometers or pulse oximeters.
Multiple states (Arizona, Florida, Minnnesota)	Mayo Clinic	• Mayo Clinic (a non-profit academic centre) changed outpatient appointments to virtual evaluations where possible. Virtual care can be used as a first point of contact for patients with complex care needs, which provides clinicians the time to create a care plan before an in-person visit. • Mayo Clinic also provides patients with the option of a virtual visit by video or phone based on consultations with appointment coordinators. • Mayo Clinic Express Care Online provides services to patients from age 18 months to 75 years old for common ailments and conditions or needs (e.g., common respiratory illnesses such as the cold or influenza symptoms, contraceptives, acne). • Patient and clinician experience with video appointments appear to be positive based on a few virtual care features such as the chat function and screen sharing. • Mayo Clinic in collaboration with Medically Home (a technology-based health services company), recently announced a care model which will allow clinicians to shift care from a hospital to a home-based setting with integrated technology and virtual care services for patients with complex care needs.
Multiple states (Alaska, California, Montana, New Mexico, Oregon,	Providence Health and Services	• Providence Health and Services (a non-profit Catholic network including 51 hospitals) provides more than 40 telehealth services, including ambulatory care for certain conditions such as mental health. • Individuals can consult primary or speciality clinicians by phone or video (through Zoom technology) at the same cost as an in-person visit. Additionally, Providence Health and Services utilize MyChart to

Primary locations(s) of hospital or hospital network	Hospital or hospital network	Key findings
Texas and Washington)		help manage patient-clinician interactions (e.g., book appointments, view lab results, prescription refills, email questions). • Virtual ExpressCare allows individuals access to services with healthcare providers through synchronous video for select conditions (e.g., common ailments, respiratory, eye, skin and nails, gastrointestinal, wellness and women's health).
Maryland	Johns Hopkins	• Johns Hopkins is a non-profit academic medical centre, and provides patients with MyChart accounts which give the opportunity to connect with outpatient or specialty care providers through video conferencing. • The platform givess providers direct access to a patient's electronic medical records during a video call. • Interpreters can also be engaged in the call to assist with communication. • Specific tools, such as oxygen stat monitors, Bluetooth scales and blood pressure cuffs, can also be sent to patients with virtual calls for specific specialties.

Massachusetts	Massachusetts General Hospital	• A commentary from 6 May 2020 provides a profile of the implementation of physical distancing in the Massachusetts General Hospital among healthcare workers who often gather in multidisciplinary groups of eight to 10 individuals through virtual rounds where one or two healthcare workers are physically present on the ward with all others joining remotely (via Microsoft Teams).
		• This was found to:
		  ○ provide a digital replica of normal medical rounds (e.g., with the intimacy of group work, social supports, task management and image sharing);
		  ○ avoid dense clustering of individuals, enable others to join daily work (e.g., pharmacists, allied health professionals, coordinators, quality staff and case managers);
		  ○ allow providers in self-isolation to contribute; minimize psychological trauma caused by physical distancing and wearing personal protective equipment; and
		  ○ enable non-essential personnel and student trainees to re-join the workforce.
		• Several challenges were encountered during the development of the model, including:
		  ○ theneed to reconfigure a previously purchased, unit-based, portable laptop so that it could launch and run the needed collaborative software;
		  ○ managing privacy concerns (e.g., ensuring patient privacy and security by maintaining a business-associated agreement between the hospital system and Microsoft which allowed for proper privacy and security standards to be met as the shift was made to a recurring daily online meeting, and instructing team members to not forward the meeting invitation to individuals outside of the medical team);

Primary locations(s) of hospital or hospital network	Hospital or hospital network	Key findings
		- ensuring isolation from COVID-19 (e.g., for patients known to be positive for COVID-19, a laptop was not brought into the room and the exam was described afterwards, and for patients without COVID-19 a laptop was brought into the room and pointed at the patient during the exam so all team members could see the findings, and with the laptop only controlled by the attending physician and being sanitized after the visit); and - deploying enough technical support to allow for the available devices to be used 24 hours per day and seven days per week. • A formal evaluation has not been conducted, but anecdotal reports on experiences from nursing leadership and patients has been positive, and 75% of the normal 45 minutes required for nursing admission has been able to be done over the virtual intercom communication system.
New Hampshire	Dartmouth-Hitchcock Health System	• Dartmouth-Hitchcock Health System is a non-profit academic health system, and its outpatient virtual visits allows patients to book virtual appointments with adult and pediatric care specialty clinics, home visits and inpatient consults. The virtual visits allow for two-way audio and video conferencing. • Outpatient virtual visits take place through the VirtualVisit SBR Health app, which can be installed onto any personal device with a microphone, speaker, and camera. • The D-H TeleEmergency program also provides a platform for local emergency-room teams to connect with certified emergency-medicine physicians and other skilled health providers on a 24/7 basis. • Virtual-care staff provide peer consultations, assist with arranging transfers, and serve as an 'extra set of eyes' for local staff.
New York	NYC Health + Hospitals	• A commentary from 11 June 2020 highlights how prior to COVID-19 the largest safety net healthcare system in the United States (NYC Health + Hospitals (NYC H+H)) served over one million patients (including the most vulnerable) and billed fewer than 500 telehealth visits monthly. • As a result of the pandemic and with the goal of keeping ambulatory care open, it transformed the system using virtual-care platforms with almost 83,000 billable televisits conducted in one month and more than 30,000 behavioural health encounters conducted via telephone and video. All members of the outpatient care team were transitioned to virtual-visit workflows, in-person visits with ancillary team members (e.g., nutritionists, chronic disease nurses and social workers) were changed to telephone appointments, care coordinators and community health workers continued to provide essential patient outreach with additional telephone-based support, and some administrative roles (e.g., on-site registrars and financial counsellors) were transitioned to telephone-based workflow. In addition, the on-site registrars and financial counsellors also transitioned to a telephonic workflow, allowing them to keep enrolling patients in health insurance or the sliding-scale payment program. This ensured that, per the

Primary locations(s) of hospital or hospital network	Hospital or hospital network	Key findings
		• safety net mission, ability to pay would not be a barrier to care, particularly for those most vulnerable and the growing number of New Yorkers who had recently lost their jobs and health insurance. • The transition resulted in all routine face-to-face visits being converted to televisits (scheduled telephone-only visits), using existing infrastructure within its electronic health-record system. In addition, scheduling revisits and follow-ups was done in real-time using a secure messaging system. • The system that was developed also enabled supports for patient-family communication, post-discharge follow-up, and palliative care for COVID-19 patients. • Implementation required expanded Medicaid coverage and insurance reimbursement for telehealth, and as it moves to a new blend of virtual and in-person care, major regulatory and insurance changes will need to be sustained to protect access for the most vulnerable patients. • Implementation was also enabled by a Telehealth Rapid Response Team (TRRT) consisting of key information technology, electronic health record, and clinical leadership, which provided strategic guidance and allocated finite telehealth staff and hardware.

Ohio	**Cleveland Clinic**	• Cleveland Clinic is a non-profit academic medical centre and provides patients with three distinct virtual ambulatory care options.
		   1) The Cleveland Clinic Express Care Online is an app that can be installed onto a patient's personal device to connect with healthcare providers through audio and video. Through the app, patients with non-urgent concerns are able to book a 10-minute virtual consult immediately or at a later date. Providers are authorized to provide diagnoses and prescriptions for controlled substances during virtual-care appointments.
		   2) Through the MyChart eVisit questionnaire, patients complete a questionnaire about their health and are then connected to Cleveland Clinic providers for a virtual consult.
		   3) Phone appointments also enable patients to connect with providers through audio only.
		• The Cleveland Clinic is also utilizing other video-chat platforms, such as Facetime, Google Duo and Doximity Dialer, to provide outpatient virtual care. Plans to advance the provision of virtual ambulatory care post-pandemic include the integration of electronic medical records into Cleveland Clinic's virtual care platforms.

Table 4: Canadian provinces' and territories' experiences shifting to virtual care

Province/ territory	Hospital network	Key findings
Pan-Canadian	Not applicable	• Canada Health Infoway released a report that examines the experiences of patients shifting to virtual services and found that in general patients were less satisfied with virtual visits than in-person visits, and tended to be more satisfied with telephone consultations than virtual visits by video or messaging.
British Columbia	Vancouver Hospital and Health Science Centre	• Vancouver Coastal Health has increased its virtual-care services to promote patient-clinician communication via Zoom video conference calls. • Vancouver General Hospital has launched the Virtual Cardiac Rehab Program, a virtual-care service designed to support and provide patients with on-demand exercise videos, live online classes, and virtual appointments/consultations with a dietitian, cardiac counsellor, or psychiatrist. • Vancouver Coastal Health has put forth a motion to construct a new care facility at Lions Gate Hospital by 2024. This acute-care facility will feature a telehealth centre that aims to bridge the communication gap between healthcare providers and remote patients.
Alberta	Covenant Health	• Of the 17 hospitals and care centres operated by Covenant Health, Bonnyville Health Centre is the only site that reportedly offers telehealth consultations. However, the capacity and setting in which this service is delivered in is unclear.
Ontario	Hamilton Health Sciences	• Hamilton Health Sciences has implemented virtual-care services that enable patient-clinician communication through phone calls and/or home-video visits (eVisits) during the COVID-19 pandemic. • As of 6 May 2020, there are three approved modalities for virtual care visits: 1) Ontario Telemedicine Network; 2) Zoom for Healthcare; and 3) telephone. • Due to COVID-19, this service has been expanded to allow more clinics to provide this form of virtual care. • The SMArTVIEW project is an ongoing study – by Hamilton Health Sciences' Population Health Research Institute – that aims to remotely monitor patients following cardiac or vascular surgery. Stage one of the intervention involves the post-operative monitoring of patients in the hospital. • Stage two of the intervention involves providing these patients with the appropriate technology to be monitored at home (all recorded data will be sent to a SMArTVIEW nurse in the hospital). Patients can communicate with their nurse through daily video visits and receive post-operative assessment and support as needed.
	University Health Network	• University Health Network has implemented the use of virtual care in the form of phone visits and video visits using conferencing tools provided by Ontario Telemedicine Network and Microsoft Teams. • Princess Margaret Cancer Centre started a Nurse-Led Virtual Care Clinic, which aims to support cancer patients who have tested positive for COVID-19. This virtual care service is provided over the phone and

Province/ territory	Hospital network	Key findings
		is designed to bridge the gap between "virtual care, symptom management, and psychological support" for patients. • On 25 June 2019, University Health Network partnered with Vivify Health to offer Vivify Pathways Go, a peri-operative care management and engagement strategy that allows for the remote monitoring of patients. • In 2016, University Health Network launched Medly, a digital tool that aims to provide support to heart-failure patients. This service is designed for patients to monitor their own heart health, obtain personalized feedback messages, and communicate remotely with their care team as needed. • University Health Network also uses telemedicine through their Telehealth Program, a service that virtually connects patients with healthcare professionals. Patients must visit a nearby telehealth site to interact with clinicians via video conferencing services offered through the Ontario Telemedicine Network. This service is offered for oncology, psychiatry, surgery and other specialities for clinical consultations and follow-up visits with patients.
	Humber Hospital	• In March 2020, Humber River Hospital implemented Virtual Video Visits for clinicians to interact and connect with patients from home. This virtual-care service is conducted through audio (telephone) or video (Microsoft Teams) technologies.
	London Health Sciences Centre	• Non-urgent or outpatient appointments have largely been re-scheduled and are now taking place through phone and virtual consultations. • On 19 May 2020, the London Health Sciences Centre announced virtual prenatal check-ups with obstetricians for expectant patients. • On 11 May 2020, the London Health Science's Children Hospital launched an urgent and emergency-care virtual clinic. Through the clinic, families of children with complex needs can connect with a physician to evaluate their child's condition and determine next steps. Families are first connected to clerical staff for patient registration and then to a health professional for consultation through Cisco WebEx.
	Ottawa Hospital System	• On 27 April 2020, The Ottawa Hospital launched Epic-Zoom virtual platform for healthcare providers to connect with patients through video for non-urgent appointments and outpatient programming. • The platform, developed in partnership with The Ontario Telemedicine Network, links the video-conferencing tool with the hospital's electronic health-information system. Patients can connect with their healthcare team through any personal device with a camera and microphone. Providers can also connect with and teach trainees through virtual clinics. • As of July 2019, The Ottawa Hospital provides all patients receiving care at partner locations access to MyChart free of charge.

Province/ territory	Hospital network	Key findings
		• The platform serves as a central location for patients to access their personal and medical information, such as clinical notes, test results, progress reports and medical-imaging results. Patient profiles and records can also be accessed by a patient's healthcare providers.
Quebec	Centre hospitalier de l'Universite de Montreal (CHUM)	• It is unclear whether specific virtual-care strategies have been implemented for ambulatory care. However, CHUM patients are recommended to contact Le Centre d'optimisation des flux réseaux (COFR), a 24-hour consultation phone line, to connect with nursing staff regarding questions or concerns about their health. • The teleconsultation team works in close collaboration with a patient's treatment team and physician to provide appropriate care. • Obstetric consultations, such as pregnancy follow-ups, are also being conducted through this telehealth platform. • Psychiatry and Drug Addiction services may be provided to patients via REACTS, a video-conference platform similar to Facebook Messenger, if in-person appointments are cancelled due to COVID-19.
	Centre hospitalier universitaire de Quebec	• It is unclear whether specific virtual-care strategies have been implemented for ambulatory care. The Centre hospitalier universitaire de Quebec has launched a patient telephone support line for patients who have had their appointments or surgeries cancelled or delayed. The phone line serves as a platform for patients to ask questions about treatment options or share concerns about their health.
	McGill University Health Centre	• The McGill University Health Centre is currently using "Zoom Télésanté", a secure telehealth platform approved by the Ministry of Health and Social Services, for clinics to connect with patients.

Wilson MG, Waddell K, Wang Q, Gauvin FP, Mansilla C, Moat KA, Ahmad A, Alam S, Bhuiya A, Lavis JN. COVID-19 rapid evidence profile #16: What provider-led virtual-care services can be used to replace in-person care in hospital-based ambulatory care settings? Hamilton: McMaster Health Forum, 31 July 2020.

Appendix 1: Methodological details

We use a standard protocol for preparing each rapid evidence profile (REP) to ensure that our approach to identifying research evidence as well as experiences from other countries and from Canadian provinces and territories are as systematic and transparent as possible in the time we were given to prepare the profile.

Identifying research evidence

For each REP, we search our continually updated guide to key COVID-19 evidence sources for:
1) guidelines developed using a robust process (e.g., GRADE);
2) full systematic reviews;
3) rapid reviews;
4) guidelines developed using some type of evidence synthesis and/or expert opinion;
5) protocols for reviews or rapid reviews that are underway;
6) titles/questions for reviews that are being planned; and
7) single studies (when no guidelines, systematic reviews or rapid reviews are identified).

Each source for these documents is assigned to one team member who conducts hand searches (when a source contains a smaller number of documents) or keyword searches to identify potentially relevant documents. A final inclusion assessment is performed both by the person who did the initial screening and the lead author of the rapid evidence profile, with disagreements resolved by consensus or with the input of a third reviewer on the team. The team uses a dedicated virtual channel to discuss and iteratively refine inclusion/exclusion criteria throughout the process, which provides a running list of considerations that all members can consult during the first stages of assessment.

During this process we include published, pre-print and grey literature. We do not exclude documents based on the language of a document. However, we are not able to extract key findings from documents that are written in languages other than Chinese, English, French and Spanish. We provide any documents that do not have content available in these languages in an appendix containing documents excluded at the final stages of reviewing.

Identifying experiences from other countries and from Canadian provinces and territories

For each rapid evidence profile we collectively decide on what countries to examine based on the question posed. For other countries we search relevant sources included in our continually updated guide to key COVID-19 evidence sources. These sources include government-response trackers that document national responses to the pandemic. In addition, we conduct searches of relevant government and ministry websites. In Canada, we search websites from relevant federal and provincial governments, ministries and agencies (e.g., Public Health Agency of Canada).

While we do not exclude countries based on language, where information is not available through the government-response trackers, we are unable to extract information about countries that do not use English, Chinese, French or Spanish as an official language.

Assessing relevance and quality of evidence

We assess the relevance of each included evidence document as being of high, moderate or low relevance to the question and to COVID-19. We then use a colour gradient to reflect high (darkest blue) to low (lightest blue) relevance.

Two reviewers independently appraise the methodological quality of systematic reviews and rapid reviews that are deemed to be highly relevant. Disagreements are resolved by consensus with a third reviewer if needed. AMSTAR rates overall methodological quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. High-quality reviews are those with scores of eight or higher out of a possible 11, medium-quality reviews are those with scores between four and seven, and low-quality reviews are those with scores less than four. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to health-system arrangements or to economic and social responses to COVID-19. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered 'high scores.' A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

Preparing the profile

Each included document is hyperlinked to its original source to facilitate easy retrieval. For all included guidelines, systematic reviews, rapid reviews and single studies (when included), we prepare declarative headings that provide a brief summary of the key findings and act as the text in the hyperlink. Protocols and titles/questions have their titles hyperlinked given that findings are not yet available. We then draft a brief summary that highlights the total number of different types of highly relevant documents identified (organized by document), as well as their key findings, date of last search (or date last updated or published), and methodological quality.

Appendix 2: Evidence documents that address the question, organized by document type and sorted by relevance to the question and COVID-19

Type of document	Relevance to question	Focus	Recency or status

Guidelines developed using a robust process (e.g., GRADE)	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
		Guidance on the use of telehealth to support and promote clinical healthcare services (ECRI, no full-text available)	Last updated 30 March 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
		Telehealth should be used whenever feasible (e.g., pre- and post-procedure visits) to ensure the safe resumption of routine radiology care during the COVID-19 pandemic (American College of Radiology)	Last updated 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
		Virtual solutions at relevant points along the patient pathway must be used for respiratory follow-up of patients with clinico-radiological diagnosis of COVID-19 pneumonia (British Thoracic Society)	Last updated 11 May 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
		Telemedicine strategies should be used to optimize the prevention and treatment of patients with severe emergent cardiovascular diseases during the COVID-19 pandemic (Chinese Society of Cardiology)	Last updated 29 May 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
		Teleconsultations should be the alternative to face-to-face consultation for pre-anesthetic patient assessment during the COVID-19 pandemic (French Society of Anaesthesia and Intensive Care Medicine)	Last updated 5 June 2020

Type of document	Relevance to question	Focus	Recency or status
	o Conditions requiring surgery (pre- and post-operative consultations)		

	• Type of technology used
	  o Synchronous
	     ▪ Video
	     ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Cancer (or cancer-care visits)
		Virtual/telemedicine visits throughout cancer care delivery during the COVID-19 pandemic (American Society of Clinical Oncology)	Last updated 19 May 2020

	• Type of technology used
	  o Synchronous
	     ▪ Video
	     ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
		Telemedicine/visits by phone should be used wherever possible/required for patients with decompensated liver disease during the COVID-19 pandemic (European Association for the Study of the Liver and European Society of Clinical Microbiology and Infectious Diseases)	Last updated June 2020

	• Type of technology used
	  o Synchronous
	     ▪ Video
	     ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
		Telemedicine should be used to follow up on patients with chronic intestinal failure and home parenteral nutrition during the COVID-19 pandemic (European Society for Clinical Nutrition and Metabolism)	Last updated 28 May 2020

	• Type of technology used
	  o Synchronous
	     ▪ Video
	     ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Pregnancy (or antenatal and postnatal visits)
		Teleconsultations (e.g., via video or telephone) should be used to provide pre- and post- abortion care and assessment during the COVID-19 pandemic (Royal College of Obstetricians and Gynaecologists, Royal College of Midwives, Faculty of Sexual and Reproductive Healthcare, and British Society of Abortion Care Providers)	Last updated 3 June 2020

	• Type of technology used
	  o Synchronous
	     ▪ Video
	     ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Mental health and substance use
		Telehealth should be used to perform new-patient consultations, follow-up consultations for existing patients, patient education in preparation for planned treatment, mental health consultations by mental health professionals, and nurse counselling (American Society for Reproductive Medicine)	Last updated 17 March 2020

Type of document	Relevance to question	Focus	Recency or status
	o Pregnancy (or antenatal and postnatal visits)		

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
	• Conditions requiring surgery (pre- and post-operative consultations)
		Routine office visits should be replaced with remote consultations (video calling or telephone follow-up) to provide electrophysiology and cardiac implantable electronic devices services (Cardiac Society of Australia and New Zealand)	Last updated 11 June 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
		Patient transplant education and social work, dietitian, and financial consultations should be conducted by video conference, telemedicine, or telephone whenever possible (American Association for the Study of Liver Diseases)	Last updated 7 April 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
		Telehealth or virtual visits (secure internet, phone, or video) should be adopted for cardiac patients during the COVID-19 pandemic (Heart Rhythm Society, American College of Cardiology, and American Heart Association)	Last updated 1 April 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
		New referrals and follow-up visits of cardiac patients should be done by telephone or virtual health during the COVID-19 pandemic (Canadian Cardiovascular Society)	Last updated 7 April 2020

Full systematic reviews	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
		Telerehabilitation, with high levels of patient satisfaction and improvement in physical activity and functional status, was a practical alternative to conventional face-to-face rehabilitation therapy in	Literature last searched 2014

Type of document	Relevance to question	Focus	Recency or status
	- o Asynchronous (secure messaging) - Conditions that are the focus of ambulatory care - o Conditions requiring surgery (pre- and post-operative consultations) - Outcomes - o Patient, family and caregiver experience (including equity considerations) - o Health outcomes (including equity considerations)	patients following total knee arthroplasty (7/10 AMSTAR rating)	
	- Type of technology used - o Synchronous ▪ Video - Outcomes - o Patient, family and caregiver experience (including equity considerations) - o Health outcomes - o Provider experience	Real-time video telemedicine in the emergency department was an application with significant potential, but was still lacking evidence supporting improved patient outcomes (4/9 AMSTAR rating)	Literature last searched 15 February 2016
	- Type of technology used - o Synchronous ▪ Video ▪ Audio - o Asynchronous (secure messaging) - Outcomes - o Patient, family and caregiver experience (including equity considerations) - o Health outcomes (including equity considerations) - o Costs and cost-effectiveness - o Provider experience	Application of telemedicine in emergency rooms (ERs) included: 1) telemedicine for diffuse patient populations that typically present in ERs; 2) telemedicine in the context of minor treatment clinics for patients with minor injuries or illnesses; 3) the use of telemedicine to connect providers in ERs to medical specialists for consultations on patients with specific conditions; and 4) current studies reported positive findings in clinical processes, outcomes, and user satisfaction (5/9 AMSTAR rating)	Literature last searched September 2013
	- Type of technology used - o Synchronous ▪ Audio	Telephone interventions provide a convenient way of supporting self-management of cancer-related symptoms with most evidence relating to depression, anxiety, emotional distress and fatigue, however little	Literature last searched January 2019

Type of document	Relevance to question	Focus	Recency or status
	• Conditions that are the focus of ambulatory care offered ○ Cancer (or cancer-care visits)	information was available related to cost savings (10/10 AMSTAR rating)	
	• Type of technology used ○ Synchronous ▪ Video ▪ Audio • Outcomes ○ Patient, family and caregiver experience (including equity considerations) ○ Provider experience • Implementation considerations	Telemedicine delivered via single-wire networks is unable to guarantee good quality and service and may need additional technological improvements; further the review found that quality of experience was often overlooked and requires evaluation to measure improvement (4/9 AMSTAR rating)	Literature last searched 2018
	• Type of technology used ○ Synchronous ▪ Video • Conditions that are the focus of ambulatory care ○ Complex conditions • Implementation considerations	There is good support for teleneuropsychology assessments for older adults throughout the duration of the COVID-19 pandemic, and in addition the review provides an outline of viable procedures for teleneuropsychology (3/9 AMSTAR rating)	Literature last searched 2017
	• Type of technology used ○ Synchronous ▪ Video • Conditions that are the focus of ambulatory care ○ Conditions requiring surgery (pre- and post-operative consultations) • Implementation considerations	Pre- and post-use of telemedicine for neurosurgery appears promising for patient management, however some failures were reported due to technological difficulties or patients requiring further face-to-face evaluations (3/9 AMSTAR rating)	Literature last searched 6 April 2020
	• Type of technology used ○ Synchronous ▪ Video ▪ Audio ○ Asynchronous (secure messaging) • Conditions that are the focus of ambulatory care ○ Cancer (or cancer-care visits)	Referral accuracy for teledermatology for high-risk lesions when compared to face-to-face is relatively high, however for low-risk lesions it is significantly more variable and requires face-to-face verification (10/10 AMSTAR rating)	Literature last searched August 2016

Type of document	Relevance to question	Focus	Recency or status

	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Costs and cost-effectiveness
		Low-certainty evidence indicates that telemedicine shows promise for use in evaluation of facial trauma during the COVID-19 pandemic, with the potential to improve safety, triage, speed of consultation, cost of care, follow-up and access	Literature last searched 30 April 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Conditions that are the focus of ambulatory care - general
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
	  o Provider experience
		Literature supports otorhinolaryngologic care as having high patient and provider satisfaction and adequate image quality, but heterogeneity in diagnostic concordance	Literature last searched in 2019

	• Type of technology used o Asynchronous (secure messaging) • Implementation considerations	There is a lack of evidence to support many popular mental health apps as a complement to telepsychotherapy during the COVID-19 pandemic, and despite some potential benefits reported in the literature there are also harms, suggesting clinicians should exercise caution in their use	Literature last searched in 2020 (date not specified)

	• Type of technology used
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Cancer (or cancer-care visits)
		Smartphone applications using artificial intelligence-based analysis are not sufficient for triaging melanomas, however store and forward images using secure messaging could have a potential role, but have often resulted in an increase in resources and work	Literature last searched August 2016

Type of document	Relevance to question	Focus	Recency or status

	• Type of technology used
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Pregnancy (or antenatal and postnatal visits)
	• Outcomes
	  o Health outcomes (including equity considerations)
		No firm conclusions could be drawn on the effects of mobile-application interventions during pregnancy on maternal knowledge, behaviour change, and perinatal health outcomes due to limited evidence with considerable heterogeneity	Literature last searched 6 May 2018

	• Type of technology used
	  o Asynchronous (secure messaging)
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Provider experience
		Mixed attitudes were found from patients and providers regarding the use of patient portals for the management of chronic disease with the most prevalent positive attribute being patient-provider communication, and the most prevalent negative perception being with security and user-friendliness	Literature last searched July 2014

	• Type of technology used
	  o Synchronous
	    ▪ Audio
	• Outcomes
	  o Health outcomes (including equity considerations)
		Evidence was inconclusive for the effectiveness of interventions using telephone follow-up alone or in combination with other components in reducing readmissions within 30 days among patients with chronic disease	Literature last searched 19 May 2015

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	  o Asynchronous (secure messaging)
	• Outcomes
	  o Health outcomes (including equity considerations)
		Most included studies (15 out of 18) found telehealth had no statistically significant improvements in quality of life for patients with chronic obstructive pulmonary disease	Literature last searched November 2015

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	  o Asynchronous (secure messaging)
		The majority of the included studies showed that e-health led to similar or improved clinical patient-related outcomes compared to only face-to-face perioperative care for patients who have undergone various forms of surgery, however, the results should	Literature last searched 2 December 2015

Type of document	Relevance to question	Focus	Recency or status

	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
		be interpreted with caution due to the low or moderate quality of many studies	

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	  o Asynchronous (secure messaging)
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
		Computer-mediated communication (e.g., email, telephone, videoconferencing) could be both what patients want and a way of delivering support to patients in a resource-tight environment	Literature last searched April 2016

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Pregnancy (or antenatal and postnatal visits)
	• Outcomes
	  o Health outcomes (including equity considerations)
		Internet-based self-monitoring interventions could significantly decrease the level of maternal glycated hemoglobin A1c and reduce caesarean-delivery rate among perinatal diabetic women	Literature last searched 16 February 2016

	• Type of technology used
	  o Synchronous
	    ▪ Video
	  o Asynchronous (secure messaging)
		Telehealth for patients with diabetic foot ulcer yielded high diagnostic accuracy, reproducibility and positive behavioural perceptions, however, it was not clear if	Literature last searched April 2015

Type of document	Relevance to question	Focus	Recency or status

	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
	  o Provider experience
		telehealth use in diabetic foot management had favourable clinical and economic outcomes	

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Outcomes
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
		Videoconference appeared to offer advantages over telephone in healthcare delivery, particularly improved provider diagnostic accuracy and reduced readmission rates, however, healthcare costs were highly variable across studies	Literature last searched 25 April 2018

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
	  o Provider experience
		Telemedicine was increasingly being used in creative and procedure-specific ways for surgical patients in the post-discharge period, and these efforts were shown to be safe and effective, provided significant savings to patients and healthcare systems, and were acceptable to both patients and providers	Literature last searched 15 July 2015

	• Type of technology used
	  o Synchronous
	    ▪ Video
		Physiotherapy with telerehabilitation had the potential to increase quality of life, was feasible and at least as equally effective as usual care in surgical populations	Literature last searched November 2016

Type of document	Relevance to question	Focus	Recency or status

	▪ Audio
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)		

	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
		Telemedicine in plastic surgery and dermatology could improve post-operative monitoring, increase access to expertise in rural settings, and was cost-saving, but had some limitations, such as over-diagnosis and dependence on functional telecommunication systems	Published on June 2017

	• Type of technology used
	  o Asynchronous (secure messaging)
	• Outcomes
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
	• Implementation considerations
		Mobile Technologies (m-Health) reduced heart failure (HF)-related hospital days, showed reduction trends in total mortality and HF-related admissions, mortality and cost, and increased total costs related to more clinic visits and implementation of new technologies	Literature last searched May 2017

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
		Main perceived adoption factors to m-health at the individual, organizational, and contextual levels were the following: perceived usefulness and ease of use, design and technical concerns, cost, time, privacy and	Literature last searched 31 October 2014

Type of document	Relevance to question	Focus	Recency or status
	o Asynchronous (secure messaging) • Outcomes o Provider experience • Implementation considerations	security issues, familiarity with the technology, risk-benefit assessment, and interaction with others (colleagues, patients and management)	

	• Type of technology used
	    o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	    o Pregnancy (or antenatal and postnatal visits)
	• Outcomes
	    o Patient, family and caregiver experience (including equity considerations)
	• Implementation considerations
		Clients' experiences with reproductive, maternal, newborn, child and adolescent health services delivered via text messages was mixed, with some expressing feelings of supports while others noted challenges with cell networks, cost of messages, and language issues	Literature last searched 6 July 2017

	• Type of technology used
	    o Synchronous
	       ▪ Video
	    o Asynchronous (secure messaging)
	• Outcomes
	    o Patient, family and caregiver experience (including equity considerations)
	    o Health outcomes (including equity considerations)
		Telehealth could improve social and emotional well-being, clinical outcomes, access to health services, screening rates, and patient satisfaction, and reduce travel for Indigenous Australians	Literature last searched 16 February 2016

	• Type of technology used
	    o Synchronous
	       ▪ Video
	       ▪ Audio
	    o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	    o Complex conditions
	• Outcomes
	    o Patient, family and caregiver experience (including equity considerations)
	    o Health outcomes (including equity considerations)
		Limited evidence on supporting the use of computer-based interactive or instructive-video interventions for reduction of pain intensity and interference in older people, and qualitative evidence demonstrated older people's willingness to use mobile technologies (iPhone or digital pen), however, still there is a need for device-use training and connectedness with clinicians	Literature last searched 2 August 2015

Type of document	Relevance to question	Focus	Recency or status

	• Type of technology used
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Mental health and substance use
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Costs and cost-effectiveness
	  o Provider experience
		Current research studies focused on the acceptability and appropriateness of eMental healthcare technologies to users and mental healthcare professionals, and the available government and organizational documents focused on cost, penetration, feasibility, and sustainability of implementing this technology	Literature last searched 30 September 2015

	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
	  o Cancer (or cancer-care visits)
	• Outcomes
	  o Health outcomes (including equity considerations)
		Telemedicine (telestroke, tele-oncology and teledialysis) supervision of active treatment for rural patients appeared promising, but more rigorous studies of effectiveness, feasibility and safety are required	Literature last searched not reported

	• Type of technology used
	  o Asynchronous (secure messaging)
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes
	  o Provider experience
		Electronic consultations (an asynchronous consultative communication between providers occurring within a shared electronic health record or secure web-based platform) were feasible in a variety of settings, flexible in their application, and facilitate timely specialty advice	Literature last searched December 2014

Type of document	Relevance to question	Focus	Recency or status

Rapid reviews	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
	• Outcomes
	  o Health outcomes (including equity considerations)
		Evidence on telerehabilitation (using synchronous video software) and surgical procedures was in favour of it for patients following total knee and hip arthroplasty, as well as telephone follow-up for patients after myocardial revascularization (3/9 AMSTAR rating)	Published 16 July 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
	  o Mental health and substance use
	  o Conditions requiring surgery (pre- and post-operative consultations)
	• Outcomes
	  o Health outcomes (including equity considerations)
		The strongest evidence for telehealth is available for the acute management of ischemic stroke via telehealth and for the monitoring and management of chronic disease such as diabetes and heart failure (2/9 AMSTAR rating)	Published 28 May 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Conditions that are the focus of ambulatory care
	  o Mental health and substance use
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
		Internet-delivered cognitive behavioural therapy is effective for reducing depression and anxiety symptoms, as well as improving patient quality of life (7/9 AMSTAR rating)	Last updated 22 July 2019

Type of document	Relevance to question	Focus	Recency or status

	• Types of technology used for clinician-patient interactions
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Mental health and substance use
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
		While there is not enough evidence to support the use of a digital mental health intervention for children, it has shown to improve depression and anxiety symptoms in adults, with web-based interventions having shown the most significant effects (5/9 AMSTAR rating)	Literature last searched 11 June 2020

	• Types of technology used for clinician-patient interactions
	  o Synchronous
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
	• Outcomes
	  o Health outcomes (including equity considerations)
		Seven systematic reviews, three single studies, and one guideline were found that evaluated the clinical effectiveness of virtual pulmonary rehabilitation for patients with respiratory conditions, but none of them evaluated this intervention in COVID-19 patients and no evidence was summarized from the included reviews, studies and guidelines	Literature last searched 8 June 2020

Type of document	Relevance to question	Focus	Recency or status

	• Types of technology used for clinician-patient interactions
	 o Synchronous
	  ▪ Video
	  ▪ Audio
	 o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	 o Complex conditions
	• Outcomes
	 o Provider experience
	• Implementation considerations
		Physical examinations for respiratory illnesses, including COPD, asthma and cystic fibrosis, may be conducted using virtual means by using additional tools such as spirometers, however providers have reported difficulties in their assessments which may be improved by the use of additional questionnaires	Literature last searched 26 May 2020

	• Type of technology used o Synchronous ▪ Audio • Conditions that are the focus of ambulatory care o Complex conditions	No validated tools were found to diagnose respiratory illness via telehealth, however clinicians recommend asking patients to describe their breathing, aligning the results against symptoms checkers, and to focus on the change in their medical history	Literature last searched 15 April 2020
	• Type of technology used o Synchronous ▪ Video • Implementation considerations	Telehealth may be used in the management of COVID-19 (to expand rural capacity and deliver virtual palliative care) as well as for the management and monitoring of many non-COVID-19-related conditions, however there is some evidence that in-person support is required at early stages to support technical and operations issues, adequate preparation and training in the use of technology is needed, and there remain some concerns related to privacy, safety and culture safety for certain communities	Literature last searched 13 April 2020

Type of document	Relevance to question	Focus	Recency or status

	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
	• Outcomes
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
		Tele-ophthalmology, although not widely practised, might offer an alternate option for remote diabetic retinopathy screening where available during the COVID-19 pandemic	Last updated 12 May 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
	  o Provider experience
	• Implementation considerations
		A large number of studies: 1) provided a lack of firm evidence to conclude that video consultations were equal or better than face-to-face consultations and that they had no negative health effects; 2) point to many barriers in the implementation of video consultations, including patient-related (e.g., technology-illiteracy), provider-related (e.g., impossible to do a physical exam), technology-related (e.g., inadequate internet and Wi-Fi coverage) and health system-related (e.g., no reimbursement regulations) factors	Last updated 24 June 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
		During coronavirus pandemics telemedicine can be used to support the public by addressing issues they are most concerned about, including symptoms, prevention and treatment of the disease, and for advice	Literature last searched 1 March 2020

Type of document	Relevance to question	Focus	Recency or status

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	• Implementation considerations
		Telemedicine is important for ensuring access to care during the COVID-19 pandemic, and has shown promise for remote assessment and continuity of care, but health-system challenges (e.g., legislative and technological challenges) can interfere with widespread adoption and use	Literature last searched 15 May 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
	• Implementation considerations
		To ensure cardiovascular patients are supported during the COVID-19 pandemic, staff need to be prepared to deliver remote care, reimbursement mechanisms for remote care need to be developed, and access to usual care and mental health support through telehealth solutions is important	Literature last searched 1 April 2020

Guidelines developed using some type of evidence synthesis and/or expert opinion	• Type of technology used
	  o Synchronous
	    ▪ Audio
	  o Asynchronous (secure messaging)
		Guidance is provided on patient evaluation and use of laboratory testing by healthcare practitioners via virtual assessment (phone, telehealth or regionally available platforms) for the management of ambulatory heart-failure patients (Canadian Cardiovascular Society COVID-19 Rapid Response Team)	Published 2020

Type of document	Relevance to question	Focus	Recency or status

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
		Key principles for the management of dermatology patients remotely during COVID-19 pandemic include: 1) streamline skin cancer patients on two-week wait pathways, using teledermatology to triage referrals and book patients directly to surgery where possible; 2) manage urgent, on-call patients and in-patient referrals using secure email or mobile messaging apps where possible; 3) redirect new patients through Advice and Guidance services where possible rather than referral; 4) manage referred patients by switching face-to-face clinics to teleconsultation (with or without video consultation) where possible for new and follow-up patients; 5) optimize remote access to allow dermatology staff to continue to provide patient care from home if required; 6) facilitate virtual staff team meetings to coordinate patient care; and 7) establish patient-consent policies for receiving, reviewing and storing patient images from healthcare professionals and patients (British Association of Dermatologists)	Last updated 17 June 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Pregnancy (or antenatal and postnatal visits)
		Virtual-visit guidelines are detailed for midwives, including: 1) considerations for virtual visits (understanding professional obligations, identifying a virtual-visit solution, complying with privacy and security requirements, onboarding clients, assessing needs, ensuring the settings for video visits is private and secure, and ensuring appropriate resources are available); 2) taking steps to conduct a virtual visit (confirm identity, obtain consent for virtual visit, document the clinical encounter, provide needed prescriptions and document the visit); 3) signing up for the Ontario Telemedicine Network (OTN); and 4) choosing a platform for the virtual visit (Doxy,	Last updated 25 March 2020

Type of document	Relevance to question	Focus	Recency or status
		FaceTime, Medeo, OTN, Skype, Telephone or Zoom) (Association of Ontario Midwives)	

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
		Recommendations are provided for rural and remote cardiology during COVID-19 pandemic, including enhanced systems of telehealth, 24/7 video support, remote access to multidisciplinary heart team meetings (Cardiac Society of Australia and New Zealand)	Last updated 11 April 2020

Protocols for reviews that are underway	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
		Synchronous telemedicine applications in orthopedic surgery	Anticipated completion 30 July 2020

Type of document	Relevance to question	Focus	Recency or status

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Mental health and substance use
		Telemedicine for depression treatments in community-residing older adults	Anticipated completion date 30 November 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Conditions requiring surgery (pre- and post-operative consultations)
		Effectiveness of telerehabilitation services following the COVID-19 pandemic	Anticipated completion date 07 August 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
	• Implementation considerations
		Patient experience with the implementation of telemedicine for pediatric health care	Anticipated completion 01 October 2020

	• Type
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Mental health
		Patient satisfaction with telematic mental health services as compared to face-to-face	Anticipated completion 26 July 2020

Titles/questions for reviews that are being planned	• Outcomes
	  o Health outcomes (including equity considerations)
	  o Costs and cost-effectiveness
		Health economic outcomes of outpatient musculoskeletal physiotherapy delivered by telehealth	Anticipated completion date not reported

Type of document	Relevance to question	Focus	Recency or status
	• Implementation considerations	Barriers, facilitators and clinical effects of recording outpatient consultations: A scoping review	Anticipated completion date not reported

Single studies in areas where no reviews were identified	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	  o Asynchronous (secure messaging)
	• Conditions that are the focus of ambulatory care
	  o Pregnancy (or antenatal and postnatal visits)
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Provider experience
		A uniform obstetric protocol for all low-risk patients was developed during the COVID-19 pandemic in Florida by adapting a virtual-care model (OB Nest) to reduce in-person visits and incorporate telehealth visits into the schedule of prenatal care, which has been found to have high patient satisfaction and lower stress, and includes: a combined virtual prenatal care protocol that combines eight in-person visits with six virtual nursing visits; an asynchronous online portal for questions and education; an online community for patients moderated by nurses; and patients being provided with blood pressure cuffs and fetal dopplers	Published 20 June 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	• Conditions that are the focus of ambulatory care
	  o Pregnancy (or antenatal and postnatal visits)
	• Implementation considerations
		National guidelines in the United States for maternity care were developed, and emphasized designing care delivery around essential services using in-person care for services that cannot be delivered remotely and offering video visits for other essential services, and creating flexible services that allow patients to tailor support to meet their needs through opt-in programs, and then this rapidly transitioned to a new model during the COVID-19 pandemic with four in-person visits, one ultrasound visit, and four virtual visits (the 4-1-4 prenatal plan) which required an implementation process that focused on: 1) training providers; 2) engaging patients; and 3) advocating for policies to support sustainable change	Published 17 May 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
		Virtual telehealth treatments were implemented for tobacco-dependent cancer patients in a New York City hospital, and there was significant improvement in patient engagement in ambulatory tobacco-	Published 9 July 2020

Type of document	Relevance to question	Focus	Recency or status
	• Conditions that are the focus of ambulatory care o Cancer (or cancer-care visits) • Outcomes o Patient, family and caregiver experience (including equity considerations)	treatment services, with greater attendance at scheduled telehealth visits than in-person visits, bedside hospital counselling visits were transformed into inpatient telephone visits with high levels of sustained patient engagement, and group telehealth services were launched rapidly to increase capacity and provide greater psychosocial support for cancer patients struggling with tobacco dependence	
	• Type of technology used o Synchronous ▪ Video ▪ Audio • Implementation considerations	A study of the impact of an adapted telemedicine Objective Structured Clinical Examination (OSCE) on telemedicine-specific training competencies of residents in three areas of telemedicine competency (technical proficiency; virtual information gathering, including history, collateral information collection, and physical exam; and interpersonal communication skills - both verbal and nonverbal) found that residents expressed enthusiasm for telemedicine training, but had concerns about their preparedness for telemedicine practice and the need for further competency and curricular development	Published 8 July 2020
	• Type of technology used o Synchronous ▪ Video • Implementation considerations	It is crucial to maintain a human presence during virtual visits, which can be done by including video capability, ensuring comfort for both patient and physician, being prepared, acknowledging current anxieties and stress, finding creative ways to communicate via body language through the camera, clearly delivering medical information and thoroughly explaining the assessment and plan, and showing support	Published 19 June 2020
	• Type of technology used o Synchronous ▪ Video ▪ Audio • Implementation considerations	A four-day roadmap for emergency scaling up of virtual care in the outpatient setting (using EPIC as the electronic health record system and MyChart as the patient portal with Vidyo integrated into both for secure video connection) at the Amsterdam	Published 14 April 2020

Type of document	Relevance to question	Focus	Recency or status
		University Medical Centres is outlined, which progressed from the appointment of a crisis policy team and expansion of available digital infrastructure (iPads), to creation, testing and refinement of a video-consultatioin pathway (day 2), merging the tested and refined pathway with the live environment in the electronic healthrecord system (including distribution of iPads to providers and real-time support) (day 3), to providing the first video consultation (day 4)	

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Conditions that are the focus of ambulatory care
	  o Complex conditions
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Provider experience
		The diabetes service at the University of North Carolina division of endocrinology was largely transitioned to a virtual-care model in March 2020 with automatic consults for COVID-19 patients implemented, and data over a 15-week period suggest that using virtual care for diabetes management in the hospital is feasible and can provide similar outcomes to traditional face-to-face care, and does not limit the glycemic outcome of inpatient diabetes care	Published 29 May 2020

	• Type of technology used
	  o Synchronous
	    ▪ Video
	    ▪ Audio
	• Outcomes
	  o Patient, family and caregiver experience (including equity considerations)
	  o Health outcomes (including equity considerations)
		The COVID-19 Expansion to Outpatients (COVIDEO) program was developed at the Sunnybrook Health Sciences Centre, Toronto, Canada, to provide ongoing care for outpatients diagnosed with COVID-19, and results from a feasibility study including 50 people with COVID-19 who were discharged home for self-isolation show that a virtual-care program can be used in the management of outpatients diagnosed with COVID-19	Published 23 May 2020

Appendix 3: Abstracts for highly relevant documents

Type of document	Abstract
Full systematic reviews	Telerehabilitation, with high levels of patient satisfaction and improvement in physical activity and functional status, was a practical alternative to conventional face-to-face rehabilitation therapy in patients following total knee arthroplasty **Abstract** Introduction: Increased physical activity and functional ability are the goals of total knee replacement surgery. Therefore, adequate rehabilitation is required for the recovery of patients after discharge from hospital following total knee arthroplasty (TKA). This systematic literature review aimed to evaluate the effectiveness of home telerehabilitation in patients who underwent TKA. Methods: Studies published in the English language between 2000 and 2014 were retrieved from Embase, PubMed, and Cochrane databases using relevant search strategies. Two researchers independently reviewed the studies as per the Cochrane methodology for systematic literature review. We considered telerehabilitation sessions as those that were conducted by experienced physiotherapists, using videoconferencing to patients' homes via an internet connection. The outcomes assessed included: knee movement (knee extension and flexion); quadriceps muscle strength; functional assessment (the timed up-and-go test); and assessment of pain, stiffness, and functional capacity using the Western Ontario and McMaster Universities Osteoarthritis Index and visual analogue scale for pain. Results: In total, 160 potentially relevant studies were screened. Following the screening of studies as abstracts and full-text publications, six primary publications (four randomized controlled trials, one non-randomized controlled trial, and one single-arm trial) were included in the review. Patients experienced high levels of satisfaction with the use of telerehabilitation alone. There was no significant difference in change in active knee extension and flexion in the home telerehabilitation group as compared to the control group (mean difference (MD) -0.52, 95% CI -1.39 to 0.35, p = 0.24 and MD 1.14, 95% CI -0.61 to 2.89, p = 0.20, respectively). The patients in the home telerehabilitation group showed improvement in physical activity and functional status similar to patients in the conventional therapy group. Discussion: The evidence from this systematic literature review demonstrated that telerehabilitation is a practical alternative to conventional face-to-face rehabilitation therapy in patients who underwent TKA.
	Real-time video telemedicine in the emergency department was an application with significant potential, but was still lacking evidence supporting improved patient outcomes **Abstract** **Objectives:** To collect and synthesize the literature describing the use of real-time video-based technologies to provide support in the care of patients presenting to emergency departments. Data Source: Six electronic databases were searched, including Medline, CINAHL, Embase, the Cochrane Database, DARE, and PubMed for all publications since the earliest date available in each database to February 2016. Study Selection: Selected articles were

Type of document	Abstract
	full text articles addressing the use of telemedicine to support patient care in pre-hospital or emergency department settings. The search yielded 2976 articles for review with 11 studies eligible for inclusion after application of the inclusion and exclusion criteria. A scoping review of the selected articles was performed to better understand the different systems in place around the world and the current state of evidence supporting telemedicine use in the emergency department. **Conclusions:** Telemedicine support for emergency department physicians is an application with significant potential but is still lacking evidence supporting improved patient outcomes. Advances in technology, combined with more attractive price-points have resulted in widespread interest and implementation around the world. Applications of this technology that are currently being studied include support for minor treatment centres, patient transfer decision-making, management of acutely ill patients and scheduled teleconsultations.
	Application of telemedicine in emergency rooms (ERs) included: 1) telemedicine for diffuse patient populations that typically present in ERs; 2) telemedicine in the context of minor treatment clinics for patients with minor injuries or illnesses; 3) the use of telemedicine to connect providers in ERs to medical specialists for consultations on patients with specific conditions; and 4) current studies reported positive findings in clinical processes, outcomes, and user satisfaction **Abstract** Context: Despite the frequency of use of telemedicine in emergency care, limited evidence exists on its impacts at the patient, provider, organization, and system level. Hospital-based applications of telemedicine present a potentially important solution, particularly for small and rural hospitals where access to local specialists is rarely available. Purpose: We conducted a systematic review of telemedicine applications for hospital-based emergency care, which aims to synthesize the existing evidence on the impact of tele-emergency applications that could inform future efforts and research in this area. Basic procedures: A search of four databases (PubMed, CINAHL, EMBASE, Cochrane) using a combination of telemedicine and emergency room (ER) keywords for publications yielded 340 citations. Four coders independently determined eligibility based on initial criteria and then extracted information on the 38 resulting articles based on four main categories: study setting, type of technology, research methods, and results. Main findings: Of the 38 articles, 11 studies focused on telemedicine for diffuse patient populations that typically present in ERs, 8 studies considered telemedicine in the context of minor treatment clinics for patients presenting with minor injuries or illnesses, and 19 studies focused on the use of telemedicine to connect providers in ERs to medical specialists for consultations on patients with specific conditions. Overwhelmingly, tele-emergency studies reported positive findings especially in terms of technical quality and user satisfaction. There were also positive findings reported for clinical processes and outcomes, throughput, and disposition, but the rigor of studies using these measures was limited. Studies of economic outcomes are particularly sparse. Principal conclusions: Despite limitations in their research methodology, the studies on tele-emergency indicate an application with promise to meet the needs of small and rural hospitals to address infrequent but emergency situations

requiring specialist care. Similarly, studies indicate that tele-emergency has considerable potential to expand use of minor treatment clinics to address access issues in remote areas and overcrowding of urban ERs.

Telemedicine delivered via single-wire networks is unable to guarantee good quality and service and may need additional technological improvements; further the review found that quality of experience was often overlooked and requires evaluation to measure improvement

Abstract
Background
People with cancer experience a variety of symptoms as a result of their disease and the therapies involved in its management. Inadequate symptom management has implications for patient outcomes including functioning, psychological well-being, and quality of life (QoL). Attempts to reduce the incidence and severity of cancer symptoms have involved the development and testing of psycho-educational interventions to enhance patients' symptom self-management. With the trend for care to be provided nearer patients' homes, telephone-delivered psycho-educational interventions have evolved to provide support for the management of a range of cancer symptoms. Early indications suggest that these can reduce symptom severity and distress through enhanced symptom self-management.

Objectives
To assess the effectiveness of telephone-delivered interventions for reducing symptoms associated with cancer and its treatment. To determine which symptoms are most responsive to telephone interventions. To determine whether certain configurations (e.g. with/without additional support such as face-to-face, printed or electronic resources) and duration/frequency of intervention calls mediate observed cancer symptom outcome effects.

Search methods
We searched the following databases: the Cochrane Central Register of Controlled Trials (CENTRAL; 2019, Issue 1); MEDLINE via OVID (1946 to January 2019); Embase via OVID (1980 to January 2019); (CINAHL) via Athens (1982 to January 2019); British Nursing Index (1984 to January 2019); and PsycINFO (1989 to January 2019). We searched conference proceedings to identify published abstracts, as well as SIGLE and trial registers for unpublished studies. We searched the reference lists of all included articles for additional relevant studies. Finally, we handsearched the following journals: *Cancer*, *Journal of Clinical Oncology*, *Psycho-oncology*, *Cancer Practice*, *Cancer Nursing*, *Oncology Nursing Forum*, *Journal of Pain and Symptom Management*, and *Palliative Medicine*. We restricted our search to publications published in English.

Selection criteria
We included randomised controlled trials (RCTs) and quasi-RCTs that compared one or more telephone interventions with one other, or with other types of interventions (e.g. a face-to-face intervention) and/or usual care, with the stated aim of addressing any physical or psychological symptoms of cancer and its treatment, which recruited adults (over 18

Type of document	Abstract
	years) with a clinical diagnosis of cancer, regardless of tumour type, stage of cancer, type of treatment, and time of recruitment (e.g. before, during, or after treatment). Data collection and analysis We used Cochrane methods for trial selection, data extraction and analysis. When possible, anxiety, depressive symptoms, fatigue, emotional distress, pain, uncertainty, sexually-related and lung cancer symptoms as well as secondary outcomes are reported as standardised mean differences (SMDs) with 95% confidence intervals (CIs), and we presented a descriptive synthesis of study findings. We reported on findings according to symptoms addressed and intervention types (e.g. telephone only, telephone combined with other elements). As many studies included small samples, and because baseline scores for study outcomes often varied for intervention and control groups, we used change scores and associated standard deviations. The certainty of the evidence for each outcome was interpreted using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach. Main results Thirty-two studies were eligible for inclusion; most had moderate risk of bias, often related to blinding. Collectively, researchers recruited 6250 people and studied interventions in people with a variety of cancer types and across the disease trajectory, although many participants had breast cancer or early-stage cancer and/or were starting treatment. Studies measured symptoms of anxiety, depression, emotional distress, uncertainty, fatigue, and pain, as well as sexually-related symptoms and general symptom intensity and/or distress. Interventions were primarily delivered by nurses (n = 24), most of whom (n = 16) had a background in oncology, research, or psychiatry. Ten interventions were delivered solely by telephone; the rest combined telephone with additional elements (i.e. face-to-face consultations and digital/online/printed resources). The number of calls delivered ranged from 1 to 18; most interventions provided three or four calls. Twenty-one studies provided evidence on effectiveness of telephone-delivered interventions and the majority appeared to reduce symptoms of *depression* compared to control. Nine studies contributed quantitative change scores (CSs) and associated standard deviation results (or these could be calculated). Likewise, many telephone interventions appeared effective when compared to control in reducing *anxiety* (16 studies; 5 contributed quantitative CS results); *fatigue* (9 studies; 6 contributed to quantitative CS results); and *emotional distress* (7 studies; 5 contributed quantitative CS results). Due to significant clinical heterogeneity with regards to interventions introduced, study participants recruited, and outcomes measured, meta-analysis was not conducted. For other symptoms (*uncertainty, pain, sexually-related symptoms, dyspnoea,* and *general symptom experience*), evidence was limited; similarly meta-analysis was not possible, and results from individual studies were largely conflicting, making conclusions about their management through telephone-delivered interventions difficult to draw. Heterogeneity was considerable across all trials for all outcomes.

Type of document	Abstract
	Overall, the certainty of evidence was very low for all outcomes in the review. Outcomes were all downgraded due to concerns about overall risk of bias profiles being frequently unclear, uncertainty in effect estimates and due to some inconsistencies in results and general heterogeneity. Unsubstantiated evidence suggests that telephone interventions in some capacity may have a place in symptom management for adults with cancer. However, in the absence of reliable and homogeneous evidence, caution is needed in interpreting the narrative synthesis. Further, there were no clear patterns across studies regarding which forms of interventions (telephone alone versus augmented with other elements) are most effective. It is impossible to conclude with any certainty which forms of telephone intervention are most effective in managing the range of cancer-related symptoms that people with cancer experience. Authors' conclusions Telephone interventions provide a convenient way of supporting self-management of cancer-related symptoms for adults with cancer. These interventions are becoming more important with the shift of care closer to patients' homes, the need for resource/cost containment, and the potential for voluntary sector providers to deliver healthcare interventions. Some evidence supports the use of telephone-delivered interventions for symptom management for adults with cancer; most evidence relates to four commonly experienced symptoms - depression, anxiety, emotional distress, and fatigue. Some telephone-delivered interventions were augmented by combining them with face-to-face meetings and provision of printed or digital materials. Review authors were unable to determine whether telephone alone or in combination with other elements provides optimal reduction in symptoms; it appears most likely that this will vary by symptom. It is noteworthy that, despite the potential for telephone interventions to deliver cost savings, none of the studies reviewed included any form of health economic evaluation. Further robust and adequately reported trials are needed across all cancer-related symptoms, as the certainty of evidence generated in studies within this review was very low, and reporting was of variable quality. Researchers must strive to reduce variability between studies in the future. Studies in this review are characterised by clinical and methodological diversity; the level of this diversity hindered comparison across studies. At the very least, efforts should be made to standardise outcome measures. Finally, studies were compromised by inclusion of small samples, inadequate concealment of group allocation, lack of observer blinding, and short length of follow-up. Consequently, conclusions related to symptoms most amenable to management by telephone-delivered interventions are tentative.
	[Telemedicine delivered via single-wire networks is unable to guarantee good quality and service and may need additional technological improvements; further the review found that quality of experience was often overlooked and requires evaluation to measure improvement](#) **Abstract** What is this? The COVID-19 pandemic is placing a strain on healthcare services. Existing research on telemedicine and eHealth might provide useful information for policy makers.

Type of document	Abstract
	In this systematic review, the authors searched for studies of quality of service (QoS) and quality of experience (QoE) for users of telemedicine and eHealth. They restricted their search to articles published in Spanish and English between 2008 and 2018. They included 39 studies. What was found: Quality of service and quality of experience are important considerations for privacy, reliability, quality, and data security in remote healthcare delivery. At the time of this review, the included studies showed that existing telemedicine via single wire networks could not guarantee good quality of service, but that technological improvements might improve delivery. At the time of this review, the included studies showed that quality of experience was often overlooked in considering the delivery of telehealth but requires evaluation to improve user acceptance.
	There is good support for teleneuropsychology assessments for older adults throughout the duration of the COVID-19 pandemic; in addition the review provides an outline of viable procedures for teleneuropsychology **Abstract** Objective: Due to the recent COVID-19 pandemic, the field of neuropsychology must rapidly evolve to incorporate assessments delivered via telehealth, or teleneuropsychology (TNP). Given the increasing demand to deliver services electronically due to public health concerns, it is important to review available TNP validity studies. This systematic review builds upon the work of Brearly and colleagues' (2017) meta-analysis and provides an updated review of the literature, with special emphasis on test-level validity data. Method: Using similar methodology as Brearly and colleagues (2017) three internet databases (PubMed, EBSCOhost, PsycINFO) were searched for relevant articles published since 2016. Studies with older adults (aged 65+) who underwent face-to-face and TNP assessments in a counterbalanced cross-over design were included. After review, 10 articles were retained. Combined with nine articles from Brearly's analysis, a total of 19 studies were included in the systematic review. Results: Retained studies included samples from 5 different countries, various ethnic/cultural backgrounds, and diverse diagnostic populations. Test-level analysis suggests there are cognitive screeners (MMSE, MoCA), language tests (BNT, Letter Fluency), attention/working memory tasks (Digit Span Total), and memory tests (HVLT-R) with strong support for TNP validity. Other measures are promising but lack sufficient support at this time. Few TNP studies have done in-home assessments and most studies rely on a PC or laptop. Conclusions: Overall, there appears to be good support for TNP assessments in older adults. Challenges to TNP in the current climate are discussed. Finally, a provisional outline of viable TNP procedures used in our clinic is provided.
	Pre- and post-use of telemedicine for neurosurgery appears promising for patient management, however some failures were reported due to technological difficulties or patients requiring further face-to-face evaluations **Abstract** Background: Evolving requirements for patient and physician safety and rapid regulatory changes have stimulated interest in neurosurgical telemedicine in the COVID-19 era.

Type of document	Abstract
	Objective: To conduct a systematic literature review investigating treatment of neurosurgical patients via telemedicine, and to evaluate barriers and challenges. Additionally, we review recent regulatory changes that affect telemedicine in neurosurgery, and our institution's initial experience. Methods: A systematic review was performed including all studies investigating success regarding treatment of neurosurgical patients via telemedicine. We reviewed our department's outpatient clinic billing records after telemedicine was implemented from 3/23/2020 to 4/6/2020 and reviewed modifier 95 inclusion to determine the number of face-to-face and telemedicine visits, as well as breakdown of weekly telemedicine clinic visits by subspecialty. Results: A total of 52 studies (25 prospective and 27 retrospective) with 45 801 patients were analyzed. A total of 13 studies were conducted in the United States and 39 in foreign countries. Patient management was successful via telemedicine in 99.6% of cases. Telemedicine visits failed in 162 cases, 81.5% of which were due to technology failure, and 18.5% of which were due to patients requiring further face-to-face evaluation or treatment. A total of 16 studies compared telemedicine encounters to alternative patient encounter mediums; telemedicine was equivalent or superior in 15 studies. From 3/23/2020 to 4/6/2020, our department had 122 telemedicine visits (65.9%) and 63 face-to-face visits (34.1%). About 94.3% of telemedicine visits were billed using face-to-face procedural codes. Conclusion: Neurosurgical telemedicine encounters appear promising in resource-scarce times, such as during global pandemics.
	Referral accuracy for teledermatology for high-risk lesions when compared to face-to-face is relatively high, however for low-risk lesions it is significantly more variable and requires face-to-face varification **Abstract** Background Early accurate detection of all skin cancer types is essential to guide appropriate management and to improve morbidity and survival. Melanoma and squamous cell carcinoma (SCC) are high-risk skin cancers which have the potential to metastasise and ultimately lead to death, whereas basal cell carcinoma (BCC) is usually localised with potential to infiltrate and damage surrounding tissue. Anxiety around missing early curable cases needs to be balanced against inappropriate referral and unnecessary excision of benign lesions. Teledermatology provides a way for generalist clinicians to access the opinion of a specialist dermatologist for skin lesions that they consider to be suspicious without referring the patients through the normal referral pathway. Teledermatology consultations can be 'store-and-forward' with electronic digital images of a lesion sent to a dermatologist for review at a later time, or can be live and interactive consultations using videoconferencing to connect the patient, referrer and dermatologist in real time.

Objectives
To determine the diagnostic accuracy of teledermatology for the detection of any skin cancer (melanoma, BCC or cutaneous squamous cell carcinoma (cSCC)) in adults, and to compare its accuracy with that of in-person diagnosis.

Search methods
We undertook a comprehensive search of the following databases from inception up to August 2016: Cochrane Central Register of Controlled Trials, MEDLINE, Embase, CINAHL, CPCI, Zetoc, Science Citation Index, US National Institutes of Health Ongoing Trials Register, NIHR Clinical Research Network Portfolio Database and the World Health Organization International Clinical Trials Registry Platform. We studied reference lists and published systematic review articles.

Selection criteria
Studies evaluating skin cancer diagnosis for teledermatology alone, or in comparison with face-to-face diagnosis by a specialist clinician, compared with a reference standard of histological confirmation or clinical follow-up and expert opinion. We also included studies evaluating the referral accuracy of teledermatology compared with a reference standard of face-to-face diagnosis by a specialist clinician.

Data collection and analysis
Two review authors independently extracted all data using a standardised data extraction and quality assessment form (based on QUADAS-2). We contacted authors of included studies where there were information related to the target condition of any skin cancer missing. Data permitting, we estimated summary sensitivities and specificities using the bivariate hierarchical model. Due to the scarcity of data, we undertook no covariate investigations for this review. For illustrative purposes, we plotted estimates of sensitivity and specificity on coupled forest plots for diagnostic threshold and target condition under consideration.

Main results
The review included 22 studies reporting diagnostic accuracy data for 4057 lesions and 879 malignant cases (16 studies) and referral accuracy data for reported data for 1449 lesions and 270 'positive' cases as determined by the reference standard face-to-face decision (six studies). Methodological quality was variable with poor reporting hindering assessment. The overall risk of bias was high or unclear for participant selection, reference standard, and participant flow and timing in at least half of all studies; the majority were at low risk of bias for the index test. The applicability of study findings were of high or unclear concern for most studies in all domains assessed due to the recruitment of participants from secondary care settings or specialist clinics rather than from primary or community-based settings in which teledermatology is more likely to be used and due to the acquisition of lesion images by dermatologists or in specialist imaging units rather than by primary care clinicians.
Seven studies provided data for the primary target condition of any skin cancer (1588 lesions and 638 malignancies). For the correct diagnosis of lesions as malignant using photographic images, summary sensitivity was 94.9% (95% confidence interval (CI) 90.1% to 97.4%) and summary specificity was 84.3% (95% CI 48.5% to 96.8%) (from four

Type of document	Abstract
	studies). Individual study estimates using dermoscopic images or a combination of photographic and dermoscopic images generally suggested similarly high sensitivities with highly variable specificities. Limited comparative data suggested similar diagnostic accuracy between teledermatology assessment and in-person diagnosis by a dermatologist; however, data were too scarce to draw firm conclusions. For the detection of invasive melanoma or atypical intraepidermal melanocytic variants both sensitivities and specificities were more variable. Sensitivities ranged from 59% (95% CI 42% to 74%) to 100% (95% CI 48% to 100%) and specificities from 30% (95% CI 22% to 40%) to 100% (95% CI 93% to 100%), with reported diagnostic thresholds including the correct diagnosis of melanoma, classification of lesions as 'atypical' or 'typical', and the decision to refer or to excise a lesion. Referral accuracy data comparing teledermatology against a face-to-face reference standard suggested good agreement for lesions considered to require some positive action by face-to-face assessment (sensitivities of over 90%). For lesions considered of less concern when assessed face-to-face (e.g. for lesions not recommended for excision or referral), agreement was more variable with teledermatology specificities ranging from 57% (95% CI 39% to 73%) to 100% (95% CI 86% to 100%), suggesting that remote assessment is more likely to recommend excision, referral or follow-up compared to in-person decisions. Authors' conclusions Studies were generally small and heterogeneous and methodological quality was difficult to judge due to poor reporting. Bearing in mind concerns regarding the applicability of study participants and of lesion image acquisition in specialist settings, our results suggest that teledermatology can correctly identify the majority of malignant lesions. Using a more widely defined threshold to identify 'possibly' malignant cases or lesions that should be considered for excision is likely to appropriately triage those lesions requiring face-to-face assessment by a specialist. Despite the increasing use of teledermatology on an international level, the evidence base to support its ability to accurately diagnose lesions and to triage lesions from primary to secondary care is lacking and further prospective and pragmatic evaluation is needed.
Rapid reviews	Evidence on telerehabilitation (using synchronous video software) and surgical procedures was in favour of it for patients following total knee and hip arthroplasty, as well as telephone follow-up for patients after myocardial revascularization **Abstract** • Telerehabilitation has been shown to reduce pain and improve function, with no differences observed in rates of hospital readmissions or treatment-related adverse events following total hip or knee replacement for people with osteoarthritis, compared to usual care.(1) A further review on knee arthroplasty found that compared with face-to-face rehabilitation, telerehabilitation could achieve comparable pain relief, better Western Ontario and McMaster Universities Osteoarthritis Index improvement, significantly higher extension range and quadriceps strength.(2)

Type of document	Abstract
	Another review for this condition found patients experienced high levels of satisfaction with the use of telerehabilitation alone.(3) • A hybrid model, consisting of home-based cardiac rehabilitation with direct supervised centre-based cardiac rehabilitation showed similar improvement in functional capacity, no significant difference in changes in exercise duration, systolic or diastolic blood pressure or health-related quality of life compared to standard cardiac rehabilitation programs.(4) • Physiotherapy with telerehabilitation has the potential to increase quality of life, is feasible, and is at least equally effective as usual care in surgical populations.(5) • Evidence on telerehabilitation after surgical procedures on orthopaedic conditions were in favour of telerehabilitation in patients following total knee and hip arthroplasty. There was limited evidence in the upper limb interventions.(6) • One review examined the feasibility of remote telemedicine connection to provide auditory rehabilitation services through hearing aids and cochlear implants. There are significant concerns regarding internet bandwidth limitations for remote clinics and a paucity of research examining reimbursement and cost-effectiveness for services.(7)
	Strongest evidence for telehealth is available for the acute management of ischemic stroke via telehealth and for the monitoring and management of chronic disease such as diabetes and heart failure **Abstract** • Telehealth has been shown to improve access to care, is acceptable to patients and clinicians, and available technology can provide high-quality and secure information transfer. • The application of telehealth spans from the highly technical to the person centred and from time-limited acute encounters to ongoing episodes or series of care. • Strongest evidence is available for the acute management of ischaemic stroke via telestroke and for monitoring and management of chronic conditions such as diabetes and heart failure. • Tele-ICU, tele-mental health and tele-rehabilitation have also been associated with positive outcomes. • Much of the available evidence is of low quality.
	Internet-delivered cognitive behavioural therapy is effective for reducing depression and anxiety symptoms, as well as improving patients' quality of life. **Abstract** This report provides a comprehensive review of the evidence and recommendations on internet-delivered cognitive behavioural therapy (iCBT) for treating depression and anxiety disorders. The review found that iCBT is effective for reducing symptoms of mild-to-moderate major depression and select anxiety disorders, and for improving quality of life. iCBT offered with therapist support is recommended. This information may be of interest to those exploring

Type of document	Abstract
	non–face-to-face care options for individuals experiencing symptoms of anxiety or depression during the COVID-19 pandemic. Whereas not enough evidence supports the use of digital mental health intervention in children, they have shown to improve depression and anxiety symptoms in adults, where web-based have shown the most important effects. **Abstract** The search yielded 2320 citations and we retained 131 citations for full-text analysis. In total, 35 reviews were included in the preliminary analysis. Most reviews described interventions performed in a specialized care setting (42%), targeted mostly to an adult population (83%), looked at interventions to manage and treat participants (60%), tested web-based and internet interventions (32%) by comparing them to usual care (48%), for people affected with cancer or various chronic diseases (77%). The included reviews were structured in 4 population clusters: 1) chronic diseases; 2) cancer; 3) mental health; and 4) children and youth. The mental health outcomes targeted by the included reviews were mainly depression and anxiety symptoms, evaluated with heterogeneous outcomes measures. For the population with chronic diseases, most of the relevant studies (13) identified improvement on depressive symptoms, but only one identified improvement on symptoms of anxiety. Web-based and internet cognitive behavior therapy (CBT) interventions were the most effective for that population. For people currently affected by, or survivors of cancer, the data (14 studies) show that digital health interventions are effective to improve depression, anxiety, distress, quality of life and mood regulation. Teleconsultation and web-based interventions were the most effective modes of delivery for the population affected with cancer. For the population with multiples mental health problems, reports (4 studies) showed improvements in anxiety symptoms for generalized anxiety disorder and disease-specific anxiety, improvements on depression symptoms and PTSD symptoms. Finally, for the children and youth population, data (4 studies) were inconclusive regarding effectiveness and effect size.

Appendix 4: Documents excluded at the final stages of reviewing

Type of document	Focus
Guidelines developed using a robust process (e.g., GRADE)	Not applicable
Full systematic reviews	Telehealth services in rural and remote Australia: A systematic review of models of care and factors influencing success and sustainability
	Information technology-based interventions to improve drug-drug interaction outcomes: A systematic review on features and effects
	Effective behavioural intervention strategies using mobile health applications for chronic disease management: A systematic review
	Factors that influence the implementation of e-health: A systematic review of systematic reviews (an update)
	Impact of electronic medication reconciliation interventions on medication discrepancies at hospital transitions: A systematic review and meta-analysis
	Review of information technology for surgical patient care
	Effects of eHealth on hospital practice: synthesis of the current literature
	Going digital: A narrative overview of the clinical and organizational impacts of eHealth technologies in hospital practice
	The forgotten risk? A systematic review of the effect of reminder systems for postpartum screening for Type 2 diabetes in women with previous gestational diabetes
	Registered nurse and midwife experiences of using videoconferencing in practice: A systematic review of qualitative studies
	The impact of health information technology on organ transplant care: A systematic review
	A systematic review of ICU and Non-ICU clinical pharmacy services using telepharmacy
	Experiences of therapists using feedback-based technology to improve physical function in rehabilitation settings: a qualitative systematic review
	Recent worldwide developments in eHealth and mHealth to more effectively manage cancer and other chronic diseases – a systematic review
	The use of telemedicine for delivering healthcare in Japan: Systematic review of literature published in Japanese and English languages
	The impact of mobile health interventions on chronic disease outcomes in developing countries: A systematic review
Rapid reviews	Not applicable
Guidelines developed using some type of evidence synthesis and/or expert opinion	Not applicable

Type of document	Focus
Protocols for reviews that are underway	Not applicable
Titles/questions for reviews that are being planned	Not applicable
Single studies in areas where no reviews were identified	Not applicable