

## Evidence check

19 May 2020

Rapid evidence checks are based on a simplified review method and may not be entirely exhaustive, but aim to provide a balanced assessment of what is already known about a specific problem or issue. This brief has not been peer-reviewed and should not be a substitute for individual clinical judgement, nor is it an endorsed position of NSW Health.

### Telehealth and COVID-19

#### Rapid review questions

1. What evidence or published standards are available to guide telehealth implementation during the COVID-19 pandemic?
2. What safety and quality issues regarding the use of telehealth have been identified?

#### In brief

- For COVID-19 patients, most primary care services be managed remotely. A visual summary to guide management has been published (Figure 1).
- Key issues for the integration of telehealth into the public health response to COVID-19 include regulatory frameworks, strategic and operational planning, communication toolkits, data sharing mechanisms and evaluation.
- Experts from the US have published advice for COVID-19 applications:
  - on the use of telehealth for palliative care
  - to expand rural hospital capacity and facilitate COVID-19 containment and quarantine, including the use of hospitalists in hub and spoke, collaborative team and cross-cover models, post-discharge transitions of care, hospital at home, tele-emergency department and respiratory illness triage clinics.
- Telehealth consultations are also suitable for many non-COVID-19 patients during the pandemic.
- Before COVID-19, systematic reviews showed telehealth to be effective either in improving outcomes or providing services with no difference in outcomes, for a range of clinical conditions, such as cardiac failure, coronary artery disease, diabetes and for stroke rehabilitation.
- Safety concerns pre-COVID-19 span malfunctioning equipment, potential adverse effects of delayed or missing information, misleading advice provided by apps, misunderstanding sound advice, or inaccurate findings as a result of patient or caregiver error.
- Telehealth standards have been published by the Australian College of Rural and Remote Medicine and cover technical, clinical and health services issues.
- For implementation of telehealth, there is some evidence that:
  - in-person support is required in the early stages to tackle both technical (e.g. installing equipment) and operational (e.g. redesigning workflow) issues
  - adequate preparation and training, credentialing, leveraging of basic technology such as smart phones, adequate broadband, and feedback loops are recommended
  - barriers to implementation include concerns about establishing rapport, privacy, safety, and technology limitations, and for Aboriginal communities, issues of cultural safety.

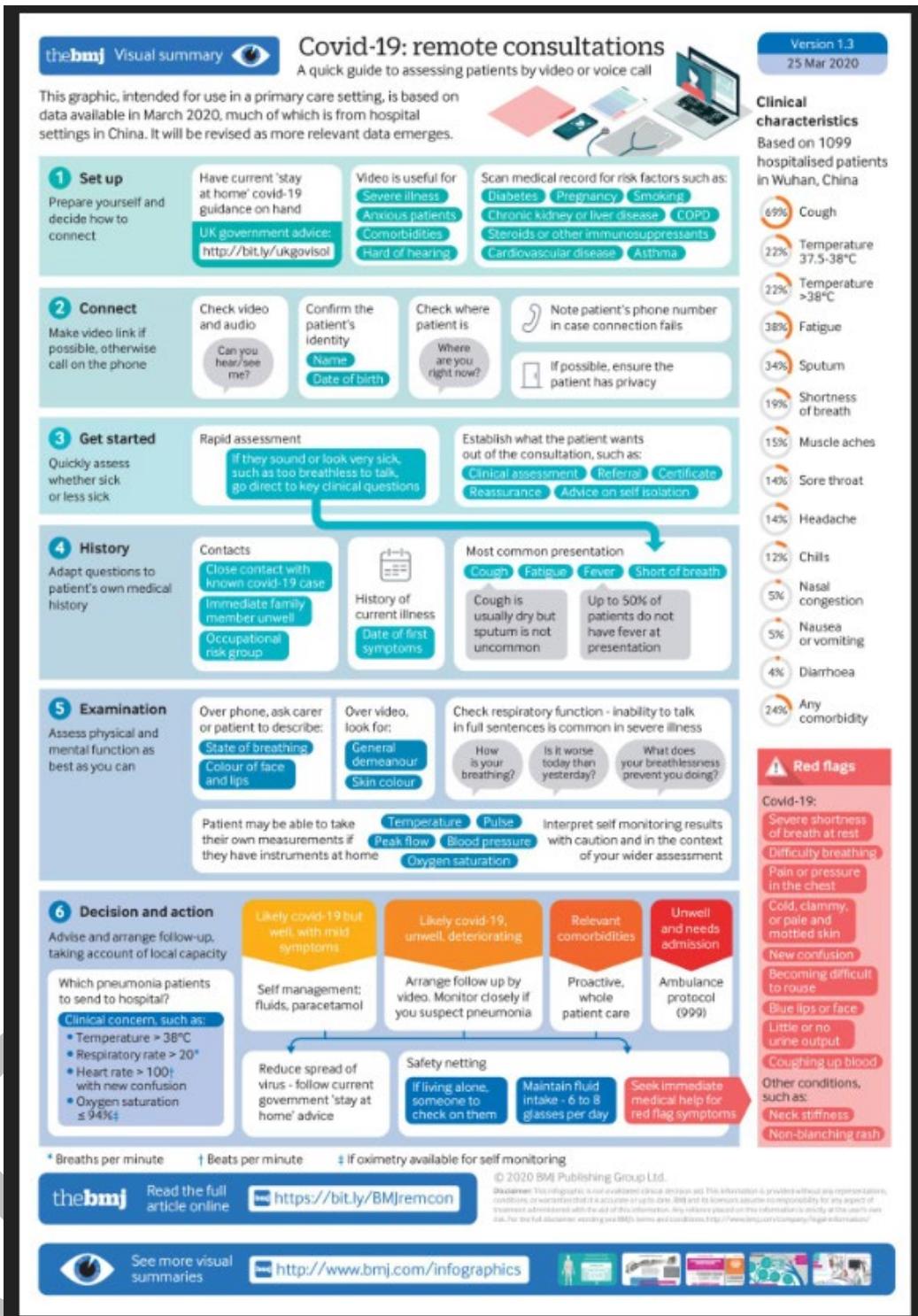


Figure 1. Source: Greenhalgh et al, 2020 (1)

## Background

Telemedicine or 'virtual care' uses information and communications technologies (ICTs) to deliver health services and transmit health information over both long and short distances. It transmits voice, data, images and information and encompasses diagnosis, treatment, preventive and curative aspects of care.(2)

In general, the evidence indicates that telehealth consultations are effective in improving outcomes, or in providing services with no difference in outcomes.(3-11) The evidence base is mixed in terms of design and sample size, interventions, and outcome measures. The strongest evidence for telehealth is in services provided to patients with cardiac failure, coronary artery disease, diabetes and for stroke rehabilitation.(12)

Safety concerns in the use of telehealth include the risk of malfunctioning equipment, and potential adverse effects on patient management decisions through delayed or missing information, unvalidated or misleading advice provided by apps, misunderstood advice, or inaccurate findings as a result of patient or caregiver error.(13, 14)

In the context of COVID-19, telemedicine can provide primary care services to patients with mild COVID-19; support social distancing and help ensure that non-COVID-19 related care continues to be provided to those who need it.

As part of the Australian Government's response to COVID-19, new temporary MBS telehealth items have been introduced to ensure continued access to essential Medicare rebated consultation services. As of 30 March 2020 these items have become general in nature and have no relation to diagnosing, treating or suspecting COVID-19.(1)

Although telehealth brings many benefits, there are barriers to adopting such technology, including inconsistent reimbursement models; interstate licensure challenges; legal and regulatory issues; concerns over security, privacy, and confidentiality; lack of evidence about impact on health care costs, use, or outcomes; concerns about impacts to clinical duty to provide safe and effective care (e.g. over-prescribing antibiotics in urgent care settings); and logistical challenges.(13)

A range of papers discuss the application of telehealth during COVID-19 for different specialties including primary care (1) urology (15-17), mental health (18-20), cardiology (21), allergies (22), dermatology (23, 24), podiatry (25), hepatology (26) and neurology (27). Most studies focus on patient-clinician interactions and regular episodes of care, such as monitoring of chronic conditions or supporting patient behaviour change. That is, they are subsequent to face to face encounters that establish the therapeutic relationship.

The Royal Australian College of General Practitioners has a range of guidance for providing patient care during COVID-19 and telehealth available on their [website](#).

The [Cochrane Library](#) has featured a special collection *Coronavirus (COVID-19): remote care through telehealth* to ensure immediate access to systematic reviews most directly relevant to remote health care through telehealth.

## Limitations

Overall, the evidence is weak with most publications providing descriptive accounts or generic advice for the use of telehealth in the context of the COVID-19 pandemic.

## Methods (Appendix 1)

Google and PubMed were searched on 13 April 2020.



Health

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## Results

**Table 1: Peer reviewed literature**

Source title	Advice	Source link
COVID specific		
Video consultations for COVID-19 [editorial] Greenhalgh et al, 2020	<ul style="list-style-type: none"> <li>Randomised trials (most were underpowered) show that clinical consultations via video link tend to be assessed positively.</li> <li>In the context of COVID-19, video-based primary care is deemed appropriate:           <ul style="list-style-type: none"> <li>for clinicians who are self-isolating</li> <li>for patients consulting about COVID-19,</li> <li>for chronic disease reviews, counselling or other talking therapy, administrative appointments, some medication reviews, and triage when telephone is insufficient.</li> </ul> </li> <li>Video consultations should not use platforms designed for video conferencing as they may require software downloads that breach local information governance policies.</li> <li>In-person support to tackle both technical and operational issues is required in the early stages of implementation.</li> </ul>	<a href="https://www.bmjjournals.org/content/368/bmjj.m998.long">https://www.bmjjournals.org/content/368/bmjj.m998.long</a>
COVID-19: a remote assessment in primary care Greenhalgh, Koh and Car, 2020	<ul style="list-style-type: none"> <li>Most patients with COVID-19 can be managed remotely with advice on symptomatic management and self-isolation.</li> <li>Although such consultations can be done by telephone in many cases, video provides additional visual cues and therapeutic presence.</li> <li>Breathlessness is a concerning symptom, though there is currently no validated tool for assessing it remotely.</li> <li>Safety-netting advice is crucial because some patients deteriorate in week two, most commonly with pneumonia.</li> <li>A visual summary is available.</li> </ul>	<a href="https://www.bmjjournals.org/content/368/bmjj.m1182.long">https://www.bmjjournals.org/content/368/bmjj.m1182.long</a>

Source title	Advice	Source link
<p>Global telemedicine implementation and integration within health systems to fight the COVID-19 pandemic: a call to action Ohannessian et al, 2020</p>	<ul style="list-style-type: none"> <li>• Most countries lack a regulatory framework to authorise, integrate, and reimburse telemedicine in their care delivery for all patients, particularly in emergency and outbreak situations</li> <li>• Free solutions (e.g. WhatsApp, Skype, or Facetime) may not respect national health data privacy and security requirements. They are mostly unintegrated within national health care systems and unable to share data with public health authorities for epidemiological surveillance.</li> <li>• Incorporation of telehealth into public health responses requires: <ul style="list-style-type: none"> <li>◦ integration of telemedicine into international and national guidelines for public health preparedness</li> <li>◦ definition of national regulations and funding frameworks for telemedicine in public health emergencies</li> <li>◦ a strategy to quickly define telemedicine frameworks; use case scenarios; develop clinical guidelines; and standardise triage auto survey and remote patient-monitoring algorithms for any outbreaks at local, national, or global scales</li> <li>◦ a strategy and operational plan guiding healthcare providers to switch to outpatient teleconsultations and increase tele-expertise and remote patient monitoring</li> <li>◦ a communication toolkit to inform and educate the population on the recommended use of telemedicine</li> <li>◦ a data-sharing mechanism to integrate telemedicine providers' data with epidemiological surveillance</li> <li>◦ a scientific evaluation framework and dedicated research funds to describe and assess the impact of telemedicine during outbreaks.</li> </ul> </li> </ul>	<p><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7124951/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7124951/</a></p>
<p>Telemedicine in the time of coronavirus Carlton et al, 2020</p>	<p>Drawing on experience in providing palliative care via telehealth, experts from University of California, San Francisco provide advice in terms of:</p> <ul style="list-style-type: none"> <li>• set-up: equipment and tools</li> <li>• patient considerations: communication etiquette, setting expectations, when face to face appointments will be necessary</li> <li>• clinician considerations: settings, engagement and eye contact, creative use of technology, reimbursement.</li> </ul>	<p><a href="https://www.ipsmjournal.com/article/S0885-3924(20)30170-6/pdf">https://www.ipsmjournal.com/article/S0885-3924(20)30170-6/pdf</a></p>

Source title	Advice	Source link
Responding to COVID-19: The University of Washington (UW) medicine information technology services experience Grange et al, 2020	<p>Describes the rapid rollout of capabilities by UW Medicine Information Technology Services (ITS) to support the clinical response to the COVID-19 pandemic. It outlines how UW:</p> <ul style="list-style-type: none"> <li>• expanded telemedicine capabilities to include primary care specialty providers</li> <li>• managed expedited change control processes to quickly update electronic health records with new COVID-19 laboratory and clinical workflows</li> <li>• integrated new technology such as tele-intensive care equipment and teleconferencing software into the electronic health records.</li> </ul> <p>Includes examples of COVID-19 order sets, documentation template, dashboard metric categories, and a list of the top 10 things to prepare.</p>	<a href="https://www.thieme-connect.com/products/ejournals/abstract/10.1055/s-0040-1709715">https://www.thieme-connect.com/products/ejournals/abstract/10.1055/s-0040-1709715</a>
Balancing health privacy, health information exchange and research in the context of the COVID-19 pandemic Lenert et al, 2020	A US-centric account of regulatory issues in telehealth and information flows.	<a href="https://academic.oup.com/jamia/advance-article/doi/10.1093/jamia/ocaa039/5814212">https://academic.oup.com/jamia/advance-article/doi/10.1093/jamia/ocaa039/5814212</a>
Telemedicine and the COVID-19 Pandemic, Lessons for the Future Bashshur et al 2020	<p>Outlines principles for safe and effective medical care when using telemedicine.</p> <ul style="list-style-type: none"> <li>• Clinicians should observe the prevailing institutional norms, protocols, and quality assurance mechanisms in place, including prompt reporting of adverse events, proper documentation, and follow-up.</li> <li>• With the single exception of a physical examination, quality of care in telemedicine should be the same or no less than in-person care.</li> <li>• Systems should minimise the burden on their frontline providers by removing unnecessary red tape and by delegating routine administrative functions to the extent possible.</li> <li>• Physicians and other providers must be credited with the equivalent relative value units as that of in-person care.</li> </ul>	<a href="https://www.liebertpub.com/doi/full/10.1089/tmj.2020.29040.rb">https://www.liebertpub.com/doi/full/10.1089/tmj.2020.29040.rb</a>

Source title	Advice	Source link
	<ul style="list-style-type: none"> <li>Healthcare systems should avoid creating a new or parallel structure for telemedicine, except for necessary centralised functions, such as training, infrastructure acquisition, maintenance, and support.</li> </ul>	
Using telehealth as a tool for rural hospitals in the COVID-19 pandemic response Gutierrez et al, 2020	<p>Telehealth can help rural hospitals meet the COVID-19 pandemic crisis using technology that is effective, accepted, and has been implemented successfully in multiple venues. Five steps can accelerate implementation: preparation and training; credentialing; leveraging of basic technology such as smart phones; adequate broadband; and feedback loops.</p> <p>Applications to expand rural hospital capacity and facilitate containment and quarantine include:</p> <ul style="list-style-type: none"> <li>telehospitalist programs in rural settings in hub and spoke, collaborative teams and cross-cover models</li> <li>post discharge transitions of care</li> <li>hospital at home</li> <li>tele-ED</li> <li>respiratory illness triage clinics.</li> </ul>	<a href="https://onlinelibrary.wiley.com/doi/abs/10.1111/jrh.12443">https://onlinelibrary.wiley.com/doi/abs/10.1111/jrh.12443</a>
<b>Quality and safety</b>		
Interactive telemedicine: effects on professional practice and healthcare outcomes Flodgren et al, 2015	<p>A Cochrane systematic review concluded telemedicine:</p> <ul style="list-style-type: none"> <li>in the management of heart failure appears to lead to similar health outcomes as face-to-face or telephone delivery of care</li> <li>can improve the control of blood glucose in those with diabetes.</li> </ul> <p>The cost to a health service, and acceptability by patients and healthcare professionals, is not clear due to limited data reported for these outcomes.</p>	<a href="https://www.cochrane.org/CD002098/EPOC_interactive-telemedicine-effects-professional-practice-and-healthcare-outcomes">https://www.cochrane.org/CD002098/EPOC_interactive-telemedicine-effects-professional-practice-and-healthcare-outcomes</a>
The quality, safety and governance of telephone triage and advice services - an overview of evidence from systematic reviews Lake et al, 2017	<p>Ten systematic reviews from a potential 291 results were selected for inclusion. Evidence of telephone and triage advice services performance was reported across nine key indicators: access, appropriateness, compliance, patient satisfaction, cost, safety, health service utilisation, physician workload and clinical outcomes. Patient satisfaction was generally high and there is some consistency of evidence of the ability to reduce clinical workload. Measures of the safety tended to show that there is no major difference between telephone based services and traditional care.</p>	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5577663/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5577663/</a>

Source title	Advice	Source link
'Massive potential' or 'safety risk'? Health worker views on telehealth in the care of older people and implications for successful normalisation Shulver et al 2016	A qualitative study, based on seven semi-structured focus groups with 44 healthcare workers in South Australia. Discussion of 'risk' centred on the risks to patients associated with providing services at distance and not being with a patient to assist in the event of an adverse event. Experienced telehealth clinicians have alternative ways of thinking about and managing risk due to the absence of physical proximity to the patient. Rural health clinicians considered organisational and system structures, to be 'very traditional in their approach' needing significant overhaul before being able to fully support outreach telehealth services to rural areas. Concerns were raised by telehealth clinicians about the quality and range of the telehealth infrastructure currently available to them, and the limitations this places on what can be done via telehealth.	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5062826/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5062826/</a>
Barriers to use of telepsychiatry: clinicians as gatekeepers Cowan et al, 2019	A literature review found that patients and clinicians are largely satisfied with telepsychiatry, but concerns about establishing rapport, privacy, safety, and technology limitations have slowed acceptance of telepsychiatry. Clinicians are also concerned about reimbursement or financial, legal or regulatory, licensure or credentialing, and education or learning issues. These issues point to system and policy concerns, which, in combination with other administrative concerns, raise questions about system design, workflow, efficiency of clinical care, and changing organisational culture. Although telepsychiatry service is convenient for patients, the many barriers from clinicians' perspectives are concerning, because they serve as gatekeepers for implementation and sustainability of telepsychiatry services.	<a href="https://www.mayoclinicproceedings.org/article/S0025-6196(19)30400-8/fulltext">https://www.mayoclinicproceedings.org/article/S0025-6196(19)30400-8/fulltext</a>
Use of telehealth for health care of Indigenous peoples with chronic conditions: a systematic review Fraser et al, 2017	Databases were systematically searched for qualitative or quantitative primary research studies that investigated telehealth use for chronic conditions management with Indigenous peoples worldwide. Studies reported Indigenous people tend to be satisfied with telehealth, but are sceptical about its cultural safety. Evidence for the effectiveness of telehealth from a western biomedical perspective was found.	<a href="https://www.rrh.org.au/journal/article/4205">https://www.rrh.org.au/journal/article/4205</a>

Table 2: Guidelines, protocols and grey literature

Source title	Advice	Source link
Peer reviewed literature		
COVID-19 Guidance on getting started with telehealth  (Australasian Telehealth Society and Australian College of Rural and Remote Medicine, 2020)	<p>Outlines as key considerations for remote consultations:</p> <ul style="list-style-type: none"><li>• Technology</li><li>• Availability of easy-to-use instructions</li><li>• Managing appointments, record keeping and billing</li><li>• Risks and change management<ul style="list-style-type: none"><li>◦ Assess clinical appropriateness of remote consultation</li><li>◦ Assess likelihood and magnitude of foreseeable clinical, management or technical problems and have contingency plans in place</li><li>◦ Ensure plans are in place for assisting a seriously ill patient</li><li>◦ Check insurance and professional indemnity</li><li>◦ Consult with and provide training for staff</li><li>◦ Contact experienced telehealth providers or telehealth mentor</li></ul></li></ul>	<a href="http://www.aths.org.au/wp-content/uploads/2020/03/Quick-Guide-to-Telehealth.pdf">http://www.aths.org.au/ wp-content/uploads/2020/0 3/Quick-Guide-to- Telehealth.pdf</a>

Source title	Advice	Source link
Telehealth Standards (Australian College of Rural and Remote Medicine)	<p>A three-dimensional approach to defining a framework for decision making and implementation around telehealth:</p> <ol style="list-style-type: none"> <li>1. <b>Technical</b> aspects, including software and hardware components</li> <li>2. <b>Clinical</b> usage aspects, including both supporting the clinical process and considerations of appropriate use for the given case.</li> <li>3. <b>Health services context</b> within which videoconferencing activity occurs, and how the related requirements are handled.</li> </ol> <p>The standards outline 10 core principles including</p> <ul style="list-style-type: none"> <li>• confidentiality of patient telehealth consultations, patient health records, and the integrity of information in the health care information system are essential</li> <li>• Services provided via telehealth must adhere to the basic assurance of quality and professional health care in accordance with each health care discipline's clinical standards</li> <li>• Documentation requirements for Telehealth services must be developed that assure documentation of each client encounter with recommendations and treatment, communication with other health care providers as appropriate, and adequate protections for client confidentiality.</li> <li>• Clinical guidelines in the area of telehealth should be based on empirical evidence, when available, and professional consensus among involved health care disciplines. .</li> <li>• The integrity and therapeutic value of the relationship between client and health care practitioner should be maintained and not diminished by the use of Telehealth technology.</li> <li>• The safety of clients and practitioners must be ensured. Safe hardware and software, combined with demonstrated user competence, are essential components of safe Telehealth practice</li> </ul>	<a href="http://www.ehealth.acrrm.org.au/telehealth-standards">http://www.ehealth.acrrm.org.au/telehealth-standards</a>
COVID-19 update for practitioners (Medical Indemnity Protection Society, Australia, 2020)	MIPS membership benefits (including insurance covers) extend to technology based health services	<a href="https://www.mips.com.au/articles/covid-19-update-for-practitioners">https://www.mips.com.au/articles/covid-19-update-for-practitioners</a>

Source title	Advice	Source link
Telehealth implementation playbook (American Medical Association, 2020)	Although telehealth brings many benefits, there are barriers to adopting such technology, including inconsistent reimbursement models; licensure challenges; legal and regulatory issues; concerns over security, privacy, and confidentiality; lack of evidence about impact on healthcare costs, utilization, or outcomes; concerns about impacts to clinical duty to provide safe and effective care (e.g. over-prescribing antibiotics in urgent care settings); and logistical space challenges.	<a href="https://www.ama-assn.org/system/files/2020-04/ama-telehealth-playbook.pdf">https://www.ama-assn.org/system/files/2020-04/ama-telehealth-playbook.pdf</a>
Telemedicine toolkit (Centers for Medicare and Medicaid, USA)	CMS has broadened access to Medicare telehealth services so that beneficiaries can receive a wider range of services from their doctors without having to travel to a healthcare facility. These policy changes build on the regulatory flexibilities granted under the President's emergency declaration. Three main types of virtual services physicians and other professionals can provide to Medicare beneficiaries are summarised in this fact sheet: Medicare telehealth visits, virtual check-ins and e-visits. A general provider toolkit provides advice and links to resources.	<a href="https://www.cms.gov/newsroom/factsheets/medicare-telemedicine-health-care-provider-fact-sheet">https://www.cms.gov/newsroom/factsheets/medicare-telemedicine-health-care-provider-fact-sheet</a> <a href="https://www.cms.gov/files/document/general-telemedicine-toolkit.pdf">https://www.cms.gov/files/document/general-telemedicine-toolkit.pdf</a>
Telemedicine evidence (Technology Enabled Care Services (TECS) Evidence Database, NHS England)	This database provides a list of individual studies as well as a link to a single key paper for selected as selected clinical areas. The lists are limited to the most recent studies and may not be exhaustive. They are intended to help those considering TECS how these solutions might best address their needs.	<a href="https://www.england.nhs.uk/wp-content/uploads/2014/12/tecs-ed-telemedicine.pdf">https://www.england.nhs.uk/wp-content/uploads/2014/12/tecs-ed-telemedicine.pdf</a>
COVID-19 and digital technology: The roles, relevance and risks of using telehealth in a crisis Digital Health CRC	A recording of an open access webinar with Victor Pantano, Norman Swan, Trish Greenhalgh, Amandeep Hansra, Neal Fong, Karrie Long (90 mins duration).	<a href="https://zoom.us/rec/play/tZ0rdrr5pzo3EoaU4wSDB_B9W9S6K_qs1iUf6UNz0qzVyQAYwf3NedDauM6L07N4VOA0oQ7ApOTvqKE?autoplay=true&amp;startTIme=1585033209000">https://zoom.us/rec/play/tZ0rdrr5pzo3EoaU4wSDB_B9W9S6K_qs1iUf6UNz0qzVyQAYwf3NedDauM6L07N4VOA0oQ7ApOTvqKE?autoplay=true&amp;startTIme=1585033209000</a>

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## Appendix 1

### PubMed search terms

(Telemedicine[MeSH Terms] OR Remote Consultation[MeSH Terms] OR telemedicine[Title/Abstract] OR telehealth[Title/Abstract] OR virtual[Title] OR "tele\*"[Title]) AND ((2019-nCoV[title/abstract] or nCoV[title/abstract] or covid-19[title/abstract] or covid19[title/abstract] or "covid 19"[title/abstract] OR "coronavirus"[MeSH Terms] OR "coronavirus"[title/abstract]))

(Telemedicine[MeSH Terms] OR Remote Consultation[MeSH Terms] OR telemedicine[Title/Abstract] OR telehealth[Title/Abstract] OR virtual[Title] OR "tele\*"[Title]) AND safety and quality

Original search	Updates
13 April 2020	
7 May 2020	<ul style="list-style-type: none"> <li>Background updated to include telehealth not in the context of COVID-19</li> </ul>
19 May 2020	<ul style="list-style-type: none"> <li>Updated to include link to Cochrane Library special collection in the background</li> </ul>

**Evidence checks are archived a year after the date of publication**

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Rapid evidence checks are based on a simplified review method and may not be entirely exhaustive, but aim to provide a balanced assessment of what is already known about a specific problem or issue. This brief has not been peer-reviewed and should not be a substitute for individual clinical judgement, nor is it an endorsed position of NSW Health.

