

Telehealth in Oncology: ASCO Standards and Practice Recommendations

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abstract

PURPOSE To provide standards and practice recommendations specific to telehealth in oncology.

METHODS A systematic review of the literature on telehealth in oncology was performed, including the use of technologies and telecommunications systems, and other electronic methods of care delivery and sharing of information with patients. The evidence base was combined with the opinion of the ASCO Telehealth Expert Panel to develop telehealth standards and guidance. Public comments were solicited and considered in preparation of the final manuscript.

RESULTS The Expert Panel determined that general guidance on implementing telehealth across general and specialty settings has been published previously and these resources are endorsed. A systematic search for studies on topics specific to oncology resulted in the inclusion of two clinical practice guidelines, 12 systematic reviews, and six primary studies.

STANDARDS AND GUIDANCE Standards and guidance are provided for which patients in oncology can be seen via telehealth, establishment of the doctor-physician relationship, role of allied health professionals, role of advanced practice providers, multidisciplinary cancer conferences, and teletrials in oncology. Additional information is available at www.asco.org/standards.

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INTRODUCTION

Electronic health, which is the use of information and communication technologies for health, was identified by the WHO as a global health priority for implementation in 2005.¹ Some jurisdictions with high proportions of rural and remote populations have relatively high rates of adoption;² however, before the COVID-19 pandemic in 2020, telehealth applications were not particularly widespread in the oncology field in the United States. Over the past year, because of the need to minimize interactions and travel, rapid adoption of a broad range of digital health care activities and services in the US health care system has occurred; a 154% increase overall in clinical care provided remotely between March 2019 and March 2020 was observed, and within the oncology community, implementation of telehealth has also occurred rapidly.³ These telehealth interventions include telemedicine, which is the use of technologies and telecommunications systems to administer health

care to patients who are geographically separated from providers,⁴ mobile applications (mHealth), and other electronic methods of care delivery and sharing of information with patients. Interventions can go beyond real-time patient consultations via video and audio and include patient monitoring, electronic patient records, and delivery of specialty services.⁵

This shift to telehealth was facilitated by the Centers for Medicare and Medicaid Services' increased flexibility in reimbursement for telehealth services.⁶ In March 2020, the Coronavirus Preparedness and Response Supplemental Appropriations Act waived some requirements for Medicare telehealth payments and new Centers for Medicare and Medicaid Services temporary regulations in response to the anticipated COVID-19 patient surge allowed for 80 new services to be delivered via telehealth.⁷ This included all types of visits that were formerly conducted in person, as well as remote patient monitoring and supervision of clinical staff.⁸

ASSOCIATED CONTENT

Appendix

Data Supplement

Author affiliations and support information (if applicable) appear at the end of this article.

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THE BOTTOM LINE

Telehealth in Oncology: ASCO Standards and Practice Recommendations

Standards Question

What are the standards for telehealth in oncology?

Target Population

The target population includes individuals undergoing diagnosis, treatment, survivorship, or palliative care for cancer.

Target Audience

Oncologists, nurses, advanced practice providers, allied health professionals, and administrators involved in the delivery of cancer care.

Methods

An Expert Panel was convened to develop standards on the basis of a systematic review of the peer-reviewed literature.

Background

The Expert Panel endorses the AMA Telehealth Implementation Playbook,¹⁵ which is a comprehensive resource for the implementation of telehealth. For practices that are beginning to implement telehealth, the Expert Panel also recommends the ATA's Quick-Start Guide.¹⁶ Although these resources address most needs and cover most scenarios in the implementation and use of telehealth in general and specialty practices, the Expert Panel also identified several areas specific to oncology for which additional guidance would be useful. These topics are highlighted in this Bottom Line Box and the full text of the Standards and Practice Recommendations.

ASCO Standards

1. Patient selection and implementation of telehealth in oncology

Standard 1.1

Where appropriate infrastructure and personnel are available, *telehealth via telephone or videoconferencing*, delivered by health professionals who are certified and participating in routine maintenance of certification activities, is a reasonable option for:

Treatment or long-term management

- New patient consultations; these may be followed by face-to-face visits;
- Medication prescribing and management¹⁷;
- Prechemotherapy or other pretherapy evaluations;
- Acute care issues that could be addressed via routine outpatient care rather than emergency department visits and admissions;
- Discussion of results, such as laboratory and imaging studies;
- Supportive care visits including financial, social work, and nutrition visits;
- Oral drug compliance and adherence evaluations;
- Distress screening and interventions;
- Chronic care management;
- Patient education on chemotherapy and other treatments;
- Counseling;
- Management of long-term treatment¹⁷;
- Postdischarge coordination, supported by remote monitoring capabilities¹⁷;
- Routine follow-up;
- Survivorship visits;
- Wellness interventions¹⁷;
- Palliative care, including hospice consults and follow-up visits;
- Advance care planning visits.

Others

- When care access issues exist;
- Consent form discussions preresearch trials before signatures;
- Family conferences when multiple family members would like to join and patient desires;
- Genetic counseling visits and evaluations;
- Second opinion evaluations to facilitate treatment in a timely manner.

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THE BOTTOM LINE (CONTINUED)

In-person consultations may be preferred by clinicians and/or patients for:

- Initial consultations;
- Initial delivery of antineoplastic treatment²;
- Delivery of key information, including new cancer diagnosis or treatment plan, disease relapse or progression, and no further cancer treatment decisions¹⁷;
- Complex cancer needs as identified by the health care provider¹⁷;
- Physical examination for diagnosis or follow-up; however, where the necessary infrastructure is in place, physical examinations may be performed by local health professionals during a teleconsultation or findings from an examination may be summarized in a referral communication to a specialist before the telehealth appointment.^{2,18} In addition, some components of the physical examination might be achieved through telehealth.
- Patients with hearing, vision, or cognition limitations for whom there are no alternative support or technologies available to assist in telehealth encounters;
- Patients with inadequate broadband, limited technological capacity, or lower levels of health literacy.

Qualifying statements

- An assessment of patients' technological capacity to engage in telehealth interventions, for example, sufficient internet bandwidth, should be conducted, and support may be provided for patients who report technology limitations.¹⁹ A more detailed review of barriers to equal access to telehealth is included in the Discussion section.
- Where possible, patients may be given the option of in-person or telehealth visits, according to personal preference.

Standard 1.2

Diagnosis via asynchronous transmission of images:

- Skin lesions can be evaluated with sufficient diagnostic accuracy through the asynchronous transmission of images, which may facilitate more timely diagnosis.²

Standard 1.3

Practices should develop policies and procedures that outline preferred frequency of telehealth versus in-person visits during the cancer care continuum and consider patient preferences. Frequency of telehealth versus in-person visits may evolve as outcome or impact data become available.

Standard 1.4

All clinical visits conducted via telehealth should be documented, including but not limited to the following information:

- Has the patient agreed to the telehealth visit (yes or no)?
- Date of visit;
- Location of the visit (health provider office or other location);
- Participants attending the visit;
- Location of the patient and other caregivers present (home or other location);
- Type of visit (audio only or audio and video);
- Was the telehealth visit completed (yes or no)?

Standard 1.5

Before participation in telehealth visits, individualized orientation should be provided to patients and health care professionals for the specific type of technology that will be used to deliver the intervention (eg, mobile phone, web-based, etc) on topics including but not limited to instructions to access the platform, navigation of the platform, and provider-specific instructions on the video if needed to physically assess an area of the body.

Note: Although orientation is required, there is no formal telehealth certification required on the part of health care professionals before engaging in telehealth clinical visits with patients. The Expert Panel does not suggest or endorse formal certification for telehealth competencies.

Standard 1.6

For clinical visits conducted via synchronous videoconferencing, a staff member or external technology support person should be available to troubleshoot technology issues, potentially via telephone, and to facilitate workflow.

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THE BOTTOM LINE (CONTINUED)

Qualifying statements

- A support person should be available to oncologists or other health care professionals in a ratio that allows for quick access to support for each telehealth encounter.
- Practices should offer a videoconferencing practice session with each patient to test technical equipment at the beginning of the initial remote clinical visit.

Standard 1.7

Practices should evaluate key performance indicators for oncology telehealth initiatives and quality of care.

Qualifying statement

- The Future Research section notes significant gaps in published research related to telehealth in oncology, and therefore, efforts should be made to publish the results of these evaluations in peer-reviewed journals whenever possible.

Standard 1.8

For interventions delivered asynchronously, for example, online patient symptom reporting systems, standard operating procedures should be in place that outline appropriate and timely responses to patient-reported outcomes.

Standard 1.9

To optimize adherence to and minimize discontinuation of treatment regimens, asynchronously delivered interventions, such as automated reminders delivered via text message, should be tailored to the individual patient.

Qualifying statement

- Reading, health care, and technological literacy level of participants should be considered when tailoring the intervention to the individual patient.

Standard 1.10

Where possible, patients and caregivers should be involved in user testing of new interventions (eg, apps).²⁰

2. Establishment of the doctor-patient relationship

Standard 2.1

State and federal policies permitting telemedicine to cross state lines should include a provision requiring that the doctor-patient relationship is established before provision of any telemedicine service.²¹

Qualifying statements

- The doctor-patient relationship should mandatorily include the usual follow-up and physician responsibilities in caring for the patient, including delivering care consistent with community standards.
- The establishment of the doctor-patient relationship should include the opportunity for in-person visits at the physical location of the physician practice, when necessary.

3. Advanced practice providers (APPs)

Standard 3.1

Practices should develop standards, algorithms, or policies that govern when patients may see an advanced practice provider or require a physician telehealth visit on the basis of disease, treatment, or decision inflection points.

Qualifying statement

Practices should review state and/or local regulations for supervision of APPs, including regulatory requirements for how APPs and physicians form teams.

4. Allied health professionals

Standard 4.1

The ASCO Telehealth Standards Expert Panel (Appendix [Table A1](#), online only) endorses the recommendations from the Clinical Oncology Society of Australia (COSA) Teleoncology Guidelines.² These recommendations are reproduced subsequently:

1. Telephone-based support systems are feasible and can help facilitate changed behaviors (eg, diet and exercise), improved function (eg, fitness and health-related function), and improved psychological or psychosocial states.
2. Computerized screening or assessment is feasible and can be used as a model of care to collect information on patient status and assist referral to allied health oncology services.

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THE BOTTOM LINE (CONTINUED)

3. Hybrid telepractice systems can offer alternative models of care for the provision of allied health education and support to oncology patients.
4. Videoconferencing services can be used to deliver allied health assessment and treatment services for oncology patients.

5. Virtual multidisciplinary cancer conferences (MCCs)

Standard 5.1

Where appropriate technology and supports are in place, such as those outlined below, virtual MCCs via videoconferencing are recommended.

The Expert Panel endorses the following recommendations from Dharmarajan et al²² for implementation of a virtual MCC meeting:

- Agenda and cases to be discussed should be finalized at least a day in advance.
- Participants must have access to secure videoconferencing software.
- It may be necessary to allow more time than would be needed for in-person meetings.
- Prioritize more advanced or complicated cases earlier in the meeting as they may take more time and members are more likely to be available.
- Documentation of discussion must be systematic, included in patient's electronic medical record (EMR), and accessible to members who could not make the call.
- Consider including assessments and evaluations of the multidisciplinary team (MDT) using a validated tool, such as the Cancer MDT Meeting Observational Tool.²³
- In addition, the ASCO Expert Panel recommends
 - That decisions regarding the maximum number of participants are left to the discretion of local institutions and
 - That the discussion is directed by the individual who is responsible for presenting the case.

Qualifying statement

Similar to face-to-face MCC discussions, follow the institution guidelines for documentation of discussion. The ASCO Expert Panel does not recommend recording of the MCC or tumor board discussion without prior legal review.

6. Teletrials and/or virtual participation in oncology clinical trials

Standard 6.1

Teletrials and/or virtual participation in oncology clinical trials are recommended as a method of increasing recruitment and reducing the burden of trial participation on patients.

- To facilitate the conduct of teletrials, the following are recommended:
 - Virtual initial discussion of trial and eligibility assessment;
 - Incorporating remote methods of reviewing symptoms and adverse events, such as patient portals, e-mail, telephone, and video²⁴;
 - Remote study initiation and monitoring from sponsors and contract research organizations²⁴;
 - Shipping oral drugs directly to patients with a follow-up call to ensure the delivery and integrity of the agents and patient comprehension of the dosing schedule²⁴;
 - Increasing support for secure virtual platforms²⁵;
 - Allowing laboratory, for example, blood tests and biopsies to be conducted at a site that is local to the trial participant²⁵;
 - Reconsidering the necessity of frequent testing, including imaging²⁵;
 - Increasing the use of patient-reported outcomes as study outcomes.²⁵

Qualifying statements

- This recommendation applies beyond the timeframe of the period of restrictions necessitated by the COVID-19 pandemic.
- Consider a hub and spoke model to improve participation among rural and remote populations (see *Australasian Tele-trial Model*).²⁶

Additional Resources

More information, including a supplement with additional evidence tables, slide sets, and clinical tools and resources, is available at www.asco.org/standards. The Standards Policy and Procedures Manual (available at www.asco.org/standards) provides additional information about the methods used to develop these standards. Patient information is available at www.cancer.net.

In July 2020, ASCO issued an interim policy statement on telemedicine, which encouraged policymakers to permanently expand coverage to adequately reimburse providers for telehealth services.⁹ In addition, the statement promotes health equity, expansion of digital infrastructure, educating patients on the use of telemedicine, and comprehensive financial coverage for patients. Although providers have reported that telemedicine has many benefits, including easier access to care, concerns have also been raised about privacy, adequate reimbursement, lack of infrastructure, and inequity.¹⁰ Thus, following the publication of ASCO's interim statement on telemedicine, its subsequent Road to Recovery Strategy identified a need within the ASCO membership for more detailed oncology-based standards.¹¹ This need also predates the COVID-19 pandemic, as 20% of the US population lives and works in rural areas, whereas only 3% of oncologists practice in these areas¹² and greater travel requirements have been associated with impact on diagnosis, as well as decreased treatment options and a lower likelihood of receiving care.^{13,14}

These ASCO Standards and Practice Recommendations (Standards) were created in response to this need and include an endorsement of existing general guidelines for telehealth implementation, including the American Medical Association (AMA) Telehealth Implementation Playbook,¹⁵ which is a comprehensive resource for the implementation of telehealth, and the American Telemedicine Association's (ATA's) Quick-Start Guide.¹⁶ Following these endorsements, the ASCO Standards include a systematic review of current evidence for different methods of telehealth delivery in oncology and provide oncology-specific standards on topics such as selection of patients and multidisciplinary cancer conferences (MCCs). Consensus-based recommendations are also included to provide practical advice for implementing telehealth in the oncology setting. These Standards will be updated at regular intervals as telehealth becomes more established within oncology and the need for guidance evolves.

METHODS

Standards Development Process

These systematic review-based standards were developed by a multidisciplinary Expert Panel of health care providers, a patient representative, and a health research methodologist. The Expert Panel met via teleconference and/or webinar and corresponded through e-mail. On the basis of the consideration of the evidence, the authors were asked to contribute to the development of the standards, provide critical review, and finalize the standard statements. The statements were sent for an open comment period of two weeks, allowing the public to review and comment after submitting a confidentiality agreement. These comments were taken into consideration while finalizing the standards. All ASCO standards are ultimately reviewed by the Expert Panel and the ASCO Quality of Care Council and approved by the ASCO Board of Directors before submission to the *Journal of Clinical Oncology—Oncology*

Practice (JCO-OP). All funding for the administration of the project was provided by ASCO.

Through an initial scoping exercise, two guidance documents were found, which provided practical guidance on the implementation of telehealth across general and specialty practice populations.^{15,16} The Expert Panel reviewed these resources and concluded that they would meet the needs of most oncology practices in most areas of interest and could be endorsed. Subsequently, the Expert Panel reached consensus on which additional oncology-specific topics should be included in a systematic evidence review, including the following questions:

1. (a) Do outcomes for patients who are seen via telehealth differ from outcomes for patients seen via in-person visits across the cancer care continuum and which patients should be seen via telehealth versus in-person? (b) What oncology-specific workflow and other implementation considerations, including documentation, should be addressed by practices before seeing patients via synchronous telehealth applications?
2. What are the Standards for establishment of the physician-patient relationship in the context of telehealth in oncology?
3. What is the Expert Panel's guidance for when patients may see an APP or require a physician telehealth visit?
4. What is the role of allied health professionals in oncology-specific telehealth interventions?
5. Is discussion of patients at virtual MCCs feasible, compared with in-person MCC meetings?
6. How can telehealth be incorporated into clinical trials in oncology?

Through a systematic search, two oncology-specific guidelines were identified: the COSA Teleoncology Guidelines,² which are designed to provide guidance for oncology telehealth delivery in rural and remote Australia, and *Managing cancer patients during the COVID-19 pandemic: An European Society for Medical Oncology (ESMO) Interdisciplinary Expert Consensus*.¹⁷ As the COSA search was current to 2015, this evidence base was adopted, and a search of PubMed and Cochrane Database of Systematic Reviews was conducted for any systematic reviews or primary studies published more recently (2016 to December 2020). Articles were selected for inclusion in the systematic review on the basis of the following criteria:

- Population: Medical oncology patients or survivors.
- Intervention: Patients receiving treatment or services via telehealth applications (including videoconferencing, telephone, smartphone application, e-mail or remote monitoring device, or other methods).
- Comparison: Patients receiving in-person treatment or services.
- Outcomes: Patient and/or clinician satisfaction and experience, safety, patient-reported outcomes, and other clinical outcomes.

Studies that did not include a comparison group were also eligible for inclusion. When more than one systematic review on the same topic was found, the most recent was retained for inclusion. Article screening was conducted by the Expert Panel methodologist and reviewed by panel cochairs. Extraction of study characteristics and data was performed by the Expert Panel methodologist and verified by an ASCO guidelines staff member. Articles were excluded if they were (1) meeting abstracts; (2) editorials, commentaries, letters, news articles, case reports, and narrative reviews; (3) published in a non-English language, because of limited capacity for translation; (4) screening and cancer prevention studies; and (5) primary studies that were also referenced in an included systematic review. The complete search strategy and Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram are available in the Data Supplement (online only).

The ASCO Expert Panel and guidelines staff will work with cochairs to keep abreast of any substantive updates to the Standards. On the basis of formal review of the emerging literature, ASCO will determine the need to update. The ASCO Standards Policies and Procedures Manual provides additional information about the update process. This is the most recent information as of the publication date.

Conflicts of Interest

The Expert Panel was assembled in accordance with ASCO's Conflict of Interest Policy Implementation for Clinical Practice Guidelines ("Policy," found at <http://www.asco.org/rwc>). All members of the Expert Panel completed ASCO's disclosure form, which requires disclosure of financial and other interests, including relationships with commercial entities that are reasonably likely to experience direct regulatory or commercial impact as a result of promulgation of the standards. Categories for disclosure include employment; leadership; stock or other ownership; honoraria, consulting or advisory role; speaker's bureau; research funding; patents, royalties, other intellectual property; expert testimony; travel, accommodations, expenses; and other relationships. In accordance with the Policy, the majority of the members of the Expert Panel did not disclose any relationships constituting a conflict under the Policy.

Standards Disclaimer

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RESULTS

Study Characteristics

The first step of the review process resulted in the identification of two documents that provide guidance on the implementation of telehealth across clinical settings. One of these is the AMA Telehealth Implementation Playbook that includes sections on activities to undertake in preparation for telehealth implementation, such as choosing a vendor, workflow considerations, preparing for the care team to deliver telehealth interventions, engaging patients, and building capacity.¹⁵ The Expert Panel agreed that this guidance would be useful to oncology providers and to avoid duplication of effort, and the Expert Panel defers to the AMA Playbook for general guidance on telehealth implementation. The Expert Panel also agreed that the ATA Quick-Start Guide would be useful where quick implementation is required.¹⁶

Following the endorsement of the AMA Playbook, a systematic search identified two oncology-specific guidelines: the COSA Teleoncology Guidelines,² which are designed to provide guidance for telehealth oncology delivery in rural and remote Australia, and *Managing cancer patients during the COVID-19 pandemic: An ESMO Interdisciplinary Expert Consensus*.¹⁷ The AGREE II instrument Rigour of Development domain was applied to assess the quality of these guidelines.²⁷ The COSA guideline scored highly on this instrument with a systematic review and overall high level of rigor (Data Supplement). Being consensus-based, the ESMO guideline received a lower score on the AGREE II instrument; however, its recommendations on appropriate patients for telehealth were considered useful and retained for consideration of endorsement by the Expert Panel. The systematic search also resulted in 32 systematic reviews related to the topic of telehealth, including e-health and digital health. After full text review, 12 systematic reviews of a variety of interventions that were delivered synchronously or asynchronously across the cancer care continuum met the inclusion criteria (Table 1 and Data Supplement).^{20,28-32,34-39} Most of the interventions were designed to improve the symptoms associated with cancer

TABLE 1. Systematic Reviews of Telehealth Interventions

Study	Intervention	Search Dates	Included Studies	Patients	Key Results and/or Recommendations
Cox et al ²⁰	Telehealth for survivors	2006-2016	22 qualitative studies	Survivors of cancer of any disease site	Individual approach recommended to determining survivors' training needs; more data needed on long-term experiences with telehealth; recommend involving survivors in personalized intervention design.
Hanlon et al ²⁸	Telehealth for supported self-management	2000 to May 2016	Metareview of SRs of RCTs; three cancer reviews included (of 53)	Patients with chronic conditions, including cancer	More research and evaluation needed and should be published on self-management interventions for patients with cancer.
Escriva Bouley et al ²⁹	Digital health for survivors	2001-2017	29 studies (14 treatment and 15 survivors): 15 RCTs and 14 other comparative studies	A majority of patients were women with breast cancer	Training sessions must be included for patients participating in a digital health intervention, including when delivery medium is the one that they are already familiar with.
Jess et al ³⁰	Video consultations for palliative care	2005-2017	39 studies: qualitative, quantitative, or mixed methods	Patients receiving palliative care	Preference may be for initial visit in person where feasible; buy-in, adequate resources needed from management; consensus for referral criteria for video consultations is needed; too many clinicians on a videoconference could be overwhelming; earlier initiation would have been preferred; training and computer skills necessary for health care professionals; technology needs to be simple, easy to use, and portable.
Larson et al ³¹	Telehealth during active treatment	Up to December 2016	RCT or observational: five phone-based, three web-based, and one connected devices	Any form of cancer; active treatment	Telehealth may be used in place of in-person interventions for QoL improvement; additional studies and research are needed.
Moradian et al ³²	Internet interventions for symptom management during treatment	January 2000 to October 2016	Six RCTs	Any disease site; patients receiving active chemotherapy	Few studies are published in this area; response to alerts and physician response need to be reported (eg, how this was incorporated into workflow, workability); should use a theoretical framework, such as Medical Research Council, which calls for a phased implementation approach and involvement of end users in design. ³³
Ream et al ³⁴	Telephone interventions for symptom management	Up to January 2019	32 studies (24 nurse-led interventions and 16 studies combined telephone with other interventions)	Any disease site or stage (most commonly, breast cancer or early stage or at start of treatment)	Because of study limitations, conclusions are tentative regarding telephone interventions.
Wang et al ³⁵	Internet-based psychoeducational intervention for patients with cancer	Up to March 2019	Seven RCTs or clinical controlled trials	85% female (three studies on breast cancer)	Rate of discontinuation worthy of further investigation; internet-based psychologic interventions typically have a low rate of adherence; attrition rates may be minimized by creating more personalized interventions.
Warrington et al ³⁶	Internet-based systems for patient-reported outcomes	2000 to September 2017	77 studies with features of electronic systems and 29 studies of patient engagement or PROs	Patients receiving active treatment	Evaluators should strive to use common outcomes for evaluation to be able to consistently characterize features and their impacts.
Xu et al ³⁷	E-health for medical delivery	Up to July 2019	15 RCTs (six trials in breast cancer and other trials across disease sites)	Any disease site undergoing or following treatment	Significant effect on fatigue and self-efficacy, but not QoL; more high-quality studies needed to confirm key results of this review.
Tarver and Haggstrom ³⁸	Cancer-specific patient-centered technologies for underserved populations	Up to October 2016	71 qualitative or quantitative studies conducted in the United States with at least 40% of sample underserved	Medically underserved patients with cancer: groups with economic, cultural, or linguistic barriers to medical care services	Provide mHealth apps at appropriate literacy level and provide training; involve end users in usability and feasibility assessment during development.
Hernandez-Silva et al ³⁹	mHealth for self-management of pain, fatigue, distress, and sleep in cancer survivors	Up to December 2017	Two RCTs, one quasi-RCT, one observational comparative study, and three observational noncomparative studies	Any disease site; survivors	mHealth apps were associated with improvements in fatigue; tailored self-management advice on the basis of patient-reported data is recommended.

Abbreviations: PRO, patient-reported outcome; QoL, quality of life; RCT, randomized controlled trial; SR, systematic review.

or treatment-related adverse events, in most cases, quality of life, mental health concerns, and fatigue.³⁴⁻³⁷ Other interventions were specific to telehealth for survivor care or palliative care.^{20,29,32} Most reviews included multiple types of interventions and both qualitative and quantitative studies. Patient-reported outcomes, such as patient satisfaction or engagement, and measures of quality of life were commonly assessed.

A study that looked at outcomes across chronic diseases, including diabetes, heart failure, asthma, chronic obstructive pulmonary disease, and cancer, found that the oncology field had the least well-developed evidence base for the effectiveness of telehealth interventions for survivors.²⁸ Studies of telehealth^{28,29} (also called digital health²⁹) for survivors, internet³² or telephone³⁴ for symptom management, and electronic systems for symptom reporting³⁶ noted mixed or inconclusive results because of heterogeneity in types of interventions or definitions of outcomes measures such as feasibility. It was difficult to determine longer-term outcomes, as follow-up was mostly limited to 6 months postinterventions.²⁹

Individual primary studies from the literature search that were not found in the reference lists of included systematic reviews were also eligible for inclusion. These articles were a source of additional insight into or further support for successful implementation methods for telehealth interventions in oncology (Table 2 and Data Supplement). Six primary studies met the inclusion criteria, most of which took place in rural locations, including Western Australia;⁴⁰ Queensland, Australia;⁴⁴ Virginia, United States;¹⁹ Utah, United States;⁴¹ and Northern and Interior British Columbia, Canada,⁴² or partially rural locations (Northern and Central California⁴⁵). Most of these included videoconferencing interventions, for either treatment or the delivery of survivorship programming.^{40-42,44} The remaining two articles were studies of survivorship care programs delivered to individuals in their homes via videoconferencing.^{19,45} A variety of outcome measures were reported, including patient-reported outcomes, practitioner-reported outcomes, and metrics such as travel hours or cost. Two additional studies provided descriptive insight into the adoption of virtual MCCs.^{22,46}

Where possible, quantitative outcomes were extracted from included studies; however, most outcomes were presented in a narrative format. Study findings are summarized and discussed in the Standards and Practice Recommendations section.

Study Quality

The quality of the studies included in the systematic reviews was moderate to low, according to assessments conducted by review authors with a variety of instruments (Data Supplement). Quality was downgraded because of risk of bias because of lack of blinding of study participants and investigators. The more recent articles included in this review were observational studies of a single cohort that

were also at high risk of bias because of the lack of a control group, unblinded interventions, and other factors and are therefore assigned a quality rating of low.^{47,48}

STANDARDS AND PRACTICE RECOMMENDATIONS

Question 1

1. (a) Do outcomes for patients who are seen via telehealth differ from outcomes for patients seen via in-person visits across the cancer care continuum and which patients should be seen via telehealth versus in-person? (b) What oncology-specific workflow and other implementation considerations should be addressed by practices before seeing patients via synchronous telehealth applications?

The results of the literature search for studies relevant to Question 1 (see *Literature review and analysis*) were combined with Expert Panel consensus to develop Standards 1.1 to 1.10.

Standard 1.1. Where appropriate infrastructure and personnel are available, *telehealth via telephone or videoconferencing*, delivered by health professionals who are certified and participating in routine maintenance of certification activities, is a reasonable option for:

Treatment or long-term management

- New patient consultations; these may be followed by face-to-face visits;
- Medication prescribing and management¹⁷;
- Prechemotherapy or other pretherapy evaluations;
- Acute care issues that could be addressed via routine outpatient care rather than emergency department visits and admissions;
- Discussion of results, such as laboratory and imaging studies;
- Supportive care visits including financial, social work, and nutrition visits;
- Oral drug compliance and adherence evaluations;
- Distress screening and interventions;
- Chronic care management;
- Patient education on chemotherapy and other treatments;
- Counseling;
- Management of long-term treatment¹⁷;
- Postdischarge coordination, supported by remote monitoring capabilities¹⁷;
- Routine follow-up;
- Survivorship visits;
- Wellness interventions¹⁷;
- Palliative care, including hospice consults and follow-up visits;
- Advance care planning visits.

Others

- When care access issues exist;
- Consent form discussions preresearch trials, before signatures;
- Family conferences when multiple family members would like to join and patient desires;

TABLE 2. Primary Studies of Telehealth Interventions

Study and Location	Intervention	Population	Assessment Tools	Key Results and/or Recommendations
Auret et al, ⁴⁰ Remote Western Australia	Telehealth clinics held through videoconferencing at a remote site to connect patients to a tertiary care center that was already providing fly in-fly out services (hub and spoke model).	47 hematologic oncology patients	Interviews and scores on the Tele-Haematology Satisfaction Questionnaire (ratings of usefulness, interaction quality, reliability, and satisfaction for future use)	Results High levels of satisfaction were reported overall with the service, and patients appreciated the opportunity to receive care locally; negative comments were received about technical issues and lack of physical examination. Survey results suggest that patients may prefer the first consultation be face-to-face.
Thota et al, ⁴¹ Rural Utah (Intermountain Healthcare)	Synchronous video-based telehealth program based at a tertiary care center (hub and spoke model)	119 patients and 1,025 encounters between 2015 and 2018	Travel hours, costs, and carbon emissions per patient (no patient-reported outcomes in this study)	Results Average savings per patient: \$2,799 and 40 travel hours and reduction in carbon emissions: 1,334 kg; Barriers: reimbursement and operational tasks such as staffing, regulatory compliance, technology maintenance, and provider training Recommendations Emergency services should be locally accessible (see Table 4 for key points)
Humer and Campling, ⁴² Interior and North British Columbia, Canada	Synchronous video-based telehealth program based at a tertiary care center; patient accompanied by nurse at remote site; reimbursement (in place since 2003) is not linked to the extent of the physical examination (hub and spoke model).	15,073 patient encounters from 2003 to 2015	Assessment of travel distance saved over years of program	Results Average travel distance saved per patient: 766 km. Recommendations Physical examinations can be done by a local physician and confirmed when the treating physician meets the patient in person. Authors endorse newer hub and spoke models that promote bidirectional flow of patient to expertise and expertise to patient, rather than a flow from hub to spoke exclusively. ⁴³
Jhaveri et al, ⁴⁴ Queensland, Australia	Queensland Remote Chemotherapy Supervision model: After administration of first dose at larger tertiary center, selected chemotherapy regimens that have a low to moderate risk of adverse events are delivered by generalist doctors and nurses in rural hospitals under supervision of tertiary care hospital; videoconferencing is used (hub and spoke model).	19 care providers (nurses, doctors, administrative officer, and pharmacist)	Qualitative interviews with participating doctors, nurses, one pharmacist, and one administration officer	Results Model enablers: Excellent communication between nurses and oncologists at the tertiary hospital and the rural location Sufficient technical capabilities, eg, camera zoom and electronic documentation. Model disadvantages: Nurses providing supervision to remote sites lose some opportunities for patient contact at the tertiary site. Recommendations Proposed requirements before initiation: workforce, governance, training, information technology, selection of patients, and chemotherapy regimens and documentation. Practitioner roles must be properly defined and documented.

(continued on following page)

TABLE 2. Primary Studies of Telehealth Interventions (continued)

Study and Location	Intervention	Population	Assessment Tools	Key Results and/or Recommendations
DeGuzman et al, ¹⁹ rural Central Virginia, United States	30-minute videoconference with nurse for survivorship care (at home if sufficient broadband, or visits at a local site, or have a tablet mailed to patients with embedded cellular service)	19 cancer survivors who had received treatment at an NCI-designated academic medical center	Qualitative data collection following telehealth experience	<p>Results</p> <p>Only 58% of participants in study area had adequate broadband access. The average drive time to a telehealth site was 29.6 minutes. Several of the participants had never used a tablet before and needed additional supplemental instructions and troubleshooting. Participants often needed help from family members. Frustration about the technology was expressed when it was not working, and one participant reported preferring not to use technology in general. The authors conclude that the digital divide is an issue, as well as digital literacy.</p> <p>Recommendations</p> <p>A proposed solution for technology issues and driving distance is to engage the support of local public libraries. Specific training for the type of technology used is a requirement, ie, familiarity with using a smartphone is not sufficient to assume that a patient will have the skills to use a tablet.</p>
Jhaveri et al, ⁴⁵ Northern and Central California	Rapid shift from in-person to web-based (Zoom) delivery of the Survivorship Care Wellness Program during the COVID-19 pandemic	No. of survivors not stated	Tracking attendance and preferences for in-person versus telehealth delivery	<p>Results</p> <p>Participation increased significantly when the program became available via telehealth (mean attendance 5.5-9.8 patients). Adherence also improved. Participants cited previous barriers of travel distance and dependent care scheduling conflicts. They were more available during enforced stay at home because of COVID-19, although some expressed preference for in-person visits. Satisfaction ratings remain as high as preintervention. Recent changes in potential for reimbursement of telehealth allowed for the implementation of this program.</p> <p>Recommendations</p> <p>When shifting to this program, patients were asked to join early to have time to troubleshoot problems and someone was available to troubleshoot via telephone. They also had a service coordinator to reach out to individuals with telehealth guidelines.</p>

Abbreviation: NCI, National Cancer Institute.

- Genetic counseling visits and evaluations;
- Second opinion evaluations to facilitate treatment in a timely manner.

In-person consultations may be preferred by clinicians and/or patients for:

- Initial consultations;
- Initial delivery of antineoplastic treatment²;
- Delivery of key information, including new cancer diagnosis or treatment plan, disease relapse or progression, and no further cancer treatment decisions¹⁷;
- Complex cancer needs as identified by the health care provider¹⁷;
- Physical examination for diagnosis or follow-up; however, where the necessary infrastructure is in place, physical examinations may be performed by local health professionals during a teleconsultation or findings from an examination may be summarized in a referral communication to a specialist before the telehealth appointment.^{2,18} In addition, some components of the physical examination may be achieved through telehealth.
- Patients with hearing, vision, or cognition limitations for whom there are no alternative support or technologies available to assist in telehealth encounters.
- Patients with inadequate broadband, limited technological capacity, or lower levels of health literacy.

Qualifying statements

- An assessment of patients' technological capacity to engage in telehealth interventions, for example, sufficient internet bandwidth, should be conducted, and support may be provided for patients who report technology limitations.¹⁹ A more detailed review of barriers to equal access to telehealth is included in the Discussion section.
- Where possible, patients may be given the option of in-person or telehealth visits, according to personal preference.

Standard 1.2. Diagnosis via asynchronous transmission of images:

- Skin lesions can be evaluated with sufficient diagnostic accuracy through the asynchronous transmission of images, which may facilitate more timely diagnosis.²

Standard 1.3. Practices should develop policies and procedures that outline preferred frequency of telehealth versus in-person visits during the cancer care continuum and consider patient preferences. Frequency of telehealth versus in-person visits may evolve as outcome or impact data become available.

Standard 1.4. All clinical visits conducted via telehealth should be documented, including but not limited to the following information:

- Has the patient agreed to the telehealth visit (yes or no)?
- Date of visit;

- Location of the visit (health provider office or other location);
- Participants attending the visit;
- Location of the patient and other caregivers present (home or other location);
- Type of visit (audio only or audio and video);
- Was the telehealth visit completed (yes or no)?

Standard 1.5. Before participation in telehealth visits, individualized orientation should be provided to patients and health care professionals for the specific type of technology that will be used to deliver the intervention (eg, mobile phone, web-based, etc) on topics including but not limited to instructions to access the platform, navigation of the platform, and provider-specific instructions on the video if needed to physically assess an area of the body.

Note: Although orientation is required, there is no formal telehealth certification required on the part of health care professionals before engaging in telehealth clinical visits with patients. The Expert Panel does not suggest or endorse formal certification for telehealth competencies.

Standard 1.6. For clinical visits conducted via synchronous videoconferencing, a staff member or external technology support person should be available to troubleshoot technology issues, potentially via telephone, and to facilitate workflow.

Qualifying statements

- A support person should be available to oncologists or other health care professionals in a ratio that allows for quick access to support for each telehealth encounter.
- Practices should offer a videoconferencing practice session with each patient to test technical equipment at the beginning of the initial remote clinical visit.

Standard 1.7. Practices should evaluate key performance indicators for oncology telehealth initiatives and quality of care.

Qualifying statement

- The Future Research section notes significant gaps in published research related to telehealth in oncology, and therefore, efforts should be made to publish the results of these evaluations in peer-reviewed journals whenever possible.

Standard 1.8. For interventions delivered asynchronously, e.g., online patient symptom reporting systems, standard operating procedures should be in place that outline appropriate and timely responses to patient-reported outcomes.

Standard 1.9. To optimize adherence to and minimize discontinuation of treatment regimens, asynchronously delivered interventions, such as automated reminders delivered via text message, should be tailored to the individual patient.

Qualifying statement

- Reading, health care, and technology literacy levels of participants should be considered when tailoring the intervention to the individual patient.

Standard 1.10. Where possible, patients and caregivers should be involved in user testing of new interventions (eg, apps).²⁰

Literature review and analysis. Selection of patients for clinician visits via telehealth Findings from the systematic review and Expert Panel consensus were used to identify patient groups for whom telehealth may be recommended (Standard 1.1). Standards 1.2-1.10 are intended to assist with implementation and quality improvement. References are provided where standards statements endorse guidance from other sources. Findings from the most recent primary studies found in the literature review are included below under the heading *Primary Studies*. Further details, including key results and recommendations from included systematic reviews, are provided in [Tables 1 and 2](#) and the Data Supplement.

European Society for Medical Oncology ESMO guidance, which was created to guide teleoncology activities in response to the challenges presented by the COVID-19 pandemic, suggests that telehealth via videoconferencing is appropriate for primary care triage, counseling, medication prescribing and management, management of long-term treatment, postdischarge coordination, supported by remote monitoring capabilities, and wellness interventions (eg, physical activity and medication adherence).¹⁷ This guidance suggested that in-person visits may be more appropriate for delivering key information such as new cancer diagnosis and for complex cancer needs.

Published before the COVID-19 pandemic, the COSA evidence-based guidelines for teleoncology provide practice points and recommendations for the population of oncology patients that may be seen via telehealth. These guidelines were created to address the needs of rural and remote populations, and thus, telehealth is recommended for patients who are required to travel long distances for consultations. The administration of chemotherapy at remote sites using medical oncology telehealth models or multidisciplinary models incorporating telenursing and telepharmacy is also recommended. In the context of providing care options to rural and remote patients, COSA recommends that “Teleoncology models can be used to provide medical services including initial and review consultations, review of admitted patients, monitoring of toxicity, supervision of chemotherapy administration and survivorship care. This is dependent on service capabilities, scope of practice and experience of both the providing urban sites and the receiving rural sites.” The COSA guidelines review did not find high-quality evidence on the topic of patient satisfaction; however, many small lower-quality studies found that patients were satisfied with telehealth because of the reduction in travel time and cost. In general, they also found high rates of acceptance of telehealth by health professionals but cite studies showing difficulties with daily use of videoconferencing and less receptiveness among individuals with less experience;

training and education is recommended to increase uptake. In addition, for diagnosis of patients, the results of the COSA review related to diagnosis of dermatologic malignancies via asynchronous transfer of images informed the statement on skin lesion evaluations (Standard 1.2).

Primary studies Although models of service delivery were outside the scope of these Standards, several of the primary included studies featured hub and spoke models of care delivery ([Table 2](#)). These models have a main location or hub, which has the highest levels of investment and resources and is capable of providing the most complex and intensive types of care, along with satellite spokes that offer more basic services, but can route patients to the hub site when necessary.⁴⁹ This model is useful for providing health care access to rural and remote populations. Most studies found that satisfaction with this model of treatment was high. Savings in terms of costs to patients, travel hours, and carbon emissions were viewed as significant by study authors.^{41,42}

Some highlights of the findings of included primary studies are outlined subsequently. In a survey of practitioners involved in delivering chemotherapy regimens that have a low to moderate risk or adverse reactions at remote sites in Queensland, Australia, under the supervision of a tertiary care center, the program was well-received, considered convenient for patients, could be delivered safely, and provided opportunities for expanded scope of practice for rural health professionals. However, as this program was becoming established, health professionals noted the need for clearly defined roles that are documented, electronic records for patient documentation, and sufficient technical capabilities, such as video camera zoom.⁴⁴ Auret et al evaluated a specialist service in remote Western Australia that alternated between in-person and telehealth appointments at a regional site. The findings of this study were consistent with previous systematic reviews: patient participants reported high rates of satisfaction with the option to receive care closer to home, but expressed concerns about technical programs and lack of an in-person physical examination.⁴⁰ Humer and Campling report that in a long-term hub and spoke telehealth program in British Columbia, Canada, where clinician visits are provided by synchronous videoconferencing with the patient accompanied by a nurse at a satellite site, care is in many ways better than seeing the doctor in person, because high-quality specialists can be made available to patients without long-distance travel.⁴² As in the COSA guidelines,² Humer and Campling concluded that physical examinations can be done by local physicians and confirmed if or when the patient is seen in person.

Thota et al⁴¹ examined the feasibility of telehealth in rural Utah in a larger health care system. Within this system, telehealth is considered a viable option for initial consultation, follow-up visits, supportive care, survivorship, genetic counseling, and other subspecialty care; their

TABLE 3. Sustaining a Telehealth Oncology Program

Identify local providers to manage cancer care with support from a consulting oncologist.
Arrange telehealth-enabled clinic rooms for synchronous video-based calls between tertiary and rural-based facilities.
Collaborate with patient navigators, social workers, palliative care, and cancer network services.
Ensure nearby and adequate emergency medical support.
Support ongoing evaluation and treatment with local laboratory, radiology, and infusion services.
Provide ongoing administrative support to ensure compliance and implement regulatory changes.
Safely administer chemotherapy and immunotherapy under the supervision of certified oncology nurses and oncologists. ⁵⁰

NOTE. Data adapted (Table 4, p.e560).⁴¹

recommended steps to ensure the sustainability of a telehealth program in oncology are outlined in Table 3.

Other included primary studies assessed the impact of various other interventions, such as videoconferencing for rural cancer survivors in central Virginia¹⁹ and for a newly implemented telehealth wellness program for survivors in Northern and Central California.⁴⁵ Further details on included systematic reviews and primary studies are available in Table 1 and Table 2, respectively.

Question 2

What are the Standards for establishment of the physician-patient relationship in the context of telehealth in oncology?

Standard 2.1. State and federal policies permitting telemedicine to cross state lines should include a provision requiring that the doctor-patient relationship is established before provision of any telemedicine service.²¹

Qualifying statements

- The doctor-patient relationship should mandatorily include the usual follow-up and physician responsibilities in caring for the patient, including delivering care consistent with community standards.
- The establishment of the doctor-patient relationship should include the opportunity for in-person visit at the physical location of the physician practice, when necessary.

Literature review and analysis. The Expert Panel endorses the previously stated ASCO position on cross-state licensure (insert reference and page number when published). The qualifying statements to this Standard are the consensus of the ASCO Telehealth Expert Panel.

Question 3

What is the Expert Panel's guidance for when patients may see an APP or require a physician telehealth visit?

Standard 3.1. Practices should develop standards, algorithms, or policies that govern when patients may see an

APP or require a physician telehealth visit on the basis of disease, treatment, or decision inflection points.

Qualifying statement Practices should review state and/or local regulations for supervision of APPs, including regulatory requirements for how APPs and physicians form teams.

Literature review and analysis. Standard 3.1 is intended to provide practical guidance and is based on the consensus opinion of the Expert Panel.

Question 4

What is the role of allied health professionals in oncology-specific telehealth interventions?

Standard 4.1. The ASCO Telehealth Standards Expert Panel endorses the recommendations from the COSA Teleoncology Guidelines.² These recommendations are reproduced subsequently:

1. Telephone-based support systems are feasible and can help facilitate changed behaviors (eg, diet and exercise), improved function (eg, fitness and health-related function), and improved psychologic or psychosocial states.
2. Computerized screening or assessment is feasible and can be used as a model of care to collect information on patient status and assist referral to allied health oncology services.
3. Hybrid telepractice systems can offer alternative models of care for the provision of allied health education and support to oncology patients.
4. Videoconferencing services can be used to deliver allied health assessment and treatment services for oncology patients.

Literature review and analysis. The Expert Panel assessed the evidence for interventions delivered by allied health professionals, that is, health professionals who are distinct from medicine and nursing. On the basis of a summary of 24 studies, COSA reviewers concluded that there was sufficient evidence to support the recommendation for supportive interventions delivered by telephone for the following allied health services: psychology, social work, occupational therapy, exercise physiology, physiotherapy, nutrition or dietetics, and pharmacy models of care. In addition, evidence from 11 studies supported the use of allied health service delivery via videoconferencing for pharmacy, physiotherapy, psychology, and speech pathology. The type of health care professional designated to deliver the intervention was not frequently reported in studies included in the ASCO systematic review. Where practitioner type was reported, telephone and asynchronous interventions were most commonly delivered by nurses.^{19,20,34} The Expert Panel, therefore, endorses the recommendations related to allied health professionals in the COSA Teleoncology Guidelines.²

Question 5

Is discussion of patients at virtual MCC feasible, compared with in-person MCC meetings?

Standard 5.1. Where appropriate technology and supports are in place, such as those outlined below, virtual MCCs via videoconferencing are recommended.

The Expert Panel endorses the following recommendations from Dharmarajan et al²² for implementation of a virtual MCC meeting.

- Agenda and cases to be discussed should be finalized at least a day in advance.
- Participants must have access to secure videoconferencing software.
- It may be necessary to allow more time than would be needed for in-person meetings.
- Prioritize more advanced or complicated cases earlier in the meeting as they may take more time and members are more likely to be available.
- Documentation of discussion must be systematic, included in patient's electronic medical record, and accessible to members who could not make the call.
- Consider including assessments and evaluations of the MDT using a validated tool, such as the Cancer MDT Meeting Observational Tool.²³
- In addition, the ASCO Expert Panel recommends
 - That decisions regarding the maximum number of participants are left to the discretion of local institutions and
 - That the discussion is directed by the individual who is responsible for presenting the case.

Qualifying statement Similar to face-to-face MCC discussions, follow the institution guidelines for documentation of discussion. The ASCO Expert Panel does not recommend recording of the MCC or tumor board discussion without prior legal review.

Literature review and analysis. Two studies of virtual MCCs in oncology were included in the evidence review. Elkad-doum et al describe the transition to online MCCs in gynecologic oncology in Beirut during the COVID-19 pandemic. They found that image quality was better during online MCC, compared with images on a projection screen at in-person meetings. In addition, attendance was higher when participants did not have to attend the meeting in person, and it was reportedly easier for everyone to express opinions. A concern regarding patient privacy with the existing technology was expressed. A consistent internet connection was required for all participants, which was a challenge in this location, and the issue of participants not being as focused on the discussion when the meeting was virtual versus in-person was raised.⁴⁶

Dharmarajan et al reported their experience with transitioning from in-person to virtual MCC for patients with head and neck cancer at the University of Pittsburgh

Medical Center during the COVID-19 pandemic.²² Previously with in-person MCC, call-in participants were not able to view imaging, but a benefit of the switch to virtual was that imaging could be seen by all participants. The importance of having a platform for secure file sharing was also noted in this article. Dharmarajan et al describe the MCC being hosted by an otolaryngology resident who compiles the list of patients, which is completed with an agenda at least a day in advance of the meeting. A survey of 19 participants in the virtual conference showed that 57.9% preferred the virtual meeting and 78.9% wanted to continue in this format postpandemic. Additional benefits included greater ease of participation for community providers, and elimination of travel time for physicians at different sites within the network. Disadvantages included less camaraderie and informal conversation among participants, difficulty with multiple speakers talking at the same time, and technical problems with software. The authors provide several recommendations for virtual MCC implementation, as outlined in Standard 5.1.

Question 6

How can telehealth be incorporated into clinical trials in oncology?

Standard 6.1. Teletrials and/or virtual participation in oncology clinical trials are recommended as a method of increasing recruitment and reducing the burden of trial participation on patients.

- To facilitate the conduct of teletrials, the following are recommended:
 - Virtual initial discussion of trial and eligibility assessment;
 - Incorporating remote methods of reviewing symptoms and adverse events, such as patient portals, e-mail, telephone, and video²⁴;
 - Remote study initiation and monitoring from sponsors and contract research organizations²⁴;
 - Shipping oral drugs directly to patients with a follow-up call to ensure the delivery and integrity of the agents and patient comprehension of the dosing schedule²⁴;
 - Increasing support for secure virtual platforms²⁵;
 - Allowing laboratory, for example, blood tests and biopsies to be conducted at a site that is local to the trial participant²⁵;
 - Reconsidering the necessity of frequent testing, including imaging²⁵;
 - Increasing the use of patient-reported outcomes as study outcomes.²⁵

Qualifying statements

- This recommendation applies beyond the timeframe of the period of restrictions necessitated by the COVID-19 pandemic.
- Consider a hub and spoke model to improve participation among rural and remote populations (see *Australasian Tele-trial Model*).²⁶

Literature review and analysis. Many clinical practice guidelines, including those produced by ASCO, call for inclusion of patients in clinical trials whenever possible. However, many patients, such as those who live outside of urban centers, face barriers to access, and fewer than 10% of patients with cancer in the United States are enrolled in clinical trials.²⁵ The COVID-19 pandemic has presented further challenges, resulting in a 41.8% reduction in recruitment to clinical trials in oncology between January to May 2019 and January to May 2020.⁵¹ This recent development has led to changes to several aspects of clinical trials in oncology, such as modifications to eligibility of patients and providers, meetings taking place via videoconferencing, reimbursement for telehealth services, fewer in-person visits, and reduced supervision requirements. These changes may have a lasting impact on clinical trials and result in improved access and participation over the long term for remote or less-mobile patients.⁶ In some areas where telehealth is already established, the infrastructure and personnel may be in place to support the ongoing conduct of trials via telehealth. One established model before the COVID-19 pandemic includes a network of primary and satellite sites, with consent, recruitment, and management taking place at the satellite site. In addition to improving accessibility, conducting trials with this model can help with meeting accrual targets for less common cancer subtypes and improve capacity in the workforce to support clinical trial enrollment.²⁵

The systematic review did not find any randomized or observational studies to inform the criteria for Standard 6.1. This Standard was informed by an implementation guide,²⁶ results from a survey of oncologists,²⁴ opinion articles,^{25,51} and the consensus of the Expert Panel. The survey of ASCO members confirmed that changes were needed to cope with aspects of the COVID-19 pandemic, and as a result, ASCO recommended long-term changes to the way that clinical trials are conducted, many of which involve the use of telehealth, including incorporating remote methods of reviewing symptoms and adverse events, such as patient portals, e-mail, telephone, and video; remote study initiation and monitoring from sponsors and contract research organizations; and shipping oral drugs directly to patients.²⁴ These modifications are intended not only to reduce risk during the COVID-19 pandemic but also result in trials being more accessible to patients and less time-consuming and costly. Nabhan et al²⁵ present additional suggestions for rethinking clinical trials by increasing support for secure virtual platforms, allowing laboratory tests to be conducted at sites that are close to study participants, reconsidering the necessity of frequent testing, including imaging, and increasing the use of patient-reported outcomes.

The US Food and Drug Administration and European Union Medicines Agency have published recommendations for the management of clinical trials during the COVID-19 pandemic. Several of these recommendations involve

telehealth and could be continued in the future to allow rural or remote patients, or those for whom travel is a challenge, to participate in clinical trials.⁵¹

DISCUSSION

These standards were developed during the COVID-19 pandemic, when new rules around reimbursement for telehealth had recently been implemented in the United States. Within this new environment, a need was identified for specific standards for oncology that would fill gaps in general telehealth guidance. Areas of focus included which patients to see, MCC meetings, clinical trials via telehealth in oncology, and the role of APPs and allied health professionals. Studies included in this review demonstrate the benefits of telehealth, especially for synchronous interventions delivered via a hub and spoke model, which have adequate resources to troubleshoot technology challenges and facilitate patient participation. Patient satisfaction with these interventions was high across reviewed studies, and patients appreciated the convenience and flexibility, time, and cost savings associated with telehealth interventions. This finding is consistent with data from a previous review showing that oncology patients who used videoconferencing wanted to continue in the future and expressed a preference for this format over in-person interactions, while finding that clinical care was not compromised.¹⁸ These results are even more relevant for the subset of the population who live in rural or remote areas, as this group has a higher prevalence of risk factors for cancer and poorer access to health care.⁴⁴ Likewise, individuals living in closer proximity to services who have financial and/or transportation challenges may also benefit from the option to receive care via telehealth. In addition, lower socioeconomic status can also be a risk factor for poor access to care because of lack of mobility and other factors.¹² Telehealth has the potential to bridge some of these disparities; however, many patients may need support because of insufficient access to broadband, lack of technological devices, or lack of familiarity with technology.

Telehealth interventions have been successful in locations that have adequate infrastructure, support, and established reimbursement for these types of services. For example, recent reimbursement changes allowed for a shift from in-person to remote delivery of a survivorship care program in Northern and Central California.⁴⁵ Participation in this program increased significantly when the program became available online. Warrington et al summarize a number of features that have previously been found to support patients' self-management, but may be omitted from interventions because of lack of financial resources for implementation and maintenance. In other areas where reimbursement has been in place over a longer period of time, telehealth for oncology is well-established, such as in the province of British Columbia, Canada, where a hub and spoke model of video-based telehealth delivery has been

ongoing since 2003.⁴² However, even in environments where the adoption of telehealth is financially incentivized, uptake may be low. For example, at Thomas Jefferson University, where medical oncologists and advanced practice professionals were reimbursed for telehealth visits, only approximately 1% of oncology patients were being seen via video-based telehealth at that institution before the COVID-19 pandemic. It is interesting to note that in April 2020, the rate of patients seen via video improved to 52%, prompted by the need for physical distancing.⁵² Other potential barriers to implementation mentioned within that study were liability concerns and issues with workflow. The issue of licensure was also raised and was cited as a concern by members of the ASCO Expert Panel. ASCO recognizes the importance of this issue, and an ASCO position statement on cross-state licensure has recently been published.²¹

Even when the issue of reimbursement and other practice-level considerations are addressed, the potential benefit to patients can be compromised because of patient-level cost and access issues. Within many studies, telehealth is cited as a way of reducing costs for patients by eliminating travel and associated fuel and lodging charges and minimizing the time away from paid work. However, for patients who do not have access to sufficient broadband to participate in a video-conference or do not have a mobile phone, inequity of access will continue and may be exacerbated. DeGuzman et al¹⁹ speculate that the digital divide may be too great to overcome at the present time in rural America; their feasibility study attempted to overcome the divide by providing tablets and web-enabled cell phones to survivors, but still encountered significant difficulty with technical literacy and broadband access. It is possible that experiences would have improved over time as survivors became more accustomed to the technology; however, longer-term follow-up data were not reported. Another review that focused on underserved patients found that the cost of acquiring a device and keeping up with technology changes may be prohibitive.³⁸

Other concerns reported with telehealth include a patient or provider preference for in-person care, not wanting to attend an in-person visit when it is deemed necessary by a health professional, inability to carry out a thorough examination from a distance, and difficulties with identifying which patients should be seen in the clinic versus at home or at a satellite location. These concerns are addressed within the Standards, and in addition, specific and targeted orientation for providers and for patients and/or survivors is recommended.

Payers and regulators are also concerned about the risk of inappropriate utilization of telehealth. In addition to the standards, the ASCO Expert Panel also recommends that the usual documentation for face-to-face visits is used for billing, in addition to separate documentation for the telehealth visit with the utilization of telehealth codes.

A limitation of our review is that many of the included studies were conducted outside of the United States, and

therefore, direct applicability to the US population is limited, as access and reimbursement concerns may not be as significant in a publicly funded health care system. These Standards include statements that recognize these limitations and call for support for patients in the form of an available staff member to assist with troubleshooting, patient-centered design with user input where possible,³⁸ individualized interventions that are delivered at appropriate literacy levels, and maintaining the option of in-person consultations where barriers to telehealth exist.

In general, the often chronic presentation of cancer and resulting long-term relationship between patients and health care professionals make telehealth a good fit for the needs of oncology patients. Older age and comorbidities among the patient population make the savings in travel especially valuable. For employed patients, the convenience of at-work visits minimizes loss of income and addresses many employer groups requests. Caregivers also benefit from minimizing their loss of income or need to find caregivers for dependents. Patient-reported outcomes that have been shown to affect survival in oncology patients are suitable for collection via online reporting systems.⁵³ Telehealth has a high potential for success when it is fully reimbursed, and patients and health care professionals are supported through implementation and ongoing use. The Expert Panel supports the use of telehealth in oncology and provides these Standards as a resource for its implementation among oncology practices.

FUTURE RESEARCH

High-quality research is needed across all areas of telehealth, and there is a gap in published research on the topic of telehealth in cancer survivors. More detailed reports are needed on how the response to electronic symptom reporting is organized and incorporated into workflow.³² Furthermore, to date, eHealth programs have been evaluated on the basis of limited criteria, such as cost, resource usage, organizational components, and user satisfaction.¹² This statement points to the need for more data on patient-centered outcomes and long-term follow-up for all populations, including how telehealth can assist in eliminating barriers to care leading to improvement in equal access to care.²⁰ Furthermore, future analysis must consider private versus government payers, including accounting for interstate (Medicaid) and regional Medicare Administrative Contractor policy differences. Interventions are often multifaceted, and more research is needed to determine the individual effects of different intervention features. Data registries and real-world evidence should be used to more comprehensively answer the research questions and modify telehealth interventions as needed. Additionally, best practices should be identified and publicly disseminated to raise the bar for telehealth performance in all geographies and sites of service. Only one systematic review included in our evidence base formally assessed the

use of telehealth among the diverse underserved populations in the United States, indicating that more research is needed in this population of patients.³⁸ Finally, the telehealth field should strive to adopt more consistent terminology for interventions and consistent definitions for outcomes, to facilitate comparisons across studies and syntheses of findings.

EXTERNAL REVIEW AND OPEN COMMENT

The draft recommendations were released to the public for open comment from April 26, 2021, through May 7, 2021.

Response categories of “Agree as written,” “Agree with suggested modifications,” and “Disagree. See comments” were captured for every proposed recommendation with the number of written comments received. The majority of respondents either agreed or agreed with slight modifications to the recommendations. Expert Panel members reviewed comments from all sources and determined whether to maintain original draft recommendations, revise with minor language changes, or consider major recommendation revisions. All changes were incorporated before ASCO Board review and approval.

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AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST**Telehealth in Oncology: ASCO Standards and Practice Recommendations**

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Open Payments is a public database containing information reported by companies about payments made to US-licensed physicians ([Open Payments](#)).

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No other potential conflicts of interest were reported.

APPENDIX

TABLE A1. Telehealth Standards Expert Panel Membership

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