UNIVERSITY OF CALGARY
CUMMING SCHOOL OF MEDICINE

UNIVERSITY OF CALGARY
O'Brien Institute for Public Health
Health Technology Assessment Unit

Three Rapid Reviews

Focused on the COVID-19 Pandemic:

Caring for People with Cognitive Impairment

Caring for People at End-of-life

Effective Technology Use

The Health Technology Assessment Unit, University of Calgary

November 6, 2020

Acknowledgements

This research was supported by Alberta Health, Health Standards, Quality and Performance Division, Research and Innovation Branch, Province of Alberta. The views expressed herein do not necessarily represent those of the Government of Alberta, the Alberta Health Authorities, or any other agency.

We gratefully acknowledge the contributions of our external partners: Diane Lorenzetti, Deirdre McCaughey, and Kirsten Fiest.

Cite as:

Section 5: Oluwaseun Egunsola, Liza Mastikhina, Diane Lorenzetti, Deirdre McCaughey, Kirsten Fiest, Tom Noseworthy, Laura E. Dowsett, Fiona Clement. Rapid Review of Best Practices for Care and Engagement for Persons with Cognitive Impairments during the COVID-19 Pandemic. University of Calgary, Health Technology Assessment Unit. October 19, 2020.

Section 6: Brenlea Farkas, Joyce Li, Diane Lorenzetti, Deirdre McCaughey, Kirsten Fiest, Tom Noseworthy, Laura E. Dowsett, Fiona Clement. Rapid Review of Best Practices for Care and Support of Persons Who are at End-of-Life during the COVID-19 Pandemic. University of Calgary, Health Technology Assessment Unit. October 19, 2020.

Section 7: Liza Mastikhina, Oluwasefunmi Akeju, Joyce Li, Oluwaseun Egunsola, Diane Lorenzetti, Tom Noseworthy, Laura E. Dowsett, Fiona Clement. Rapid Review of Effective Technology Use during the COVID-19 Pandemic. University of Calgary, Health Technology Assessment Unit. November 6, 2020.

Table of Contents

Figures

Tables

1 Abbreviations

COVID-19	Coronavirus Disease 2019
DLQI	Dermatology Life Quality Index
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5th Edition
HADS	Hospital Anxiety and Depression Scale
ICU	Intensive Care Unit
MOCA	Montreal Cognitive Assessment
N	Number
NA	Not Applicable
NCD	Neurocognitive Disorder
NR	Not Reported
PCI	Percutaneous Coronary Intervention
PGWB	Psychological General Well-Being Index
PPE	Personal Protective Equipment
PRESS	Peer Review of Electronic Search Strategies
PROSPERO	International Prospective Register of Systematic Reviews
QoL-AD	Quality of Life in Alzheimer's Disease
RCSES	Revised Caregiving Self-Efficacy Scale
RMBPC	Revised Memory and Behavior Problem Checklist
SD	Standard Deviation
SE	Standard Error
SF36V2	Short Form 36 Version 2
STEMI	Acute ST Segment Elevation Myocardial Infarction
TV-AssistDem	Television-based Assistive Integrated Service to Support People Living with Mild Dementia or Mild Cognitive Impairment
ZBI	Zarit Burden Interview Scale

2 Executive Summary

This report presents the findings and conclusions of three rapid reviews examining: 1) best care practices for persons with cognitive impairments during COVID-19, 2) best care practices for persons who are at end-of-life during COVID-19, and 3) effective use of technology during COVID-19. The primary research objectives for these reviews were:

1. What are the best practices for care and engagement of persons with cognitive impairments who are required to isolate/quarantine due to COVID-19 either at home in the community, or in long-term or supportive care facilities?
2. What are the best practices for care and support of persons of any age receiving end-of-life care in the community, long-term care facilities, hospice, or hospital during the COVID-19 pandemic?
    - How do we support quality of care for persons at end of life during COVID-19?
    - What are the COVID-19 symptoms for persons at end of life?
    - How do we reduce the impact and burden of isolation resulting from the pandemic for persons at the end of life, and their family, friends and caregivers, during COVID-19?
3. How do we promote the effective use of technology or other "distance tools" during COVID-19 isolation or quarantine to support patients (and/or their families, friends, or caregivers)?

Methods:

A rapid review methodology was used to gather and synthesize the available evidence to address the research questions above. Three rapid reviews were conducted:

I. Rapid review of best practices for care and engagement of persons with cognitive impairments during the COVID-19 pandemic.

II. Rapid review of best practices for care and support of persons receiving end-of-life care during the COVID-19 pandemic.

III. Rapid review of effective technology use to support patients (and/or their families, friends, or caregivers) during the COVID-19 pandemic.

Key Findings:

Five studies were included in the rapid review of best practices for care and engagement for persons with cognitive impairments who are required to isolate/quarantine during COVID-19. Suggestions for care and engagement broadly focused on the use of telehealth services, cognitive stimulation, and social support for caregivers. Evidence suggests that multi-modal telehealth services, including online, telephone, and videoconferencing methods, are important for the well-being of community-dwelling persons with cognitive impairment during COVID-19 confinement. It is important for persons with cognitive impairment to receive continuous cognitive and environmental stimulation during COVID-19. Lastly, caregivers of persons with cognitive impairment also require social support. No recommendations for hospitalized persons or those in long-term or supportive care facilities were identified.

Fifty-six studies were identified in the rapid review of best care practices for persons at end-of-life during COVID-19. Most of the included studies were guidelines, tools/frameworks, and observational studies conducted in the United States, United Kingdom, and India. Given the recent emergence of COVID-19, practices account for how isolation and uncertainty have changed the needs of patients, and their families, at end of life. The practices reported most often were related to: communication; patient and family support/well-being, and symptom management; adequate medication and equipment supply. Based on the literature synthesized in this rapid review, it appears that there are no "one-size-fits-all" recommendations for best practice, but rather an extensive list of practices to consider based on the setting of care, patients' needs, and needs of families and healthcare providers.

Seven studies were included in the rapid review of effective technology use to support individuals during COVID-19 isolation or quarantine. Four broad categories of technologies were identified: 1) provider-initiated active teleconsultations; 2) Zoom™-based training/interventions; 3) interactive technology; and 4) an app offering medical advice. Across studies, technology interventions administered through Zoom™, apps, telephone and video conferencing, and TV generally resulted in health outcomes that were either beneficial or comparable to regular care. As a result, technology interventions appear to be helpful substitutes for regular care when in-person communication is not possible, such as during COVID-19

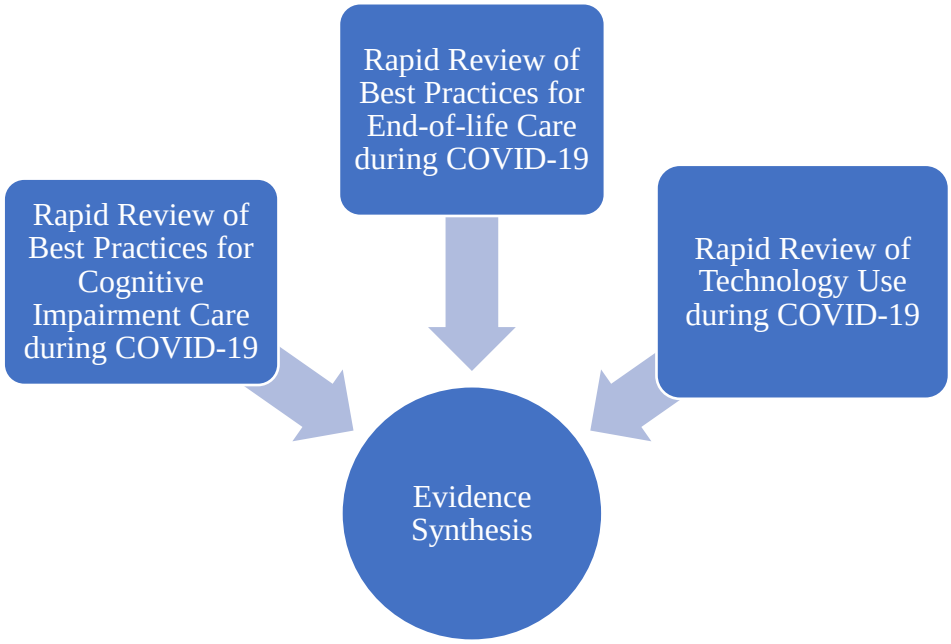
isolation/quarantine. However, these results should be interpreted with caution given the scarcity and the quality of the literature identified.

Overall, the findings of this evidence synthesis suggest that the literature related to best care practices of patients who are cognitively impaired or are at end-of-life and the literature on effective technology use during COVID-19 is generally disparate or scarce. The most robust evidence was identified for best care practices of patients at end-of-life, broadly suggesting that care should be tailored to the needs of the patient, their family, and healthcare providers, as well as the setting of care. Limited evidence suggests that care of persons with cognitive impairment should emphasize communication, cognitive stimulation, and social support for the patients and their caregivers. Lastly, technology interventions appear to be broadly beneficial, or at least comparable, to regular care, can be administered in a multitude of modalities, including Zoom™, apps, telephone, video conferencing, and TV-based interventions, and represent helpful substitutes for regular care when in-person communication is not possible.

3 Purpose of this Evidence Synthesis

The purpose of this evidence synthesis was to summarize the evidence on best care practices for persons with cognitive impairments and persons who are at end-of-life during COVID-19, as well as effective use of technology during COVID-19. This report synthesizes the findings from three rapid reviews on: 1) care and engagement of persons with cognitive impairments who are socially isolated/quarantined, 2) care and support of persons who are at end-of-life, and 3) effective use of technology to support patients (and/or their families, friends, or caregivers) (Figure 1).

Figure 1. Summary of Process



4 Research Question and Objectives

The primary research objectives for this evidence synthesis were to determine:

1. What are the best practices for care and engagement of persons with cognitive impairments who are required to isolate/quarantine due to COVID-19 either at home in the community or in a supported living facility?
2. What are the best practices for care and support of persons receiving end-of-life care in the community, long-term care facilities, hospice, or hospital during the COVID-19 pandemic?
    - How do we support quality of care for persons at end of life during COVID-19?
    - What are the COVID-19 symptoms for persons at end of life?
    - How do we reduce the impact and burden of isolation resulting from the pandemic for persons at the end of life, and their family, friends and caregivers?
3. How do we promote the effective use of technology or other "distance tools" during COVID-19 isolation or quarantine to support patients (and/or their families, friends, or caregivers)?

A rapid review methodology was used to gather and synthesize the available evidence to address the research questions above. Three rapid reviews were conducted:

I. Rapid review of best practices for care and engagement of persons with cognitive impairments during the COVID-19 pandemic.

II. Rapid review of best practices for care and support of persons receiving end-of-life care during the COVID-19 pandemic.

III. Rapid review of effective technology use to support patients (and/or their families, friends, or caregivers) during the COVID-19 pandemic.

5 Rapid Review of Best Practices for Care and Engagement for Persons with Cognitive Impairments

Summary:

- Five studies were included in the rapid review of best practices for care and engagement for persons with cognitive impairments who are required to isolate/quarantine during COVID-19. Suggestions for care and engagement broadly focused on the use of telehealth services, cognitive stimulation, and social support for caregivers.
- Multi-modal telehealth services, including online, telephone, and videoconferencing methods, are important for the well-being of community-dwelling persons with cognitive impairment during COVID-19 confinement.
- It is important for persons with cognitive impairment to receive continuous cognitive and environmental stimulation during COVID-19.
- Caregivers of persons with cognitive impairment require social support.
- No recommendations for hospitalized persons or those in long-term or supportive care facilities were identified.

5.1 Purpose

To synthesize the published literature on best practices for care and engagement of persons with cognitive impairments who are required to isolate/quarantine due to COVID-19 either at home in the community or in a supported living facility.

5.2 Methods

5.2.1 Search Strategy

A rapid review was completed. The literature search was conducted by following the Cochrane interim guidance for rapid reviews.[1] Embase, MEDLINE, CINAHL, and PsycINFO were searched for studies. Given that COVID-19 emerged in 2019, the search was limited to studies published from 2019 until September 21, 2020. Terms aimed at capturing the population of interest, including "Alzheimer" and "dementia" were combined with isolation terms, such as "social isolation" and "quarantine," and virus terms, such as "coronavirus," using the Boolean Operator "and." Terms were searched as text words in titles and abstracts and as MeSH subject headings when applicable. The search was limited to English or French language studies. The search strategy was developed by a research librarian and peer review of electronic search strategies (PRESS) was conducted by another research librarian.[2] The full search strategy is available in Appendix A.

In recognition of the rapid development of literature on COVID-19, Google scholar and a pre-print server (medRxiv) were searched for grey literature or literature not yet peer-reviewed. The reference lists of any systematic reviews identified during abstract or full-text review were hand-searched to ensure all relevant literature was captured. This rapid review is registered in the International Prospective Register of Systematic Reviews (PROSPERO), number CRD42020210905.

5.2.2 Study Selection

Screening calibration was completed by all reviewers involved in this rapid review prior to starting abstract screening and full-text screening. After >70% agreement was reached, screening of citations was completed by two independent reviewers using Microsoft Excel. Abstracts proceeded to full-text review if they: examined persons with cognitive impairment who were socially isolated or quarantined due to COVID-19 (either due to general isolation, or required isolation); included any or no comparator; and examined health-related impacts of isolation or quarantine, related to quality of care and engagement during isolation. Citations were excluded if they failed to meet the inclusion criteria above, or if they: were editorials, letters, or commentaries; or were published in languages other than English or French (
Table 1). All abstracts selected for inclusion by any reviewer proceeded to full-text review. This initial screen was intentionally broad to ensure that all relevant literature was captured.

Studies included after abstract review proceeded to full-text review. Full-text review was completed by two independent reviewers. All studies selected for inclusion by any reviewer at the full-text screening stage proceeded to data extraction.

Table 1. Inclusion and Exclusion Criteria for Rapid Review of Cognitive Impairment

Inclusion Criteria	Exclusion Criteria
• Those with cognitive impairment • Isolation or quarantine due to COVID-19 • Any, or no comparator • Health-related impacts of isolation or quarantine, related to quality of care and	• Commentaries, editorials, and letters • Studies published in languages other than English or French

engagement during isolation.	

5.2.3 Data Extraction and Analysis

Data were extracted by a single reviewer using a standard data extraction form and verified by another reviewer. For all studies, year of publication, country, study design characteristics, and practice considerations were extracted. Discrepancies between reviewers during data extraction were resolved through consensus. Data were analyzed using a narrative synthesis methodology. Similar suggestions for care and engagement provided by the study authors were grouped together, and findings for each study were summarized individually.

5.2.4 Quality Assessment

Quality assessment was not feasible or conducted because of the broad range of study designs included.

5.3 Results

5.3.1 Study Characteristics

The search strategy yielded 367 unique citations. After abstract review, 72 studies proceeded to full-text review (Figure 2). Sixty-seven studies were excluded for the following reasons: not related to cognitive impairment (n=29); study design not of interest (n=16), including editorials, commentaries and letters (Appendix A); did not report best practices or engagement (n=11); not related to isolation or quarantine methods (n=9); not English or French (n=1); and not retrievable (n=1). A total of five relevant studies were included in the final dataset[3-7] (Figure 2).

Three of the five included studies were cohort studies,[3,6,7] one was a survey,[5] and another was a review article.[4] Four studies provided recommendations for community-dwelling adults with cognitive impairment, while the review article did not indicate a specific setting (Table 2). The studies originated from India, China, Spain, France, and the Netherlands. Three broad suggestions for care and engagement were identified from the studies, including recommendations specific to: cognitive stimulation, social support for caregivers, and telehealth via online, telephone, and videoconferencing services (Table 3).

Figure 2. PRISMA Flowchart of Included Studies

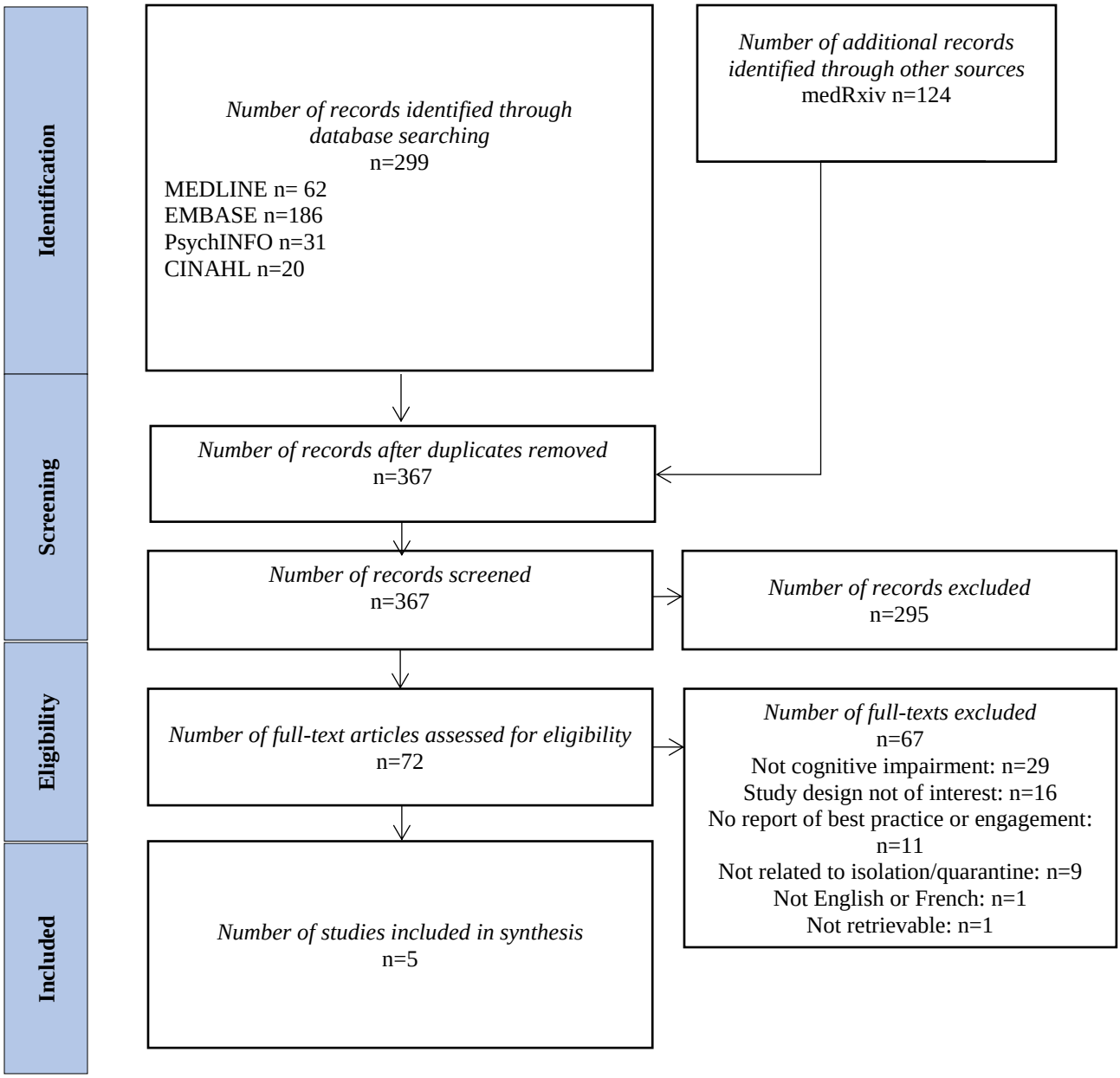


Table 2. Characteristics of Included Studies

Author (Country)	Mean Age	Population/ Diagnosis	Study Design	Study Objectives	Key Findings
Boutoleau-Bretonniere et al.[3] (France)	71.89 (SD=8.24)	Alzheimer's Disease (n=38)	Cohort	Effects of confinement during the COVID-19 crisis on neuropsychiatric symptoms in patients with Alzheimer's disease	Among the 38 patients, only 10 demonstrated neuropsychiatric changes during the confinement. Cognitive function of these 10 patients, assessed with the Mini-Mental State Examination, was worse than that of patients who did not demonstrate neuropsychiatric changes. Among the 10 patients with neuropsychiatric changes, the duration of confinement was significantly correlated with both the severity of neuropsychiatric symptoms, as well as with the distress experienced by caregivers.
*D'Cruz et al.[4](India)	NA	Cognitive impairment (including dementia)	Review	To provide a thematic analysis and synthesis of both direct and indirect risks to older adults during the COVID-19 pandemic	NA
Goodman-Casanova et al.[5] (Spain)	73.34 (SD=6.07)	Mild Cognitive Impairment or Mild Dementia (n=93)	Survey (part of a larger RCT)	1. Explore impact of confinement on the health and well-being of community-dwelling older adults with mild cognitive impairment or mild dementia. 2. Provide television-based and	1. There were no significant differences in health and well-being between the intervention and control groups. 2. Respondents with TV-AssistDem performed more memory exercises

				telephone-based health and social support. 3. Study the effects of a television-based assistive integrated technology, TV-AssistDem	than control respondents.
Lai et al.[6] (China)	72.87 (SE=0.84) in intervention group; 72.73 (SE=0.84) in control group	Dementia (n=60)	Cohort	Evaluated whether supplementary telehealth via video-conferencing platforms could bring additional benefits to care-recipient with neurocognitive decline and their spousal caregivers at home	1. Supplementary telemedicine averted the deterioration in cognition in the telephone-only group. 2. The falling trend in quality of life observed in the telephone only group was reversed. 3. Varying degrees of improvements in physical and mental health, perceived burden, and self-efficacy were observed among caregivers in the video-conferencing group, which were absent in the telephone-only group
Zaagsma et al.[7] (Netherlands)	NR	Intellectual Disabilities (n=648)	Cohort (retrospective and prospective)	Provide insight into the use of online support during the COVID-19 outbreak	COVID-19 outbreak and the related containment measures had a strong impact on online support use, specifically on the unplanned use of online support.

Abbreviations: COVID-19: coronavirus disease 2019; n: number; NA: not applicable; NR: not reported; SD: standard deviation; SE: standard error
*Unspecified care setting, the other studies were in community care setting

Table 3. Recommendations for Persons with Cognitive Impairment During COVID-19 Isolation

Setting	Suggestions	Considerations	Source of Evidence
Unspecified	Cognitive stimulation	Older adults with delirium, major and minor neurocognitive disorders are vulnerable to deterioration due to the deprivation of environmental stimuli. Providing serial reorientation, visual and auditory aids, tactile stimulation, structuring their daily routine and incorporating cognitively stimulating material (art, music, aromatherapy, puzzles and games) ensures home based support of cognitive deficits.[4]	Review article
Community	Social support for caregivers	In patients with Alzheimer's disease, the duration of confinement was significantly correlated with the severity of symptoms as well as with their caregivers' distress. Findings suggest that support should be offered to caregivers by social service authorities during crises. Support could include instrumental support (e.g., helping them with their daily living needs, housework, and managing neuropsychiatric changes in spouses), emotional support, informational support, and peer support from other caregivers who experience similar challenges.[3]	Cohort study
	Social connectedness	When providing telehealth to people with a neurocognitive disorder and their caregivers at home, the authors suggest doing so via video conference, rather than telephone conversation alone. This could capture important social elements intrinsic to face-to-face interaction, which could be critically beneficial for this population.[6]	Cohort study
	Online support	Offering online support in addition to regular onsite support for people with intellectual disabilities living independently may help service providers to be more flexible and responsive to fluctuations in support needs and support availability during a crisis like COVID-19. Authors note, however, that this service was operational pre-COVID-19, and that setting up a service of this scale quickly may be difficult.[7]	Cohort study
	Television-based support	Television-based assistive integrated technology (TV-AssistDem) emerged as a promising cognitive stimulation and telehealth tool to deliver health care and facilitate remote caregiver support during exceptional circumstances, such as the current COVID-19 outbreak.	Survey

		People with mild cognitive impairment or mild dementia who used TV-AssistDem performed more memory exercises than control participants. Findings show the potential of television sets for informative, recreational, and intellectual purposes.[5]	

5.3.1.1 Telehealth Services

A study by Zaagsma et al. found that the utilization of online support by community-dwelling individuals with intellectual disabilities increased after the initiation of COVID-19 lockdowns.[7] This service enabled them to contact a team of specially trained support workers at any time via videoconferencing or through telephone. The authors suggested that online support should supplement regular onsite support for people with intellectual disabilities living independently, as this may help service providers to be more flexible and responsive to fluctuations in support needs during the pandemic.[7] They noted that this service was operational pre-COVID-19, and that setting up a service of this scale quickly may be difficult.[7]

Another study by Lai et al. evaluated the benefits of supplementary telehealth via videoconferencing in persons with dementia and found that those receiving supplementary videoconferencing services in addition to telephone services were less likely to experience a deterioration in general cognitive functioning compared to those receiving telephone services alone.[6] Consequently, they recommended that health services should be provided to persons with neurocognitive impairment and their caregivers via videoconference applications such as Zoom, WhatsApp™, and FaceTime™, rather than by telephone conversation alone. They reiterated that this could capture important social elements intrinsic to face-to-face interaction, which could be critically beneficial for this population.[6]

5.3.1.2 Cognitive Stimulation

A survey by Goodman-Casanova et al. found that community-dwelling persons with mild cognitive impairment or mild dementia preferred television-based assistive integrated technology for recreation, information, and memory exercises during COVID-19 isolation.[5] The authors suggested the use of this service as a cognitive stimulation and telehealth tool to deliver health care and facilitate remote caregiver support during the COVID-19 outbreak.[5]

An advocacy review by D'Cruz and Banerjee also suggested the need for cognitive stimulation among older adults with delirium and neurocognitive disorders on account of their susceptibility to deterioration due to the deprivation of environmental stimuli during isolation.[4] They suggested that providing visual and auditory aids, tactile stimulation, structuring their daily routine, and

incorporating cognitively stimulating material such as, art, music, aromatherapy, puzzles and games, addresses the cognitive deficits.[4]

5.3.1.3 Social Support for Caregivers

In a study of persons with Alzheimer's disease, Boutoleau-Bretonniere et al. found that the duration of confinement was significantly correlated with the severity of symptoms, as well as with their caregivers' distress.[3] Therefore, they suggested that during crises support should be offered to caregivers by social service authorities. These could include instrumental support (e.g., helping them with their daily living needs, housework, and managing neuropsychiatric changes in spouses), emotional support, informational support, and peer support from other caregivers who experience similar challenges.[3]

5.3.1.4 Other Measures

Other suggested measures, without evidence, to address the negative experience of confinement included keeping well-informed about COVID-19, accessing health and social services, having a reliable support network that decreases risk of exposure to COVID-19 and guarantees food and medical supplies, and establishing a daily routine with maintained sleeping habits and leisure activities.[5]

5.4 Conclusions

Multi-modal telehealth services, including online, telephone, and videoconferencing methods, are important for the well-being of community-dwelling persons with cognitive impairment during COVID-19 confinement. It is important for persons with cognitive impairment to receive continuous cognitive and environmental stimulation during COVID-19. Finally, caregivers of persons with cognitive impairment also require social support. No recommendations for hospitalized persons or those in long-term or supportive care facilities were identified.

6 Rapid Review of Best Practices for Care and Support of Persons Who Are at End-of-life

Summary:

- Fifty-six studies were identified in this search for identifying practices for those at end of life during COVID-19.
- Most of the included studies were guidelines, tools/frameworks, and observational studies conducted in the United States, United Kingdom, and India.
- Given the recent emergence of COVID-19, practices account for how isolation and uncertainty have changed the needs of patients, and their families, at end of life
- The practices reported most often were related to: communication; adequate medication and equipment supply; patient and family support/well-being, and symptom management.
- Based on the literature synthesized in this rapid review, it appears that there are no "one-size-fits-all" recommendations for best practice, but rather an extensive list of practices to consider based on the setting of care, the patient's needs, and needs of the families and healthcare providers.

6.1 Purpose

To synthesize the published literature on: 1) best practices for care and support of persons receiving end of life care in the community, long term care facilities, hospice, or hospital during the COVID-19 pandemic; and 2) symptoms of COVID-19 in those at end of life.

6.2 Methods

6.2.1 Search Strategy

A rapid review was completed. The literature search was conducted by following the Cochrane interim guidance for rapid reviews.[1] Embase, MEDLINE, CINAHL, and PsycINFO were searched for studies published from 2019 until September 21, 2020. Given that COVID-19 is a new disease that emerged in 2019, the literature search was limited to 2019-onwards.

Terms aimed at capturing the population of interest, including "terminal care" and "palliative care" were combined with virus terms, such as "coronavirus," using the Boolean Operator "and." Terms were searched as text words in titles and abstracts and as MeSH subject headings when applicable. The search was limited to English or French language studies. The search strategy was developed by a research librarian and peer review of electronic search strategies (PRESS) was conducted by another research librarian.[2] The full search strategy is available in Appendix B.

In recognition of the rapid development of literature on COVID-19, Google scholar and a pre-print server (medRxiv) were searched for grey literature or literature not yet peer-reviewed. The reference lists of any systematic reviews identified during abstract or full-text review were hand-searched to ensure all relevant literature was captured. This rapid review is registered in the International Prospective Register of Systematic Reviews (PROSPERO), number CRD42020210943.

6.2.2 Study Selection

Screening calibration was completed by all reviewers involved in this rapid review prior to starting abstract screening and full-text screening. After >70% agreement was reached, screening of citations was completed by two independent reviewers using Microsoft Excel. Abstracts proceeded to full-text review if they: examined persons receiving end of life care during the COVID-19 pandemic; included any or no comparator; and examined health-related impacts of isolation or quarantine, related to quality of care and support during isolation. Citations were excluded if they failed to meet the inclusion criteria above or if they were editorials, letters, or commentaries; or were published in languages other than English or French (Table 4). All abstracts selected for inclusion by any reviewer proceeded to full-text review. This initial screen was intentionally broad to ensure that all relevant literature was captured.

Studies included after abstract review proceeded to full-text review. Full-text review was completed by single reviewers. All studies selected for inclusion by any reviewer at the full-text screening stage proceeded to data extraction.

Table 4. Inclusion and Exclusion Criteria for Rapid Review of End-of-life

Inclusion Criteria	Exclusion Criteria
• Patients receiving end of life care as defined by the study • Isolation or quarantine due to COVID-19 • Any, or no comparator • Health-related impacts of isolation or quarantine, related to quality of care, impact of technology or "distance tool",	• Commentaries, editorials, and letters • Studies published in languages other than English or French

or mitigation of impact of isolation	

6.2.3 Data Extraction and Analysis

Data were extracted by a single reviewer using a standard data extraction form and verified by another reviewer. For all studies, country, study design, practices and practice considerations were extracted. Discrepancies between reviewers during data extraction were resolved through consensus. Data were analyzed using a narrative synthesis methodology. Similar practices for care and engagement provided by the study authors were grouped together, and findings for each study were summarized individually.

6.2.4 Quality Assessment

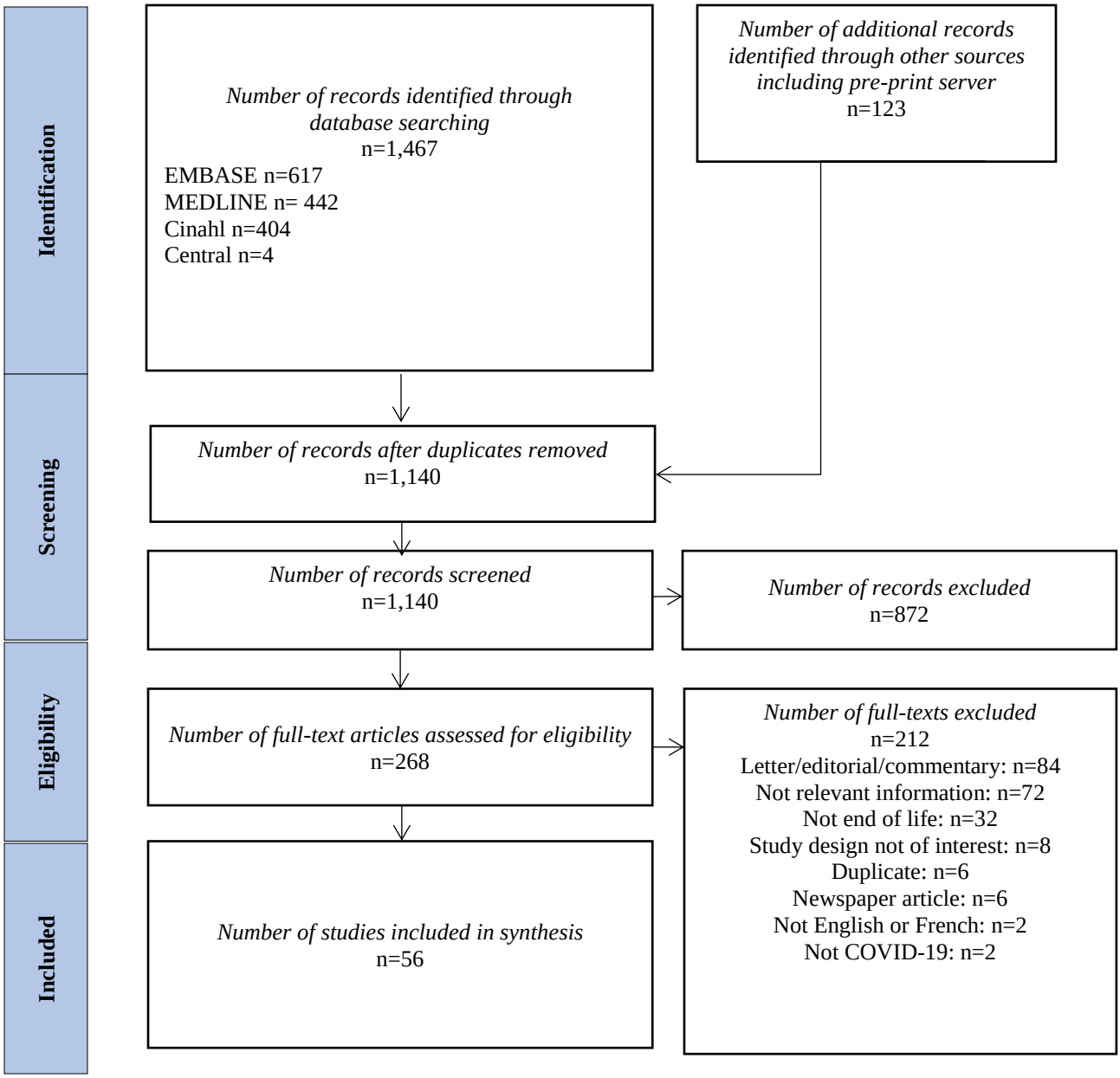
Quality assessment was not completed due to the range of study designs included. No meaningful comparative quality assessment was feasible.

6.3 Results

6.3.1 Study characteristics

The search strategy yielded 1,140 unique citations. After abstract review, 268 studies proceeded to full-text review (Figure 3). Two hundred and twelve studies were excluded for the following reasons: letter/editorial/commentary (n=84); not relevant information (n=72); not end of life (n=32); study design not of interest (n=8); duplicate (n=6); newspaper article (n=6); not English or French (n=2); not COVID-19 (n=2). Fifty-six relevant studies were included in the final dataset. References for studies that met all other criteria, but were excluded because they were commentaries or editorials can be found in Appendix B.

Figure 3. PRISMA Flowchart of Included Studies



Of the 56 included studies, ten were clinical guidelines,[8-17] eight were tools/frameworks,[18-25] and seven were chart reviews[26-32] or cross-sectional studies.[33-40] Additional study designs included case studies,[41-47] reviews,[48-52] case series,[41,53-56] cohort studies,[40,57-59] qualitative studies,[60-62] and one controlled non-randomized study[63] (

Table 5). Twenty-one studies originated from the United States, 13 from the United Kingdom, nine from India, five from Italy, two from Sweden, and one each from: France, Germany, Morocco, the Netherlands, Singapore and Switzerland. The primary setting of care discussed within the included studies was: hospital, long-term care, hospice, and community, with additional studies providing practice suggestions that were not specific to a particular setting. For additional information on study characteristics, see Appendix B. To address the aims of this report, the results section is divided into two sections: practices for end of life care, and symptoms of COVID-19 at end of life.

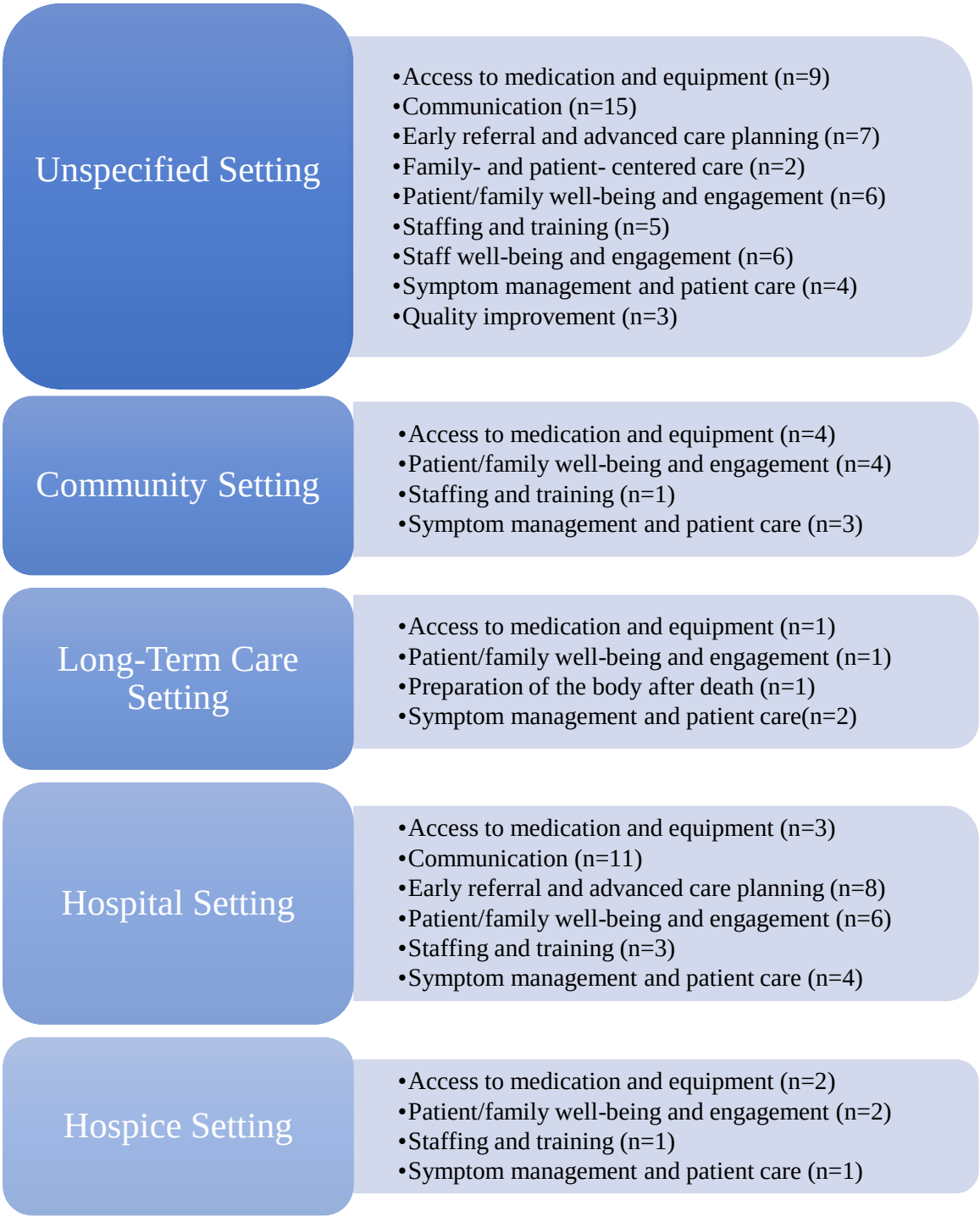
Table 5. Characteristics of Studies Included in the End-of-life Rapid Review

Study Design	**Setting**
Controlled non-randomized (n=1)	Hospital (n=1)[63]
Qualitative (n=3)	Community (n=1)[62] Hospital (n=1)[60] Unspecified (n=1)[61]
Cohort (n=4)	Community (n=1)[58] Hospital (n=1)[57] Long-term Care (n=1)[40] Unspecified (n=1)[59]
Case Series (n=5)	Community (n=1)[53] Hospital (n=3)[41,54,56] Unspecified (n=1)[55]
Review (n=5)	Long-term Care (n=1)[52] Unspecified (n=4)[48-51]
Case Study (n=6)	Hospital (n=5)[42-44,46,47] Unspecified (n=1)[45]
Chart Review (n=7)	Hospital (n=7)[26-32]
Cross-Sectional (n=7)	Community (n=1)[33] Hospital (n=4)[34,35,37,38] Hospice (n=2)[36,39]
Tools/Frameworks (n=8)	Hospital (n=3)[19,22,23,25] Unspecified (n=4)[18,20,21,24]
Guidelines (n=10)	Community (n=2)[8,15] Hospital (n=2)[13,17] Long-term Care (n=1)[11] Unspecified (n=5)[9,10,12,14,16]

6.3.2 Suggestions for Best Practice

Given the recent emergence of COVID-19, there are few well-established best practices for end of life care during this global pandemic. Much of the literature relies on observational and qualitative studies to provide evidence for guideline, tools, and framework development. Within this literature, there are common suggestions, or considerations. An overview of the suggestions identified by setting can be found in Figure 4, and a narrative synthesis of these suggestions follows.

Figure 4. Overview of Suggestions by Setting



6.3.2.1 Setting not Specified

Sixteen studies provided suggestions and considerations for unspecified settings (Table 6). Suggestions on communication, access to medication and equipment (e.g., personal protective equipment (PPE) and medical equipment), and early referral/advanced care planning were the most common for unspecified care settings. Given the isolation/quarantine protocols due to

COVID-19, many of the communication considerations relate to using virtual technology to reduce face-to-face interaction (e.g., telemedicine). Benefits of telemedicine reported by patients include increased access to care, reduced discomfort, reduced travel time, and reduced risk of health-care associated infections.[34] Additionally, enabling loved ones to be with the patient virtually during clinical rounds, and at end of life, alleviated some of the burden of isolation if in-person visits are restricted. Given the new challenges with end of life care during COVID-19 (e.g., isolation, prognosis of COVID-19 at end of life, etc.), early referral and advanced care planning is important to ensure patient treatment goals and preferences are met.[8,9,12,25]

Unique to unspecified settings were suggestions on staff well-being, patient- and family-centered care, and quality improvement. Considerations to help healthcare providers address and cope with the challenges of providing end of life care during COVID-19 include: encouraging self-care and improving emotional well-being of health care workers and caregivers,[24,50] implementing measures to improve connectedness among staff,[48] and offering healthcare providers psychological support to cope with their experiences.[12] While suggestions related to patient- and family-centered care are discussed in other settings (e.g., clear communication between healthcare provider, patient and family to respect the needs and preferences of the patient), framing the relationship between healthcare provider, patient, and family as a collaboration or partnership was unique to those in unspecified settings. For quality improvement, it is suggested that continuous monitoring be done using standardized information collection to inform operational changes and quality of services,[48] and establish standard and resource-stratified palliative care guidelines and protocols for different stages of a pandemic.[24]

Table 6. Suggestions for End of Life Care during COVID-19: Unspecified Setting

Suggestion	Considerations	Type of Evidence
Access to Medication and Equipment	• Monitor and ensure sufficient supplies of PPE, medications, intravenous catheters, lines, and diagnostic and monitoring equipment[10,48,50] • Provide training on rational use of opioid medications to primary caregivers and health-care professionals • Have a centralized stock of anticipatory prescribing medications which are available 24 hours a day,[33] and allow for re-use of anticipatory prescribing medications[33] • For palliative anticancer treatments: act according to age, the patient's general condition, co-morbidities, type of treatment (chemotherapy, immunotherapy, targeted therapy), line of treatment, stage and prognosis[14] • Strengthen networking among palliative care organizations and local care providers to facilitate access to care locally[60]	Two guidelines,[10,25] two frameworks,[14,24] one qualitative study,[60] one systematic review,[48] one cross-sectional study,[33] one cohort study,[59] and one rapid review[50]
Communication	• Utilize smartphone based technology to encourage the use of telemedicine, particularly to provide holistic care for those who are immunocompromised and unable to visit the hospital regularly;[8,9,34,35,53] benefits of telemedicine reported by patients include increased access to care, reduced discomfort, reduced travel time, and reduced risk of health-care associated infections[34] • Use virtual technology to enable social communication, such as daily phone call to family,[48 9 22,25] and include children when appropriate[22] • Equip community health workers to conduct home-based palliative care activities[24] • Enable families to virtually partake in health decisions[18,24] • "With virtual visits, acknowledge that a 'one-size-fits-all' mentality is a poor fit for the individualized needs of the heterogeneous palliative care population"[49] • Allow family members to participate in clinical rounds via virtual communication[61] • If the family is not present at time of death, have the physician call immediately to inform them, answer questions, and offer condolences[22]	Four guidelines,[8,9,12,25] three systematic reviews, [22,48,49] two frameworks, [18,24] two cross-sectional studies,[34,35] two qualitative studies,[60,61] one rapid review,[50] and one case series[53]
Early referral and Advanced	• Time from referral to death was significantly shorter during COVID-19 when compared with pre-	Four guidelines,[8,9,12,25] one chart review,[28] one

Suggestion	Considerations	Type of Evidence
Care Planning	COVID-19; people who are Black, Asian and minority ethnic groups are most likely to have delayed referral[28] • Rapid triage to assess likelihood of response to treatment and recognition of dying[48] • Early discussion of advanced care planning should be implemented to determine patient's preferences and treatment goals[8,9,12,21,25]	systematic review[48] and one framework[21]
Family- and Patient-Centered Care	• Encourage autonomy and individual choice such that "the patient's preferences, needs, values, expectations, and goals as well as the family's concerns, provide the foundation and framework for the palliative plan of care."[18] • Partnering with patients and caregivers to create a tailored care plan[18,25] • Assign a specific contact person for each patient to help ensure continuity of care and timely communication with families before and after death[25]	One framework,[18] and one guideline[25]
Patient/Family Well-being and Engagement	• Facilitation of socially distanced social activities with caregivers and patients[60] • Evaluate patients for distress using validated tools, and manage distress by providing access to emotional, psychological, and spiritual support including counseling, social work, chaplaincy and psychotherapy[10,12,18,25,51] • Enlist informal networks of community-based and faith-based organizations to tele-connect with patients in need of basic social support and deliver compassionate care[24,25] • Family members/loved ones should be invited and supported (e.g. being provided with PPE if indicated) to visit the dying patient with COVID-19 in person[12] • Family members/loved ones of deceased patients with COVID-19 should be offered bereavement support by healthcare professionals trained in palliative care or bereavement support[12,51] • Offer the following support to family members/loved ones: dedicated space, place where they can sit, put on music, offer beverages, place for them to change their clothes and PPE; any disturbances caused by the equipment should be managed (e.g., turn away monitors, turn off alarms)[51]	Three guidelines,[10,12,25] two frameworks,[18,24] and one qualitative study[60]
Staffing and Training	• Provide training in communication and bereavement counselling for non-specialist staff [12,24,48,50] • Restrict contact with volunteers, while encouraging them to make contributions to psychosocial	Two guidelines,[9,12] one systematic review,[48]

Suggestion	Considerations	Type of Evidence
	and bereavement care[48] • Allow for flexibility in deployment where staff can be moved from acute to community settings[9,48] • ”Staff taking care of patients with serious COVID-19 should receive training in optimizing clinician–patient communication whilst wearing personal protection equipment”[12]	one rapid review,[50] and one framework[24]
Staff Well-being and Engagement	• Encourage self-care, and practices such as debriefing to improve emotional well-being of health care workers and caregivers[24,50] • Implement measures to improve connectedness among staff, facilitate camaraderie[48] • Staff caring for patients with serious COVID-19 should be offered psychological support to cope with their experiences[12]	Three guidelines,[9,10,12] one systematic review,[48] one rapid review[50] and one framework[24]
Symptom Management and Patient Care	• Patients presenting with serious COVID-19 and distressing breathlessness despite optimal treatment of underlying causes should be given benzodiazepines, low-dose opioids for the palliative treatment of breathlessness[12] • Patients with serious COVID-19 in palliative care and distressing breathlessness should be given oxygen therapy for the palliative treatment of breathlessness when their transcutaneous oxygen saturation is <90% • Bridge elements of dermatology with the concepts of palliative medicine to help with the last stages of a patient’s journey[45] • Ensure patient comfort and pay attention to their physical appearance[51] • Have protocols in place for sedation and withdrawing vasoactive drugs[51] • Have procedures in place for: preparing and transporting the patient to a place designated for therapeutic withdrawal; stopping hydration and nutrition; withdrawing a ventilator when extubation should be avoided, including having the necessary protection in place and managing bodily fluids; withdrawing care; removing the equipment; and transporting the body of the deceased[51] • Palliative cancer care patients should be kept at home as much as possible, while maintaining contact by telemedicine[14]	One guideline,[12] one review,[51] one framework,[14] and one case study[45]

Suggestion	Considerations	Type of Evidence
Quality Improvement	• Continuous monitoring using standardized information collection to inform operational changes and quality of services[48] • Establish standard and resource-stratified palliative care guidelines and protocols for different stages of a pandemic and based on rapidly evolving situations and scenarios[24]	One systematic review,[48] one framework,[24] and one guideline[10]

6.3.2.2 Community Setting

Six studies reported suggestions for end of life care in a community setting (Table 7). Unique to providing care in the community setting are suggestions on how to reduce frequent home care visits. By using different methods to deliver medication to patients such as postal service, pharmacy deliveries, home delivery, or drive-through pick-up, the exposure between patient and healthcare provider can be reduced.[8,15,58] Suggestions for symptom management for patients in the community include coordinating services for patients returning home (e.g., ambulance service); preparing the caregiver to care for patient at home; helping ensure basic needs are met such as grocery and financial needs; and, coordinating last rituals.[60] Some guidance for patients in the community to cope with isolation include: maintaining a daily routine; engage in physical activities and spending time outdoors; schedule calls/video chats/virtual games; recognize events/milestones; and maintain patient autonomy, and consider online services or contactless services (e.g. pet therapy).[55]

Table 7. Suggestions for End of Life Care during COVID-19: Community Setting

Suggestion	Considerations	Type of Evidence
Access to Medication and Equipment	• Use different methods to deliver medication to patients such as postal service, pharmacy deliveries, home delivery, or drive-through pick-up; provide 2-4 weeks supply to avoid frequent home visits[8,15,58] • Increase access to palliative care in the community[50]	Two cohort studies,[15,58] one clinical guideline,[8] and one rapid review[50]
Patient/Family Well-being and Engagement	• Provide support and services such as: psychosocial support, and end of life care[15,58] • Discuss quality of life and screen for depression[55] • Contact via telephone to registered home care patients can provide extended support, diet consultation, physiotherapy advice and assessment of the need for a home care visit[15,58] • Encourage patients and caregivers to maintain a daily routine;[55,62] engage in physical activities and spend time outdoors, schedule calls/video chats/virtual games, recognize events/milestones, and maintain patient autonomy[55] • Consider online services or contactless services (e.g. pet therapy)[55]	Two cohort studies,[15,58] one qualitative study,[62] and one case series[55]
Staffing and Training	• Address learning needs for community healthcare staff to support family carers[50]	One rapid review[50]
Symptom Management and Patient Care	• Coordinate services for patients returning to home such as ambulance service, preparing caregiver to care for patient at home, helping ensure basic needs are met such as grocery and financial needs, and coordinating last rituals[60] • Manage cough with cough suppressant or honey if it is distressing, and encourage patients to avoid laying on their back[8] • Encourage patients to drink fluids regularly if they have fever[8] • Consider benzodiazepine to manage anxiety or agitation[8,62]	Two qualitative studies,[60,62] and one guideline[8]

6.3.2.3 Long-term Care Setting

Two studies reported suggestions and considerations in long-term care settings (Table 8). Considerations for long-term care settings are similar to those reported for unspecified, hospital, and hospice settings, including stockpiling medications, communication with family/caregivers about visitation restrictions, and using a frailty scale to inform decisions about care plan and treatment.[11]

Table 8. Suggestions for End of Life Care during COVID-19: Long-Term Care Setting

Suggestion	**Considerations**	**Type of Evidence**
Access to medication and Equipment	• Care homes should work with GPs and local pharmacists to ensure that they have a stock of anticipatory medications and the community prescription chart, to enable, at short notice, palliative care for residents	One guideline[11]
Patient/Family Well-being and Engagement	• Communicate openly about impending death[11] • Discuss visiting restrictions[11] • Specialists in pastoral/spiritual care should be present and part of the expanded care team and available to families and patients[11]	One guideline[11]
Symptom Management and Patient Care	• Health care professionals may find the Clinical Frailty Scale (CFS) to be a useful resource in making and discussing escalation decisions[11] • ‘‘If required, MPC [mobile palliative care] teams are...to be called in to residential and nursing homes to ensure optimal treatment.” [11]	One guideline[11]and one cohort study[40]
Preparation of the Body after Death	• To date, there is no evidence of infection from exposure to the body of someone who died from COVID-19; however, guidance on the preparation and transportation of the body must be followed[11]	One guideline[11]

6.3.2.4 Hospital Setting

Twenty-five studies reported suggestions and considerations for hospital setting (Table 9). Suggestions for hospital settings are similar to those in the unspecified setting, including a focus on facilitating virtual visits, early communication with family/caregivers to clarify end of life directives, and offering spiritual/psychological support to patient and families. Morris et al. [22] suggest a number of ways to mitigate the burden of isolation in hospital settings, including: asking families for photos so ICU teams can see who they were before becoming ill; asking families if the patient has a favorite type of music and play it in their hospital room; placing a "Getting to know you*"* poster on the patient's door; suggesting families make an audio recording that can be played by staff for the patient, telling them the things they would tell them in person; and, considering tracing handprints or making hand molds of the patient.

Table 9. Suggestions for End of Life Care during COVID-19: Hospital Setting

Suggestion	Considerations	Type of Evidence
Access to Medication and Equipment	• Provide health-care workers with proper PPE, medication kits, and equipment needed for patients; patients indicated fear of getting infected due to lack of available PPE • Provide a longer intravenous line so that medication pump could remain in the corridor for nursing to use as needed without re-entering the room[46] • Resources including availability of ICU beds, key medications such as sedatives and opioids, supportive treatments such as dialysis machines, and personal protective equipment within all hospitals should be closely monitored[13]	One cross-sectional survey,[37] one case study,[46] and one guideline[13]
Communication	• Do not restrict visitors; the psychosocial, and spiritual toll on patients and loved ones at end of life cannot be underestimated[46] • Use video conference to enable goals of care discussions with patients and their loved ones, enable access to spiritual, religious and existential care, guarantee the presence of family members in isolation at end of life[17,41,44,46,47,59] • Assess a family or patient's capacity to use a technology prior to setting up a session; some education or an interpreter may be required[17,43] • Train providers on how to set-up virtual visits with patient and their family, and source necessary equipment (e.g., tablet and adequate sound)[38] • Provide phones that automatically answer on the patient side when dialed to preserve PPE and limit nurses need to enter the room[46] • Build capacity for virtual care/telehealth;[10] palliative care physicians can provide education regarding the clinical situation and cultivate prognostic awareness using virtual care[41]	Six case studies,[41-44,46,47] two guidelines,[10,17] one tool,[19] one cohort study,[59] and one qualitative study[38]
Early Referral and Advanced Care Planning	• Have timely, clear and realistic conversations with families to clarify end of life directives for patients and their families to preserve values and respect for all those involved[10,13,17,27,31,42,59,63] • Foster relationship-based care early in the ICU stay[13] • Ensuring timely specialist consultation of palliative care, particularly given visitor restrictions and rapid decline of patients[17]	Three guidelines,[10,13,17] two chart reviews,[27,31] one case study,[42] one cohort study,[59] and one controlled non-randomized study[63]
Patient/Family Well-Being and	• Install windows in solid doors to improve assessment of patients' symptoms while allowing for PPE preservation and limiting nursing and provider's need to enter the room[46]	Three case studies,[42,46 47] two guideline,[13,17] and

Suggestion	Considerations	Type of Evidence
Engagement	• For ICU patients, ask families for photos so teams can see who they were before becoming ill[22] • Ask families if the patient has a favorite type of music and play it in their hospital room[22] • Place a *Getting to know you poster* on the patient's door, created by a staff member with a family member over the phone[22] • Suggest families make an audio recording that can be played by staff for the patient, telling them the things they would tell them in person[22] • Depending on infection status, consider tracing handprints or making hand molds of the patient[22] • Preparing the family regarding the patient's condition and what they might see in the ICU room[47] • Have a triage team available for consultation throughout the day with at least one ethicist, two senior healthcare professionals and a palliative medicine physician[13] • Provide psychological support for patient, family, and healthcare providers[13] • Help families and patients process their grief and feel supported at end of life[17]	one review[22]
Staffing and Training	• Use digital health solution that can bring palliative care resources to frontline clinicians (e.g., PalliCOVID)[20] • Enable current care nurses to provide palliative sedation during other scheduled medication administration to limit health care worker exposure and PPE usage[46] • Involve palliative medicine team in supporting healthcare professionals in the ICU and those caring for patients not allocated ICU beds[13]	One guideline,[13] one tool,[20] and one case study[46]
Symptom Management and Patient Care	• Advocate for adequate sedation of patients receiving mechanical ventilation when appropriate[17] • Ensure adequate pain management for patients with chronic or cancer pain, in addition to sedatives and necessary anxiolytic support[17] • Treatment of dyspnea, gastrointestinal distress and other symptoms to optimize comfort and function[17] • Partner with palliative care pharmacist and other specialists for complex symptoms and patients with multimorbidity[17] • Use the Preadmission Palliative Performance Scale to predict mortality in patients hospitalized with COVID-19, and to make informed decisions about life-sustaining therapy[57] • Use standardized order sheets and protocols with precise instructions in order to make adjustments to medications as quickly as possible[42]	Two case studies,[42,46] one cohort study,[57] and one guideline[17]

6.3.2.5 Hospice Setting

Two studies reported suggestions and considerations for hospice setting (Table 10). Many of the suggestions overlap with suggestions in other settings, including utilizing telehealth and virtual visitation to reduce exposure and reduce feelings of isolation, having adequate PPE to protect staff, and providing psychological and bereavement support for families.

Table 10. Suggestions for End of Life Care during COVID-19: Hospice Setting

Suggestion	Considerations	Type of Evidence
Access to Medication and Equipment	• Protection of health care providers against COVID-19 through use of barrier precautions should be the highest priority to avoid illness and mitigate psychological distress. Suggestion of hand hygiene, mask, gown, goggles and gloves to be used for any confirmed or suspected COVID-19 case[36] • Reduce use of personal protective equipment by using telehealth services[39]	Two cross-sectional surveys[36,39]
Patient/Family Well-Being and Engagement	• Daily phone calls facilitated between families and patients[36] • Telehealth solutions used more generally in palliative care and hospice may contribute to cost savings, increased clinical effectiveness, and increased quality of care[39] • Telehealth increases feelings of connection to providers among palliative care and hospice patients in rural settings; video telehealth was perceived to improve access and enhance feelings of connection between patients and providers[39]	Two cross-sectional surveys[36,39]
Staffing and Training	• Education on symptom management and end of life care[36] • Involvement of allied care workers in providing psychological and bereavement support[36]	One cross-sectional survey[36]
Symptom Management and Patient Care	• Develop setting-specific guidelines for end of life care[36]	One cross-sectional survey[36]

6.3.3 Symptoms of COVID-19 at End of Life

Ten studies reported COVID-19 symptoms specific to those who were at end of life (Table 11). Patients were all adults, predominately over 65 years of age. There was a wide variety of symptoms, with the most being delirium, dyspnea, fever, and agitation. The least commonly reported symptoms were tachypnea, runny nose, myoclonus, headache, discomfort, decreased appetite, and anxiety.

Table 11. Symptoms of COVID-19 at End of Life

		Chart Reviews						**Case Study/Case Series**		**Review**	**Guideline**
		Chidiac et al.[28]	Alderman et al.[26]	Heath et al.[29]	Sun et al.[32]	Hetherington et al.[30]	Lovell et al.[56]	Pahuja et al.[46]	Rao et al.[41]	Perrotta et al.[52]	Damani et al.[10]
Symptoms	Agitation	X	X	X		X	X				
	Anxiety				X						
	Breathlessness	X	X	X			X				
	Chills								X		
	Cough					X	X		X	X	
	Decreased Appetite							X			
	Delirium		X	X	X	X	X				X
	Diarrhea							X	X	X	
	Discomfort										X
	Drowsiness or Weakness	X				X	X	X			
	Dyspnea				X	X			X	X	X
	Fever	X				X	X		X	X	
	Headache									X	
	Myoclonus				X						
	Nausea				X			X			
	Pain				X	X	X				X
	Pneumonia									X	
	Runny Nose									X	
	Sputum					X	X			X	
	Tachypnea									X	
	Vomiting				X			X			

6.4 Conclusions

We conducted a rapid review to synthesize the published literature on best practices for care and support of persons receiving end of life care in the community, long-term care facilities, hospice, or hospital during the COVID-19 pandemic. Of the 1,140 citations captured in our search, 56 met our inclusion criteria. Of the included studies, we identified ten overarching suggestions for best practices in caring and supporting patients, and their families, at end of life during COVID-19. Suggestions were stratified by care setting: unspecified, community, long-term care, hospital, and hospice. Most of the studies were guidelines, tools/frameworks, or observational studies conducted in the United States, United Kingdom, and India. Quality assessment was not conducted due to the range of study designs included. No meaningful comparative quality assessment was feasible.

Based on the literature synthesized in this rapid review, it appears that there are no "one-size-fits-all" recommendations for best practice, but rather an extensive list of considerations to be made based on the setting of care, the patient's needs, and needs of the families and healthcare providers. Many suggestions consider the impact isolation has had on end of life care, and acknowledge that needs of the patient and their family/caregivers may have changed due to the COVID-19 pandemic. There is general consensus across settings that visitor restrictions are not encouraged. However, given the varying public health protocols in place, if in-person visitation must be restricted, virtual visits must be supported. This requires adequate infrastructure (e.g., tablets, internet connection, trained staff) to enable successful connection between patients and their loved ones. Early and transparent communication between healthcare providers and the patient and their family were often discussed, as it is a necessity for allowing the patient and family to make appropriate decisions about the patient's care and treatment plan. Being transparent about how COVID-19 has impacted end of life care (e.g., isolation, prognosis if patient should contract COVID-19) is crucial to ensure the patient's needs and wishes are met. Additionally, social, psychological, and spiritual support may be more important now than ever given the additional burden of isolation and feelings of uncertainty COVID-19 has placed on end of life care. Many studies suggested that a collaborative effort between the healthcare team, community (e.g., social) networks, spiritual guidance, and counselling may best support the patient and their family. There were some innovative ideas for reducing PPE use such as utilizing

telehealth to limit face-to-face interaction, and providing medication within the community setting by utilizing different medication delivery services to reduce home care visits.

Given the recent emergence and rapidly evolving impacts of COVID-19, extensive best practices on delivering end of life care during this pandemic have not yet been developed. However, the results of this rapid review provide the most up-to-date suggestions to provide effective end of life care that mitigates the burden of isolation, meets the wishes of the patient and loved ones, and supports the healthcare providers.

7 Rapid Review on Effective Technology Use during COVID-19 Isolation or Quarantine

Summary:

- A rapid review identified seven studies examining the effective use of technology to support individuals during COVID-19 isolation or quarantine.
- Four broad categories of technologies were identified: 1) provider-initiated active teleconsultations; 2) Zoom-based training/interventions; 3) interactive technology; and 4) apps offering medical advice.
- Provider-initiated teleconsultations resulted in improved quality of life for patients with chronic skin diseases, reductions in anxiety and depression in patients quarantined due to suspected COVID-19, and prevented deterioration in cognitive status and quality of life in patients with a neurocognitive disorder.
- Zoom-based fitness classes resulted in reductions in anxiety in patients with cancer, and Zoom-based training for patients with type 1 diabetes led to comparable glycemic outcomes to face-to-face training.
- Older adults with mild cognitive impairment or mild dementia who used a television-based assistive integrated technology performed significantly more memory exercises than their counterparts who only received regular care; no other significant differences in health, well-being, or activities performed were observed.
- Use of a medical advice app resulted in shorter time to treatment in patients diagnosed with acute STEMI who underwent primary PCI compared to patients who did not use the app; no differences were observed with respect to in-hospital and 30-day adverse events following the primary PCI procedure.
- Technology interventions appear to be helpful substitutes for regular care when in-person communication is not possible, such as during COVID-19 isolation/quarantine. However, these results should be interpreted with caution given the limited quantity and quality of the literature identified.

7.1 Purpose

To synthesize the published literature on the effective use of technology or other "distance tools" to support individuals (and/or their families, friends, and caregivers) during COVID-19 isolation or quarantine.

7.2 Methods

7.2.1 Search Strategy

A rapid review was completed. The literature search was conducted by following the Cochrane interim guidance for rapid reviews.[1] MEDLINE and CINAHL were searched for studies. Given that COVID-19 emerged in 2019, the search was limited to studies published from 2019 until

October 3, 2020. Terms aimed at capturing the technologies of interest, including “telemedicine” and “telehealth” were combined with virus terms, such as “coronavirus” and “COVID-19,” using the Boolean Operator “and.” Terms were searched as text words in titles and abstracts and as MeSH subject headings when applicable. The search was limited to English or French language studies. The search strategy was developed by a research librarian and peer review of electronic search strategies (PRESS) was conducted by another research librarian.[2] The full search strategy is available in Appendix C.

In recognition of the rapid development of literature on COVID-19, Google scholar was searched for grey literature or literature not yet peer-reviewed. The reference lists of any systematic reviews identified during abstract or full-text review were hand-searched to ensure all relevant literature was captured. This rapid review was registered in the International Prospective Register of Systematic Reviews (PROSPERO - CRD42020211089).

7.2.2 Study Selection

Screening calibration was completed by all reviewers involved in this rapid review prior to starting abstract screening and full-text screening. After >70% agreement was reached, screening of citations was completed by two independent reviewers using Microsoft Excel. Abstracts proceeded to full-text review if they: reported on individuals (or families, friends, or caregivers) who are socially isolated or quarantined due to COVID-19; reported on technology or “distance tools” which aim to improve health or quality of life while isolated; reported on the health impact, mental health impact, or quality of life related to the technology intervention; and included any or no comparator. Citations were excluded if they failed to meet the inclusion criteria above, or if they: were editorials, letters, reviews, case studies, or commentaries; or were published in languages other than English or French (Table 12). All abstracts selected for inclusion by any reviewer proceeded to full-text review. This initial screen was intentionally broad to ensure that all relevant literature was captured.

Studies included after abstract review proceeded to full-text review. Full-text review was completed by four independent reviewers. All studies selected for inclusion by any reviewer at the full-text screening stage proceeded to data extraction.

Table 12. Inclusion and Exclusion Criteria for Rapid Review of Technology

Inclusion Criteria	Exclusion Criteria

• Individuals (or families, friends, caregivers) who are socially isolated or quarantined due to COVID-19
  ○ Social isolation may be due to general social isolation related to the pandemic
  ○ OR could be due to mandatory quarantine from testing positive or being identified as a close contact
• Technology or "distance tools" which aim to improve health or quality of life while isolated. Examples include (but are not limited to):
  ○ Telehealth/telemedicine
  ○ Telephones
  ○ Video calls/FaceTime/Zoom
  ○ Virtual reality
  ○ Window visits
  ○ Online support tools
• Any, or no comparator
• Reported health related impact, mental health impact, or quality of life outcome
	• Commentaries, reviews, editorials, letters, and case studies
	• Studies published in languages other than English or French

7.2.3 Data Extraction and Analysis

Data were extracted by a single reviewer using a standard data extraction form and verified by another reviewer. For all studies, year of publication, country, study design characteristics, patient demographics, and health outcomes were extracted. Discrepancies between reviewers during data extraction were resolved through consensus. Data were analyzed using a narrative synthesis methodology. Similar technologies were grouped together, and findings for each study were summarized individually.

7.2.4 Quality Assessment

Quality assessment was conducted using the ROBINS-I tool,[64] which assesses the following potential risk of bias domains: confounding, selection of participants into the study, classification of interventions, deviations from intended interventions, missing data, measurement of outcomes, reporting of results, and overall risk of bias. Signaling questions across the seven

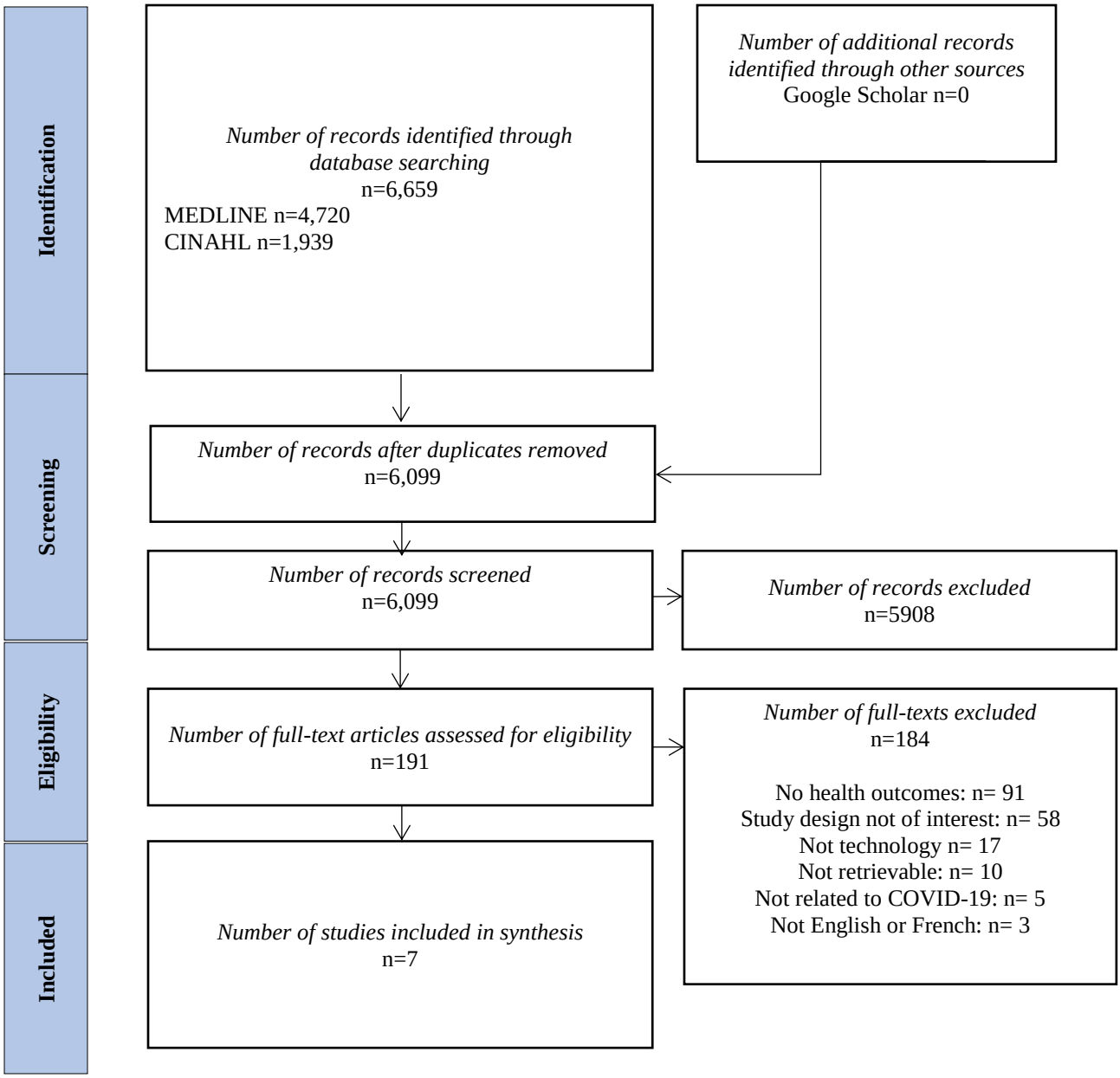
domains are answered using the following response options: “yes,” “probably yes,” “no,” “probably no,” “not applicable,” and “no information.” Based on these answers, risk of bias for each domain and the overall study is rated as either: “low,” “moderate,” “serious,” “critical,” or “no information.”

7.3 Results

7.3.1 Study Characteristics

The database search yielded 6,659 unique citations. After abstract review, 191 studies proceeded to full-text review. One hundred and eighty-four studies were excluded for the following reasons: no health outcomes reported (n=91); study design not of interest (n=58); not technology (n=17); not retrievable (n=10); not related to COVID-19 (n=5); and not in English or French (n=3). A total of seven relevant studies were included in the final dataset (Figure 5).

Figure 5. PRISMA Flowchart of Included Studies



All included studies were observational cohort studies published in 2020 (Table 14). Three of the studies were from China,[6,65,66] two from the USA,[67,68] one from Italy,[69] and one from Spain.[5] Two of the studies focused on the community setting,[5,6] one reported on patients quarantined in a hospital,[66] two focused on virtual Zoom presentations for community dwelling patients,[67,68], and one did not report the setting but it appeared to report on a community setting.[69] Populations examined across studies were: older adults with mild cognitive impairment or mild dementia,[5] older adults with neurocognitive disorder (NCD) and their caregivers,[6] patients with chronic skin diseases,[69] patients diagnosed with acute ST segment elevation myocardial infarction (STEMI) who underwent primary percutaneous coronary intervention (PCI),[65] adults with cancer,[67] individuals with type 1 diabetes,[68] and adults in quarantine suspected of having COVID-19 disease.[66]

7.3.2 Quality Assessment

Quality assessment was conducted using the ROBINS-I tool (Table 13).[64] All studies were assessed to have a serious risk bias with respect to confounding, except for one study[6] which had a moderate risk. The risk of bias with respect to participant selection was generally low, but was found to be moderate in one study,[67] serious in another study,[65] and critical in one study.[68] Studies were generally at a low risk of bias for missing data, except for one study which was at a serious risk[67] and another study which had no information.[68] The risk of bias stemming from measurement of outcomes was found to be low or moderate in most studies but serious in one study.[67] All studies were at a low risk of bias with respect to classification of interventions, deviations from intended interventions, and selection of reported results. The overall risk of bias was deemed to be serious in four studies, moderate in one study,[6] and critical in another.[68]

Table 13. Quality Assessment of Studies Included in the Technology Rapid Review

Author, Year	Confounding	Selection of Participants	Classification of Interventions	Deviations from Intended Interventions	Missing Data	Measurement of Outcomes	Selection of Reported Results	Overall Bias
Goodman-Casanova, 2020[5]	Serious	Low	Low	Low	Low	Moderate	Low	Serious
Lai, 2020[6]	Moderate	Low	Low	Low	Low	Low	Low	Moderate
Marasca, 2020[69]	Serious	Low	Low	Low	Low	Moderate	Low	Serious
Nan, 2020[65]	Serious	Serious	Low	Low	Low	Low	Low	Serious
Trevino, 2020[67]	Serious	Moderate	Low	Low	Serious	Serious	Low	Serious
Vigersky, 2020[68]	Serious	Critical	Low	Low	No information	Low	Low	Critical
Zhou, 2020[66]	Serious	Low	Low	Low	Low	Moderate	Low	Serious

7.3.3 Themes Identified

Technology interventions examined across studies broadly fell into four categories (

Figure 6): provider-initiated active teleconsultations;[6,66,69] Zoom-based training/interventions;[67,68] interactive technology aiming to boost patient knowledge, interaction, and cognitive stimulation;[5] and apps offering medical advice upon patient request.[65] Studies across these four categories are synthesized individually below, with a summary provided in

Table 15. Full findings from the included studies are reported in Appendix C.

Figure 6. Technology Interventions Identified in the Technology Rapid Review

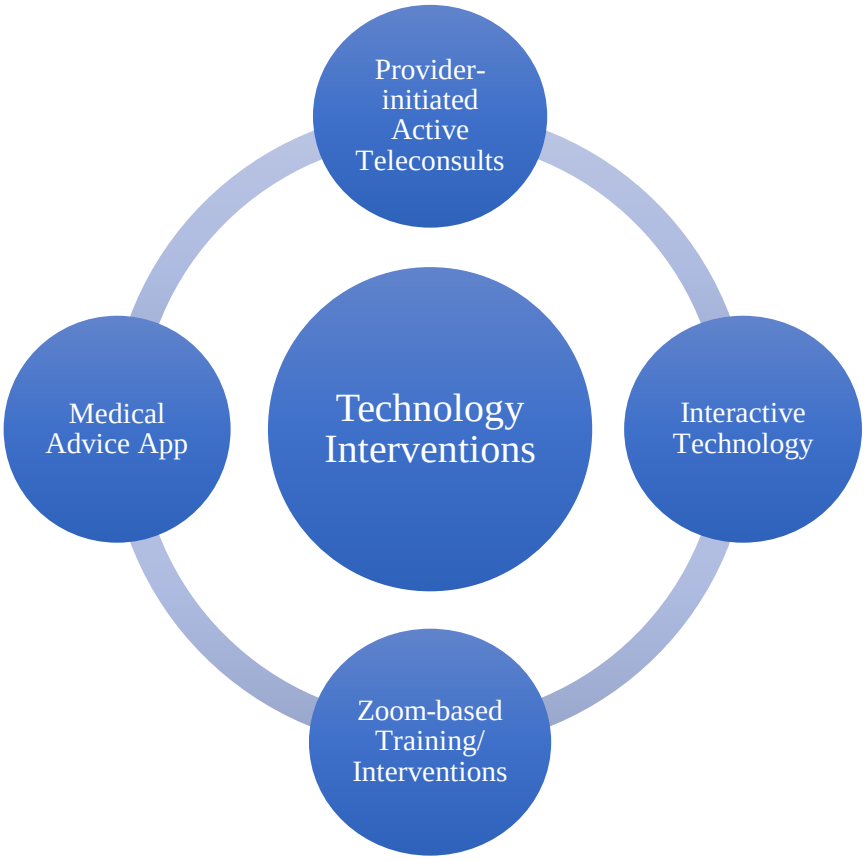


Table 14. Characteristics and Findings from Studies Included in the Technology Rapid Review

Author, Country	Setting	Population	Technology Intervention	Comparator	Findings
Interactive Technology					
Goodman-Casanova, Spain[5]	Community	Older adults with mild cognitive impairment or mild dementia (n=93)	TV-AssistDem (n=47): • Television-based interface, a webcam, and a centralized back-end service with a web-based interface. • Provides visualization of videos of physical activity at home; communication with loved ones and health professionals through video calls; and cognitive stimulation with Stimulus memory games. • COVID-19 adaptations include detailed information on COVID-19; videos on recommendations and basic care measures, such as hand washing. • Given daily access to the service in their home environment and received follow-up visits at 6 and 12 months.	Treatment as usual (n=46); received follow-up visits at 6 and 12 months	• Respondents with TV-AssistDem performed more memory exercises (24/93, 52% vs 8/93, 17.4%; p<.001) than control respondents. • Significantly more respondents in the control group kept pets or plants compared to the TV-AssistDem group respondents (10/93 vs 2/93, p=0.01) • There were no significant differences in health, well-being, or activities performed between the intervention and control groups.
Provider-initiated Active Teleconsultations					
Lai, China[6]	Community	Older adults with neurocognitive disorder (NCD) and their caregivers (n=60 patients and 60 caregivers)	Telephone + video care service (n=30): • Caregivers received weekly telephone calls for 4 weeks covering topics and information relevant to older adults' well-being of community living, focusing on healthy aging, psychosocial needs, and physical well-being. • Caregivers also received weekly 30 minutes health services delivered through video communication apps, namely, Zoom, WhatsApp, or	Telephone care service only (n=30): • Caregivers received weekly telephone calls for 4 weeks covering topics and information relevant to older adults' well-being of community living, focusing on	For patients: • Intervention significantly prevented the deterioration in cognitive status [MoCA: p <0.001, η_p^2 = 0.50) and quality of life [QoL-AD: p <0.001, η_p^2 =0.23] which was observed in the control group. • No differences in problem behaviours (RMBPC) For caregivers:

Author, Country	Setting	Population	Technology Intervention	Comparator	Findings
			FaceTime. The NCD care-recipients were always present during video conference, and the healthcare provider was able to communicate directly to them.	healthy aging, psychosocial needs, and physical well-being.	• Intervention resulted in significant improvements in physical and mental health [SF36v2: $p < 0.001$, $\eta_p^2 = 0.51$ and $p < 0.001$, $\eta_p^2 = 0.46$, respectively] perceived burden [ZBI: $p < 0.001$, $\eta_p^2 = 0.25$)] and self-efficacy [RCSES: $p < 0.001$, $\eta_p^2 = 0.23$], which were not observed in the control group. There was a strong positive correlation between patient improvement and caregiver improvement in the intervention group [$r = +0.50$, $df = 28$, $p = 0.005$, $R^2 = 0.25$] but not in the control group [$r = +0.07$, $df = 28$, $p = 0.70$, $R^2 = 0.005$].
Marasca, Italy[69]	NR (presumably community)	Chronic skin diseases (n=23)	Psychological video-consultations through the clinic's teledermatology-services; 3 consultations performed for each patient every 2 weeks	None	• Intervention resulted in significant improvements in DLQI from baseline to weeks 2 and 4 (both $p<0.05$) but no change in PGWB.
Zhou, China[66]	Hospital (quarantine wards)	Adults in quarantine suspected of having COVID-19 disease (n=15)	WeChat™-based individual consultation: • Two 10-minute WeChat consultation sessions scheduled daily during quarantine. The intervention was based on individual patient's need. The in-charge nurse first listened to the patients and then tried to help them through positive dialogues and	None	• Intervention resulted in significant improvements in anxiety and depression symptoms, as measured by the HADS, HADS-A, and HADS-D (all $p<0.01$)

Author, Country	Setting	Population	Technology Intervention	Comparator	Findings
			emotional and material supports. The in-charge nurse also provided accurate, comprehensive, and timely information about COVID-19 and successful stories of other quarantined patients.		
Medical Advice App					
Nan, China[65]	Hospital, Community	Patients diagnosed with acute ST segment elevation myocardial infarction (STEMI) (n=60)	Tiantanzhixin app (n=8): • Allows patients to communicate with doctors online anytime using voice messages, text messages, or pictures. Trained professionals answer the patients' questions. • All of the patients who visited the outpatient clinic or chest pain center, or were hospitalized in the department for any reason were recommended to install this app.	No app use (n=52)	• Patients who used the Tiantanzhixin app had significantly shorter time from symptom onset to calling an ambulance (p=0.007), door to balloon time (p=0.01), and total ischemia time (p=0.001) than patients who did not use the app. • There were no significant differences between groups with respect to time from calling an ambulance to first medical contact, time from first medical contact hospital arrival time, and in-hospital and 30-day adverse events following the primary PCI procedure.
Zoom-based Training/Interventions					
Trevino, USA[67]	Virtual; Community; Academic cancer center	Adults with cancer (n=3902)	30-45 minutes of free mind-body group therapy sessions in fitness, meditation, yoga, dance, tai chi, and music delivered by an integrative medicine clinician using Zoom video conferencing	None	• Intervention resulted in reduced stress and anxiety, with 83.8% (n=3268) of participants reporting extreme anxiety/stress reductions. • Anxiety/stress reduction ratings were highest for music and

Author, Country	Setting	Population	Technology Intervention	Comparator	Findings
					fitness classes ($p < 0.001$).
Vigersky, USA[68]	Virtual; Community	Individuals with type 1 diabetes (n=NR)	Training on MiniMed 670 G system use conducted via Zoom video conferencing application (conducted during COVID-19)	In-person training on the MiniMed 670 G system; usually done in three sessions (conducted pre-COVID-19)	• Participants who completed the Zoom training and participants who completed the in-person training had comparable glycemic outcomes

Abbreviations: COVID-19: Coronavirus Disease 2019; DLQI: Dermatology Life Quality Index; HADS: Hospital Anxiety and Depression Scale; MoCA: Montreal Cognitive Assessment; n: number; NCD: neurocognitive disorder; NR: not reported; PCI: percutaneous coronary intervention; PGWB: Psychological General Well-Being Index; QoL-AD: Quality of Life in Alzheimer's Disease; RCSES: Revised Caregiving Self-Efficacy Scale; RMBPC: Revised Memory and Behavior Problem Checklist; SF36v2: Short Form 36 version 2; STEMI: ST segment elevation myocardial infarction; ZBI: Zarit Burden Interview Scale

7.3.4 Findings

7.3.4.1 Provider-initiated Active Teleconsultations

Lai et al. found that a telephone plus video consultation (n=30) resulted in more favorable outcomes than a telephone-only teleconsultation (n=30) in community dwelling older adults with neurocognitive disorder and their caregivers.[6] Both groups received telephone consultations delivered weekly for four weeks, which provided information relevant to older adults' well-being, focusing on healthy aging, psychosocial needs, and physical health. Caregivers in the telephone plus video group also received a weekly 30-minute health services consultation delivered through video communication apps, namely, Zoom, WhatsApp, or FaceTime. In patients, the telephone and video intervention was found to significantly prevent deterioration in cognitive status (Montreal Cognitive Assessment [MoCA]: $p < 0.001$, $\eta_p^2 = 0.50$) and quality of life (Quality of Life in Alzheimer's Disease [QoL-AD]: $p < 0.001$, $\eta_p^2 = 0.23$); deterioration was observed in the telephone only group. No significant differences were observed in problem behaviours (as per Revised Memory and Behavior Problem Checklist [RMBPC] scores). In caregivers, the telephone and video intervention resulted in significant improvements in physical and mental health (Short Form 36 version 2 [SF36v2]: $p < 0.001$, $\eta_p^2 = 0.51$ and $p < 0.001$, $\eta_p^2 = 0.46$, respectively), perceived burden (Zarit Burden Interview Scale [ZBI]: $p < 0.001$, $\eta_p^2 = 0.25$)]), and self-efficacy (Revised Caregiving Self-Efficacy Scale [RCSES]: $p < 0.001$, $\eta_p^2 = 0.23$), which were not observed in the telephone only group. Patient improvement was strongly related to caregiver improvement in the telephone and video group ($r = +0.50$, $df = 28$, $p = 0.005$, $R^2 = 0.25$) but not in the telephone only group.

Psychological video-consultations provided to patients with chronic skin diseases (n=23) in a study by Marasca et al. resulted in significant improvements in health-related quality of life.[69] Three psychological video-consultations were performed for each patient every two weeks; setting was not provided, but patients were presumed to reside in the community. Significant improvements were observed from baseline to weeks two and four in the patients' Dermatology Life Quality Index (DLQI) scores (both $p<0.05$) but not in Psychological General Well-Being (PGWB) Index scores.

In a study by Zhou et al. WeChat-based individual consultations resulted in significant improvements in psychological symptoms in hospitalized patients (n=15) quarantined due to suspected COVID-19.[66] Two 10-minute WeChat consultations were delivered daily during quarantine and provided patients with material and emotional supports, and accurate information about COVID-19. The intervention resulted in significant improvements from baseline in patients' anxiety and depression symptoms, as measured by their Hospital Anxiety and Depression Scale (HADS), HADS-Anxiety (HADS-A), and HADS-Depression (HADS-D) scores (all $p<0.01$).

7.3.4.2 Zoom-based Training/Interventions

Trevino et al. found that fitness sessions delivered via Zoom resulted in reduced stress and anxiety in community dwelling adults with cancer (n=3902).[67] The sessions were free, 30-45 minutes long, and focused on fitness, meditation, yoga, dance, tai chi, and music. The Zoom fitness sessions led to reduced stress and anxiety, with 83.8% of participants reporting extreme anxiety/stress reductions; the largest improvement in anxiety/stress was seen for music and fitness classes ($p<0.001$).

In a study by Vigersky et al., Zoom training sessions on using a closed-loop system (MiniMed 670G) led to comparable glycemic outcomes in patients with type 1 diabetes who completed the training in-person pre-COVID-19.[68] Sample size was not reported.

7.3.4.3 Interactive Technology

Goodman-Casanova et al. found that community-dwelling older adults with mild cognitive impairment or mild dementia (n=93) performed significantly more memory exercises after using a television-based assistive integrated technology (TV-AssistDem; n=47) than did their counterparts who received treatment as usual (n=46).[5] TV-AssistDem is a home-based service that provides visualization of videos of physical activity at home; communication with loved ones and health professionals through videocalls; and, cognitive stimulation with Stimulus memory games. Participants in the TV-AssistDem group were given daily access in their home environment. Both groups were followed up at six and 12 months. Participants in the TV-AssistDem group performed significantly more memory exercises than participants in the control

group (24/93, 52% versus 8/93, 17.4%, respectively; p<.001). Participants in the control group kept significantly more pets or plants compared to the TV-AssistDem participants (10/93 versus 2/93, p=0.01). Otherwise, there were no significant differences in health, well-being, or activities performed between the two groups.

7.3.4.4 Medical Advice App

In a study by Nan et al., use of a medical advice app (Tiantanzhixin app; n=8) resulted in shorter time to treatment in patients diagnosed with acute ST segment elevation myocardial infarction (STEMI) who underwent primary PCI compared to patients who did not use the app (n=52).[65] The Tiantanzhixin app allows patients to communicate with doctors online anytime using voice messages, text messages, or pictures; patients' questions are answered by trained professionals. All of the patients who visited the authors' outpatient clinic or chest pain center, or were hospitalized in the department for any reason were recommended to install this app. STEMI patients who underwent PCI and used the app had significantly shorter time from symptom onset to calling an ambulance (p=0.007), door to balloon time (p=0.01), and total ischemia time (p=0.001), than patients who did not use the app. There were no significant differences between groups with respect to time from calling an ambulance to first medical contact, time from first medical contact hospital arrival time, and in-hospital and 30-day adverse events following the primary PCI procedure.

Table 15. Summary of Findings from Technology Intervention Studies

Technology Intervention	Health Outcomes with No Statistically Significant Change	Health Outcomes with Statistically Significant Improvement
Telephone plus video teleconsultation	Problem behaviours in patients (RMBPC scale)	Prevention of deterioration in cognitive functioning (MoCA scale) and quality of life (QoL-AD scale) in patients; physical and mental health (SF36v2 scale), perceived burden (ZBI scale), and self-efficacy (RCSES scale) in caregivers
Psychological video-consultation	Quality of life (PGWB scale)	Quality of life (DLQI scale)
WeChat Consultation	--	Anxiety (HADS-A scale), depression (HADS-D scale)
Zoom Fitness and Music Classes	Stress, anxiety	--
Zoom Training Sessions	Glycemic outcomes	--
TV-AssistDem	Health, well-being, activities performed	More memory exercises performed
Medical Advice Support App	Time from calling an ambulance to first medical contact, time from first medical contact hospital arrival time, in-hospital and 30-day adverse events following the primary PCI procedure	Shorter time from symptom onset to calling an ambulance, door to balloon time, total ischemia time

Abbreviations: DLQI: Dermatology Life Quality Index; HADS: Hospital Anxiety and Depression Scale; MoCA: Montreal Cognitive Assessment; PCI: Percutaneous Coronary Intervention; PGWB: Psychological General Well-Being Index; QoL-AD: Quality of Life in Alzheimer's Disease; RCSES: Revised Caregiving Self-Efficacy Scale; RMBPC: Revised Memory and Behavior Problem Checklist; SF36v2: Short Form 36 version 2; ZBI: Zarit Burden Interview Scale

7.4 Conclusions

This rapid review examined the published literature on the effective use of technology or other "distance tools" to support individuals (and/or their families, friends, and caregivers) during COVID-19 isolation or quarantine. Seven studies were included. Technology interventions examined across studies broadly fell into four categories: 1) provider-initiated active teleconsultations; 2) Zoom-based training/interventions; 3) interactive technology aiming to boost patient knowledge, interaction, and cognitive stimulation; and 4) an app offering medical advice upon patient request.

Across studies, technology interventions administered through Zoom, apps, telephone and video conferencing, and TV generally resulted in health outcomes that were either beneficial or comparable to regular care. As a result, technology interventions appear to be helpful substitutes for regular care when in-person communication is not possible, such as during COVID-19 isolation/quarantine. Given that many people are experiencing social isolation during the pandemic, some potential benefit experienced from technology interventions is advantageous. However, these results should be interpreted with caution given the scarcity and the quality of the literature identified. Most studies were judged to be at a serious risk for bias. Furthermore, many of them were characterized by considerable methodological flaws: notably, some had very small sample sizes (e.g., n=8 in the technology group); about half did not use validated outcome measures; and about half did not have a control group. Future studies should include larger sample sizes, use validated outcome measures, and include a control group.

8 Report Conclusions

This report presents an evidence synthesis on best care practices for persons with cognitive impairments and persons who are at end-of-life during COVID-19, as well as effective use of technology during COVID-19. Three rapid reviews were conducted focusing on: 1) care and engagement of persons with cognitive impairments who are socially isolated/quarantined, 2) care and support of persons who are at end-of-life, and 3) effective use of technology to support patients (and/or their families, friends, or caregivers).

Five studies were included in the rapid review of best practices for care and engagement for persons with cognitive impairments who are required to isolate/quarantine during COVID-19. Suggestions for care and engagement broadly focused on the use of telehealth services, cognitive stimulation, and social support for caregivers. All studies focused on the community setting; no recommendations for hospitalized persons or those in long-term or supportive care facilities were identified. Evidence suggests that multi-modal telehealth services, including online, telephone, and videoconferencing methods, are important for the well-being of community dwelling persons with cognitive impairment during COVID-19 confinement. The importance of continuous cognitive and environmental stimulation for this patient group, as well as social support for their caregivers was also highlighted.

Fifty-six studies were identified in the rapid review of best care practices for persons at end-of-life during COVID-19. Most of the included studies were guidelines, tools/frameworks, and observational studies conducted in the United States, United Kingdom, and India. Studies generally focused on how isolation and uncertainty have changed the needs of patients and their families at end-of-life due to COVID-19. The practices reported most often were related to communication; patient and family support/well-being and symptom management; and, adequate medication and equipment supply. Based on the literature synthesized in this rapid review, it appears that there are no “one-size-fits-all” recommendations for best practice, but rather an extensive list of practices to consider based on the setting of care, the patient’s needs, and needs of the families and healthcare providers.

Seven studies were included in the rapid review of effective technology use to support individuals during COVID-19 isolation or quarantine. Four broad categories of technologies were identified: 1) provider-initiated active teleconsultations; 2) Zoom-based training/interventions; 3) interactive technology; and 4) an app offering medical advice. Across studies, technology interventions administered through Zoom, apps, telephone and video conferencing, and TV generally resulted in health outcomes that were either beneficial or comparable to regular care. As a result, technology interventions appear to be helpful substitutes for regular care when in-person communication is not possible, such as during COVID-19 isolation/quarantine. However, these results should be interpreted with caution given the scarcity and the quality of the literature identified.

Overall, the findings of this evidence synthesis suggest that the literature related to best care practices of patients who are cognitively impaired or are at end-of-life and the literature on effective technology use during COVID-19 is limited. The most robust evidence was identified for best care practices of patients at end-of-life, broadly suggesting that care should be tailored to the needs of the patient, their family, and healthcare providers, as well as the setting of care. Limited evidence suggests that care of persons with cognitive impairment should emphasize communication, cognitive stimulation, and social support for the patients and their caregivers. Lastly, technology interventions appear to be broadly beneficial, or at least comparable, to regular care for the select groups of patients included in the studies, can be administered in a multitude of modalities, including Zoom, apps, telephone and video conferencing, and TV-based interventions, and represent helpful substitutes for regular care when in-person communication is not possible.

9 References

1. Garritty C, Gartlehner G, Kamel C, et al. Cochrane Rapid Reviews. Interim Guidance from the Cochrane Rapid Reviews Methods Group. 2020.
2. McGowan J, Sampson M, Salzwedel DM, Cogo E, Foerster V, Lefebvre C. PRESS peer review of electronic search strategies: 2015 guideline statement. *Journal of clinical epidemiology.* 2016;75:40-46.
3. Boutoleau-Bretonniere C, Pouclet-Courtemanche H, Gillet A, et al. The Effects of Confinement on Neuropsychiatric Symptoms in Alzheimer's Disease During the COVID-19 Crisis. *J Alzheimers Dis.* 2020;76(1):41-47.
4. D'Cruz M, Banerjee D. 'An invisible human rights crisis': The marginalization of older adults during the COVID-19 pandemic - An advocacy review. *Psychiatry Res.* 2020;292:113369.
5. Goodman-Casanova JM, Dura-Perez E, Guzman-Parra J, Cuesta-Vargas A, Mayoral-Cleries F. Telehealth Home Support During COVID-19 Confinement for Community-Dwelling Older Adults With Mild Cognitive Impairment or Mild Dementia: Survey Study. *J Med Internet Res.* 2020;22(5):e19434.
6. Lai FH, Yan EW, Yu KK, Tsui WS, Chan DT, Yee BK. The Protective Impact of Telemedicine on Persons With Dementia and Their Caregivers During the COVID-19 Pandemic. *Am J Geriatr Psychiatry.* 2020;08:08.
7. Zaagsma M, Volkers KM, Swart EAK, Schippers AP, Van Hove G. The use of online support by people with intellectual disabilities living independently during COVID-19. *Journal of Intellectual Disability Research.* 2020;64(10):750-756.
8. National Institute for H, Care Excellence in collaboration with NHSE, Improvement NHS. Managing COVID-19 symptoms (including at the end of life) in the community: summary of NICE guidelines. *Bmj.* 2020;369:m1461.
9. Battisti NML, Mislang AR, Cooper L, et al. Adapting care for older cancer patients during the COVID-19 pandemic: Recommendations from the International Society of Geriatric Oncology (SIOG) COVID-19 Working Group. *J Geriatr Oncol.* 2020;16:16.
10. Damani A, Ghoshal A, Rao K, et al. Palliative care in coronavirus disease 2019 pandemic: Position statement of the Indian association of palliative care. *Indian Journal of Palliative Care.* 2020;26:3-7.
11. Gilissen J, Pivodic L, Unroe KT, Block LVD. International COVID-19 Palliative Care Guidance for Nursing Homes Leaves Key Themes Unaddressed. *J Pain Symptom Manage.* 2020;60(2):e56-e69.
12. Janssen DJA, Ekstrom M, Currow DC, et al. COVID-19: guidance on palliative care from a European Respiratory Society international task force. *Eur Respir J.* 2020;56(3):09.
13. Krishna LKR, Neo HY, Chia EWY, et al. The role of palliative medicine in ICU bed allocation in COVID-19: a joint position statement of the Singapore Hospice Council and the Chapter of Palliative Medicine Physicians. *Asian bioeth.* 2020:1-7.
14. Mrabti H, Berrada N, Raiss G, et al. Cancer management challenge in a developing country in COVID-19 pandemic: reflection of a group of Moroccan oncologists. *Fut Oncol.* 2020;16(26):2007-2016.

15. Page N, Naik V, Singh P, Fernandes P, Nirabhawane V, Chaudhari S. Homecare and the COVID-19 pandemic – Experience at an urban specialist cancer palliative center. *Indian Journal of Palliative Care.* 2020;26:63-69.
16. Pegg AM, Palma M, Roberson C, Okonta C, Nkokolo Massamba/Koudika MH, Roberts N. Providing end-of-life care in the emergency department: Early experience from Medecins Sans Frontieres during the Covid-19 pandemic. *Afr J Emerg Med.* 2020;10(3):103-104.
17. Rosa WE, Ferrell BR, Wiencek C. Increasing Critical Care Nurse Engagement of Palliative Care During the COVID-19 Pandemic. *Crit Care Nurse.* 2020:e1-e8.
18. Brown C, Peck S, Humphreys J, et al. COVID-19 Lessons: The Alignment of Palliative Medicine and Trauma-Informed Care. *J Pain Symptom Manage.* 2020;60(2):e26-e30.
19. Frydman JL, Choi EW, Lindenberger EC. Families of COVID-19 Patients Say Goodbye on Video: A Structured Approach to Virtual End-of-Life Conversations. *J Palliat Med.* 2020;30:30.
20. Lai L, Sato R, He S, et al. Usage Patterns of a Web-Based Palliative Care Content Platform (PalliCOVID) During the COVID-19 Pandemic. *J Pain Symptom Manage.* 2020;27:27.
21. Mohile NA, Blakeley JO, Gatson NTN, et al. Urgent Considerations for the Neuro-oncologic Treatment of Patients with Gliomas During the COVID-19 Pandemic. *Neuro-oncol.* 2020;11:11.
22. Morris SE, Moment A, Thomas JD. Caring for Bereaved Family Members During the COVID-19 Pandemic: Before and After the Death of a Patient. *J Pain Symptom Manage.* 2020;60(2):e70-e74.
23. O'Connell KM, Maier RV. Trail Blazers without Blades: Surgeons as Palliative Care Physicians in response to COVID-19. *Ann Surg.* 2020;29:29.
24. Radbruch L, Knaul FM, de Lima L, de Joncheere C, Bhadelia A. The key role of palliative care in response to the COVID-19 tsunami of suffering. *Lancet.* 2020;395(10235):1467-1469.
25. Selman LE, Chao D, Sowden R, Marshall S, Chamberlain C, Koffman J. Bereavement Support on the Frontline of COVID-19: Recommendations for Hospital Clinicians. *J Pain Symptom Manage.* 2020;60(2):e81-e86.
26. Alderman B, Webber K, Davies A. An audit of end-of-life symptom control in patients with corona virus disease 2019 (COVID-19) dying in a hospital in the United Kingdom. *Palliat Med.* 2020;34(9):1249-1255.
27. Burke RV, Rome R, Constanza K, Amedee M, Santos C, Leigh A. Addressing Palliative Care Needs of COVID-19 Patients in New Orleans, LA: A Team-Based Reflective Analysis. *Palliat.* 2020;1(1):124-128.
28. Chidiac C, Feuer D, Flatley M, Rodgerson A, Grayson K, Preston N. The need for early referral to palliative care especially for Black, Asian and minority ethnic groups in a COVID-19 pandemic: Findings from a service evaluation. *Palliat Med.* 2020;34(9):1241-1248.
29. Heath L, Yates S, Carey M, Miller M. Palliative Care During COVID-19: Data and Visits From Loved Ones. *Am J Hosp Palliat Care.* 2020;37(11):988-991.
30. Hetherington L, Johnston B, Kotronoulas G, Finlay F, Keeley P, McKeown A. COVID-19 and Hospital Palliative Care - A service evaluation exploring the symptoms and

outcomes of 186 patients and the impact of the pandemic on specialist Hospital Palliative Care. *Palliat Med.* 2020;34(9):1256-1262.
31. Lee J, Abrukin L, Flores S, et al. Early Intervention of Palliative Care in the Emergency Department During the COVID-19 Pandemic. *JAMA Intern Med.* 2020;180(9):1252-1254.
32. Sun H, Lee J, Meyer BJ, et al. Characteristics and Palliative Care Needs of COVID-19 Patients Receiving Comfort-Directed Care. *J Am Geriatr Soc.* 2020;68(6):1162-1164.
33. Antunes B, Bowers B, Winterburn I, et al. Anticipatory prescribing in community end-of-life care in the UK and Ireland during the COVID-19 pandemic: online survey. *BMJ support.* 2020;10(3):343-349.
34. Atreya S, Kumar G, Samal J, et al. Patients'/Caregivers' perspectives on telemedicine service for advanced cancer patients during the COVID-19 pandemic: An exploratory survey. *Indian Journal of Palliative Care.* 2020;26:40-44.
35. Biswas S, Adhikari S, Gupta N, et al. Smartphone-based telemedicine service at palliative care unit during nationwide lockdown: Our initial experience at a tertiary care cancer hospital. *Indian Journal of Palliative Care.* 2020;26:31-35.
36. Costantini M, Sleeman KE, Peruselli C, Higginson IJ. Response and role of palliative care during the COVID-19 pandemic: A national telephone survey of hospices in Italy. *Palliat Med.* 2020;34(7):889-895.
37. Jain T, Jain R. To Study the barriers in palliative care to nonmalignant cases in COVID-19 crisis in a tertiary health-care center. *Indian Journal of Palliative Care.* 2020;26:76-80.
38. Kuntz JG, Kavalieratos D, Esper GJ, et al. Feasibility and Acceptability of Inpatient Palliative Care E-Family Meetings During COVID-19 Pandemic. *J Pain Symptom Manage.* 2020;60(3):e28-e32.
39. Moore B. Dying during Covid-19. *Hastings Cent Rep.* 2020;50(3):13-15.
40. Strang P, Bergstrom J, Martinsson L, Lundstrom S. Dying From COVID-19: Loneliness, End-of-Life Discussions, and Support for Patients and Their Families in Nursing Homes and Hospitals. A National Register Study. *J Pain Symptom Manage.* 2020;25:25.
41. Rao A, Kelemen A. Lessons Learned from Caring for Patients with COVID-19 at the End of Life. *J Palliat Med.* 2020;11:11.
42. Anneser J. Dying patients with COVID-19: What should Hospital Palliative Care Teams (HPCTs) be prepared for? *Palliat Support Care.* 2020:1-3.
43. Bettini EA. COVID-19 Pandemic Restrictions and the Use of Technology for Pediatric Palliative Care in the Acute Care Setting. *J Hosp Palliat Nurs.* 2020;09:09.
44. Galazzi A, Brioni M, Mistraletti G, Roselli P, Abbruzzese C. End of life in the time of CoViD-19: the last farewell by video call. *Minerva Anestesiol.* 2020;05:05.
45. Ho B, Ray A. A case for palliative dermatology: COVID-19-related dermatoses. *Clinics in Dermatology.* 2020.
46. Pahuja M, Wojcikewych D. Systems Barriers to Assessment and Treatment of COVID-19 Positive Patients at the End of Life. *J Palliat Med.* 2020;07:07.
47. Ritchey KC, Foy A, McArdel E, Gruenewald DA. Reinventing Palliative Care Delivery in the Era of COVID-19: How Telemedicine Can Support End of Life Care. *Am J Hosp Palliat Care.* 2020;37(11):992-997.

48. Etkind SN, Bone AE, Lovell N, et al. The Role and Response of Palliative Care and Hospice Services in Epidemics and Pandemics: A Rapid Review to Inform Practice During the COVID-19 Pandemic. *J Pain Symptom Manage.* 2020;60(1):e31-e40.
49. Hawkins JP, Gannon C, Palfrey J. Virtual visits in palliative care: about time or against the grain? *BMJ support.* 2020;10(3):331-336.
50. Mitchell S, Maynard V, Lyons V, Jones N, Gardiner C. The role and response of primary healthcare services in the delivery of palliative care in epidemics and pandemics: A rapid review to inform practice and service delivery during the COVID-19 pandemic. *Palliat Med.* 2020;34(9):1182-1192.
51. Montalbano MF, Dieudonne-Rahm N, Pugin J, Pautex S. Palliative and intensive care collaborative approach in the management of therapeutic withdrawals: lessons learned from the COVID-19 experience. [French]. *Rev Med Suisse.* 2020;16(701):1456-1458.
52. Perrotta F, Corbi G, Mazzeo G, et al. COVID-19 and the elderly: insights into pathogenesis and clinical decision-making. *Aging Clin Exp Res.* 2020;32(8):1599-1608.
53. Biswas S, Adhikari S, Bhatnagar S. Integration of telemedicine for home-based end-of-life care in advanced cancer patients during nationwide lockdown: A case series. *Indian Journal of Palliative Care.* 2020;26:176-178.
54. Gupta D. Conscientious Objections during COVID-19 Pandemic. *Indian Journal of Community Health.* 2020;32:231-235.
55. Harden K, Price DM, Mason H, Bigelow A. COVID-19 Shines a Spotlight on the Age-Old Problem of Social Isolation. *J Hosp Palliat Nurs.* 2020;09:09.
56. Lovell N, Maddocks M, Etkind SN, et al. Characteristics, Symptom Management, and Outcomes of 101 Patients With COVID-19 Referred for Hospital Palliative Care. *J Pain Symptom Manage.* 2020;60(1):e77-e81.
57. Fiorentino M, Pentakota SR, Mosenthal AC, Glass NE. The Palliative Performance Scale predicts mortality in hospitalized patients with COVID-19. *Palliat Med.* 2020;34(9):1228-1234.
58. Sharma R. Providing palliative home care during COVID-19 pandemic lockdown in India. *Indian Journal of Palliative Care.* 2020;26:56-57.
59. Strang P, Bergstrom J, Lundstrom S. Symptom Relief Is Possible in Elderly Dying COVID-19 Patients: A National Register Study. *J Palliat Med.* 2020;31:31.
60. Dhavale P, Koparkar A, Fernandes P. Palliative care interventions from a social work perspective and the challenges faced by patients and caregivers during COVID-19. *Indian Journal of Palliative Care.* 2020;26:58-62.
61. Mercadante S. The clash between palliative care and COVID-19. *Support Care Cancer.* 2020;14:14.
62. Santini A, Avagnina I, Salamon E, Giacomelli L, Shah A, Benini F. How the COVID-19 lockdown affected the parents of offspring who needed palliative care in the Veneto region of Italy. *Acta Paediatr.* 2020;03:03.
63. Obata R, Maeda T, Rizk D, Kuno T. Palliative Care Team Involvement in Patients With COVID-19 in New York City. *Am J Hosp Palliat Care.* 2020;37(10):869-872.
64. Sterne JA, Hernán MA, Reeves BC, et al. ROBINS-I: a tool for assessing risk of bias in non-randomised studies of interventions. *BMJ.* 2016;355:i4919.
65. Nan J, Meng S, Hu H, et al. Comparison of Clinical Outcomes in Patients with ST Elevation Myocardial Infarction with Percutaneous Coronary Intervention and the Use of

a Telemedicine App Before and After the COVID-19 Pandemic at a Center in Beijing, China, from August 2019 to March 2020. *Med Sci Monit.* 2020;26:e927061.
66. Zhou L, Xie RH, Yang X, et al. Feasibility and Preliminary Results of Effectiveness of Social Media-based Intervention on the Psychological Well-being of Suspected COVID-19 Cases during Quarantine. *Can J Psychiatry.* 2020;65(10):736-738.
67. Trevino KM, Raghunathan N, Latte-Naor S, et al. Rapid deployment of virtual mind-body interventions during the COVID-19 outbreak: feasibility, acceptability, and implications for future care. *Support Care Cancer.* 2020;09:09.
68. Vigersky RA, Velado K, Zhong A, Agrawal P, Cordero TL. The Effectiveness of Virtual Training on the MiniMed 670G System in People with Type 1 Diabetes During the COVID-19 Pandemic. *Diabetes Technol Ther.* 2020;14:14.
69. Marasca C, De Rosa A, Fabbrocini G, et al. Psychological teleconsultations in patients suffering from chronic skin diseases during the COVID-19 era: a service to improve patients' quality of life. *J Dermatolog Treat.* 2020:1-7.
70. Barry HE, Hughes CM. Managing medicines in the time of COVID-19: implications for community-dwelling people with dementia. *Int J Clin Pharm.* 2020;16:16.
71. Bhaskar S, Bradley S, Israeli-Korn S, et al. Chronic Neurology in COVID-19 Era: Clinical Considerations and Recommendations From the REPROGRAM Consortium. *Front Neurol.* 2020;11:664.
72. Canevelli M, Bruno G, Cesari M. Providing Simultaneous COVID-19-sensitive and Dementia-Sensitive Care as We Transition from Crisis Care to Ongoing Care. *J Am Med Dir Assoc.* 2020;21(7):968-969.
73. Chen Y, Chen C. How to support the quality of life of people living with cognitive disorders: a (k)new challenge in the post-COVID-19 world. *Eur J Neurol.* 2020;27(9):1742-1743.
74. Courtenay K, Perera B. COVID-19 and people with intellectual disability: impacts of a pandemic. *Ir J Psychol Med.* 2020:1-6.
75. Devita M, Bordignon A, Sergi G, Coin A. The psychological and cognitive impact of Covid-19 on individuals with neurocognitive impairments: research topics and remote intervention proposals. *Aging Clin Exp Res.* 2020;24:24.
76. Edelman LS, McConnell ES, Kennerly SM, Alderden J, Horn SD, Yap TL. Mitigating the Effects of a Pandemic: Facilitating Improved Nursing Home Care Delivery Through Technology. *JMIR Aging.* 2020;3(1):e20110.
77. Greenberg NE, Wallick A, Brown LM. Impact of COVID-19 pandemic restrictions on community-dwelling caregivers and persons with dementia. *Psychol Trauma.* 2020;12(S1):S220-S221.
78. Hampel H, Vergallo A. The Sars-Cov-2 Pandemic and the Brave New Digital World of Environmental Enrichment to Prevent Brain Aging and Cognitive Decline. *Jpad.* 2020;7(4):294-298.
79. Lee-Fay L, Voisey-Barlin M, McDonell A. The joy of bringing Outside In. *Australian Journal of Dementia Care.* 2020;9(3):15-18.
80. McGonigal M. Providing Quality Care to the Intellectually Disadvantaged Patient Population During the COVID-19 Pandemic. *Critical care nursing quarterly.* 2020;43(4):480-483.
81. O'Shea E. Remembering people with dementia during the COVID-19 crisis. *HRB open res.* 2020;3:15.

82. Padala SP, Jendro AM, Orr LC. Facetime to reduce behavioral problems in a nursing home resident with Alzheimer's dementia during COVID-19. *Psychiatry Res.* 2020;288 (no pagination).
83. Rais NC, Au L, Tan M. COVID-19 Impact in Community Care-A Perspective on Older Persons With Dementia in Singapore. *J Am Med Dir Assoc.* 2020;21(7):997.
84. Simard J, Volicer L. Loneliness and Isolation in Long-term Care and the COVID-19 Pandemic. *J Am Med Dir Assoc.* 2020;21(7):966-967.
85. Wang H, Li T, Barbarino P, et al. Dementia care during COVID-19. *The Lancet.* 2020;395(10231):1190-1191.
86. HPNA PRIMARY PALLIATIVE NURSING COVID-19 PATIENT CARE GUIDES. *J Hosp Palliat Nurs.* 2020;22(4):256-256.
87. Adams C. Goals of Care in a Pandemic: Our Experience and Recommendations. *J Pain Symptom Manage.* 2020;60(1):e15-e17.
88. Andrist E, Clarke RG, Harding M. Paved With Good Intentions: Hospital Visitation Restrictions in the Age of Coronavirus Disease 2019. *Pediatric critical care medicine : a journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies.* 2020;12.
89. Tahan HM. Essential Case Management Practices Amidst the Novel Coronavirus Disease 2019 (COVID-19) Crisis: Part 2: End-of-Life Care, Workers' Compensation Case Management, Legal and Ethical Obligations, Remote Practice, and Resilience. *Prof Case Manag.* 2020;25(5):267-284.
90. Apoeso O, Kuwata C, Goldhirsch SL, et al. Creating a Colocation Unit for End-of-Life Care during a Pandemic. *J Palliat Med.* 2020;15:15.
91. Arya A, Buchman S, Gagnon B, Downar J. Pandemic palliative care: beyond ventilators and saving lives. *CMAJ: Canadian Medical Association Journal.* 2020;192(15):E400-E404.
92. Bakar M, Capano E, Patterson M, McIntyre B, Walsh CJ. The Role of Palliative Care in Caring for the Families of Patients With COVID-19. *Am J Hosp Palliat Care.* 2020;37(10):866-868.
93. Bloomer MJ, Bouchoucha S. Editorial: COVID-19 and what it means for end-of-life care in ICU: Balancing the priorities. *Collegian.* 2020;27(3):248-249.
94. Blot F, Dumont SN, Vigouret-Viant L, et al. Ethical issues related to the COVID-19 pandemic in patients with cancer: experience and organisations in a French comprehensive cancer centre. *BMJ support.* 2020;27:27.
95. Bowers B, Pollock K, Barclay S. Administration of end-of-life drugs by family caregivers during covid-19 pandemic. *Bmj.* 2020;369:m1615.
96. Carr D, Boerner K, Moorman S. Bereavement in the Time of Coronavirus: Unprecedented Challenges Demand Novel Interventions. *J Aging Soc Policy.* 2020;32(4-5):425-431.
97. Chapman M, Russell B, Philip J. Systems of Care in Crisis: The Changing Nature of Palliative Care During COVID-19. *J Bioeth Inq.* 2020;25:25.
98. Chase J. Caring for Frail Older Adults During COVID-19: Integrating Public Health Ethics into Clinical Practice. *J Am Geriatr Soc.* 2020;68(8):1666-1670.
99. Chidiac C, Feuer D, Naismith J, Flatley M, Preston N. Emergency Palliative Care Planning and Support in a COVID-19 Pandemic. *J Palliat Med.* 2020;23(6):752-753.

100. Chong LA, Khoo EJ, Kamar AA, Tan HS. Paediatric Palliative Care during the COVID-19 Pandemic: A Malaysian Perspective. *Asian bioeth.* 2020:1-9.
101. Clarfield AM, Dwolatzky T, Brill S, et al. Israel Ad Hoc COVID-19 Committee: Guidelines for Care of Older Persons During a Pandemic. *J Am Geriatr Soc.* 2020;68(7):1370-1375.
102. Cooper Z, Bernacki RE. To Face Coronavirus Disease 2019, Surgeons Must Embrace Palliative Care. *JAMA Surgery.* 2020;155(8):681-682.
103. Davies A, Hayes J. Palliative care in the context of a pandemic: similar but different. *Clin Med.* 2020;30:30.
104. Desai AS, Kamdar BB, Mehra MR. Palliative care considerations for cardiovascular clinicians in COVID-19. *Prog Cardiovasc Dis.* 2020;08:08.
105. Dingfield LE, Brooks MK, O'Keefe D, Uy J, Vanston VJ, O'Connor N. Palliative Care Pandemic Support for Long-Term Care. In. Vol 23. New Rochelle, New York: Mary Ann Liebert, Inc.; 2020:890-891.
106. Dingfield LE, Flores EJ, Radcliff JA, Stamm R, Uritsky TJ. Adapting a Comfort Care Order Set in a Large Health System during the COVID-19 Pandemic. *J Palliat Med.* 2020;23(8):1004-1005.
107. Domenico BG, Claudia G, Monika O, Ralf J. CoviD-19: Decision making and palliative care. *Swiss Med Wkly.* 2020;150(13-14).
108. Ellis K, Lindley LC. A Virtual Children's Hospice in Response to COVID-19: The Scottish Experience. *J Pain Symptom Manage.* 2020;60(2):e40-e43.
109. Eriksen S, Grov EK, Lichtwarck B, et al. Palliative treatment and care for dying nursing home patients with COVID-19. *Tidsskr Nor Laegeforen.* 2020;140(8):26.
110. Estella Á. Compassionate Communication and End-of-Life Care for Critically 111 Patients with SARS-CoV-2 Infection. *J Clin Ethics.* 2020;31(2):191-193.
111. Fadul N, Elsayem AF, Bruera E. Integration of palliative care into COVID-19 pandemic planning. *BMJ support.* 2020;11:11.
112. Fausto J, Hirano L, Lam D, et al. Creating a Palliative Care Inpatient Response Plan for COVID-19-The UW Medicine Experience. *J Pain Symptom Manage.* 2020;60(1):e21-e26.
113. Feder SL, Akgun KM, Schulman-Green D. Palliative care strategies offer guidance to clinicians and comfort for COVID-19 patient and families. *Heart Lung.* 2020;49(3):227-228.
114. Ferguson L, Barham D. Palliative Care Pandemic Pack: A Specialist Palliative Care Service Response to Planning the COVID-19 Pandemic. *J Pain Symptom Manage.* 2020;60(1):e18-e20.
115. Ferrell BR, Handzo G, Picchi T, Puchalski C, Rosa WE. The Urgency of Spiritual Care: COVID-19 and the Critical Need for Whole-Person Palliation. *J Pain Symptom Manage.* 2020;60(3):e7-e11.
116. Fusi-Schmidhauser T, Preston NJ, Keller N, Gamondi C. Conservative Management of COVID-19 Patients-Emergency Palliative Care in Action. *J Pain Symptom Manage.* 2020;60(1):e27-e30.
117. Gracey K, Martin S, Reidy J. Palliative Care During Public Health Emergencies: Examples from the COVID-19 Pandemic. *Am Fam Physician.* 2020;102(5):312-315.
118. Hafi B, Uvais NA, Jafferany M, Afra TP, Muhammed RT. Palliative psychodermatology care during COVID-19 pandemic. *Dermatol Ther.* 2020:e13732.

119. Hahn E, Livergant J, Millar BA, et al. In Regard to Yerramilli et al's "Palliative Radiotherapy for Oncologic Emergencies in the Setting of COVID-19: Approaches to Balancing Risks and Benefits". *Adv Radiat Oncol.* 2020;5(4):595-596.
120. Hannon B, Mak E, Al Awamer A, et al. Palliative care provision at a tertiary cancer center during a global pandemic. *Support Care Cancer.* 2020;15:15.
121. Hendin A, La Riviere CG, Williscroft DM, O'Connor E, Hughes J, Fischer LM. End-of-life care in the emergency department for the patient imminently dying of a highly transmissible acute respiratory infection (such as COVID-19). *CJEM, Can.* 2020;22(4):414-417.
122. Hill L, Beattie JM, Geller TP, et al. Palliative care: Essential support for patients with heart failure in the COVID-19 pandemic. *Eur J Cardiovasc Nurs.* 2020;19(6):469-472.
123. Humphreys J, Schoenherr L, Elia G, et al. Rapid Implementation of Inpatient Telepalliative Medicine Consultations During COVID-19 Pandemic. *J Pain Symptom Manage.* 2020;60(1):e54-e59.
124. Kent EE, Ornstein KA, Dionne-Odom JN. The Family Caregiving Crisis Meets an Actual Pandemic. *J Pain Symptom Manage.* 2020;60(1):e66-e69.
125. Khatri P, Seetharaman S, Phang CMJ, Lee BXA. Home Hospice Services during COVID-19: Ensuring Comfort in Unsettling Times in Singapore. *J Palliat Med.* 2020;23(5):605-606.
126. Khosravani H, Steinberg L, Incardona N, Quail P, Perri GA. Symptom management and end-of-life care of residents with COVID-19 in long-term care homes. *Can Fam Physician.* 2020;66(6):404-406.
127. Kluger BM, Vaughan CL, Robinson MT, Creutzfeldt C, Subramanian I, Holloway RG. Neuropalliative care essentials for the COVID-19 crisis. *Neurology.* 2020;95(9):394-398.
128. Knights D, Knights F, Lawrie I. Upside down solutions: palliative care and COVID-19. *BMJ support.* 2020;17:17.
129. Kumari P, Kumar A, Sinha C, Kumar A. COVID-19 pandemic prompts changes to pain and palliative care at home. *Indian Journal of Palliative Care.* 2020;26:180-181.
130. Rowland B, Kunadian V. Challenges in the management of older patients with acute coronary syndromes in the COVID-19 pandemic. *Heart.* 2020;106(17):1296-1301.
131. Lapid MI, Koopmans R, Sampson EL, Van Den Block L, Peisah C. Providing quality end of life care to older people in the era of COVID-19: Perspectives from five countries. *International Psychogeriatrics.* 2020.
132. Lazzarin P, Avagnina I, Divisic A, Agosto C, Giacomelli L, Benini F. Management strategies adopted by a paediatric palliative care network in northern Italy during the COVID-19 pandemic. *Acta Paediatr.* 2020;109(9):1897-1898.
133. Mehta AK, Smith TJ. Palliative Care for Patients With Cancer in the COVID-19 Era. *JAMA Oncol.* 2020;07:07.
134. Mishra S, Biswas S, Bhatnagar S. Palliative care delivery in cancer patients in the era of Covid-19 outbreak: Unique needs, barriers, and tools for solutions. *Indian Journal of Palliative Care.* 2020;26:130-141.
135. Montauk TR, Kuhl EA. COVID-related family separation and trauma in the intensive care unit. *Psychol Trauma.* 2020;12(S1):S96-S97.
136. Moore KJ, Sampson EL, Kupeli N, Davies N. Supporting families in end-of-life care and bereavement in the COVID-19 era. *Int Psychogeriatr.* 2020:1-4.

137. Mottiar M, Hendin A, Fischer L, Roze des Ordons A, Hartwick M. End-of-life care in patients with a highly transmissible respiratory virus: implications for COVID-19. *Can J Anaesth.* 2020;67(10):1417-1423.
138. Nakagawa S, Berlin A, Widera E, Periyakoil VS, Smith AK, Blinderman CD. Pandemic Palliative Care Consultations Spanning State and Institutional Borders. *J Am Geriatr Soc.* 2020;68(8):1683-1685.
139. Niki K, Okamoto Y, Ueda M. Response to Wang et al., Virtual Reality as a Bridge in Palliative Care during COVID-19 (DOI: 10.1089/jpm.2020.0212)...Wang SSY, Teo WZW, Teo WZY et al. Virtual Reality as a Bridge in Palliative Care during COVID-19. J PALLIAT MED). 2020;23(6):756-756. In. Vol 23. New Rochelle, New York: Mary Ann Liebert, Inc.; 2020:892-894.
140. Norris SE, Strumph K, Rahmani NE. Pediatric Palliative Care When COVID-19 Positive Adults Are Dying in a Children's Hospital. *Pediatrics.* 2020;146(3):09.
141. Nyatanga B. Strengthening palliative care in today's challenges. *Br J Community Nurs.* 2020;25(7):358-358.
142. Ofosu-Poku R, Anyane G, Agbeko AE, et al. Preparing a young palliative care unit for the COVID-19 pandemic in a teaching hospital in Ghana. *Palliat Support Care.* 2020:1-3.
143. Pattison N. End-of-life decisions and care in the midst of a global coronavirus (COVID-19) pandemic. *Intensive Crit Care Nurs.* 2020;58:102862.
144. Petriceks AH, Schwartz AWN. Goals of care and COVID-19: A GOOD framework for dealing with uncertainty. *Palliat Support Care.* 2020:1-3.
145. Powell VD, Silveira MJ. What Should Palliative Care's Response Be to the COVID-19 Pandemic? *J Pain Symptom Manage.* 2020;60(1):e1-e3.
146. Pruthi M, Chanana G. Palliative care for COVID-19: Let Us be Prepared. *Indian Journal of Palliative Care.* 2020;26:181-183.
147. Raftery C, Lewis E, Cardona M. The Crucial Role of Nurses and Social Workers in Initiating End-of-Life Communication to Reduce Overtreatment in the Midst of the COVID-19 Pandemic. *Gerontology.* 2020:1-4.
148. Rhee J, Grant M, Detering K, Clayton J, Arthurs K. Dying still matters in the age of COVID-19. *Aust J Gen Pract.* 2020;49:30.
149. Rim F, Kelly M, Meletio J, Liu S. Restructuring the Peri-operative Pain Service to Palliative Care as a Response to the COVID-19 Pandemic. *Hss J.* 2020:1-3.
150. Roland K, Markus M. COVID-19 pandemic: Palliative care for elderly and frail patients at home and in residential and nursing homes. *Swiss Med Wkly.* 2020;150(13-14).
151. Rosa WE, Shook A, Acquaviva KD. LGBTQ+ Inclusive Palliative Care in the Context of COVID-19: Pragmatic Recommendations for Clinicians. *J Pain Symptom Manage.* 2020;60(2):e44-e47.
152. Salins N, Mani RK, Gursahani R, Simha S, Bhatnagar S. Symptom Management and Supportive Care of Serious COVID-19 Patients and their Families in India. *Indian J.* 2020;24(6):435-444.
153. Santos C, Tavares A, Tzanno-Martins C, et al. Palliative Renal Care and the Covid-19 Pandemic. *J.* 2020;42(2 suppl 1):44-46.
154. Scheffer R. End-of-life planning: ideas are not new but a system is needed to implement them. *Bmj.* 2020;369:m2401.

155. Schoenmaekers J, Hendriks LEL, van den Beuken-van Everdingen MHJ. Palliative Care for Cancer Patients During the COVID-19 Pandemic, With Special Focus on Lung Cancer. *Front.* 2020;10:1405.
156. Sese D, Makhoul A, Hoeksema L, Shoemaker L. The role of palliative care in COVID-19. *Cleve Clin J Med.* 2020;29:29.
157. Sullivan DR, Curtis JR. A View from the Frontline: Palliative and Ethical Considerations of the COVID-19 Pandemic. *J Palliat Med.* 2020;13:13.
158. Ting R, Edmonds P, Higginson IJ, Sleeman KE. Palliative care for patients with severe covid-19. *Bmj.* 2020;370:m2710.
159. Tran DL, Lai SR, Salah RY, et al. Rapid De-Escalation and Triaging Patients in Community-Based Palliative Care. *J Pain Symptom Manage.* 2020;60(1):e45-e47.
160. Vergano M, Bertolini G, Giannini A, et al. Clinical ethics recommendations for the allocation of intensive care treatments in exceptional, resource-limited circumstances: The Italian perspective during the COVID-19 epidemic. *Critical Care.* 2020;24(1).
161. Vincent JL, Taccone FS. Understanding pathways to death in patients with COVID-19. *The Lancet Respiratory Medicine.* 2020;8(5):430-432.
162. Wallace CL, Wladkowski SP, Gibson A, White P. Grief During the COVID-19 Pandemic: Considerations for Palliative Care Providers. *J Pain Symptom Manage.* 2020;60(1):e70-e76.
163. Wang SSY, Teo WZW, Teo WZY, Chai YW. Virtual Reality as a Bridge in Palliative Care during COVID-19. *J Palliat Med.* 2020;23(6):756.
164. Wang SSY, Teo WZY, Yee CW, Chai YW. Pursuing a Good Death in the Time of COVID-19. *J Palliat Med.* 2020;23(6):754-755.
165. Wei E, Segall J, Villanueva Y, et al. Coping With Trauma, Celebrating Life: Reinventing Patient And Staff Support During The COVID-19 Pandemic. *Health Aff (Millwood).* 2020;39(9):1597-1600.
166. Hsu YC, Liu YA, Lin MH, et al. Visiting Policies of Hospice Wards during the COVID-19 Pandemic: An Environmental Scan in Taiwan. *Int J Environ Res Public Health.* 2020;17(8):21.
167. Yardley S, Rolph M. Death and dying during the pandemic. *Bmj.* 2020;369:m1472.
168. Zhou X, Cai S, Guo Q. Responses of pediatric palliative care to the COVID-19 pandemic in China. *Pediatr Res.* 2020;11:11.

Appendix A

Search Strategy for Cognitive Impairment Rapid Review

MEDLINE

1. exp Coronaviridae Infections/
2. exp Coronavirus/
3. (2019-nCoV* or 2019nCov* or 19nCov or betacoronavir* or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus).tw,kf.
4. 1 or 2 or 3
5. animals/ not humans/
6. 4 not 5
7. limit 6 to yr="2019 - 2021"
8. limit 7 to (english or french)
9. Quarantine/
10. Patient Isolation/
11. exp Social Isolation/
12. Loneliness/
13. (confinement or isolat* or lonely or loneliness or quarantin* or social* distan*).tw,kf.
14. 9 or 10 or 11 or 12 or 13
15. exp Neurocognitive Disorders/
16. ((cognition or cognitive or neurocogniti) adj3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*)).tw,kf.
17. (alzheimer* or delirium or dementia* or mci).tw,kf.
18. 15 or 16 or 17
19. 8 and 14 and 18

EMBASE

1. exp Coronaviridae infection/
2. exp coronaviridae/

3. (2019-nCoV* or 2019nCov* or 19nCov or betacoronavirus or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus).tw,kw.
4. 1 or 2 or 3
5. animals/ not human/
6. 4 not 5
7. limit 6 to yr="2019 - 2021"
8. limit 7 to (english or french)
9. cognitive behavioral therapy/
10. exp cognitive defect/
11. exp "disorders of higher cerebral function"/
12. ((cognition or cognitive or neurocogniti) adj3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*)).tw,kw.
13. (alzheimer* or delirium or dementia* or mci).tw,kw.
14. 9 or 10 or 11 or 12 or 13
15. 8 and 14
16. exp social isolation/
17. exp isolation/
18. quarantine/
19. social distance/
20. (confinement or isolat* or lonely or loneliness or quarantin* or social* distan*).tw,kw.
21. 16 or 17 or 18 or 19 or 20
22. 15 and 21

PsycINFO

1. (2019-nCoV* or 2019nCov* or 19nCov or betacoronavirus or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus).tw.
2. animal/ not human/
3. 1 not 2
4. limit 3 to yr="2019 - 2021"

5. limit 4 to (english or french)

6. exp cognitive impairment/ or exp dementia/ or exp intellectual development disorder/ or exp neurocognitive disorders/

7. alzheimer's disease/ or exp senile dementia/

8. ((cognition or cognitive or neurocogniti) adj3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*)).tw.

9. (alzheimer* or delirium or dementia* or mci).tw.

10. 6 or 7 or 8 or 9

11. 5 and 10

CINAHL

1. ((MH "Coronaviridae+") OR (MM "Coronaviridae Infections")) OR TI ((2019-nCoV* or 2019nCov* or 19nCov or betacoronavir* or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus)) OR AB ((2019-nCoV* or 2019nCov* or 19nCov or betacoronavir* or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus))
2. (MH "Quarantine") OR (MH "Stay-at-Home Orders") OR (MH "Social Isolation+") OR (MH "Patient Isolation") OR (MH "Social Distancing")) OR TI ((confinement or isolat* or lonely or loneliness or quarantin* or stay at home or social* distan*)) OR AB ((confinement or isolat* or lonely or loneliness or quarantin* or stay at home or social* distan*))
3. 1 and 2
4. ((MH "Cognition Disorders+") OR (MH "Alzheimer's Disease") OR (MH "Dementia, Multi-Infarct") OR (MH "Dementia+") OR (MH "Delirium")) OR TI (((cognition or cognitive or neurocogniti) N3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*))) OR AB (((cognition or cognitive or neurocogniti) N3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*))) OR TI ((alzheimer* or delirium or dementia* or mci)) OR AB ((alzheimer* or delirium or dementia* or mci)
5. 3 and 4

Published Date: 20190101-; Language: English, French

Total 20 studies

Commentaries, Editorials, and Letters Excluded from the Cognitive Impairment Rapid Review

Table A1. Commentaries, Editorials, and Letters Excluded from the Cognitive Impairment Rapid Review

Author	Country	Study Design	Setting of Care
Barry et al.[70]	United Kingdom	Commentary	Community
Bhaskar et al.[71]	Multinational	Commentary	Hospital and Community
Canevelli et al.[72]	Italy	Editorial	Community
Chen et al.[73]	Ireland, France and Singapore	Commentary	Hospital and Community
Courtenay et al.[74]	United Kingdom	Commentary	Hospital and Community
Devita et al.[75]	Italy	Commentary	Unspecified
Edelman et al.[76]	USA	Editorial	Supportive Living Facility
Greenberg et al.[77]	USA	Commentary	Community
Hampel et al.[78]	USA	Editorial	Community and Supportive Living Facility
Low et al.[79]	Australia	Commentary	Supportive Living Facility
McGonigal et al.[80]	USA	Commentary	Hospital
O'Shea et al.[81]	Ireland	Letter	Community
Padala et al.[82]	USA	Letter	Supportive Living Facility
Rais et al.[83]	Singapore	Letter	Community
Simard et al.[84]	Australia and USA	Editorial	Supportive Living Facility
Wang et al.[85]	China	Letter	Community, Supportive Living Facility and Hospital

Appendix B

Search Strategy for End-of-life Rapid Review

MEDLINE

1. exp Coronaviridae Infections/
2. exp Coronavirus/
3. (2019-nCoV* or 2019nCov* or 19nCov or betacoronavir* or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus).tw,kf.
4. 1 or 2 or 3
5. animals/ not humans/
6. 4 not 5
7. limit 6 to yr="2019 - 2021"
8. limit 7 to (english or french)
9. Quarantine/
10. Patient Isolation/
11. exp Social Isolation/
12. Loneliness/
13. (confinement or isolat* or lonely or loneliness or quarantin* or social* distan*).tw,kf.
14. 9 or 10 or 11 or 12 or 13
15. exp Neurocognitive Disorders/
16. ((cognition or cognitive or neurocogniti) adj3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*)).tw,kf.
17. (alzheimer* or delirium or dementia* or mci).tw,kf.
18. 15 or 16 or 17
19. 8 and 14 and 18

EMBASE

1. exp Coronaviridae infection/
2. exp coronaviridae/

3. (2019-nCoV* or 2019nCov* or 19nCov or betacoronavirus or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus).tw,kw.
4. 1 or 2 or 3
5. animals/ not human/
6. 4 not 5
7. limit 6 to yr="2019 - 2021"
8. limit 7 to (english or french)
9. cognitive behavioral therapy/
10. exp cognitive defect/
11. exp "disorders of higher cerebral function"/
12. ((cognition or cognitive or neurocogniti) adj3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*)).tw,kw.
13. (alzheimer* or delirium or dementia* or mci).tw,kw.
14. 9 or 10 or 11 or 12 or 13
15. 8 and 14
16. exp social isolation/
17. exp isolation/
18. quarantine/
19. social distance/
20. (confinement or isolat* or lonely or loneliness or quarantin* or social* distan*).tw,kw.
21. 16 or 17 or 18 or 19 or 20
22. 15 and 21

PsycINFO

1. (2019-nCoV* or 2019nCov* or 19nCov or betacoronavirus or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus).tw.
2. animal/ not human/
3. 1 not 2
4. limit 3 to yr="2019 - 2021"

5. limit 4 to (english or french)

6. exp cognitive impairment/ or exp dementia/ or exp intellectual development disorder/ or exp neurocognitive disorders/

7. alzheimer's disease/ or exp senile dementia/

8. ((cognition or cognitive or neurocogniti) adj3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*)).tw.

9. (alzheimer* or delirium or dementia* or mci).tw.

10. 6 or 7 or 8 or 9

11. 5 and 10

CINAHL

1. ((MH "Coronaviridae+") OR (MM "Coronaviridae Infections")) OR TI ((2019-nCoV* or 2019nCov* or 19nCov or betacoronavir* or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus)) OR AB ((2019-nCoV* or 2019nCov* or 19nCov or betacoronavir* or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus))
2. (MH "Quarantine") OR (MH "Stay-at-Home Orders") OR (MH "Social Isolation+") OR (MH "Patient Isolation") OR (MH "Social Distancing")) OR TI ((confinement or isolat* or lonely or loneliness or quarantin* or stay at home or social* distan*)) OR AB ((confinement or isolat* or lonely or loneliness or quarantin* or stay at home or social* distan*))
3. 1 and 2
4. ((MH "Cognition Disorders+") OR (MH "Alzheimer's Disease") OR (MH "Dementia, Multi-Infarct") OR (MH "Dementia+") OR (MH "Delirium")) OR TI (((cognition or cognitive or neurocogniti) N3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*))) OR AB (((cognition or cognitive or neurocogniti) N3 (declin* or defect* or deficit* or disabilit* or disorder* or dysfunction* or impair*))) OR TI ((alzheimer* or delirium or dementia* or mci)) OR AB ((alzheimer* or delirium or dementia* or mci)
5. 3 and 4

Published Date: 20190101-; Language: English, French

Characteristics of Studies Included in the End-of-life Rapid Review

Table B1. Characteristics of Studies Included in the End-of-life Rapid Review

Author	Country	Study Design	Primary Setting of Care Discussed within Study
Alderman et al.[26]	United Kingdom	Chart review	Hospital
Anneser et al.[42]	Germany	Case study	Hospital
National Institute for Health and Care Excellence[8]	United Kingdom	Clinical guidelines	Community
Antunes et al.[33]	United Kingdom	Cross-sectional	Community
Atreya et al.[34]	India	Cross-sectional	Hospital
Battisti et al.[9]	United Kingdom	Clinical guidelines	Unspecified
Bettini et al.[43]	United states	Case study	Hospital
Biswas et al.[53]	India	Case series	Community
Biswas et al.[35]	India	Cross-sectional	Hospital
Brown et al.[18]	United States	Tools/frameworks	Unspecified
Burke et al.[27]	United States	Chart review	Hospital
Chidiac et al.[28]	United Kingdom	Chart review	Hospital
Costantini et al.[36]	Italy	Cross-sectional	Hospice
Damani et al.[10]	India	Clinical guidelines	Unspecified
Dhavale et al.[60]	India	Qualitative - interviews/focus groups	Hospital
Etkind et al.[48]	United Kingdom	Review	Unspecified
Fiorentino et al.[57]	United States	Cohort	Hospital
Frydman et al.[19]	United States	Tools/frameworks	Hospital
Galazzi et al.[44]	Italy	Case study	Hospital
Gilissen et al.[11]	United States	Clinical guidelines	Continuing Care/long term care
Gupta et al.[54]	India	Case series	Hospital
Harden et al.[55]	United States	Case series	Unspecified
Hawkins et al.[49]	United Kingdom	Review	Unspecified
Heath et al.[29]	United Kingdom	Chart review	Hospital
Hetherington et al.[30]	United Kingdom	Chart review	Hospital
Ho et al.[45]	United Kingdom	Case study	Unspecified
Jain et al.[37]	India	Cross-sectional	Hospital
Janssen et al.[12]	Netherlands	Clinical guidelines	Unspecified
Krishna et al.[13]	Singapore	Clinical guidelines	Hospital
Kuntz et al.[38]	United States	Cross-sectional	Hospital
Lai et al.[20]	United States	Tools/frameworks	Unspecified

Author	Country	Study Design	Primary Setting of Care Discussed within Study
Lee et al.[31]	United States	Chart review	Hospital
Lovell et al.[56]	United Kingdom	Case series	Hospital
Mercadante et al.[61]	Italy	Qualitative - interviews/focus groups	Unspecified
Mitchell et al.[50]	United Kingdom	Review	Unspecified
Mohile et al.[21]	United States	Tools/frameworks	Unspecified
Montalbano et al.[51]	Switzerland	Review	Unspecified
Moore et al.[39]	United States	Cross-sectional	Hospice
Morris et al.[22]	United States	Tools/frameworks	Hospital
Mrabti et al.[14]	Morocco	Clinical guidelines	Unspecified
O'Connell et al.[23]	United States	Tools/frameworks	Hospital
Obata et al.[63]	United States	Controlled - non-randomized	Hospital
Page et al.[15]	India	Clinical guidelines	Community
Pahuja et al.[46]	United states	Case study	Hospital
Pegg et al.[16]	France	Clinical guidelines	Unspecified
Perrotta et al.[52]	Italy	Review	Continuing Care/long term care
Radbruch et al.[24]	United States	Tools/frameworks	Unspecified
Rao et al.[41]	United States	Case series	Hospital
Ritchey et al.[47]	United States	Case study	Hospital
Rosa et al.[17]	United States	Clinical guidelines	Hospital
Santini et al.[62]	Italy	Qualitative - interviews/focus groups	Community
Selman et al.[25]	United Kingdom	Tools/frameworks	Hospital
Sharma et al.[58]	India	Cohort	Community
Strang et al.[59]	Sweden	Cohort	Unspecified
Strang et al.[40]	Sweden	Cohort	Continuing Care/long term care
Sun et al.[32]	United States	Chart review	Hospital

Commentaries, Editorials, and Letters Excluded from the End-of-life Rapid Review

Table B2. Commentaries, Editorials, and Letters Excluded from the End-of-Life Rapid Review

Author	Country	Setting of Care
Hospice and Palliative Nurses Association[86]	Canada	Unspecified
Adams et al.[87]	United States	Hospital
Andrist et al.[88]	United States	Hospital
Tahan et al.[89]	United States	Unspecified
Apoeso et al.[90]	United States	Hospital
Arya et al.[91]	Canada	Hospital
Bakar et al.[92]	United States	Unspecified
Bloomer et al.[93]	Australia	Hospital
Blot et al.[94]	France	Hospital
Bowers et al.[95]	United Kingdom	Community
Carr et al.[96]	United States	Unspecified
Chapman et al.[97]	Australia	Unspecified
Chase et al.[98]	Canada	Continuing Care/long term care
Chidiac et al.[99]	United Kingdom	Hospital
Chong et al.[100]	Malaysia	Unspecified
Clarfield et al.[101]	Israel	Unspecified
Cooper et al.[102]	United States	Hospital
Davies et al.[103]	United Kingdom	Unspecified
Desai et al.[104]	United States	Unspecified
Dingfield et al.[105]	United States	Continuing Care/long term care
Dingfield et al.[106]	United States	Hospital
Domenico et al.[107]	Switzerland	Unspecified
Ellis et al.[108]	United States	Hospice
Eriksen et al.[109]	Norway	Continuing Care/long term care
Estella et al.[110]	Spain	Hospital
Fadul et al.[111]	United States	Unspecified
Fausto et al.[112]	United States	Unspecified
Feder et al.[113]	United States	Not reported
Ferguson et al.[114]	New Zealand	Unspecified
Ferrell et al.[115]	United States	Hospital
Fusi-Schmidhauser et al.[116]	Switzerland	Hospital
Gracey et al.[117]	United States	Unspecified
Hafi et al.[118]	India	Not reported
Hahn et al.[119]	Canada	Hospital
Hannon et al.[120]	Canada	Hospital

Author	Country	Setting of Care
Hendin et al.[121]	Canada	Hospital
Hill et al.[122]	United Kingdom	Unspecified
Humphreys et al.[123]	United States	Hospital
Kent et al.[124]	United States	Unspecified
Khatri et al.[125]	Singapore	Community
Khosravani et al.[126]	Canada	Continuing Care/long term care
Kluger et al.[127]	United States	Unspecified
Knights et al.[128]	United Kingdom	Unspecified
Kumari et al.[129]	India	Community
Kuntz et al.[130]	Switzerland	Unspecified
Lapid et al.[131]	United States	Unspecified
Lazzarin et al.[132]	Italy	Unspecified
Mehta et al.[133]	United States	Unspecified
Mishra et al.[134]	India	Unspecified
Montauk et al.[135]	United States	Hospital
Moore et al.[136]	United Kingdom	Unspecified
Mottiar et al.[137]	Canada	Hospital
Nakagawa et al.[138]	United States	Hospital
Niki et al.[139]	Japan	Hospital
Norris et al.[140]	NY	Hospital
Nyatanga et al.[141]	United Kingdom	Unspecified
Ofosu-Poku et al.[142]	Ghana	Hospital
Pattison et al.[143]	United Kingdom	Hospital
Petriceks et al.[144]	United States	Unspecified
Powell et al.[145]	United States	Unspecified
Pruthi et al.[146]	India	Hospital
Raftery et al.[147]	Australia	Community
Rhee et al.[148]	Australia	Unspecified
Rim et al.[149]	United States	Hospital
Roland et al.[150]	Switzerland	Community
Rosa et al.[151]	United States	Unspecified
Salins et al.[152]	India	Unspecified
Santos et al.[153]	Brazil	Unspecified
Scheffer et al.[154]	United Kingdom	Unspecified
Schoenmaekers et al.[155]	Netherlands	Unspecified
Sese et al.[156]	United States	Hospital

Author	Country	Setting of Care
Simard et al.[84]	Australia	Continuing Care/long term care
Sullivan et al.[157]	United States	Hospital
Ting et al.[158]	United Kingdom	Hospital
Tran et al.[159]	United States	Unspecified
Vergano et al.[160]	Italy	Hospital
Vincent et al.[161]	Belgium	Unspecified
Wallace et al.[162]	United States	Unspecified
Wang et al.[163]	Singapore	Unspecified
Wang et al.[164]	Singapore	Hospital
Wei et al.[165]	United States	Unspecified
Hsu et al.[166]	Taiwan	Hospice
Yardley et al.[167]	United Kingdom	Hospital
Zhou et al.[168]	China	Hospital

Appendix C

Search Strategy for Technology Rapid Review

CINAHL

1. ((MH "Coronaviridae Infections") OR (MH "Coronavirus Infections+") OR (MH "COVID-19") OR (MH "Coronavirus+")) OR TI ((2019-nCoV* or 2019nCov* or 19nCov or betacoronavirus or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus)) OR AB ((2019-nCoV* or 2019nCov* or 19nCov or betacoronavirus or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus))
2. ((MH "Blogs") OR (MH "Internet+") OR (MH "Teleconferencing") OR (MH "Telehealth+") OR (MH "Telepsychiatry") OR (MH "Videoconferencing") OR (MH "Text Messaging") OR (MH "Telecommunications") OR (MH "Instant Messaging") OR (MH "Mobile Applications") OR (MH "Social Media") OR (MH "Webcasts") OR (MH "Computers, Hand-Held") OR (MH "Email") OR (MH "Telemedicine+") OR (MH "Telenursing") OR (MH "Online Social Networking") OR (MH "Therapy, Computer Assisted"))
3. (MH "Smartphone") OR (MH "Cellular Phone") OR (MH "Virtual Reality")
4. TI ((apps or augmented reality or blog* or cell phone* or cellphone* or chat room* or communications technolog* or computer based or digital therapeutic* or digital technolog* or ehealth or e-health or email or e-mail or e-resources or e-support* or facebook or facetime or google meet* or ICT or instant messag* or IMS or internet or iphone* or messaging or mobile health or mhealth or m-health or online or remote consult* or smartphone* or skype or SMS or social media* or tablets or teleconsult* or tele-consult* or telehealth or tele-health* or telemedic* or tele-medic* or telemonitor* or tele-monitor* or telephone or telepsychiatr* or tele-psychiatr* or teletherap* or tele-therap* or text messag* or texting or twitter or videoconferenc* or video conferenc* or virtual care or virtual reality or virtual visit* or web-based or web-page* or webpage* or web site* or webex or whatsapp or window visit* or zoom)) OR AB ((apps or augmented reality or blog* or cell phone* or cellphone* or chat room* or communications technolog* or computer based or digital therapeutic* or digital technolog* or ehealth or e-health or email or e-mail or e-resources or e-support* or facebook or facetime or google meet* or ICT or instant messag* or IMS or internet or iphone* or messaging or mobile health or mhealth or m-health or online or remote consult* or smartphone* or skype or SMS or social media* or tablets or teleconsult* or tele-consult* or telehealth or tele-health* or telemedic* or tele-medic* or telemonitor* or tele-monitor* or telephone or telepsychiatr* or tele-psychiatr* or teletherap* or tele-therap* or text messag* or texting or twitter or videoconferenc* or video conferenc* or virtual care or virtual reality or virtual visit* or web-based or web-page* or webpage* or web site* or webex or whatsapp or window visit* or zoom)
5. 2 or 3 or 4
6. 1 and 5

Limit to: Published Date: 20190101-20201231; Language: English, French

Exclude Publication Type: Case Study, Commentary, Editorial, Letter, Review

MEDLINE

1. exp Coronaviridae Infections/
2. exp Coronavirus/
3. (2019-nCoV* or 2019nCov* or 19nCov or betacoronavirus or coronavir* or corona or covid or covid19* or SARS-COV-2* or SARS-COV2* or SARSCoV-2* or SARSCoV2* or severe acute respiratory syndrome or Hubei pneumonia or Wuhan pneumonia or Wuhan virus).tw,kf.
4. 1 or 2 or 3
5. animals/ not humans/
6. 4 not 5
7. limit 6 to yr="2019 - 2021"
8. limit 7 to (english or french)
9. exp Telecommunications/ or Mobile Applications/
10. online social networking/ or social media/
11. Therapy, Computer-Assisted/
12. ((inform* or communicat* or interact*) adj6 (computer* or technolog* or software)).tw,kf.
13. ((care or consultation* or health* or intervention* or treat* or therap* or selfmanag* or self-manag*) adj5 (computer* or digital or electronic or online or remote or software)).tw,kf.
14. (apps or augmented reality or blog* or cell phone* or cellphone* or chat room* or communications technolog* or computer based or digital therapeutic* or digital technolog* or ehealth or e-health or email or e-mail or e-resources or e-support* or facebook or facetime or google meet* or ICT or messag* or IMS or internet or iphone* or mobile health or mhealth or m-health or online or remote consult* or smartphone* or skype or SMS or social media* or tablets or teleconsult* or tele-consult* or telehealth or tele-health* or telemedic* or tele-medic* or telemonitor* or tele-monitor* or telephone or telepsychiatr* or tele-psychiatr* or teletherap* or tele-therap* or text messag* or texting or twitter or videoconferenc* or video conferenc* or virtual care or virtual reality or virtual visit* or web-based or web-page* or webpage* or web site* or webex or whatsapp or window visit* or zoom).tw,kf.
15. exp Medical Records Systems, Computerized/
16. 9 or 10 or 11 or 12 or 13 or 14 or 15

17. 8 and 16

18. limit 17 to (case reports or comment or editorial or letter or "review")

19. 17 not 18

20. limit 17 to "systematic review"

21. ((critical or scoping or systematic) adj (review* or overview* or synthesis)).tw.

22. 17 and 21

23. 19 or 20 or 22

Full Findings from Studies Included in the Technology Rapid Review

Table C1. Full Findings from Continuous Outcome Studies Included in the Technology Rapid Review

Author, Country	Setting	Population	Eligibility Criteria	Technology Intervention	Control Group	Outcome	Technology Group Baseline Score	Technology Group Post-Intervention Score	Control Group Baseline Score	Control Group Post-Intervention Score	Finding Summary/Effect Size
Lai, China[6]	Community	Older adults with NCD and their caregivers (n=60 patients and 60 caregivers)	People who were between 65 and 80 with a diagnosis of NCD according to DSM-5 and were cared at home with their spouse as the primary caregiver	Telephone + video care service n=30 (13 women) Age: Mean=72.87 years (SE=0.84)	Telephone care service only n=30 (12 women) Age: Mean=72.73 years (SE=0.84)	MoCA scores for patients	20.79	20.88	21.42	19.55	Deterioration was prevented in the intervention group, as per group x time ANOVA [MoCA: F(1,58) = 57.18, p <0.001, np2 = 0.50]
						QoL-AD scores for patients	24.47	31	28.49	26.72	Deterioration was prevented in the intervention group, as per group x time ANOVA [QoL-AD: F(1,58) = 17.17, p <0.001, np2 =0.23]
						RMBPC scores for patients	61.93	61.93	62.37	62.48	No significant effects (all F's <1)
						SF-36v2 Physical scores for caregivers	27.37	30.6	27.37	26.16	Intervention associated with positive impact on caregivers, as per group x time ANOVA [F(1,58) = 60.30, p <0.001, np2 = 0.51]
						SF-36v2 Mental scores for caregivers	29.63	32.64	32.64	31.41	Intervention associated with positive impact on caregivers, as per group x time ANOVA [F(1,58) = 49.13, p < 0.001, np2 = 0.46]
						ZBI scores for caregivers	57.44	53.55	57.61	59.23	Intervention associated with positive impact on caregivers, as per group x time ANOVA [ZBI scale of perceived burden: F(1,58) = 19.04, p <0.001, np2 = 0.25]
						RCSES score for caregivers	0.54	0.61	0.56	0.55	Intervention associated with positive impact on caregivers, as per group x time ANOVA [RCSES self-efficacy score: F(1,58) = 17.30, p <0.001, np2 = 0.23]
						Correlative Improvement Between Care-Recipients and					A strong positive association [R2 = 0.53] was evident across

Author, Country	Setting	Population	Eligibility Criteria	Technology Intervention	Control Group	Outcome	Technology Group Baseline Score	Technology Group Post-Intervention Score	Control Group Baseline Score	Control Group Post-Intervention Score	Finding Summary/Effect Size
						Caregivers					all 60 dyads [Pearson's r = +0.73, df = 58, p <0.001]. An association of moderate effect size was detected in the intervention group [r = +0.50, df = 28, p = 0.005, R2 = 0.25] but not in the control group [r = +0.07, df = 28, p = 0.70, R2 = 0.005].
Marasca, Italy[69]	NR (presumably outpatient clinic)	Chronic skin diseases (n=23)	Patients suffering from chronic-skin-diseases visited through teledermatology-service	Psychological video-consultations n=23 (13 women) Age: Mean=35.4 years	None	DLQI	4.4 ± 3.9	week 2: 2.1 ± 2.3 week 4: 1.6 ± 2.5	NA	NA	Baseline to week 2, p<0.05 Baseline to week 4, p<0.05
						PGWB	68.5 ± 15	week 2: 75.4 ± 15.4 week 4: 77.1 ± 16	NA	NA	Baseline to weeks 2 and 4, p=ns
Vigersky, USA[68]	Hospital	Individuals with type 1 diabetes (n=NR)	Patients with data stored in CareLink Personal (with at least 10 days of SmartGuard auto mode usage) who were new to MiniMed 670 G system use during the pre-COVID-19 and the intra-COVID-19 eras.	Zoom training during COVID-19 n=NR Age: NR	In-person training pre-COVID-19 n=NR Age: NR	Sensor Glucose (mg/dl)	NR	157.4 (15.3)	NR	160.2 (18.0)	The glycemic results were similar between those getting in-person training compared with those receiving virtual training, although marginally better in the former cohort.
						% time in range: <54mg/dl	NR	0.5% (0.8)	NR	0.5% (0.8)	
						% time in range: <54-69g/dl	NR	1.7% (1.8)	NR	1.7% (1.8)	
						% time in range: 70-180g/dl	NR	70.4% (10.6)	NR	68.4% (11.9)	
						% time in range: >181-250g/dl	NR	28.0% (10.4)	NR	29.9% (12.1)	
						Time in range: >250	NR	6.5% (5.8)	NR	7.6% (7.0)	
Zhou, China[66]	Hospital (quarantine wards)	Adults in quarantine suspected of having COVID-19 disease (n=15)	Patients were at least 18 years of age, suspected COVID-19 cases, able to access a smartphone with WeChat and	WeChat-based individual consultation n=15 Age: NR	None	HADS-A	12.6 (SD=3.6)	6.1 (2.1)	NA	NA	t =6.5, p<0.01
						HADS-D	10.1 (2.8)	4.4 (2.2)	NA	NA	t =6.1, p<0.01

Author, Country	Setting	Population	Eligibility Criteria	Technology Intervention	Control Group	Outcome	Technology Group Baseline Score	Technology Group Post-Intervention Score	Control Group Baseline Score	Control Group Post-Intervention Score	Finding Summary/Effect Size
			without pre-existing mental health disorders. HADS score >8			HADS	22.7 (6.2)	10.6 (4.2)	NA	NA	t =6.4, p<0.01

Abbreviations: COVID-19: Coronavirus Disease 2019; DLQI: Dermatology Life Quality Index; HADS: Hospital Anxiety and Depression Scale; Montreal Cognitive Assessment; n: number; NCD: neurocognitive disorder; n: number; NA: not applicable; NR: not reported; PCI: percutaneous coronary intervention; PGWB: Psychological General Well-Being Index; QoL-AD: Quality of Life in Alzheimer's Disease; RMBPC: Revised Memory and Behavior Problem Checklist; SE: standard error; SF36v2: Short Form 36 version 2; STEMI: ST segment elevation myocardial infarction; ZBI: Zarit Burden Interview Scale

Table C2. Full Findings from Categorical Outcome Studies Included in the Technology Rapid Review

Author, Country	Setting	Population	Eligibility Criteria	Technology Intervention	Control Group	Outcome	Technology outcome results	Control outcome results	Finding Summary/Effect Size/p-value
Goodman-Casanova, Spain[5]	Community	Older adults with mild cognitive impairment or mild dementia (n=93)	Age >60 years, self-perceived cognitive impairment or caregiver's perception of cognitive impairment that was present for at least 6 months, score of 23-27 points on the Mini-Mental State Examination, independent living, informal caregiver, pharmacological treatment, and written consent	TV-AssistDem n=47 (31 women) Age: Mean=74.00 years (SD=6.16)	Treatment as usual n=46 (29 women) Age: Mean=72.67 years (SD=5.98)	Memory exercises performed	24	8	p=0.001
						No COVID-19 symptoms	45	44	Chi-square: 1.33 (df=2), p=0.51
						COVID-19 symptoms without test	1	2	NR
						COVID-19 symptoms and positive test	0	0	NR
						Hospitalized due to COVID-19	0	0	NR
						ICU inpatient due to COVID-19	1	0	NR
						Deceased due to COVID-19	0	0	NR
						Feeling well	27	30	Chi-square: 0.41 (df=1), p=0.52
						Feeling calm	3	5	Chi-square: 0.55 (df=1), p=0.46
						Feeling sad	17	10	Chi-square: 2.57 (df=1), p=0.11
						Feeling worried	7	13	Chi-square: 2.30 (df=1), p=0.13
						Feeling afraid	6	4	Chi-square: 0.45 (df=1), p=0.5
						Feeling anxious	8	14	Chi-square: 2.15 (df=1), p=0.14
						Feeling bored	6	7	Chi-square: 0.09 (df=1), p=0.74
						Sleep quality maintained	35	30	Chi-square: 2.01 (df=1), p=0.16
						Sleep quality altered	8	14	NR

Author, Country	Setting	Population	Eligibility Criteria	Technology Intervention	Control Group	Outcome	Technology outcome results	Control outcome results	Finding Summary/Effect Size/p-value
						Sleep quality unknown	0	0	NR
						No physical activity	8	4	Chi-square: 1.43 (df=1), p=0.23
						Walking	23	30	Chi-square: 2.51 (df=1), p=0.11
						Stair climbing	5	5	Chi-square: 0.01 (df=1), p=0.97
						Gymnastics	12	7	Chi-square: 1.52 (df=1), p=0.22
						House chores	6	2	Chi-square: 2.09 (df=1), p=0.27
						Other physical activity	3	9	Chi-square: 3.59 (df=1), p=0.058
						Reading	13	11	Chi-square: 0.22 (df=1) p=0.63
						Playing games	1	5	Chi-square: 2.85 (df=1) p=0.
						Needlework	6	12	Chi-square: 2.49 (df=1), p=0.11
						Painting	5	3	Chi-square: 0.55 (df=1), p=0.71
						Watching television	28	27	Chi-square: 0.04 (df=1), p=0.83
						Listening to radio or music	3	6	Chi-square: 1.11 (df=1), p=0.48
						Playing with information and communications technology	4	4	Chi-square: 0 (df=1), p>.99
						House chores	18	23	Chi-square: 1.1 (df=1), p=0.29
						Keeping pets or plants	2	10	Chi-square: 6.13 (df=1), p=0.01
						Home visits	24	22	Chi-square: 0.1 (df=1), p=0.75
						Calls	46	45	Chi-square: <0.001 (df=1), p=0.99
						Video calls	23	22	Chi-square: 0.01 (df=1), p=0.91
						Texting	25	21	Chi-square: 0.53 (df=1), p=0.47
Nan, China[65]	Hospital	Patients diagnosed with acute STEMI (n=60)	Patients diagnosed with acute STEMI who underwent primary PCI within 24 h after symptom onset at our center	Tiantanzhixin app n=8 (3 women) Age: Median=67.5 years (Quartiles 1 and 3: 53.25–81.25)	No app n=52 (20 women) Age: Median=71.5 years (Quartiles 1 and 3: 56.75–77.75)	Symptom onset to call ambulance time (min)	47.5 (45–60)	70 (60–90)	p=0.007
						Call ambulance time to first medical contact time (min)	17.5 (15–22.5)	20 (17–24)	p=0.315
						First medical contact to door time (min)	17.5 (12.5–21)	17 (14.25–21)	p=0.948
						Door to balloon time (min)	65 (56.25–73.5)	77 (70–86.5)	p=0.01

Author, Country	Setting	Population	Eligibility Criteria	Technology Intervention	Control Group	Outcome	Technology outcome results	Control outcome results	Finding Summary/Effect Size/p-value
						Total ischaemia time (min)	144.5 (132.75–162.5)	188 (171–213)	p=0.001
						In-hospital all-cause of death	1	8	p=1
						In-hospital cardiac death	1	8	p=1
						In-hospital major cardiovascular event	1	10	p=1
						In-hospital non-fatal myocardial infarction	0	4	p=1
						In-hospital stroke	0	1	p=1
						In-hospital any revascularization	0	0	p=1
						In-hospital definite or probable stent thrombosis	0	0	p=1
						In-hospital new renal replacement therapy	0	11	p=0.33
						30-day all-cause of death	1	8	p=1
						30-day cardiac death	1	8	p=1
						30-day major cardiovascular event	2	15	p=1
						30-day non-fatal myocardial infarction	0	8	p=0.582
						30-day stroke	0	3	p=1
						30-day any revascularization	0	2	p=1
						30-day definite or probable stent thrombosis	0	1	p=1
						30-day new renal replacement therapy	2	13	p=1
Trevino, USA[67]	Virtual; Community; Academic cancer center	Adults with cancer (n=3902)	Patients with cancer age ≥ 18 years enrolled in a single academic cancer center's online patient portal	Zoom group therapy sessions n=3902 Age: NR	None	Self-reported extreme anxiety/stress reduction	3268 (83.8%)	NA	Anxiety/stress reduction ratings were highest for music and fitness classes (X2 (5, n = 3902) = 41.61, p < 0.001).

Abbreviations: COVID-19: Coronavirus Disease 2019; n: number; NR: not reported; NA: not applicable; SE: standard error; STEMI: STEMI: ST segment elevation myocardial infarction