Audio-Only Telehealth: Existing Center Research and Environmental Scan

Research Request

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Executive Summary

Background

Audio-only telehealth services, also known as telephonic or telephone-based services, are health care services delivered using real-time 2-way audio communication. Most payers did not cover audio-only services before the COVID-19 public health emergency (PHE), but temporary PHE policies to maintain adequate health care access during the pandemic saw a wide expansion of audio-only coverage.

With the end of the federal PHE in May 2023, state legislatures and Medicaid programs across the United States have been in the process of finalizing post-PHE telehealth policies, including those for audio-only services. There is a lack of consensus among experts and clinicians regarding audio-only telehealth policies. Concerns exist around the quality and appropriateness of audio-only services, while recognizing coverage of audio-only telehealth services is vital for expanding access to care, particularly for several underserved groups (e.g., older adults, people who live in rural areas, people with low incomes, people of color). Policy decisions as to which audio-only services should be allowed and what limitations should be placed on those services can be informed by the available research on audio-only telehealth.

The Minnesota Department of Health is interested in learning about the evidence base for audio-only telehealth. This report identifies and maps out the existing evidence on clinical effectiveness, patient outcomes, health service utilization, patient and provider preference, and barriers and catalysts to using audio-only telehealth services.

Key Deliverables

1. An overview of existing Center for Evidence-based Policy (Center) research on audio-only telehealth
2. An environmental scan of limited databases and key policy sources by rapid review methods to learn about the use and effectiveness of audio-only telehealth mapped to specific conditions and populations studied

Methods

Researchers from the Center for Evidence-based Policy (Center) searched through all Medicaid Evidence-based Decisions (MED) reports published since 2017 that relate to telehealth, as well as all MED e-Health Workgroup tools and meeting slides since the workgroup's establishment in 2018. We searched MED clinical evidence sources (e.g., Ovid MEDLINE) for eligible systematic reviews and primary studies published since 2017 that assess the clinical effectiveness, utilization, patient preferences, provider preferences, or barriers and catalysts for using audio-only telehealth. Lastly, we searched gray literature sources for relevant publications and conducted searches using Google Scholar and DuckDuckGo using the search phrases *audio-only telehealth*, *telephone visit*, and *telephonic visit*.

Key Findings

Existing Center Research

- There are 10 MED reports with findings related to audio-only telehealth. Two of these are specifically about audio-only telehealth while the others included some findings related to audio-only telehealth.
    - Findings from 3 recent MED reports suggest many physical and behavioral health services delivered via audio-only telehealth were comparable to in-person services with regard to effectiveness, health outcomes, health care utilization, and quality of life. These MED reports also found audio-only services improved patient satisfaction and treatment adherence while decreasing barriers to care.
    - However, 1 recent MED report found limited evidence to support the efficacy of group and family psychotherapy services delivered by audio-only telehealth. Almost all of the 15 Medicaid programs reviewed for this report allowed group and family psychotherapy services to be delivered by audio-only telehealth during the PHE. At the time the report was written in 2022, 4 of the 15 Medicaid programs reviewed planned to cover audio-only group and family psychotherapy services after the PHE ended.
    - The 2022 MED report on audio-only telehealth services found more than 20 Medicaid programs allowed for some audio-only telehealth services, but many of those policies were temporary and were scheduled expire along with state or federal PHE declarations.
- There are 5 MED e-Health Workgroup meeting presentations with content relating to audio-only telehealth.
- The 2021 MED e-Health Workgroup tool includes a map showing 22 states that have expanded audio-only telehealth coverage since the COVID-19 pandemic, compared to no states having had audio-only telehealth coverage before the COVID-19 pandemic.

Summary of Evidence Regarding the Effectiveness of Audio-Only Telehealth

- A total of 57 review articles (evaluating multiple primary studies on the same topic) and 142 primary studies met the inclusion criteria for this report and assessed the clinical effectiveness and patient health outcomes, utilization, patient preferences, provider preferences, or barriers and catalysts for using audio-only telehealth.
- Of the 57 review articles, 12 reported on behavioral health, 16 on chronic conditions, 2 on neurology, 7 on oncology, 2 on pharmacy, 4 on triage and consultations, and the remaining 14 on other specialty areas.
    - Most studies included within the review articles showed comparable or improved medication adherence, clinical outcomes, quality of life, patient satisfaction, and health service use for telephone interventions relative to comparison groups across all specialties.
    - Telephone visits were more convenient and accessible for patients and improved efficiency of clinicians' time, but it is more difficult to see non-verbal cues and build rapport over the phone.
    - Older patients, patients whose first language is not English, and Black and Hispanic patients were more likely to have telephone visits than video visits.
- Of the 142 primary studies, 32 focused on behavioral health, 40 on chronic conditions, 3 on neurology, 21 on oncology, 1 on pharmacy, 1 on triage and consultations, and the remaining 46 on other specialty areas.

Conclusions

Audio-only telehealth was not implemented widely in the United States until 2020, limiting research on the use of this modality within many clinical specialties and settings. The evidence base is slowly growing; at this time, audio-only telehealth research appears to be largely focused in the fields of behavioral health, chronic conditions, and oncology. Most of the evidence assessed in this report indicate comparable or improved medication adherence, clinical outcomes, quality of life, patient satisfaction, and health service use for telephone interventions relative to various comparison groups across all specialties.

Background

Audio-only telehealth services, also known as telephonic or telephone-based services, are health care services delivered through real-time 2-way audio communication.[1] Audio-only services are often delivered using a telephone but can use other telehealth platforms, such as video conferencing with the video feature turned off.[1] The FQ and 93 billing modifiers were created in 2022 and are the first billing modifiers to indicate services delivered via real-time audio-only telehealth.[2]

Most payers did not cover audio-only services before the COVID-19 public health emergency (PHE), but audio-only coverage greatly expanded along with other temporary PHE policies aimed at maintaining access to care and reducing potential exposure to COVID-19.[2-4] Audio-only telehealth went from being the least commonly covered telehealth modality before the PHE to the second most commonly covered modality (just after audio-video telehealth) during the pandemic.[2] State legislatures and Medicaid programs across the United States are finalizing post-PHE telehealth policies, including for audio-only services.[2] As of October 2022, 35 Medicaid programs cover audio-only services in some capacity.[2]

There is a lack of consensus among experts and clinicians regarding the use of audio-only telehealth, with some individuals raising concerns around the quality and appropriateness of audio-only services and the potential for fraud, waste, and abuse.[5,6] Others propose permanently maintaining many of the audio-only telehealth flexibilities established during the PHE to expand access to care, particularly for individuals with limited digital literacy or who do not have access to broadband and connected devices.[6,7] This is relevant for reducing inequities for underserved populations, especially among older adults, people living in rural areas, people with lower incomes, and people of color.[6,7] However, given the evidence that people more likely to use telehealth services in general (not specifically audio-only telehealth services) are young or middle-aged adults, have higher incomes, are white, or live in urban areas, telehealth may not be effective in mitigating disparities in access to care.[8] Disparities in telehealth use since the PHE began tend to mirror disparities in overall health care use and pre-COVID telehealth use,[8] suggesting disparities in access to telehealth services may exist among populations who already experience difficulty accessing care, as noted above.[9]

With the federal PHE having ended in May 2023, state legislatures and Medicaid programs must sift through the available research on audio-only telehealth to make policy decisions, including what audio-only services should be allowed and what limitations should be placed on those services.[2] The Minnesota Department of Health (MDH) is interested in learning about the evidence base for audio-only telehealth, including the clinical effectiveness of providing different types of services via audio-only telehealth compared with other telehealth modalities or in-person care. This report identifies and maps out the existing evidence relating to audio-only telehealth, particularly with regard to clinical effectiveness, patient outcomes, health service utilization, patient and provider preference, and barriers and catalysts to using audio-only telehealth services.

Key Deliverables

1. An overview of existing Center for Evidence-based Policy (Center) research on audio-only telehealth
2. An environmental scan of limited databases and key policy sources by rapid review methods to learn about the use and effectiveness of audio-only telehealth mapped to specific conditions and populations studied

PICO

Population

- Individuals eligible to receive health care services via audio-only telehealth

Intervention

- Health care services delivered through audio-only telehealth

Comparators

- Health care services delivered in person
- Health care services delivered by audio-video telehealth
- Usual care

Outcomes

- Clinical effectiveness and patient health outcomes, including quality of care and access to care
- Utilization of audio-only telehealth for various conditions
- Patient and provider preferences
- Barriers and catalysts

Methods

To address Key Deliverable 1, researchers from the Center for Evidence-based Policy (Center) searched through all Medicaid Evidence-based Decisions (MED) reports published since 2017 that relate to telehealth, as well as all MED e-Health Workgroup tools and meeting slides since the workgroup's establishment in 2018. We included all MED reports, MED e-Health Workgroup tools, and MED e-Health Workgroup meeting slides that pertain to audio-only telehealth in this report.

To address Key Deliverable 2, we searched MED clinical evidence sources (e.g., Ovid MEDLINE) for eligible systematic reviews and primary studies published since 2017 that assess the clinical effectiveness, utilization, patient preferences, provider preferences, or barriers and catalysts for using audio-only telehealth. We also searched gray literature sources for relevant publications and conducted searches using Google Scholar and DuckDuckGo using the search phrases *audio-only telehealth*, *telephone visit*, and *telephonic visit*. We conducted the first round of searches in October 2022 and the second round of searches in June 2023. We found 10 additional review articles but no additional primary studies that met the inclusion criteria during the second round of searching conducted in June 2023.

We excluded primary studies and review articles that did not fit the criteria described in the PICO, including those on interventions with audio-only telehealth being used in combination with other interventions (e.g., mobile applications, text messages, in-person visits). We also excluded studies and review articles published before 2017 (though some of the primary studies within the reviews may have been published before 2017); not published in English (though some of the primary studies within the reviews may have been published in a different language); and conducted outside North America, Europe, Australia, or New Zealand.

We included any primary studies that met the inclusion criteria, rather than targeting gaps in the review evidence. There may be overlap with review articles in this report and some of the report's primary studies, as we did not exclude any primary studies already reported in an included review. We did not perform formal risk-of-bias assessments for any of the review articles or studies included in this report.

See Appendix A for a full description of the methods used in this report.

Findings

Existing Center Research on Audio-Only Telehealth

MED Reports on Audio-Only Telehealth

The 10 MED reports listed below have findings related to audio-only telehealth; 2 MED reports (in bold) are specifically on audio-only telehealth, while the others include some findings related to audio-only telehealth. MED reports are not publicly available due to their proprietary nature. Only state Medicaid agency staff from the 21 Medicaid agencies within the MED collaborative are able to view the MED reports listed below via the MED Clearinghouse.

- Bennett A, Lazur B, King V. *Telehealth in the home: evidence, policy, and practice.* Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2018.
- Evans A, King V. *State strategies to ensure program integrity of telehealth services*. Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2021.
- Lazur B, King V. *Delivering telehealth services to beneficiaries in rural settings: policies before and during the COVID-19 public health emergency*. Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2020.
- Lazur B, King V, Curtis P. *Telebehavioral health in response to the COVID-19 pandemic: what worked, what didn't work, and how can this shape future policy?* Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2021.
- Lazur B, Sobolik L, King V. *Behavioral health treatment delivered via synchronous telehealth: effectiveness and programmatic structure.* Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2020.
- Leof A, Shaw B, Stone J. King VJ. *Effectiveness of telehealth for substance use disorder treatment services: rapid review and policy evaluation.* Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2021.
- **Ruppel L, Chapman S, Evans A, King VJ, Stone J. *Audio-only telehealth flexibilities for group psychotherapy services: evidence, reimbursement and coverage criteria.* Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2022.**

- Ruppel L, Durbin S, King VJ. *Synchronous telehealth: determining quality and patient preferences*. Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2021.
- **Ruppel L, Durbin S, Shaw EJ, King VJ, Evans A. *Audio-only telehealth services: innovations and operational considerations*. Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2022.**
- Ruppel L, Thielke A, Curtis P, King VJ. *Telemedicine reimbursement: policies and methodologies*. Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University; 2021.

Findings from 3 recent MED reports suggest many physical and behavioral health services delivered via audio-only telehealth were comparable to in-person services with regard to effectiveness, health outcomes, health care utilization, and quality of life, especially for low-risk patients (*Behavioral Health Treatment Delivered via Synchronous Telehealth: Effectiveness and Programmatic Structure*,[10] *Synchronous Telehealth: Determining Quality and Patient Preferences*,[11] and *Effectiveness of Telehealth for Substance Use Disorder Treatment Services: Rapid Review and Policy Evaluation*[12]). These MED reports also found audio-only services resulted in similar or improved patient satisfaction and treatment adherence, as well as decreased barriers to care (e.g., travel time, missing work), compared to in-person care.[10-12]

However, the findings from the policy and evidence MED report on audio-only telehealth flexibilities for group psychotherapy services found limited evidence to support the efficacy of group and family psychotherapy services delivered by audio-only telehealth (*Audio-Only Telehealth Flexibilities for Group Psychotherapy Services: Evidence, Reimbursement and Coverage Criteria*[13]). Center researchers reviewed policies from 15 state Medicaid programs for the report and found these programs generally had difficulty collecting data on audio-only group and family psychotherapy services, due partially to the lack of audio-only billing modifiers until late 2021.[13] Nevertheless, almost all of the Medicaid programs reviewed allowed group and family psychotherapy services to be delivered by audio-only telehealth during the PHE.[13] At the time the report was written in 2022, 4 of the 15 Medicaid programs reviewed planned to cover audio-only group and family psychotherapy services after the PHE ended.[13]

The findings from the 2022 MED policy report on audio-only telehealth services found more than 20 state Medicaid programs allowed for some audio-only telehealth services at the time, but many of those policies were temporary and were scheduled expire along with state or federal PHE declarations (*Audio-Only Telehealth Services: Innovations and Operational Considerations*[14]). Before the PHE, audio-only telehealth coverage was rare among state Medicaid programs.[14] In December 2021, the Centers for Medicare & Medicaid Services confirmed that state Medicaid programs have the authority to reimburse for audio-only telehealth services under policies existing before the COVID-19 public health emergency.[14] As state legislatures and Medicaid programs continue to finalize telehealth policies, audio-only telehealth policies will likely differ from state to state.[14]

Presentations from Prior MED e-Health Workgroup Meetings

Five prior MED e-Health Workgroup meeting presentations included some content relating to audio-only telehealth (listed below). MED Workgroup materials are not publicly available due to their proprietary nature. Only state Medicaid agency staff from the 21 Medicaid agencies within

the MED collaborative are able to view the MED Workgroup materials listed below via the MED Clearinghouse.

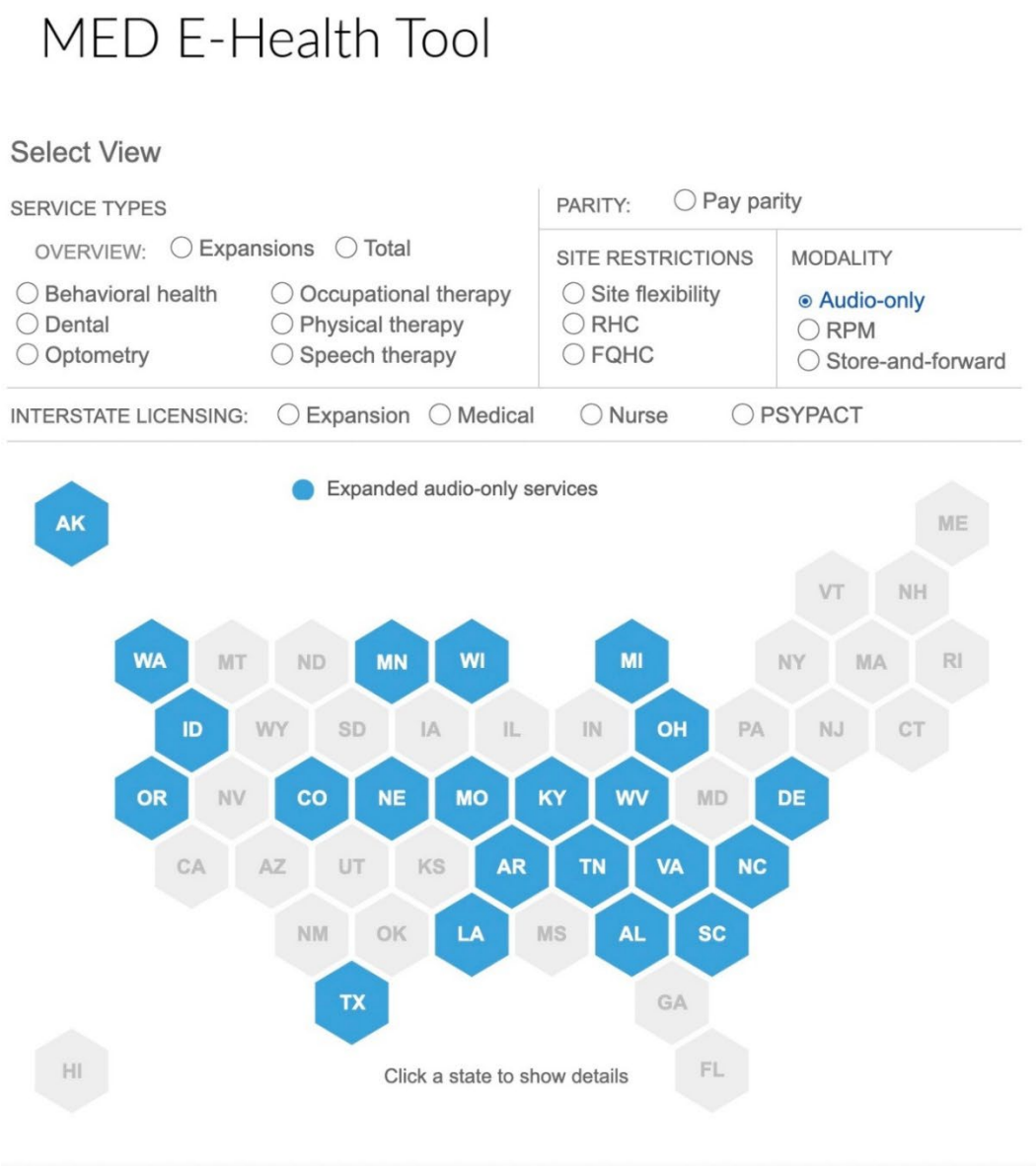
- **Q1 2021:** Telehealth Policy Update and Deep Dive: Telehealth Reimbursement Report Presentation and Discussion on Telemedicine Reimbursement Action Steps
- **Q2 2021:** Deep Dive Telemedicine Reimbursement Report: State Spotlight Colorado and Michigan; Synchronous Telehealth Action Steps Discussion
- **Q3 2021:** State Regulators and the Future of Telehealth Policy: Medicaid Telehealth Policy Update; Post-Public Health Emergency Telehealth Discussion
- **Q1 2022:** Telehealth Billing Code Update: Audio-Only Report Deep Dive
- **Q2 2023:** Policy-Informed Telehealth Research

The most relevant of these workgroup presentations was the Q1 2022 MED e-Health Workgroup meeting, with a deep dive on the *Audio-Only Telehealth Services: Innovations and Operational Considerations* report (summarized in the MED Reports on Audio-Only Telehealth section above).

MED e-Health Workgroup Tools

The 2021 MED e-Health Workgroup tool, the e-Health Policy Dashboard, includes a map showing that 22 states expanded audio-only telehealth coverage since the COVID-19 public health emergency, and no states had audio-only telehealth coverage previous to the PHE (see Figure 1).[3] This figure was last updated in 2021, so it may not be up to date on current policies regarding audio-only telehealth coverage.[3] MED Workgroup tools are not publicly available due to their proprietary nature. Only state Medicaid agency staff from the 21 Medicaid agencies within the MED collaborative are able to view the MED Workgroup tool shown below via the MED Clearinghouse.

Figure 1. 2021 MED e-Health Workgroup Tool



Source. Ruppel, 2021.[3]

Effectiveness of Audio-Only Telehealth

A total of 57 review articles and 142 primary studies met the inclusion criteria for this report and assess clinical effectiveness and patient health outcomes (including quality of care and access to care), utilization, patient preferences, provider preferences, or barriers and catalysts for using audio-only telehealth (see Table 1 for a summary of the review articles, and see Table B1 in Appendix B for a summary of the primary studies). Of the 57 review articles, 12 focused on behavioral health, 16 on chronic conditions, 2 on neurology, 7 on oncology, 2 on pharmacy, 4 on triage and consultations, and the remaining 14 on other specialty areas.

Most studies within the review articles showed comparable or improved medication adherence,[15-21] clinical outcomes (including symptom severity),[15,17,18,21-46] quality of life,[17,20,23,28,30,33,34,43,46] and patient satisfaction[34,38-40,44,47-51] for telephone interventions relative to various comparison groups (including usual care, video visits, and in-person visits) across all specialties. Most studies also found comparable or reduced health service use (including hospital and ED visits) for telephone interventions relative to comparison groups.[8,18,20,27,33,40,42,47,48,50,52] Compared with video and in-person visits, telephone visits were generally more convenient and accessible for patients[25,30,53-55] and improved efficiency of clinicians' time,[47,52] but it is more difficult to see non-verbal cues[25,51] and build rapport[51,56] over the phone. Older patients,[57,58] patients whose first language is not English,[58] and Black and Hispanic patients[58] were more likely to have telephone visits compared with video visits.

Of the 142 primary studies, 31 were on behavioral health, 39 on chronic conditions, 3 on neurology, 21 on oncology, 1 on pharmacy, 1 on triage and consultations, and the remaining 46 on other specialty areas. There may be overlap with review articles in this report and the report's primary studies, as we did not exclude any primary studies based on this factor.

Table 1. Summary of Included Systematic Reviews

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Behavioral Health		
Appleton, 2021[59] 49 studies Utilization, catalysts, barriers	Mental health services delivered over the telephone Comparison group not specified	• Most practices used a mix of telephone and video visits during the COVID-19 pandemic. • Clinicians and patients varied in preferences for different telehealth modalities, including telephone visits.
Baker, 2018[15] 20 studies Psychotic disorders Relapse, medication adherence, modifiable cardiovascular disease risk behaviors	Telephone-based interventions for treating psychotic disorders In-person visits	• Six of 10 studies on relapse prevention had favorable results for the telephone interventions for at least 50% of the outcomes reported. • Four of 6 studies on medication adherence had favorable results for the telephone interventions for at least 50% of the outcomes reported. • Two of 4 studies on health behaviors had favorable or comparable results for the telephone interventions compared with controls for at least 50% of the outcomes reported.
Beech, 2022[22] 4 studies Anxiety, depression, and multiple mental health conditions Depression symptom severity, obsessive compulsive disorder symptom severity	Telephone-based interventions for treating depression, anxiety, or multiple mental health conditions In-person visits	• In 2 studies, the change in depression symptom severity was similar between the telephone-based intervention and those receiving in-person care. • In 1 study, there was no difference in obsessive compulsive disorder symptom severity between the telephone-based intervention and those receiving in-person care. • In 1 study, individuals with a comorbid anxiety disorder in the telephone-based intervention group had significantly higher depression symptom severity compared with individuals receiving in-person care.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Chen, 2022[25] 11 studies Anxiety, depression, post-traumatic stress disorder, substance use disorders, smoking cessation, bipolar disorder, schizophrenia, eating disorders, obsessive compulsive disorder, tic disorders Effectiveness, retention, satisfaction, medication adherence	Telephone-based treatment for mental health disorders In-person visits, video visits	• Phone-based treatment reduced mental health symptoms and was comparable to services delivered in person while being more convenient for patients. • Services delivered over the phone are more accessible than video visits, but the latter provide visual cues important for diagnosing mental health conditions.
Coughtrey, 2018[26] 14 studies Depression, anxiety Reduction in psychological symptoms	Telephone-based psychological therapy Various comparison groups	• Nine of 10 studies showed reduced symptoms of depression among those receiving telephone-based physiological therapy; only 2 of these studies examined clinically significant changes. • Four of 4 studies showed reduced symptoms of anxiety among those receiving telephone-based physiological therapy; only 2 of these studies examined clinically significant changes.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Edwards, 2022[16] 4 studies Schizophrenia Medication adherence, medication attitudes, self-efficacy for adherence, symptoms	Telenursing to support medication adherence Usual care	• The telenursing group had significantly higher medication adherence for psychiatric medications. • The telenursing group had significantly higher medication adherence at week 16 and better medication attitudes. • There was no significant difference in medication adherence, self-efficacy for adherence, or symptoms between the telenursing and control groups. • Voluntary continuation of medication, belief in the necessity of medication, and medication adherence were higher in the telenursing group.
Fjellsa, 2022[27] 2 studies Emergency medicine Depression, anxiety Mental health functioning, anxiety and depressive symptoms, follow-up after ED visit, ED admissions	• Telephone-based symptom monitoring, education, and problem-focused therapy delivered by a nurse for older adult patients with depression and anxiety • Telephone call reminders for older adults within 5 days of ED visit to schedule an appointment with a physician or change medications Various comparison groups	• The intervention group had greater improvements in anxiety and depression symptoms and mental health functioning compared with the control group. • The intervention group was more likely to have a physician visit within 5 days compared with control and placebo groups. • The intervention group had a reduction in ED admissions, but this finding was not significant compared with control and placebo groups.
Lei, 2023[31] 3 studies Oncology Depression, anxiety Depression severity, anxiety severity	Telephone-based interventions aimed at improving the mental health of informal caregivers of individuals with lung cancer Comparison group not specified	• The telephone-based interventions were effective at reducing depression severity and anxiety severity.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Nkodo, 2022[34] 10 studies Dementia Acceptability, feasibility, frequency and intensity of dementia symptoms, caregivers' perceived well-being and mental health	Telephone-based treatment and follow-up for patients with behavioral and psychological symptoms of dementia, as well as caregivers Various comparison groups	• Phone-based interventions had several benefits for caregivers, including lower burdens (4 studies; however, 1 study showed no difference in caregiver burden), reduced reactions to dementia-related behavioral issues (2 studies), reduced distress (4 studies), improvements in depressive symptoms (4 studies), reduced health care use (2 studies), improved well-being (3 studies), improved sense of self-sufficiency (1 study), improved coping capacity (1 study), improvements in problem behaviors (1 study), increased use of community support services (2 studies) and high satisfaction (2 studies). • Phone-based interventions showed some benefits for patients, including feasibility (1 study), reduced symptoms of anxiety and depression (2 studies), reduced dependence with activities of daily living (1 study), improved quality of life (1 study), and high patient satisfaction (1 study). Results on patients' dementia symptoms were mixed. One study showed no change in patients' agitated behaviors, and 1 study showed no difference in patients' health care and support service utilization.
van den Heuvel, 2018[60] 2 studies Obstetrics and gynecology Postpartum depression Feasibility, acceptability	Telephone-based screening for postpartum depression Comparison group not specified	• Phone-based screening for postpartum depression was found to be feasible and acceptable.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
van Leeuwen, 2021[44] 8 studies Borderline personality disorder, eating disorders Frequency, efficacy, and clinical utility of phone consultations	Telephone consultations that took place between DBT sessions Various comparison groups	• In 1 study, phone consultations were associated with higher patient satisfaction, clinician satisfaction, and treatment retention, as well as reduced psychosocial problems. • DBT therapists received 2.6 calls per month on average in 1 study.[44] In another study, therapists received 0 to 4 calls per day with an average call duration of 6 minutes.[44] • One study found no association between phone calls and parasuicide episodes. • Four studies identified therapists' reluctance to offer phone consultations as a barrier to implementing standard DBT programs.
Xiao, 2021[45] 8 studies HIV infection Depressive symptoms	Telephone-based therapy for treating depressive symptoms among individuals with low incomes who have HIV Various comparison groups	• The meta-analysis showed a small to moderate effect size for decreasing postintervention depressive symptoms in the intervention group compared with the control group, but there were no long-term effects. • The postintervention effects were slightly stronger among individuals with low incomes who have HIV (especially for those in ethnic majority subgroups) relative to people who have HIV in general.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Chronic conditions		
Cavero-Redondo, 2021[17] 6 studies Hypertension Blood pressure, medication adherence, physical activity compliance, quality of life	Telephone-based interventions for patients with hypertension Blood pressure telemonitoring, emails, websites, smartphone applications, text messages	• Phone-based interventions were effective at reducing systolic and diastolic blood pressure. Phone-based interventions also improved blood pressure control, but less so than all 6 other e-health interventions. • Phone-based interventions improved medication adherence, but less so than 5 of the 6 other e-health interventions. • Phone-based interventions improved physical activity compliance, but less so than 3 of the 6 other e-health interventions. • Phone-based interventions had no significant impact on quality of life.
Cui, 2019[61] 7 studies Chronic heart failure Quality of life	Telephone-based collaborative care interventions In-person visits	• In-person collaborative care interventions showed greater improvements in quality of life compared with phone-based collaborative care interventions.
Dong, 2022[57] 2 studies Irritable bowel disease, hepatitis C, autoimmune hepatitis Patient preference	Telephone-based care for treating irritable bowel disease and hepatitis Video visits, in-person visits	• Individuals with irritable bowel disease prefer in-person visits over telephone or video visits during flare-ups. • Older individuals with irritable bowel disease are more likely to have telephone visits than video visits. • Older individuals with hepatitis are more likely to have telephone visits than video visits.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Elnaem, 2020[62] 2 studies Hypertension, hyperlipidemia Medication adherence, clinical outcomes	• Telephone calls with tailored educational messages • Telephone-based counseling Various comparison groups	• The phone call educational messages intervention significantly decreased medication adherence compared with the control group. • The phone-based counseling intervention had no significant effect on statin adherence or clinical outcomes.
Gordon, 2023[28] 3 studies Inflammatory bowel disease Flare-ups or relapse, quality of life, hospital admissions, medication adherence, participant engagement, engagement with the intervention, attendance rate of interactions with clinicians	Telephone-based disease monitoring In-person visits	• One study showed there was no significant difference in disease activity for adults. • One study showed fewer flare-ups in the telephone-based intervention group compared to the control group for adults, and 1 study showed more flare-ups in the telephone-based intervention group compared to the control group for children. • Two studies showed no difference in quality of life between the telephone-based intervention group and the control group for adults.
Huang, 2019[29] 9 studies Obesity, diabetes, hypertension Changes in body mass index	Telephone-based interventions for people with obesity, diabetes, or hypertension Comparison group not specified	• The phone-based intervention groups showed greater reductions in body mass index compared with the control groups.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Huang, 2019[30] 3 studies Asthma Feasibility, acceptability, effectiveness, asthma control, quality of life, health service utilization, access to care	Telephone-based interventions for people with asthma Comparison group not specified	• One study showed the telephone-based intervention improved asthma control and was a feasible and acceptable strategy for managing asthma. • One study showed telephone-based coaching may improve asthma control and quality of life, while reducing asthma-related urgent care visits. • One study showed telephone-based coaching is feasible and effective and may improve access to care.
Meng, 2023[32] 8 studies Hypertension Blood pressure control, behavior modification	Telephone-based health coaching interventions Web-based interventions, in-person visits	• Telephone-based health coaching interventions were more common than web-based and in-person health coaching interventions. • The telephone-based health coaching intervention group had significantly lower blood pressure compared with the control group. There was no significant difference in blood pressure between intervention and control groups for web-based or in-person health coaching interventions.
Patel, 2019[36] 2 studies Obesity Weight loss, retention	Telephone-based motivational interviewing for weight loss Usual care	• Two studies assessed weight change, 1 of which found no difference in weight change and the other found greater weight change in the telephone-based intervention group compared with the control group. • One study assessed retention and found no difference in retention between the telephone-based intervention group and the control group.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Raphael, 2017[38] 5 studies Chronic conditions Disease-specific outcomes, acceptability, patient satisfaction	Telephone-based interventions delivered by primary care nurses to older adults with chronic conditions Video visits, in-person visits	• Three studies assessed disease-specific outcomes. All 3 studies found telephone-based interventions improved some health outcomes, while 2 of these studies also found no impact on other disease-specific outcomes. • Three studies assessed acceptability and patient satisfaction. 1 study found no difference in patient satisfaction between telephone- and video-based groups. 1 study found the telephone-based intervention to be highly acceptable. 1 study found nurses gave lower priority to telephone calls than in-person visits.
Sakunrag, 2020[41] 8 studies Thromboembolic diseases Time in therapeutic range, visit in range, adverse events	Telephone-based interventions for people who take warfarin Usual care	• There was no difference in time in therapeutic range or visit in range for the telephone-based intervention group compared with the usual care group. • Patients in the telephone-based intervention experienced fewer adverse events compared with the usual care group.
Schulte, 2021[19] 5 studies Asthma, COPD Medication adherence	Phone-based interventions for people with asthma or COPD Various comparison groups	• Four studies assessed medication adherence for people with COPD. Two studies found no difference in medication adherence and 2 studies found the phone-based intervention effectively improved medication adherence. One study found improved adherence for inhaler use but no difference in oral medication adherence. • One study assessed medication adherence for people with asthma and found nonsignificant results.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Son, 2020[20] 5 studies Chronic heart failure Readmission, hospitalization, hospital days, ED visits, mortality, medication adherence, quality of life, self-care behaviors	Telephone-based check-ins, education, monitoring, counseling, health coaching, or disease management Various comparison groups	• In 2 studies, the intervention group had fewer hospitalizations than the control group. In 1 study, the intervention group had fewer hospital days, while in another study there was no difference. In 1 study, there was no difference in ED visits. In 2 studies, the intervention group had fewer readmissions, while in another study there was no difference. • In 2 studies, there was no difference in mortality or quality of life, and in 1 study there was no difference in medication adherence. • In 1 study, the intervention group had more self-care behaviors, while in another study there was no difference.
Vaikuntharajan, 2022[63] 20 studies Chronic conditions Lower extremity physical function	Telephone-based physiotherapy interventions for adults with chronic conditions No physiotherapy intervention, non-phone-based physiotherapy intervention	• Telephone-based physiotherapy had a small to moderate effect on walking distance relative to control groups that received no exercise intervention but had no effect relative to control groups that received an exercise intervention that was not phone-based.
Velloza, 2021[64] 2 studies Preventive medicine Antiretroviral therapy adherence	Telephone-based counseling for youth Usual care	• Both studies found significantly improved 30-day antiretroviral therapy adherence at 6 to 12 months in the intervention group compared with the standard of care group.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Zhang, 2023[65] 17 studies Type 2 diabetes HbA1c levels	Telephone-based interventions for improving glycemic control in patients with type 2 diabetes Comprehensive measures, smartphone applications, text messages, websites, wearable devices	• All 6 types of e-health interventions examined in this review (i.e., telephone interventions, comprehensive measures, smartphone applications, text messages, websites, wearable devices) were effective in improving glycemic control. • Of the 6 types of e-health interventions, telephone calls were the least effective at improving glycemic control.
Neurology		
Ownsworth, 2018[35] 6 studies TBI Feasibility, efficacy, clinical outcomes	Telephone-based rehabilitation (including counseling, goal setting, education, problem solving, pleasant activity experiments, cognitive techniques, and practice at home) Various comparison groups	• Four of 6 randomized controlled trials reported positive outcomes (including global functional outcomes, depressive symptoms, post-traumatic symptoms, sleep quality, psychological distress, self-reported depressive symptoms) with telephone-based rehabilitation compared with control groups. • The other 2 randomized controlled trials reported no significant differences between the intervention and control groups.
Smith, 2022[66] 21 studies TBI Utilization of telephone-based follow-up	Telephone-based follow-up appointments, assessments, symptom counseling, questionnaires, support, and information sharing (depending on study) Various comparison groups	• Telephone-based follow-up can be useful for conducting assessments that are time-sensitive and for detecting sequelae, which is especially pertinent for people with TBIs. • There are several limitations to the evidence base for telephone-based follow-up, including a lack of studies with large sample sizes and a lack of studies with low- and middle-income participants.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Oncology		
Blackwood, 2021[23] 2 studies Breast cancer Quality of life, body mass index, cardiac fitness	Telephone-based physical activity programs for adult cancer survivors Educational materials and activity tracker, no comparison group	• Both studies found significant improvements in quality of life. • One study found no difference in body mass index.[23] • One study found significant improvements in cardiac fitness.
Boghosian, 2021[55] 5 studies Breast cancer, ovarian cancer Patient knowledge, psychosocial functioning, challenges	Telephone-based peer-to-peer counseling for BRCA mutation carriers Various comparison groups	• The intervention improved psychosocial functioning and patient knowledge. • The intervention helped patients overcome challenges with scheduling and traveling to support groups, but increased challenges with patient recruitment and retention.
Liptrott, 2018[53] 48 studies Cancer Patient perceptions, access to care, quality of care, patient-clinician relationship	Telephone-based interventions during or after cancer treatment: • Follow-up calls instead of in-person follow-up visits • Supplementary toxicity management and monitoring of treatment side effects • Supplementary phone-based psycho-educational interventions Various comparison groups	• Telephone-based interventions improved convenience and access to care. • There were mixed patient perceptions regarding the necessity of the intervention, the intervention's impact on quality of care, and the patient-clinician relationship.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Morris, 2022[33] 11 studies Cancer Clinical outcomes, quality of life, weight loss, physical activity outcomes, accountability, connectedness, mood, survival rates, symptom intensity, hospital length of stay, intensive care unit visits, ED visits, acceptability, effectiveness, quality, cost, value, access	Group or individual telephone calls focused on cancer survivorship issues, including weight loss, palliative care, caregiver support, and decision support Various comparison groups	• One study found improved clinical outcomes and quality of life among rural breast cancer survivors who received group phone sessions. This study and a follow-up study also found improved weight loss, physical activity, accountability, and connectedness outcomes in the intervention group. • Other studies found rural patients with advanced cancer who received individual phone calls had higher quality of life, mood, and 1-year survival rates. There was no difference in symptom intensity, hospital days, and intensive care unit or ED visits. Caregivers who received individual phone calls had lower depression scores and perceived the phone call intervention to be acceptable. • Two studies found telephone-delivered and in-person consultation planning were comparable with regard to effectiveness, quality, cost, and value.[33] These studies also found telephone-delivered intervention increased access to decision support services for rural patients.
Ream, 2020[37] 32 studies Cancer Effectiveness in reducing symptoms of cancer and cancer treatment	Telephone-based interventions for reducing symptoms of cancer and cancer treatment in adults Various comparison groups	• In most studies, telephone interventions improved depressive symptoms more than in the control groups. In many studies, telephone interventions also improved anxiety, fatigue, and emotional distress more than in the control groups. • There was limited and conflicting evidence regarding the effect of telephone interventions on other symptoms such as pain, sexual symptoms, dyspnea, uncertainty, and overall symptoms.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Suh, 2017[43] 16 studies Cancer Cancer symptoms, emotional distress, self-care, health-related quality of life	Nurse-led telephone-based supportive interventions Various comparison groups	• Telephone interventions improved cancer symptoms (moderate effect), emotional distress (small effect), self-care (large effect), and health-related quality of life (small effect).
Zhang, 2018[46] 14 studies Breast cancer Health-related quality of life, self-efficacy, anxiety, depression, fatigue, social-domestic function, physiological function	Telephone-based interventions for people with breast cancer or who have survived breast cancer Various comparison groups	• Telephone interventions significantly improved anxiety, self-efficiency, social-domestic function, and quality of life relative to control groups. • There were no significant results on the impact of telephone interventions on depression, fatigue, and physiological function.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Pharmacy		
Park, 2022[18] 15 studies Clinical outcomes, medication adherence, guideline adherence, health service utilization	Telephone-based interventions led by clinical pharmacists Various comparison groups	• Three studies found improvements in various clinical indicators (serum uric acid levels, blood pressure control, and international normalized ratio values) in the intervention group compared with the control group, while 3 studies found no difference in clinical indicators (cardiovascular disease risk scores, systolic or diastolic blood pressure, low- or high-density lipoprotein cholesterol, body mass index, and hemoglobin A1c). • Two studies found improvements in other clinical outcomes (mortality and drug-related problems) in the intervention group, while 1 study found no difference in other clinical outcomes (tobacco cessation). • Two studies found improved adherence to medication or guidelines in the intervention group, and 1 study found no difference in medication adherence. • Three studies found no difference in health service utilization, including ED visits, hospitalizations, and hospital readmissions (except among individuals in the lowest risk quartiles for the intervention group, which had reduced utilization in 2 studies).
Pouls, 2021[67] 6 studies Medication adherence	Telephone-based interventions aimed at improving medication adherence for adults who take long-term medication Comparison group not specified	• In 5 studies, the proportion of days covered was higher for the intervention group compared with the control group. • One study found no difference in the percentage of individuals who filled their first prescription.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Triage or Consultations		
Downes, 2017[68] 2 reviews and 1 study General practice Frequency and duration of consultations, appropriateness, clinician workload	Telephone-based general practice consultations In-person visits	• In 1 study, the intervention group had more follow-up consultations, and the consultations were shorter, compared with the control group. • Both reviews showed that phone-based consultations were an appropriate alternative to in-person consultations and reduced clinicians' workloads.
Lake, 2017[47] 10 reviews Various, including primary care and emergency care Access to care, appropriateness of care, patient compliance, patient satisfaction, cost, safety, health service utilization, physician workload, clinical outcomes	Telephone-based triage services In-person visits	• Telephone-based triage services did not improve access to care. • There was generally high satisfaction with telephone-based triage services, but satisfaction may be lower if telephone-based care was perceived as a barrier to receiving in-person care. • There is some potential for cost effectiveness of telephone-based triage services but not sufficient evidence for assessing this metric. • There was no difference between telephone-delivered triage services and traditional care with regard to safety. • There were mixed results regarding health service utilization, with most finding no change in utilization. • There is potential for phone-based triage services to decrease clinicians' workloads. • One review found insufficient evidence regarding clinical outcomes, and 1 review found ED phone-based triage services to be clinically effective.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Rushton, 2019[40] 7 studies Primary care and ED utilization	Telephone-based triage services In-person visits	• Two studies showed no effect on ED use, and 2 studies showed increased primary care use, when triage services were delivered over the phone compared with in person. • One study showed no effect on mortality when triage services were delivered over the phone compared with in person. • Two studies showed no effect on patient satisfaction when triage services were delivered over the phone compared with in person.
Sexton, 2022[50] 31 studies Urgent care Health service utilization, clinical outcomes, user experience	Telephone-based triage services for urgent care Various comparison groups	• Most of the 8 studies that assessed health service use found reduced, or no change in, health service use after implementation of phone-based triage services. • Six studies assessed patient-level service use, and findings were mixed for patient adherence with triage advice. • There were limited results relating to clinical outcomes. • Four studies assessed hospitalization rates, and these studies discussed possible errors where patients may not have received “sufficiently high urgency advice” when receiving phone-based triage services. • Patients generally reported high satisfaction with phone-based triage services, but some patients were dissatisfied with the number and relevance of some of the triage questions.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Other		
Cantor, 2022[24] 4 studies Reproductive health Sexually transmitted infection rates, pregnancy rates, abortion rates, contraceptive use, condom use	Telephone-based counseling and support for contraception services Various comparison groups	• The intervention and control groups had similar rates of sexually transmitted infections, pregnancy rates, abortion rates, oral contraceptive pill continuation, contraceptive use, long-acting reversible contraception use, and condom use.
De Guzman, 2021[52] 20 studies Primary care Cost effectiveness	Telephone-based triage, consultations, asthma review service, lifestyle intervention, or cognitive behavioral therapy Various comparison groups	• Telephone-based interventions were cost effective when clinically appropriate, there was efficient use of clinician time, and there was lower demand on health services overall.
Fernandes, 2022[56] 4 studies Pain management Barriers, catalysts	Telephone-based interventions for people with chronic pain Comparison group not specified	• Telephone-based interventions for people with chronic pain enabled clinicians to provide ongoing support and enabled patients to engage in self-management. • Participants in 2 studies reported it was difficult to build rapport over the phone.
Gilbert, 2020[54] 3 studies Orthopedics Patient perceptions	Telephone-based orthopedic interventions Comparison group not specified	• Different training and skills are necessary for clinicians who provide care over the phone. Patients and clinicians must make adaptations to surmount difficulties with communication. • Telephone interventions increased flexibility for patients.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Goldstein, 2017[69] 211 studies Various Telehealth utilization	Telephone-based services for women Video visits, in-person visits	• Telephone was the most commonly used telehealth modality for delivering services across all types of services included in the review (i.e., maternal health, prevention, disease management, family planning, breast cancer, mental health, intimate partner violence).
Hatef, 2023[70] 5 studies Various ED visits, hospitalization rates, mortality	Telephone visits Video visits, in-person visits	• One study found higher ED visit rates and mortality rates in the telephone intervention group compared with the video intervention group. • Four studies found similar or lower hospitalization rates among those who had telephone visits compared with those who had in-person visits.
Jones, 2022[58] 8 studies Various Telephone visit utilization, patient demographics	Telephone-based outpatient visits in secondary or tertiary care settings Video visits	• Telephone-based visit uptake ranged from 12% to 78%. • Older patients and patients whose first language is not English were more likely to have telephone visits compared with video visits. Black and Hispanic patients were more likely to have telephone visits over video visits compared with White and Asian patients.
Kelly, 2023[71] 5 studies Nutrition Cost effectiveness	Telephone-delivered nutrition interventions for adults with chronic disease Usual care	• Two studies found that telephone-delivered nutrition interventions were cost effective, 2 studies found these interventions were not cost effective. 1 study had unclear results and cost effectiveness depended on differing willingness to pay thresholds.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Moentmann, 2021[48] 2 studies Otolaryngology Ability for providers to correctly diagnose voice disorders, ED visits, patient satisfaction	Intervention 1: Distinguishing spasmodic dysphonia and vocal tremors from other voice disorders over the telephone, before an in-person evaluation No comparison group Intervention 2: Telephone visit 72 hours after discharge to discuss symptoms Pre-implementation of telephone intervention	• Otorhinolaryngologists and speech pathologists were able to distinguish spasmodic dysphonia and vocal tremors from other voice disorders over the phone. • Telephone visits after laryngectomy or multisubsite head and neck cancer operations increased patient satisfaction and reduced ED visits.
Moukhtar Hammad, 2023[49] 3 studies Andrology Patient satisfaction	Telephone consultation Video visits	• 68% of patients had a positive response to telephone consultations compared with 70% of patients who had a positive response to video visits. • 39% of patients recommend telephone consultations compared with 85% of patients who recommend video visits.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Rush, 2018[39] 8 studies Various Health care service utilization, patient-related outcomes, clinician-related outcomes, costs, medication errors, diagnostic accuracy, decision-making accuracy	Various types of telephone-based interventions for children and adults with various conditions Video visits	• Telephone consultations were usually shorter than video consultations, but the content of these consultations varied across studies. • Telephone-based care was comparable or worse than video-based care with regard to reducing health care service use. • Patient-related outcomes, such as mortality and patient satisfaction, were comparable between telephone and video visits. • Clinician-related outcomes were worse for telephone visits relative to video visits. • Telephone-based care resulted in higher medication errors, lower diagnostic accuracy, and lower decision-making accuracy, relative to video visits. • Health care costs varied widely across studies.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Shah, 2021[42] 7 studies Hematology Health service utilization, feasibility, acceptability, benefits, limitations	Telephone-based services in malignant and nonmalignant hematology, including cognitive behavioral therapy, managed care, check-ins, triage, counseling, and anticoagulation services Various comparison groups	• Three studies found improved clinical outcomes for the intervention group relative to the control group, including reduced thromboembolic events, bleeding rates, death rates, toxic death, depressive symptoms, distress, and likelihood for recurrent symptoms. Two studies found no difference in the time spent within therapeutic range and 1 study found no difference in protein intake, cognitive function, social function, and weight loss between intervention and control groups. • One study found telephone calls resulted in fewer instances of delayed treatment, as well as reductions in relative dose intensity and red blood cell transfusion. • One study found 7 phone calls were made for every 10 scheduled appointments. Two studies found 30% to 35% of phone calls were regarding multiple concerns. One study found 48% of in-person visits were avoided due to phone visits, and 37% of phone calls led to medical assessments. • One study found telephone intervention resulted in fewer secondary hospitalizations, while another study found no difference in hospitalizations from thrombotic events. One study found telephone intervention increased pharmacy patient volume at ambulatory care clinics.

Author, Year Number of Relevant Articles Subspecialty Condition(s) Outcome(s) of Interest	Intervention(s) Comparator(s)	Finding(s)
Shah, 2019[21] 2 studies Infectious disease HIV infection Medication adherence	Telephone-based interventions aimed at improving medication adherence for people who are infected with HIV Usual care, no telephone-delivered medication adherence feedback or counseling	• One study found the intervention group had a reduced HIV viral load and improved medication adherence, while 1 study found no difference in medication adherence.
Xu, 2023[51] 6 studies Palliative care Patient satisfaction, clinician satisfaction	Telephone-based palliative care interventions during the COVID-19 pandemic Video visits	• Overall patient and caregiver satisfaction was high for both telephone visits and video visits. • Clinicians preferred video visits over telephone visits in most studies due to the ability to see non-verbal cues and greater ability to build rapport with their patients. In 1 study, clinicians preferred telephone visits over video visits due to not having the necessary equipment for video visits and being afraid to use video.

Abbreviations. COPD: chronic obstructive pulmonary disease; DBT: dialectical behavior therapy; ED: emergency department; HIV: human immunodeficiency virus; TBI: traumatic brain injury.

Discussion

There are 10 MED reports, 4 MED e-Health Workgroup meeting presentations, and 1 MED e-Health Workgroup tool that included findings or information related to audio-only telehealth. Findings from 3 recent MED reports suggest many physical and behavioral health services delivered via audio-only telehealth were comparable to in-person services with regard to effectiveness, health outcomes, health care utilization, and quality of life.[10-12] These MED reports also found audio-only services resulted in similar or improved patient satisfaction and treatment adherence, as well as decreased barriers to care, compared to in-person care.[10-12] However, 1 recent MED report found limited evidence to support the efficacy of group and family psychotherapy services delivered by audio-only telehealth.[13]

Additionally, 57 review articles and 142 primary studies were identified and mapped in this report. These studies and reviews assess the clinical effectiveness, patient health outcomes, utilization, patient preferences, provider preferences, or barriers and catalysts for using audio-only telehealth. Audio-only telehealth was not implemented widely until 2020, so there is a lack of research on the use of this modality within many clinical specialties and settings. However, the evidence base is growing. A large proportion of the review articles and primary studies included in this report focused on behavioral health, chronic conditions, and oncology. There were a very limited number of review articles and primary studies reporting on other specialties, warranting more research in those areas. Most studies included within the review articles showed comparable or improved medication adherence,[15-21] clinical outcomes,[15,17,18,21-46] quality of life,[17,20,23,28,30,33,34,43,46] patient satisfaction, [34,38-40,44,47-51] and health service use[8,18,20,27,33,40,42,47,48,50,52] for telephone interventions relative to various comparison groups across all specialties. Older patients,[57,58] patients whose first language is not English,[58] and Black and Hispanic patients[58] were more likely to have telephone visits compared with video visits.

This report has several strengths, including a broad, inclusive approach and a wide range of sources searched. This report includes summaries of existing Center reports, a brief overview of findings from the included review articles, and a list of primary studies that MDH can refer to while planning policy decisions around covered services. This report also has several limitations. First, this is not a systematic review but an environmental scan of available research. We streamlined our rapid review methods, and it is possible we missed some studies or review articles. Second, we did not conduct risk-of-bias assessments and did not extract findings from the primary studies, as this report is an environmental scan describing the existence of published evidence without synthesis of that evidence. Lastly, there may be some overlap with the review articles and the primary studies included in this report, as we did not exclude any primary studies based on this factor.

There is a lack of consensus among experts and clinicians regarding audio-only telehealth policies, with some individuals raising concerns around the quality and appropriateness of audio-only services[5,6] and others stating coverage of audio-only telehealth services is vital for expanding access to care, particularly for several underserved groups (e.g., older adults, people who live in rural areas, people with low incomes, people of color).[6,7] However, there are also concerns that telehealth may not be effective in mitigating preexisting disparities in access to care, given evidence that disparities in telehealth use tend to mirror disparities in overall health

care use.[8] State legislatures are currently sifting through the available research on audio-only telehealth to make policy decisions, including what audio-only services should be allowed and what limitations should be placed on those services.[2]

The information contained in this report can be used to supplement what MDH is learning from other sources (e.g., interviews) regarding the use, patient and provider preferences, barriers and catalysts, effectiveness, and patient health outcomes for audio-only telehealth services. This report can also inform the recommendations MDH will pose to the Minnesota legislature regarding audio-only telehealth policies in the state. If desired, Center researchers could expand on the report findings by conducting risk-of-bias assessments and a formal synthesis of specific primary studies or reviews or by conducting a rapid effectiveness review for a specific clinical area.

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Appendix A. Methods

Full systematic review methodology can be provided upon request to the Minnesota Department of Health (MDH).

Appendix B. Full Evidence Table

Table B1. Summary of Included Primary Research Studies

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Behavioral Health					
Beebe, 2017[74] RCT TIPS	Schizophrenia spectrum disorders	Add-on support	Medication adherence	The intervention group received weekly telephone support from a nurse focused on knowledge of medication, attending appointments, coping with symptoms, abstaining from substances, and social support.	The control group received treatment as usual.
Bortolon, 2016[75] RCT Tele-intervention Model and Monitoring of Families of Drug Users	Family members of drug users	Evaluation of existing telehealth service	Levels of codependency and readiness for behavior change	The intervention group received the Tele-intervention Model and Monitoring of Families of Drug Users in 9 calls over 6 months. These calls used motivational interviewing and focused on the family's needs when dealing with a drug user and changing codependent behaviors.	The comparison group also received 9 calls over 6 months. These calls were primarily educational, for support, and psychoeducation.
Brenes, 2017[76] RCT	Generalized anxiety disorder	Add-on support	Anxiety symptoms, worry, generalized anxiety disorder, depressive symptoms	The cognitive behavioral therapy group received up to 11 weekly sessions on recognition of symptoms of anxiety, relaxation, cognitive restructuring, use of coping statements, problem solving, worry control, behavioral activation, exposure therapy, and relapse prevention.	The nondirective supportive therapy group received 10 weekly sessions encouraging a "high-quality therapeutic relationship that provides a warm, genuine, and accepting atmosphere through the use of supportive and reflective communications."

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Byun, 2021[77] Secondary analysis LWWS2 intervention	Stroke and depression	Add-on support	Fatigue and sleep-wake disturbance	Participants received a 6-week brief psychosocial-behavioral intervention by phone, in person, or through usual care. Sessions were held weekly for 6 weeks. Participants in the phone or in-person group were taught about the relationship between depression and stroke. They identified pleasurable activities and built them into their daily activities.	Participants in the usual care group received a booklet about stroke and depression.
Dennis, 2020[78] RCT	Postpartum depression	Add-on support	Postpartum depression, anxiety, relationship satisfaction, attachment, health service utilization, cost	In addition to standard care, the intervention group was randomized to receive 12 weekly interpersonal psychotherapy sessions. Interpersonal psychotherapy was conducted in 3 phases, establishing a therapeutic alliance, educating about depression and interpersonal psychotherapy, discussion and counsel to resolve interpersonal relationships, and reinforcing the progress made.	Participants in the control group received standard care from local practices. The patient could initiate postpartum depression services from public health nurses, physicians, and community resources.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Derefinko, 2022[79] RCT PACE for smokers	Smoking cessation	Add-on support	Seven-day point prevalence was assessed through self-report via telephone interview at the 12-month follow-up, prolonged abstinence	Participants were randomized into 1 of 3 interventions. All participants received three treatment sessions in the first 6 weeks followed by booster sessions at 2, 4, and 6 months. All treatments were by phone: • The motivational interviewing group focused on the "5 Rs" (relevance, risks, rewards, roadblocks, and repetition). • The rate reduction group therapy included behavioral kills to reduce smoking rate and nicotine gum with instructions. • The motivational interviewing with rate reduction group received motivational interviewing, rate reduction therapy, and nicotine gum.	The control group received psychoeducation about health consequences of smoking. They also received the number of the national tobacco quitline if they requested further resources.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Gabilondo, 2019[80] RCT	Suicide prevention	Add-on support	Average time to first reattempt, survival analysis, percentage of patients who did a reattempt and average number of reattempts in the first 12 months after the index attempt, adherence to the intervention, adherence to outpatient mental health follow-up	In addition to usual treatment, participants in the intervention group received phone calls (weeks 1 and 2, and months 1, 3, and 6 after attempt) to evaluate suicide risk, reinforce adherence to treatment and follow-up, contribute to psychoeducation, and carry out crisis intervention if needed.	The control group received usual treatment as prescribed by the doctor in charge of the follow-up.
Graser, 2021[81] RCT Graser, 2022[82]	Alcohol use disorder	Add-on support	Abstinence from alcohol, time to fist alcohol use, alcohol-related self-efficacy	After discharge from a residential treatment program, patients were assigned to 1 of 3 experimental arms: • High-frequency telephone received weekly phone calls the first month after residential	After discharge from a residential treatment program, the control group was not contacted until the 6-month follow-up. All patients had the opportunity to contact the psychotherapist

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Secondary analysis			Effects of intervention on relapse and time to first drink at 6-month follow-up, effects of intervention on sociodemographic and clinical variables at 6-month follow-up	treatment, biweekly in the second month, and monthly until the sixth month. Content of the phone calls and was supportive, empathic, helpful, pragmatic, and contained cognitive behavioral therapy components: • The text group received text follow-up on the same schedule as the high-frequency telephone group. Content of the texts was based on behavioral self-monitoring techniques. • Low-frequency telephone calls were made every second month until the sixth month. Content of the phone calls and was supportive, empathic, helpful, pragmatic, and contained cognitive behavioral therapy components. All patients had the opportunity to contact the psychotherapist anytime if they needed support.	anytime if they needed support.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Hilgeman, 2021[83] Quasi-experimental SAVE-CLC	Suicide prevention	Add-on support	Evaluate SAVE-CLC impact on depression screening, mental health visits, ED visits, rehospitalization, mortality in the first 30 and 90 days after discharge	Patients discharged from community living centers received phone calls to screen for depression and suicide risk, encourage a strengths-based patient-centered discussion about the need for support, and care coordination.	Patients were compared to a pre-implementation control group.
Howland, 2021[84] Focus group	PTSD, bipolar disorder	Add-on support	Clinician satisfaction	The authors conducted 2 focus groups with telepsychiatrists and 1 focus group with telepsychologists to interview them about their perceptions of telehealth. Focus group interviews were transcribed and coded for themes.	N/A

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Japuntich, 2020[85] RCT	Smoking cessation	Add-on support	Primary outcome was 7-day point prevalence abstinence assessed at 12 months post-enrollment and validated with saliva cotinine Secondary outcomes include 7-day cotinine validated point prevalence abstinence assessed at the 6-month follow-up, 6-month prolonged abstinence assessed at the 6- and 12-month follow-ups, and 24-hour quit attempts, assessed at the 12-month follow-up	The intervention group received a call from a study counselor. The aim of the call was to increase motivation to stop smoking, increase self-efficacy, and encourage participation in treatment. Participants were also offered enrollment in a telephone-based, mental health-tailored, smoking cessation protocol with up to 12 additional sessions to help with quitting. They were also offered help ordering nicotine replacement therapy.	Participants in the control group received a list of smoking cessation resources. Participants also had access to treatment options available through the Department of Veteran Affairs including a smoking cessation clinic, smoking cessation medications at low cost, and access to the state and national Veterans Affairs quitline.
Kilbourne, 2019[86] RCT	Mood disorders	Add-on support	Changes in depressive symptoms, health behaviors	Participants received either the collaborative chronic care model by phone over 10 weekly sessions of the Life Goals self-management program and contacts from a care manager to determine their symptom status.	The control group received usual care.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Kivelitz, 2017[87] RCT	Depression	Add-on support	Depressive symptom severity at 9-month follow-up, health-related quality of life, self-efficacy, proportion of patients initiating outpatient psychotherapy	Case managers contacted the intervention group by phone every 2 weeks for 12 weeks to support and guide patients to make plans and generate goals for coordination of their aftercare treatment.	The control group received usual care.
Klemperer, 2016[88] RCT Klemperer, 2017[89] Secondary analysis	Smoking cessation	Add-on support	Efficacy of motivational vs. usual care and efficacy of reduction vs. usual care for making a quit attempt that lasted ≥ 24 hours, quit attempt that lasted any length of time from baseline to 6 months, whether motivation or reduction increase odds of being abstinent at 6 months and 12 months	Participants in the motivational intervention group received motivational counseling by phone on reasons for quitting, risks of smoking, rewards of smoking cessation, roadblocks to quitting, and repetition of the topics. Participants in the reduction intervention received counseling by phone to set goals to reduce cigarettes per day and help choosing a strategy.	The remaining participants received usual care by phone consisting of a single call including questions about smoking, advice to quit, and treatment information.
			Quit attempt lasting ≥ 24 hours between baseline and the 6-month follow-up		

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Lewis, 2021[90] RCT	Postpartum depression	Add-on support	Presence or absence of postpartum depression, symptoms of depression, perceived stress	Participants were randomized to 1 of 2 treatment arms. The 6-month telephone-based exercise arm and the 6-month telephone-based wellness arm received 11 sessions (weekly for the first month, biweekly for the second and third months, and monthly for the fourth to sixth months). The goal of the exercise arm was to exercise 5 days per week for 30 minutes. The wellness arm addressed topics on health and well-being.	The control group received usual care. At 9 months, participants were given the option of receiving either the exercise or wellness intervention.
Marti, 2021[91] RCT	Depression	Telehealth in place of face-to-face visits	Disability mediated by decreased depression, depression mediated by decreased disability	Participants were randomized to 1 of 2 treatment arms: • The Tele-BA arm included behavioral activation on reinforcement of healthy behaviors and toward decrease of depressive behaviors. • The Tele-PST arm included problem-solving therapy on coping skills.	The control group received telephone support calls.
Mitchell, 2022[92] RCT RED-D	Patients with depressive symptoms	Add-on support	30- and 90-day rate of hospital readmission of reutilization	Patients in the intervention group received up to 12 weeks of the RED-D that used cognitive behavioral therapy (orientation to the through-feeling connection, transforming negative thoughts, physical symptoms, and stress management), self-management education, and patient navigation. This protocol was conducted by phone.	The control group received the RED protocol that includes a post-discharge call to support medication adherence, confirm the primary care follow-up appointment, and education on symptoms and care plan management. This protocol was conducted by phone.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Nair, 2019[93] Secondary analysis	Obsessive compulsive disorder	Add-on support	Obsessive compulsive disorder symptom severity, associations between predictors and outcome	All participants (aged 11 to 18) received cognitive behavioral therapy over 14 sessions within 17 weeks. The intervention group received cognitive behavioral therapy by phone.	All participants (aged 11 to 18) received cognitive behavioral therapy over 14 sessions within 17 weeks. The control group received cognitive behavioral therapy in person.
Ni, 2020[94] Secondary analysis CHART-NY	Smoking cessation	Add-on support	Thirty-day abstinence rates at 2 and 6 months, quit attempts during the study period, use of quitting aids during the study period (nicotine replacement, varenicline, bupropion)	Patients were randomized to intensive smoking cessation. The intensive phone counseling arm consisted of 7 proactive telephone sessions.	Patients were randomized to quitline referral. The quitline referral arm consisted of 1 to 2 sessions of phone counseling via the state quitline.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Park, 2020[95] RCT	Smoking cessation	Add-on support	Seven-day point prevalence cigarette smoking abstinence at 6-month follow-up, 7-day abstinence at 3 months, self-reported 7-day point prevalence cigarette smoking abstinence at 3 and 6 months, 24-hour intentional quit attempt (yes vs. no) at 3 and 6 months, continuous abstinence (self-reported 3-month abstinence between quit and follow-up at 3 and 6 months) at 3 and 6 months, and sustained abstinence (biochemically confirmed repeated point prevalence abstinence at 3 and 6 months)	Participants in the intensive treatment group received counseling sessions (4 weekly, 4 biweekly, and 3 monthly) and their choice of a smoking cessation medicine (nicotine replacement therapy, bupropion, or varenicline).	Those in the standard treatment group received 4 weekly counseling sessions.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Rengasamy, 2019[96] Quasi-experimental	Suicide prevention	Add-on support	Suicidal behavior, inpatient rehospitalization at 90 days post-randomization, initial follow-up with providers, confidence in safety plan, perceived helpfulness of the intervention	After hospital discharge, participants received a multiple calls intervention of 6 phone calls over a 3-month period. Parents or guardians were informed of concerns of suicidality and those related to follow-up. Adolescents received calls assessing suicidality, reviewing the safety plan, assessing the adolescent's confidence in the safety plan, and for elicitation of reasons for living.	After hospital discharge, participants received a single call intervention after 90 days. Parents or guardians were informed of concerns of suicidality and those related to follow-up. Adolescents received calls assessing suicidality, reviewing the safety plan, assessing the adolescent's confidence in the safety plan, and for elicitation of reasons for living.
Rodriguez, 2020[97] Secondary analysis Project MATCH	Alcohol use disorder	Add-on support	Alcohol consumption, perceived norms for alcohol use, tolerance for motivational enhancement therapy feedback, family history risk for motivational enhancement therapy feedback	The intervention group received a single telephone session of counseling. The motivational enhancement therapy session used motivational interviewing about the participant's alcohol use compared with others, blood alcohol levels, and family history, and how these relate to consequences of use and PTSD.	The control group received a single telephone session of counseling. During the educational control session, counselors reviewed information on alcohol and other drugs, but did not review information on the participant's use.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Rogers, 2018[98] RCT	Smoking cessation	Add-on support	Self-reported 7-day abstinence from cigarettes at 12-month follow-up, use of cessation treatment, self-reported 7-day abstinence at 6-month follow-up, 6-month prolonged abstinence at 6- and 12-month follow-up	The intervention group received up to 12 counseling phone calls including motivational enhancement to quit smoking, promote self-efficacy, and encourage participation in smoking cessation treatment. They also could have nicotine replacement therapy from their doctor.	The control group received a list of smoking cessation services and the option to use nicotine replacement therapy.
Rosen, 2017[99] RCT	PTSD	Add-on support	Treatment attendance, medication compliance, side effects, symptom severity, self-efficacy for coping with symptoms, substance use, suicidality, risk for violence	The intervention group received usual care plus fortnightly calls reinforcing positive behaviors and support with problems or motivation enhancement to address barriers.	The control group received usual care from counselors or psychiatrists.
Sherman, 2018[100] RCT	Smoking cessation	Evaluation of existing telehealth service	Seven-day point prevalence abstinence at 6 months, quit attempts, use of cessation medication	Summary of 2 studies. The intervention group in study 1 received up to 5 telephone counseling calls. The intervention group in study 2 received self-help materials and 1 telephone call to discuss medication. All participants received smoking cessation medication.	Control groups in both studies received usual care. All participants received smoking cessation medication.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Taylor, 2022[101] RCT LSTH trial	Smoking cessation	Add-on support	Bio-verified and self-reported abstinence (7-day point prevalence) at 3, 6, and 12 months, moderators	Patients in the intensive arm received 8 weekly phone sessions and 8 weeks of nicotine patches. Phone sessions addressed the need to quit smoking and/or the lung screening process as a motivator.	Patients in the minimal arm received 3 weekly phone sessions and a 2-week supply of nicotine patches.
Tremblay, 2019[102] RCT	Smoking cessation	Add-on support	Self-reported smoking status, biochemically confirmed, 7-day, and point prevalence of smoking at 12 months as well as 6- and 24-month assessments (without biochemical confirmation)	Those randomized to the intervention received an intensive counseling-based program of 7 telephone sessions. The intervention was tailored to the participant including recommendations about nicotine replacement therapy.	Those randomized to the control intervention received an information pamphlet listing smoking cessation resources.
Uslu, 2020[103] RCT	Schizophrenia	Add-on support	Medication adherence	All participants received medication adherence training in the hospital. After discharge, participants in the intervention group received 8 weekly calls based on TIPS. Calls helped with solutions for daily life problems and offered coping alternatives.	All participants received medication adherence training in the hospital. The control group received usual care.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Williams, 2022[104] RCT QuLIT	Smoking cessation	Add-on support	Self-reported 7-day point prevalence smoking abstinence with a successful quit defined as no smoking or other tobacco product use within the last 7 days, quit attempts made, pharmacotherapy used	All participants received a call evaluating smoking history and lung cancer risk. Those randomized to the telephone smoking cessation arm received 6 sessions of telephone behavioral counseling smoking cessation support and pharmacotherapy.	All participants received a call evaluating smoking history and lung cancer risk. Those randomized to usual care received brief advice to quit smoking and were directed to an online smoking cessation website.
Chronic Conditions					
Arnedt, 2021[105] RCT	Insomnia	Add-on support	Insomnia/sleep, daytime functioning, treatment credibility, satisfaction, and therapeutic alliance	Participants received cognitive behavioral therapy by telephone. Sessions were on sleep hygiene education, behavioral therapy, cognitive therapy, counter-arousal strategies, and relapse prevention.	Participants received cognitive behavioral therapy face-to-face. Sessions were on sleep hygiene education, behavioral therapy, cognitive therapy, counter-arousal strategies, and relapse prevention.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Bohlin, 2017[106] RCT	Childhood obesity	Add-on support	Change in degree of obesity, number of sessions, patient and parent satisfaction with the treatment	After a standard obesity treatment program, patients were randomized to telephone care. Telephone care occurred every month, excluding summer vacation. A nurse spoke to the patient about weight, eating habits, physical activity, sedentary activities, and the process of change.	After a standard obesity treatment program, patients were randomized to usual care. Usual care included visits to a medical doctor (normally 1 to 2 times/year), a nurse (1 to 8 times/year) and if necessary, a dietician and physiotherapist. As treatment was individualized, the frequency of visits varied by patient.
Bracken, 2019[107] Secondary RCT T4DM study	Diabetes	Add-on support	Diabetes screening completion	Participants were randomized to receive phone call reminders after completing the T4DM prescreening questionnaire. The goal was to encourage participants to join the T4DM study.	Participants were randomized to receive SMS reminders after completing the T4DM prescreening questionnaire. The goal was to encourage participants to join the T4DM study.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Bricker, 2021[108] Pilot RCT	Obesity	Telehealth in place of face-to-face visits	Quality of coaching, treatment satisfaction, scale-reported weight, self-reported weight, baseline moderators of weight loss, acceptance and commitment therapy theory-based moderators	Participants were randomized to receive standard behavior therapy. They received 25 calls over 12 months. Calls 1 to 16 were weekly, calls 17 to 23 were biweekly, and calls 24 to 25 were monthly. The therapy focused on nutrition, calorie goals, physical activity, goal setting, self-monitoring, feedback, stimulus control relapse prevention, and social support. The standard behavior therapy group was guided by "control what you can" and motivation was weight loss goals.	Participants were randomized to receive acceptance and commitment therapy. They received 25 calls over 12 months. Calls 1 to 16 were weekly, calls 17 to 23 were biweekly, and calls 24 to 25 were monthly. The therapy focused on nutrition, calorie goals, physical activity, goal setting, self-monitoring, feedback, stimulus control relapse prevention, and social support. The acceptance and commitment therapy group was guided by "control what you can and accept what you can't" and using their values as motivation for behavior change.
Chao, 2021[109] RCT	Insomnia	Add-on support	Insomnia, Gulf War illness symptom severity, fatigue, pain, cognitive function, depression and anxiety, sleep quality, sleep duration and sleep continuity	After assessment, participants were randomized to receive 8 weeks of telephone cognitive behavioral therapy for insomnia including sleep restriction, stimulus control, and cognitive restructuring.	The control group was monitored weekly by telephone or email.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Delahanty, 2020[110] RCT 12-month results of the REAL HEALTH-Diabetes study Wexler, 2022[111] 2-year results	Diabetes	Telehealth and face-to-face visits in place of usual medical nutrition therapy	Percentage weight change, 5% or 10% weight loss, hemoglobin A1c, medication use, blood pressure, fasting lipid profile Percentage weight change, 5% or 10% weight loss, hemoglobin A1c, patient-reported outcomes	Participants were randomized to 1 of 2 experimental arms. Both the 37-session telephone and in-person group lifestyle interventions had identical content. There were 14 weekly sessions, 5 biweekly sessions, and 18 monthly sessions.	Participants were referred to a dietitian. The dietitian counseled the patient regarding the effectiveness of medical nutrition therapy for weight loss and improved diabetes control. The number of visits was determined by the dietitian and patient in shared decision making.
Doyle, 2017[112] RCT	COPD	Add-on support	Depression, anxiety, health impact of COPD on participants, belief in the patient's competence to cope with challenging and stressful situations, satisfaction and acceptability of the telephone intervention, smoking status, health rating, COPD-specific variables	One study group received telephone-administered cognitive behavioral therapy including behavioral activation, activity scheduling, relaxation training, exposure hierarchies, and social skills training, plus treatment as usual.	The other group received telephone-administered befriending to talk about usual topics and events but not symptoms or difficulties in the patient's life, plus treatment as usual.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Dwinger, 2020[113] RCT	Chronic health conditions	Add-on support	Quality of life, health behaviors (alcohol consumption, smoking, medication adherence, measuring blood sugar, foot monitoring, physical activity, body mass index, blood pressure), psychosocial outcomes (patient activation, health literacy, stages of change, anxiety, depression, mental distress)	The intervention group received telephone-based health coaching based on motivational interviewing, goal setting, and shared decision making. The minimum call frequency was once every 6 weeks. The maximum intervention duration was 1 year.	The control group received usual care.
Garg, 2017[114] RCT	Diabetes	Add-on support	Change in hemoglobin A1c at 1 year after hospital discharge, body mass index, blood pressure, lipid levels, renal function, and urine albumin at 1 year	The intervention group received weekly to monthly phone calls from a diabetes specialist nurse practitioner to review blood glucose values, counsel about diet and exercise, and discuss medications. The nurse also coordinated with the patient's diabetes care providers.	The control group received usual care.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Gialanella, 2017[115] RCT	Chronic neck pain	Add-on support	Neck pain, disability	After an outpatient rehabilitation program for chronic neck pain, patients were randomized to the experimental group. This group received 6 months of fortnightly phone calls to collect information about disease status, pain, medication use, and exercise sessions. The nurse provided advice on solutions for persistent pain and any symptoms of exacerbation.	After an outpatient rehabilitation program for chronic neck pain, patients were randomized to the control group and received no calls.
Gonzalez-Ortega, 2017[116] RCT	Complex chronic health conditions	Add-on support	Change in number of urgent care visits, changes in health and mental status, quality of life, caregiver burden	The intervention group received 11 calls (twice monthly) from a physician to review health status, symptoms, medication adherence, side effects, social or other problems. The physician also spoke to the caregiver about caregiver burden.	The control group received care as usual.
Gudban, 2021[117] RCT	Type 2 diabetes	Add-on support	Hemoglobin A1c, cholesterol, triglycerides, C-reactive protein, intercellular adhesion molecule 1	Patients in the intervention group received weekly telephone calls for 3 months stressing the importance of eating a Mediterranean diet, portion control, and exercise.	Patients in the control group did not receive calls.
Hammett, 2022[118] Secondary analysis ACTION	Chronic pain	Add-on support	Pain-related disability, perceptions of improved or worsening pain, pain intensity, anxiety, average step count	Participants in the telephone arm received a pedometer and 6 telephone counseling sessions in an 8- to 14-week period. Sessions were on enhancing behavioral capacity for physical activity by building exercise self-efficacy and used motivational interviewing.	Participants in the usual care arm received an informational brochure and a pedometer.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Hu, 2021[119] RCT SPIRIT trial	Obesity	Add-on support	Change in weight, change in serum urate, change in glomerular filtration rate, difference in serum urate between intervention arms, relationship between change in serum urate with changes in body mass index and duodenogastro-esophageal reflux	Participants were randomized to 1 of 2 experimental arms: • The coach-directed weight loss group received phone calls from a behavioral coach encouraging reduction of calories and increased activity. • The metformin group received up to 2,000 mg per day and received calls as needed.	The control arm received written information about weight management.
Jansons, 2017[120] RCT	Chronic health conditions	Add-on support	Health-related quality of life, productivity, social activity, depression, anxiety, body mass index, lower limb strength, distance a participant can walk in 6 minutes, physical activity, adverse events	Before this study, all participants completed a 6-week supervised exercise program of 1-hour group exercise sessions at a community health service, with participants encouraged to attend 3 sessions per week. During the study, participants in the intervention group were given a 12-month home exercise plan and were encouraged to complete three 1-hour sessions per week. They were supervised with 5 phone calls over the first 10 weeks.	Before this study, all participants completed a 6-week supervised exercise program of 1-hour group exercise sessions at a community health service, with participants encouraged to attend 3 sessions per week. During the study, the control group completed a 12-month gym-based exercise plan with no phone calls.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Kim, 2019[121] RCT	Hypertension	Add-on support	Hypertension self-efficacy, hypertension self-management behavior, medication adherence, hypertension-related knowledge, blood pressure	Participants were randomized to 1 of 3 intervention arms: • The health coaching arm received 8 weekly phone calls about hypertension, complications, diet, medication, exercise, weight, tress, drinking, smoking, and sleep. • The long message service group received long text messages about the same topics as the health coaching arm. Messages were sent 1 to 2 times per day and 3 times per week for 8 weeks. • The health coaching with long message service arm received both health coaching calls and long message service information.	The control group received no intervention.
Kotsani, 2018[122] RCT	Type 1 diabetes	Add-on support	Measurement of morning, pre-prandial, post-prandial glucose levels, HbA1c	Intervention group patients transmitted glucose values to the nurse by glucose monitor, USB, email, or telephone. They received weekly phone calls to discuss problems with disease management, possible reasons for omitted glucose values, self-titration or hypoglycemia guidelines, advice about healthy lifestyle, motivation to increase frequency of glucose measurements, and to comply with their doctor's advice on insulin treatment.	Control group patients recorded and sent in glucose values by glucose monitor, USB, or email.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
La Torre, 2018[123] Pilot RCT	COPD or acute myocardial infarction	Add-on support	Eating habits, smoking habits, quality of life	The intervention group was contacted by phone encouraging adherence to guidelines for a healthy diet, giving food advice, answering questions, and promoting smoking cessation where applicable.	The control group received no intervention.
Leonard, 2021[124] Pilot RCT	COPD	Add-on support	Adherence to noninvasive ventilation, readmissions	In addition to receiving standard medical therapy for COPD, patients randomized to the enhanced group (intervention) were called by a respiratory therapist. Calls were daily the first week, every other day for the second week, and every third day for the remainder of the study. Calls reviewed symptoms, inhaler use, and concerns.	The control group received standard medical therapy for COPD.
Liberato, 2021[125] Secondary analysis of RCT data	Patients with an implantable cardioverter defibrillator	Expansion and modification of existing service	Physical function psychological adjustment, implantable cardioverter defibrillator specific dimensions of self-efficacy	Patients were enrolled in the P-only group. Both groups received the telephone intervention for 3 months after an implantable cardioverter defibrillator implant. Both interventions were developed to assist patients manage physical symptoms and changes, resume activities of daily living, exercise safely, manage anxiety and depression, cope with shocks, carry out preventive care, and learn when to activate the emergency medical system.	Patients and their partners were enrolled in the P+P group. Only patient data was examined in this analysis. Both groups received the telephone intervention for 3 months after an implantable cardioverter defibrillator implant. Both interventions were developed to assist patients manage physical symptoms and changes, resume activities of daily living, exercise safely, manage anxiety and depression, cope with shocks, carry out preventive care, and learn when to activate the emergency medical system.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
McAndrew, 2018[126] RCT	Chronic multisymptom illness	Add-on support	Limitation in roles at work and home, reductions in catastrophizing cognitions	Participants were randomized to 1 of 2 intervention arms. The telephone and in-person cognitive behavioral therapy arms consisted of 10 sessions each on a rational emotional behavior therapy framework on challenging maladaptive cognitive beliefs.	The control group received usual care.
O'Hara, 2017[127] Quasi-experimental Get Healthy Information and Coaching Service	Weight loss	Evaluation of existing service	Whether setting a goal influenced outcomes, whether the magnitude of the goal influenced outcomes	Participants in the intervention received coaching phone calls to establish a weight loss goal and then work to reach the goal. There were 10 calls over 6 months.	Participants who set a weight-related goal were compared to those who set a physical activity goal, a healthy eating goal, or a waist measurement goal. Participants within groups were also compared based on magnitude of the goal.
Perri, 2019[128] RCT Rural LEAP trial O'Neal, 2022[129] Secondary analysis	Obesity	Add-on support	Sustained lifestyle changes, lost weight Differences based on race and condition controlled for gender and baseline body mass index	Following a 16-week, face-to-face group diabetes prevention program, participants were randomized to 1 of 2 intervention arms: • In the first arm, participants called a conference line for group counseling. Sessions were biweekly for 6 months, and monthly for 6 months. • In the second arm, participants called in for a one-on-one counseling session. Sessions followed the same schedule as above.	Following a 16-week, face-to-face group diabetes prevention program, participants were randomized to the control group. In the control arm, patients received 18 written educational weight loss treatment modules delivered biweekly for 6 months and monthly for 6 months.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Plow, 2019[130] RCT Plow, 2020[131] Further analysis	Multiple sclerosis	Add-on support	Impact of fatigue on cognitive, physical, and psychosocial function; engagement in exercise; treatment fidelity Step count, fatigue self-management, goal setting	Participants were randomized to 1 of 2 interventions lasting 12 weeks: • The physical activity intervention consisted of 3 group teleconference sessions followed by 4 individual phone calls on setting goals and self-monitoring physical activity. • The physical activity with fatigue self-management intervention consisted of 6 group teleconference sessions followed by 4 individual phone calls on setting goals and self-monitoring physical activity. They also received additional material on setting goals and managing fatigue.	The contact-control social support intervention consisted of 6 group teleconference sessions followed by 4 individual phone calls on health information. They were not taught skills to change behaviors.
Renneberg, 2022[132] RCT	Chronic health conditions	Add-on support	Self-rated health, depressive symptoms	In addition to usual care, the intervention group received telephone counseling about 4 main behaviors that influence chronic diseases and health: physical activity, nutrition, fluid intake, and adherence to medication.	The control group received usual care.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Rodriguez, 2019[133] RCT	Hypertension	Add-on support	Change in dietary state of change, adherence to the DASH dietary pattern	Participants were randomized to 1 of 2 intervention arms: • The tailored behavioral intervention was based on the transtheoretical model of behavior and lasted 6 months. Treatment was tailored to their diet stage of change and looked at diet, exercise, and medication. • The nontailored intervention group received monthly calls for 6 months about hypertension management. Participants received general information and suggestions about diet, medication, and exercise.	The control group received usual care in the clinic.
Sakane, 2019[134] Subanalysis of J-DOIT study Sakane, 2020[135] Subanalysis of J-DOIT study	Metabolic syndrome	Add-on support	Habitual exercise, achievement and maintenance of appropriate body weight, intake of dietary fiber, restrictions on alcohol intake Prevalence of obesity, prevalence of metabolic syndrome, prevalence of non-alcoholic and alcoholic elevated liver enzymes	Participants in the intervention arm received a telephone-delivered lifestyle support intervention over a 1-year period. Goals were habitual exercise, achievement and maintenance of an appropriate body weight, habitual intake of fiber, and restrictions on alcohol.	Those in the control arm set achievement goals and were sent newsletters with health information.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Sandberg, 2017[136] Secondary analysis DSP	Type 2 diabetes	Add-on support	Glycemic control based on A1c, length of relationship, gender	All participants received 2 initial diabetes education calls. The participants and partners were randomized at the couples-level behavior change intervention, which encouraged mutual support and problem solving. They received 10 additional weekly intervention calls.	All participants received 2 initial diabetes education calls. Individuals were randomized to 1 of 2 interventions: • The individual behavior change intervention encouraged finding support and problem solving. • The individual diabetes education had information on diabetes. They received 10 additional weekly intervention calls.
Sherifali, 2021[137] RCT	Type 2 diabetes	Add-on support	Glycemic control, quality of life, diabetes self-care activities, diabetes health coach utilization, adverse events[137]	All participants received usual diabetes education, community resources, and an accelerometer. The intervention group also received weekly diabetes health coaching by phone.[137]	All participants received usual diabetes education, community resources, and an accelerometer.
Sherwood, 2017[138] RCT COPE-HF trial Blumenthal, 2019[139] Secondary analysis	Heart failure	Add-on support	Quality of life, disease biomarkers, time to all-cause death or hospitalization, health behaviors, physical activity, medication adherence, sodium intake, self-care Social support, depression	The intervention group received coping skills training using motivational interviewing over 16 weekly phone calls.	The control group also received 16 weekly phone calls that included heart failure health behaviors, symptom monitoring, importance of daily weighing, medication adherence, physical activity, and diet.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Simmons, 2018[140] RCT	Sickle cell disease	Add-on support	Feasibility, pain catastrophizing, acceptability	Participants in the intervention group participated in 6 weekly telephone group mindfulness classes on breath awareness, body scan, walking meditation, loving kindness choiceness awareness, and overview and conclusion.	The control group received standard care.
Trief, 2017[141] Secondary analysis SHINE study	Metabolic syndrome	Add-on support	Weight loss	Participants were randomized to an individual call intervention based on self-determination theory. The intervention included 5 weekly calls and then monthly calls through year 1.	Participants were randomized to a conference call intervention based on self-determination theory. The intervention included 5 weekly calls and then monthly calls through year 1.
Wallstrom, 2020[142] Subgroup analysis Care4Ourselves	Heart failure	Add-on support	Fatigue	After hospital discharge, participants in the intervention group received usual care along with person-centered care by phone. The intervention included goal setting and support to achieve the goals. The intervention lasted 6 months and calls were not made on a set schedule.	The control group received usual care.
Wootton, 2018[143] RCT	COPD	Add-on support	Health-related quality of life, exercise capacity, adherence to unsupervised maintenance walking program	The intervention group received a 2-month supervised walking training program followed by a 12-month maintenance program where the participants were to walk 3 days per week. The intervention group received telephone support.	The control group received a 2-month supervised walking training program followed by a 12-month maintenance program where the participants were to walk 3 days per week. The control group did not receive telephone support.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Neurology					
De Stefano, 2022[144] RCT	Caregivers of people with early onset Alzheimer's disease	Add-on support	Caregiver burden and needs, anxiety and depression and subjective impact of traumatic events	Caregivers were randomized to the intervention group. The intervention group received 4 weekly counseling phone calls with nondirective support through empathic/reflective listening and open-ended questions.	The control group received no intervention.
Foley, 2020[145] Cohort study	Caregivers of people with Lewy body dementia	Expansion and modification of existing service	Quality of life, depression, anxiety	Caregivers elected to be allocated to a telephone group. The intervention consisted of an 8-week counseling program on psychoeducation about Lewy body dementia, challenging behavior, communication, relaxation, planning for the future, behavior management, and self-care.	Caregivers elected to be allocated to a face-to-face group. The intervention consisted of an 8-week counseling program on psychoeducation about Lewy body dementia, challenging behavior, communication, relaxation, planning for the future, behavior management, and self-care.
Kuo, 2016[146] RCT	Caregivers of people with dementia	Expansion and evaluation of existing service	Depressive symptoms, behavioral problems	After a caregiver training program for caregivers of people with dementia, caregivers were randomized for follow-up. The intervention group received follow-up calls to evaluate behavioral management progress.	After a caregiver training program for caregivers of people with dementia, caregivers were randomized for follow-up. The control group received social calls.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Oncology					
Badger, 2020[147] RCT	Breast cancer	Add-on support	Psychological distress, symptoms, symptom distress, symptom management, social support, social isolation	Participants and caregivers received 8 weekly sessions of intervention. The telephone interpersonal counseling intervention was based on interpersonal psychotherapy and addressed mood; emotional expression; interpersonal communication and relationships; social support; and cancer information, resources, and referral.	Participants and caregivers received 8 weekly sessions of intervention. The supportive health education intervention included mailed reading materials and counseling on normal breast health and breast cancer, tests and terminology, treatment and side effects, lifestyle interventions, resources, and referrals.
Beaver, 2017[148] RCT ENDCAT trial Williamson, 2018[149] Secondary analysis	Stage-1 endometrial cancer	Telehealth in place of face-to-face visits	Psychological morbidity, patient satisfaction with the information provided, patient satisfaction with service, quality of life, time to detection of recurrence Patient and provider views of telehealth	Patients in the intervention arm received telephone appointments about physical, psychological, and social aspects of care. Phone calls were delivered based on hospital policy. Calls were every 3 to 4 months for the first 2 years post-treatment and at decreasing intervals up to 3 to 5 years.	Patients in the control arm received standard hospital-based follow-up. Appointments were every 3 to 4 months for the first 2 years post-treatment and at decreasing intervals up to 3 to 5 years.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Esplen, 2019[150] RCT	Colorectal cancer	Add-on support	Change in knowledge, intention to screen, perceived risk, and psychological functioning	Participants were randomized to 1 of 2 intervention arms. The colorectal cancer risk education in person and by telephone were identical except for mode of communication. They were guided by the health belief model and had information regarding the Ontario familial colorectal cancer and Newfoundland colorectal cancer registries, colorectal cancer signs and symptoms, a review of family history, and screening recommendations. Patients were assessed at 2 weeks, 2 months, and 1 year.	The control group received usual care. After 2-month follow-up of the intervention groups, the control group received written information about their risk, thus becoming an active control arm.
Flannery, 2018[151] RCT	Lung cancer	Add-on support	Quality of life, symptoms	Those in the intervention group received a symptom inventory over 8 weekly telephone calls.	Those in the control group received usual care.
Fox, 2019[152] Pre- post-	Cancer	Add-on support	Acceptability and feasibility	Patients received an educational phone call on knowledge and skill development.	Pre-intervention scores were compared to post-intervention scores.
Heckel, 2018[153] RCT PROTECT study Heckel, 2018[154]	Caregivers of people with cancer	Add-on support	Caregiver burden, depression, perceived needs of the caregiver, health literacy, positive aspects of caregiving, perceptions of the program	Caregivers in the intervention group received calls at the start of the program, 1 month later, and 3 months afterward from a nurse who assessed distress and offered referral to resources. They also discussed the caregiver's unmet needs and the caregiver was able to ask questions.	Caregivers in the control group had a researcher call using the same schedule and could supply the number to the nurse if needed. Otherwise, no information or support was provided.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Secondary analysis of PROTECT study			Changes in caregiver distress, potential supportive care needs, association with age and gender		
Hoque, 2018[155] RCT	Prostate cancer	Add-on support	Response to survey within 21 days	Patients were randomized to receive a survey about outcome measures by telephone.	Patients were randomized to receive a survey about outcome measures by mail, phone, or email. If mail or email groups did not return survey within 14 days, they were called by telephone.
Jernigan, 2020[156] Quasi-experimental	Cancer	Add-on support	Feasibility, symptom experience	Patients from 3 cancer departments were included in the study: • Breast • Head and Neck • Sarcoma After the patient's first dose of chemotherapy, nurses called patients 4 to 18 times (depending on treatment protocol) in 6 months to assess symptoms.	Results were assessed and compared between cancer groups.
Lewis, 2020[157] Pre- post-	Cancer	Add-on support	Feasibility, impact on outcomes, parent symptoms	Parents received 5 calls every 2 weeks from nurses for communicating with and supporting the child, and helping the parent manage anxiety.	Pre-intervention scores were compared to post-intervention scores.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Mosher, 2019[158] Pilot RCT	Lung cancer and caregivers of people with lung cancer	Add-on support	Patient symptom interference with functioning, patient physical symptoms, patient breathlessness, patient and caregiver acceptance of the illness	Participants participated in 6 weekly telephone sessions. Sessions 1, 4, 5, and 6 were conducted with patients and caregivers on speakerphone. Sessions 2 and 3 were conducted with patients and caregivers separately. The acceptance and commitment therapy intervention emphasized developing mindfulness skills and engaging in actions aligned with personal values.	Participants participated in 6 weekly telephone sessions. Sessions 1, 4, 5, and 6 were conducted with patients and caregivers on speakerphone. Sessions 2 and 3 were conducted with patients and caregivers separately. The educational support intervention involved supportive listening and directing patients and caregivers to resources for practical and health information and psychosocial support.
Mosher, 2022[159] Pilot RCT	Gastrointestinal cancer	Add-on support	Fatigue interference, caregiver burden, patient sleep interference, patient and caregiver engagement in daily activities, value-based living, psychological inflexibility, patient and caregiver quality of life	Patients and their caregivers were randomized to 6 weekly phone sessions of acceptance and commitment therapy. Sessions 1, 4, 5, and 6 were conducted with patients and caregivers on speakerphone. Sessions 2 and 3 were conducted separately.	Patients and their caregivers were randomized to 6 weekly phone sessions of education/support. Sessions 1, 4, 5, and 6 were conducted with patients and caregivers on speakerphone. Sessions 2 and 3 were conducted separately.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Moug, 2020[160] Subgroup analysis Rex trial	Rectal cancer	Add-on support	Step count, muscle mass	Participants scheduled for neoadjuvant chemoradiotherapy were randomized to the intervention. Those in the intervention group received a 13- to 17-week telephone-guided graduated walking program.	Patients in the control group received usual care.
Parsons, 2020[161] RCT MEAL study	Prostate cancer	Add-on support	Time to progression, incidence of prostate cancer treatment	The intervention group received a telephone social-cognitive theory-based behavioral intervention promoting consumption of 7 or more daily servings of vegetables. The first 6 calls over 1 month focused on self-efficacy. The next 4 calls over 2 months were on consolidating the new diet. The next 4 calls over 4 months were on preventing relapse. The final 8 calls over 16 months were on positive feedback and monitoring for declining interest.	Patients in the control group received written information about diet and prostate cancer.
Porter, 2019[162] Pilot RCT	Caregivers of children with cancer	Add-on support	Feasibility, acceptability	This intervention involved 6 biweekly telephone sessions conducted with both parents together. The couple-based relationship enhancement intervention trained couples in relationship skills to support their cancer-related roles.	This intervention involved 6 biweekly telephone sessions conducted with both parents together. The education intervention gave couples resources and recommendations on topics relevant to their child's treatment and recovery along with the opportunity to discuss their experiences with their child's illness while receiving support from the therapist.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Salchow, 2021[163] RCT Motivate Adolescents and Young Adults (AYA)-MAYA trial	Cancer survivors	Add-on support	Vigorous physical activity level, amount and intensity of physical activity, change in time spent sitting, quality of life[163]	Participants in the intervention group received telephone counseling about physical activity behavior in weeks 1, 3, and 12. Counseling was based on the transtheoretical model.	Participants in the control group received a handout with physical activity guidelines.
Sprague, 2019[164] Pre- post-	Cancer survivors	Add-on support	Patient satisfaction, recall of diet and exercise instructions	Patients participated in a telephone or in-person survivorship appointment. They later completed a survey about the experience.	Scores from pre-intervention were compared to scores from post-intervention.
Travers, 2021[165] Retrospective cohort study	Cancer	Add-on support	Utilization of in-person and telehealth treatment	During the COVID-19 pandemic, utilization data at an inpatient, ambulatory treatment center were retrospectively analyzed.	N/A
Trevino, 2021[166] Pilot RCT MAC trial	Cancer and caregivers of people with cancer	Add-on support	Feasibility, acceptability, and adherence; anxiety, depression, and quality of life	Older adults with cancer and their caregivers were randomized to Managing Anxiety from Cancer, a 7-session cognitive behavioral therapy-based psychotherapy intervention delivered over the. Patients and caregivers completed the intervention separately.	The control group received usual care.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Ysebaert, 2019[167] RCT FORTIS study	Chronic lymphocytic leukemia	Add-on support	Observed reductions in relative dose intensity of fludarabine-cyclophosphamide-rituximab, toxicity grade ¾, rate of grade ¾ toxicities, quality of life, psychological comfort during therapy	Intervention participants received programmed phone calls (1 to 2 per week) between chemotherapy cycles from a nurse to educate patients, reinforce medication adherence (fludarabine-cyclophosphamide-rituximab) and tryst of the goals of therapy.	The control group received usual care.
Pharmacy					
Paranjpe, 2020[168] RCT	Medication adherence – statins	Add-on support	Medication adherence at 6 months compared with and without motivational interviewing	Patients' statin medication adherence trajectories were identified (rapid decline, gradual decline, gaps of adherence, and adherent). Patients in the nonadherent groups were randomized to receive telephone motivational interview counseling.	Patients in the control group received no counseling.
Triage or Consultations					
Graversen, 2020[169] Quasi-experimental	Primary care patients	Evaluation of existing service	Health-related quality, safety, efficiency of triage	Random telephone triage calls to an out-of-hours primary care service were analyzed based on the person who received the calls: • General practitioners • Nurses using a computerized decision support system • Physician specialists in different areas of practice	Triage calls were compared based on the person who received the calls.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Other					
Anderson, 2017[170] RCT	HIV	Add-on support	Clinical depression, interpersonal distress, agreement on therapeutic goals, task agreement, bond between patient and therapist, mental health and substance use services utilization	The intervention group received standard care plus telephone interpersonal psychotherapy treatments for 9 weeks.	The control group received standard care that included access to community-based support services.
Auger, 2021[171] Secondary analysis H2O and H2O II	Children who were hospitalized	Add-on support	Unplanned 30-day acute health care reuse	After discharge from the hospital, participants in the H2O trial received a nurse visit within 96 hours. Participants in the H2O II trial received a nurse phone call.	The control groups for both trials received treatment as usual.
Barrett, 2018[172] RCT Healthy 4U	Ambulatory care patients	Add-on support	Moderate to vigorous physical activity minutes a day, anthropometrics, physical activity self-efficacy, health-related quality of life	After an in-person education session, the intervention group received telephone counseling including motivational interviewing and cognitive behavioral therapy to promote positive lifestyle choices.	After an in-person education session, the control group did not receive counseling.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Barrett, 2020[173] RCT Healthy4U2	Ambulatory hospital patients	Add-on support	Change in moderate to vigorous physical activity over time, change in waist circumference, body mass, free standing stature, body mass index, self-efficacy to be physically active, health-related quality of life	Following an educational session about physical activity, patients were randomized into an intervention group and a control group. The intervention group received 5 motivational interviewing and cognitive behavioral therapy-based telephone sessions over 12 weeks.	Following an educational session about physical activity, patients were randomized into a control group. The control group did not receive calls.
Biese, 2017[174] RCT	ED patients	Expansion and modification of existing service	Days from ED discharge to return, hospitalization, death, difficulties acquiring prescribed medications, attendance at follow-up appointments	After discharge from the ED, the intervention group received a follow-up phone call to offer advice on medication reconciliation and procurement, review instructions and procurement of nonmedicinal supplies, review post-discharge instructions, reinforce follow-up appointments, ask about state of health, and provide advice.	Patients in the control group received a telephone survey about satisfaction with their ED visit.
Bisson, 2021[175] Retrospective Comparative	Orthopedic conditions	Telehealth in place of face-to-face visits	Patient satisfaction	Data from patients seen at a large orthopedic practice and filled out a satisfaction survey were analyzed.	Data from those who had telehealth appointments were compared to data from those who had face-to-face visits.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Carey, 2020[176] RCT	HIV	Add-on support	Feasibility, acceptability, medication adherence, sexual risk behaviors, anxiety, depression, perceived stress, mindfulness, impulsivity	Participants in the intervention group received mindfulness training weekly for 8 weeks by phone. The intervention included body scanning, breath awareness, and open awareness.	Participants in the control group received health coaching weekly for 8 weeks. The intervention included discussions about nutrition, sun safety, physical activity, sleep, and home and travel safety.
Chao, 2017[177] Pilot RCT	Pregnancy	Add-on support	Gestational weight gain, perinatal depression, hours of sleep per night, binge eating episodes, physical activity	The intervention group received weekly telephone counseling between weeks 16 and 36 gestation, or delivery of their baby. Sessions focused on weight control.	The treatment as usual group received usual counseling at their obstetrics visits.
Cottrell, 2017[178] Cohort study	Neurosurgery and orthopedic patients	Physician opinions about telehealth	Clinician views on barriers to treatment and implementation of telerehabilitation	Clinicians were interviewed about barriers to patients' accessing the facilities, whether telerehabilitation could address the barriers, and potential barriers and catalysts to successful telerehabilitation.	N/A
Danielsen, 2020[179] RCT	Aortic valve replacement	Add-on support	Thirty-day all cause readmission rate, anxiety, depression, self-perceived health status	Patients in the intervention group received calls on day 2 and day 9 post-discharge. Calls were on the importance of physical activity, answering questions about their health, and the availability of a 24/7 telephone support hotline for the first 30 days after discharge.	Participants in the control group received standard discharge care.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Ericson, 2018[180] RCT	Patients who were breastfeeding	Add-on support	Exclusive breastfeeding 8 weeks after hospital discharge, maternal enjoyment with breastfeeding, infant satisfaction and growth, lifestyle and maternal body image, quality of bonding, role restriction, incompetence, social isolation, health problems, spouse relationship problems, quality of life of the mother	The intervention group received daily telephone calls from a member of the breastfeeding support team each day after discharge up to 14 days post-discharge from the neonatal intensive care unit.	The control group did not receive calls but had the option to call the breastfeeding support team if needed.
Fink, 2022[181] RCT	Hernia repair	Telehealth in place of face-to-face visits	Incision site tenderness, use of simple and/or opiate analgesia, wound healing concerns, return to work, exercise, and activities of daily living	Patients were randomized to telephone follow-up at 3 to 4 weeks after discharge for a hernia repair. All patients randomized to telemedicine were followed up with an additional phone call at 3 months post-surgery for quality and safety to assess if complications had been missed at the first call.	Patients in the control group received usual post-surgical care.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Fischer, 2019[182] RCT Movingcall study Fischer, 2020[183] Secondary analysis	Patients with low levels of physical activity	Add-on support	Self-reported physical activity, objectively assessed physical activity, perceived physical fitness, fidelity, acceptance Psychosocial determinants (self-efficacy, outcome expectations, intention strength, self-concordance, action planning, barrier management, social support), perceived usefulness of applied intervention strategies	Participants were randomized to 1 of 2 intervention arms: • Participants in the coaching group received 12 biweekly telephone calls to encourage a client-centered, goal-oriented discussion. Each session used behavior change techniques. • The coaching and short message service group received the same coaching as above, but also received 4 individually tailored short message service prompts during each 2-week period.	The control group received a single written recommendation at the beginning of the intervention on how to apply behavior change techniques to increase physical activity.
Gomez-Roas, 2022[184] Comparative Cohort study	Pregnancy	Telehealth in place of face-to-face visits	Changes in the birth experience, delayed care, perceived disadvantages of telemedicine	Postpartum individuals completed in-depth semi-structured interviews about health care experiences during and after birth, for in-person encounters. Transcripts were analyzed.	Postpartum individuals completed in-depth semi-structured interviews about health care experiences during and after birth, for telemedicine encounters. Transcripts were analyzed.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Hah, 2020[185] Pilot RCT MI-Opioid Taper	Orthopedic surgery	Add-on support	Feasibility, study completion, the proportion of patients who completed the study who reached opioid cessation or continued opioid use 2 months after surgery	After total knee or total hip replacement, patients were randomized. The intervention group received phone calls from a pain medicine physician who used motivational interviewing to provide advice regarding opioid medications and weaning off of the medications.	After total knee or total hip replacement, patients were randomized. The control group received usual care.
Hamar, 2018[186] Quasi-experimental	Patients who were hospitalized	Add-on support	Reduction in readmission rates	Patients in the intervention group received a hospital discharge call as soon as possible following discharge. The goal of the call was to provide support during transition from hospital to home.	The control group received discharge without phone call.
Hastings, 2019[187] RCT	ED patients	Add-on support	Repeat ED use within 30 days; engagement with primary care, mental health, and chronic disease/preventive care and other specialty services; total Veterans' Health Administration costs	The intervention group received 2 core calls in the week following an ED visit. Calls focused on improving the transition to primary care, enhancing chronic disease management, and educating veterans and family members about Veterans' Health Administration and community services.	The control group received usual care.
Heckman, 2018[188] RCT	HIV	Add-on support	Depression, interpersonal problems, social support	The intervention group received 9 weekly 1-hour interpersonal psychotherapy sessions over the telephone.	Patients in the control group received usual care.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Henry, 2019[189] RCT	Tinnitus	Telehealth in place of face-to-face visits	Tinnitus functional index	Participants received progressive tinnitus management by telephone.	The wait-list control group received no treatment.
Huber, 2017[190] RCT NAILED-ACS trial 12-month results Henriksson, 2021[191] RCT 36-month results	Acute coronary syndrome	Add-on support	Mean difference in low-density lipoprotein cholesterol levels at the 12-month follow-up, mean difference in seated systolic and diastolic blood pressure Blood pressure, low-density lipoprotein cholesterol, changes between 1 and 36 months, use of medicine at 36 months, trends over time	After baseline analysis, patients in the intervention group were contacted by telephone at 12, 24, and 36 months to assess smoking, diet, exercise, and medication adherence. The nurse advised the patient on lifestyle risk factors.	After baseline analysis, patients in the control group were contacted by telephone at the same intervals for risk factor screening.
Irewall, 2021[192] RCT NAILED-CV	Acute myocardial infarction, unstable angina, ischemic or hemorrhagic stroke, transient ischemic attack	Add-on support	First occurrence of myocardial infarction, stroke, cardiac revascularization, or cardiovascular death; all-cause mortality, transient ischemic attack	Participants in the intervention group received follow-up calls from a nurse to review medication adherence and cardiovascular risk factors. The first call was 1 month post-discharge and then yearly thereafter.	Participants in the control group received secondary preventive follow-up.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Kalichman, 2021[193] RCT	HIV	Add-on support	Engagement in care, antiretroviral therapy adherence, HIV viral load	Patients received 6 sessions of telephone behavioral self-regulation counseling that emphasized developing cognitive behavioral problem-solving skills to identify personal and social resources; manage social, environmental, and structural barriers to care; and maintain treatment adherence.	Patients received 6 sessions of in-office behavioral self-regulation counseling that emphasized developing cognitive behavioral problem-solving skills to identify personal and social resources; manage social, environmental, and structural barriers to care; and maintain treatment adherence.
Kassymova, 2022[194] RCT POSTHYSTREC trial	Hysterectomy	Add-on support	Maximum and average pain intensities, symptom sum score, consumption of opioid analgesics, unplanned telephone contact, unplanned visits	There were 4 follow-up treatment arms: • Group A is the control group and is described in the comparator column. • Group B received 1 follow-up phone call the day after discharge and was asked to initiate contact if necessary. • Group C received 1 follow-up phone call the day after discharge and once weekly for 6 weeks. • Group D received planned, structured, oriented coaching telephone follow-up with the RN the day after discharge, and then once weekly for 6 weeks.	Group A, the control group, received no follow-up contact after discharge and was asked to initiate contact if necessary.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Khair, 2022[195] RCT	Surgery	Add-on support	Post-discharge complications identified at follow-up (6 to 8 weeks), satisfaction with follow-up, future preference for follow-up, default to follow-up, and preference to receiving medical information by text message	Patients were randomized to 1 of 2 intervention arms: • Patients in the telephone call arm received a call about the underlying pathology and expectations at 6 weeks. • Patients in the text message arm received a text message about the underlying pathology and were asked about satisfaction with the service. All follow-up contacts were performed at 6 weeks post-discharge. All patients were advised to make an appointment with their primary care doctor or go to the ED in the event of an emergency.	Patients in the control arm attended an in-person follow-up to review the patient's hospital record. All patients were advised to make an appointment with their primary care doctor or go to the ED in the event of an emergency.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Losina, 2018[196] RCT	Total knee replacement	Add-on support	Mean number of steps per day at 6 months post knee replacement, change in mean number of steps per day between baseline and 6 months, change in weekly minutes spent engaging in moderate to vigorous physical activity from baseline to 6 months	One week after surgery participants received calls weekly from weeks 2 to 5 and biweekly from weeks 7 to 24: • The telephonic health coaching group received motivational interviewing calls on activity goals. • The financial incentives group received attention control plus financial incentives to increase physical activity. • The telephonic health coaching plus financial incentives group received motivational interviewing as above with financial incentives to increase physical activity.	One week after surgery participants received calls weekly from weeks 2 to 5 and biweekly from weeks 7 to 24. The attention control group received calls with general health messages and on recovery and rehabilitation.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Ma, 2017[197] RCT MORPh	Surgery	Telehealth in place of face-to-face visits	Follow-up nonattendance rate, nonattendance per appointment, patient satisfaction, missed complication rate, additional medical review post follow-up, percentage of histology results reviewed, preferred follow-up method, cost analysis	The intervention group received a telephone follow-up consultation to assess post-operative recovery.	The control group returned to the clinic for follow-up.
Miller, 2020[198] Cross-sectional study	Otolaryngologic conditions	Telehealth in place of face-to-face visits	Utilization	Data and trends from telemedicine visits by Medicare beneficiaries were analyzed, including utilization and cost.	Data from telemedicine visits were compared to data from face-to-face visits.
Minen, 2020[199] Pilot RCT	Migraine	Add-on support	Scheduling appointments, patient attendance	The intervention group received up to 5 motivational interviewing calls in 3 months. The motivational interviewing sessions were not prescribed but included open-ended questions around making and attending migraine therapy appointments.	The control group received treatment as usual.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Mols, 2019[200] RCT	Percutaneous coronary intervention	Add-on support	Adherence to $P2Y_{12}$ inhibitors (clopidogrel or ticagrelor) at 30-day follow-up, responses on adherence to aspirin, follow-up activities, emotional well-being, and lifestyle behavior	A standardized nurse-led motivational telephone consultation (intervention) was conducted between 2 and 5 days after percutaneous coronary intervention to support adherence to medical therapy, follow-up activities, emotional well-being, and healthy lifestyle.	The control group received usual care and discharge procedures.
Muehlensiepen, 2021[201] Cross-sectional	Rheumatologic patients	Physician opinions about telehealth	Acceptance, preferences	Rheumatologists and general practitioners completed surveys about acceptance, opportunities, and obstacles to telemedicine.	N/A
Mulcahey, 2022[202] Pre- post-	Caregivers of children with spinal cord injury	Add-on support	Change in Canadian Occupational Performance measure and Pediatric Measure of Participation	Participants received 10 weekly sessions of Coaching-in-Context. Participants were evaluated with pre- and post-tests.	Data from pre-intervention was compared to data from post-intervention.
Ogren, 2018[203] RCT NAILED stroke risk factor trial long-term follow-up (36 months)	Stroke/transient ischemic attack	Add-on support	Systolic blood pressure, diastolic blood pressure, low-density lipoprotein cholesterol levels, proportion of patients reaching treatment targets, trends over time	Participants received nurse-led telephone follow-up after hospital discharge. Intervention follow-up included lifestyle counseling and assessment of pharmacological treatment. Standard follow-up was treatment as usual.	Participants received standard follow-up after hospital discharge.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Irewall, 2019[204] Subgroup analysis			Mean changes in systolic blood pressure, diastolic blood pressure, and low-density lipoprotein cholesterol levels stratified by education level		
Panagioti, 2018[205] RCT The PROTECTS study within the CLASSIC cohort	Multimorbidity	Add-on support	Self-management, quality of life, depression, self-care	Patients received 6 monthly calls in 1 of the following interventions: • Telephone health coaching (support and encouragement around healthy behaviors) • Low intensity support for low mood (assessment of common mental health problems and lifestyle advice and behavioral techniques to manage mood)	Patients in the control group received social prescribing (links to resources in the wider community and a self-assessment tool).
Pippi, 2018[206] RCT	Tooth extraction	Add-on support	Detection of post-extraction complications, degree of satisfaction with telephone follow-up	The intervention group received telephone follow-up 24 and 72 hours after surgery.	The control group received no telephone follow-up.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Pippi, 2021[207] RCT	Tooth extraction	Add-on support	Post-extraction bleeding, patient satisfaction with follow-up	Patients in the telephone group were contacted 6, 24, 36, and 48 hours after surgery to investigate general health conditions and signs that could precede the onset of a bleeding complication. They were also asked about use of drugs, especially painkillers, regular intake of medications, and satisfaction with the call. Both groups had follow-up appointments on the fifth or seventh day.	The control group did not receive calls. Both groups had follow-up appointments on the fifth or seventh day.
Qvist, 2020[208] RCT	Abdominal aortic aneurysm, peripheral arterial disease, high blood pressure	Add-on support	Medication adherence	Participants were randomized to receive telephone counseling. Telephone counseling occurred 3 months after enrollment and consisted of analysis of prescription adherence followed by nurse advice.	The control group received usual care.
Sagar, 2021[209] Cohort study	Patients at a colorectal clinic	Telehealth in place of face-to-face visits	Patient and clinician satisfaction	Patients completed a satisfaction questionnaire after colorectal consultation at the colorectal clinic. Clinicians completed a survey at the end of each clinic session.	Patient responses were compared to clinician responses.
Skolasky, 2018[210] RCT	Spinal stenosis surgery	Add-on support	Pain intensity, disability, physical health, differences in surgical outcomes	The intervention group received health behavior change counseling by phone, once before surgery and twice afterward to promote physical therapy.	The control group received usual care.
Sobanko, 2017[211] RCT	Mohs micrographic surgery	Add-on support	Anxiety, satisfaction	Intervention participants received an education phone call 1 week before surgery.	The control group did not receive a pre-surgery call.

Author, Year Study Design Study Name	Condition(s)	Telehealth Intended Use	Outcome(s) of Interest	Intervention(s)	Comparator(s)
Taylan, 2019[212] RCT	Bowel stoma	Add-on support	Improvement in sexual life	Patients underwent ileostomy or colostomy surgery. Patients in the intervention group received telephone counseling about concerns in their sexual lives as needed after discharge from the hospital for ileostomy or colostomy.	Patients underwent ileostomy or colostomy surgery. The control group received standard follow-up care.
Vance, 2019[213] RCT	Mohs micrographic surgery	Add-on support	Patient satisfaction with surgery, patient satisfaction with scar (pain, itching, color, thickness, irregularity, overall comparison with normal)	Participants were randomized to receive a post-operative call. Calls gauged how the patient was feeling post-operation and answered questions.	Patients in the control group did not receive a post-operative call.
Vollmuth, 2021[214] Cohort study	Stroke	Telehealth in place of face-to-face visits	Utilization, shortcomings	Data about use of telemedical consultations and shortcomings of telemedical stroke care were collected.	Data about use of in-hospital consultations and shortcomings of in-hospital stroke care were collected.
Yiadom, 2018[215] RCT	Patients who were hospitalized	Add-on support	Hospital inpatient readmission within 30 days of discharge, observation status readmission within 30 days, time to readmission, all-cause ED revisits within 30 days, patient satisfaction, 30-day mortality	The intervention group received a post-discharge phone call from an RN to confirm discharge procedures and discharge counseling.	The control group received usual care.

Abbreviations. CHART-NY: Consortium of Hospitals Advancing Research on Tobacco-New York; CLASSIC: Comprehensive Longitudinal Assessment of Salford Integrated Care; COPD: chronic obstructive pulmonary disease; COPE-HF: Coping Effectively with Heart Failure; COVID-19: coronavirus disease 2019; DASH: Dietary Approaches to Stop Hypertension; DSP: Diabetes Support Project; ED: emergency department; ENDCAT: Endometrial Cancer Telephone follow-up; FORTIS: Facing Obstacles to Relative Dose Intensity through a Telephone Intervention Study; H2O: Hospital to Home Outcomes; IPT: interpersonal psychotherapy; J-DOIT: Just Do It; LSTH: Lung Screening, Tobacco, and Health; LWWS2: Living Well With Stroke 2; MAC: Managing Anxiety from Cancer; MATCH: Matching Alcoholism Treatments to Client Heterogeneity; MAYA: Motivate Adolescents and Young Adults; MEAL: Men's Eating And Living; MORPh: Monash Outpatient Review by Phone; N/A: not applicable; NAILED: Nurse-Based Age Independent Intervention to Limit Evolution of Disease; NAILED-ACS: Nurse-Based Age Independent Intervention to Limit Evolution of Disease After Acute Coronary Syndrome; NAILED-CV: Nurse-Based Age Independent Intervention to Limit Evolution of Disease – Cardiovascular; PACE: Planning a Change Easily; POSTHYSTREC: post-hysterectomy; PROTECT: Prostate Testing for Cancer and Treatment; PROTECTS: Proactive Telephone Coaching and Tailored Support; PTSD: post-traumatic stress disorder; QuLIT: Quit Smoking Lung Health Intervention Trial; RCT: randomized controlled trial; REAL HEALTH: Reach Ahead for Lifestyle and Health; RED: Re-Engineered Discharge; RED-D: Re-Engineered Discharge for Depression; RN: registered nurse; SAVE-CLC: Suicide Awareness for Veterans Exiting the Community Living Centers; SHINE: Support, Health Information, Nutrition, and Exercise; SMS: short message service; SPIRIT: Survivorship Promotion in Reducing Insulin Growth Factor-1 Trial; T4DM: Testosterone for Diabetes Mellitus; TIPS: telephone intervention problem solving; USB: universal serial bus.

About the Center for Evidence-based Policy and the Medicaid Evidence-based Decisions Project

The Center for Evidence-based Policy (Center) is recognized as a national leader in evidence-based decision making and policy design. The Center understands the needs of policymakers and supports public organizations by providing reliable information to guide decisions, maximize existing resources, improve health outcomes, and reduce unnecessary costs. The Center specializes in ensuring that diverse and relevant perspectives are considered and appropriate resources are leveraged to strategically address complex policy issues with high-quality evidence and collaboration. The Center is based at Oregon Health & Science University in Portland, Oregon.

The Medicaid Evidence-based Decisions Project (MED) is housed at the Center. Its mission is to create an effective collaboration among Medicaid programs and their state partners for the purpose of making high-quality evidence analysis available to support benefit design and coverage decisions made by state programs. Further information about MED and the Center is available at http://centerforevidencebasedpolicy.org/.

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