

AHRQ EVIDENCE-BASED PRACTICE CENTER (EPC) PROGRAM RESEARCH GAPS SUMMARY: TELEHEALTH

An AHRQ EPC Program publication summarizing evidence gaps identified across recent EPC Program reviews for select healthcare topics addressing telehealth services

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None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of healthcare in the United States. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions and new healthcare technologies and strategies. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

An important part of evidence reports is to not only synthesize the evidence, but also to identify the gaps in evidence that limit the ability to answer the systematic review questions. This information is provided for researchers and funders of research.

If you have comments on this document, they may be sent by mail to the AHRQ staff named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov.

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Introduction

The AHRQ Evidence-based Practice Center (EPC) Program supports the quality of healthcare by providing the best available evidence on medications, devices, and healthcare services with the goal of helping healthcare professionals, patients, policymakers, and healthcare systems make informed and evidence-based health care decisions. Telehealth research supports the overall AHRQ mission of producing evidence to make health care safer, higher quality, more accessible, equitable, and affordable, and to work within the U.S. Department of Health and Human Services and with other partners to make sure that the evidence is understood and used. Identifying gaps in telehealth research can inform future studies and outline areas that need to be addressed to inform clinical practice to improve the Nation's overall health and well-being.

To identify evidence gaps to inform telehealth, the AHRQ EPC program examined all reviews conducted by an AHRQ EPC between April 2019 through March 2023 that addressed a research topic in telehealth. Telehealth is the use of information and telecommunications technology to provide or support healthcare across time and/or distance. It is a tool with the potential to increase access, improve the quality of care, increase patient satisfaction, positively impact patient outcomes, and reduce the cost of care.

The five identified reports are presented in descending order, by date. The purpose, key messages, and evidence gaps identified in each review are summarized. Evidence gaps are organized by population, intervention, outcomes, and study design to facilitate ease of use. Detailed descriptions of the gaps are also available in the original report as provided in hyperlinks.

The telehealth gaps identified in the following pages are provided to inform research funders, researchers, and policymakers about the types of questions that need to be addressed and the types of studies necessary to address these questions.

For more information, contact Angela.Carr@ahrq.hhs.gov or EPC@ahrq.hhs.gov or visit the [Effective Health Care Program](#).

Use of Telehealth During the COVID-19 Era

January 3, 2023

<https://effectivehealthcare.ahrq.gov/products/virtual-health-covid/research>

Purpose

To assess how to provide telehealth care by identifying characteristics of telehealth delivery, patient populations, settings, benefits and harms, and implementation strategies during the COVID-19 era.

Key Messages

- Telehealth may improve access to care; however, patients using telehealth during the COVID-19 era are, like before COVID-19, more likely to be people who are young to middle-aged, female, White, of higher socioeconomic status, and living in urban settings.
- Across a variety of conditions, telehealth produced similar clinical outcomes as compared with in-person care; differences in clinical outcomes, when seen, were generally small and not clinically meaningful when comparing in-person with telehealth care.
- Telehealth may be less suitable and less desirable for patients with complex clinical conditions, those needing physical exams, and for therapies requiring the development of rapport between patients and providers.
- Providers note that the cost of telehealth can be a barrier to care owing to the limits of insurance reimbursement.
- Some patients perceive telehealth as a barrier to improved health outcomes owing to the absence of a physical exam and challenges in developing rapport and communicating with their care team, potentially resulting in delayed or missed diagnoses.

Evidence Gaps

Interventions

- With the rapid innovations in the telehealth domain and the expansion of telehealth in clinical practice, focus on identifying the full range of clinical use cases for telehealth (including types of visits and conditions that are not appropriate for telehealth).

Study Design

- Studies need a clearer definition of telehealth and other modes of virtual care delivery, the context in which the services are implemented, and the usual or alternative models of care used for comparison.
- Multisite studies in different private and public health systems should be conducted rather than relying on pre-post data from a single site.
- Research to perform an economic assessment of telehealth and the impact of telehealth care within alternative payment arrangements (e.g., risk-based arrangements), including rigorous methods to measure and analyze costs.
- Research addressing implementation challenges of telehealth at the health-system level (e.g., technical assistance needs, staffing models), ideally using implementation frameworks, and generate evidence from organizations with varied experiences adopting or expanding telehealth for a range of uses (e.g., from primary to critical care, and post-acute and long-term care) in response to COVID-19.

Outcomes

- Studies on the effectiveness of telehealth for clinical applications with limited prior evidence but rapid expansion during the pandemic (e.g., primary care and pre- and post-surgical visits).
- Studies that clearly identify appropriate and clinically important outcomes.

Improving Rural Health Through Telehealth-Guided Provider-to-Provider Communication

December 26, 2022

<https://effectivehealthcare.ahrq.gov/products/rural-telehealth/research>

Purpose

To assess the use, effectiveness, and implementation of telehealth-supported provider-to-provider communication and collaboration for the provision of healthcare services to rural populations and to inform a scientific workshop convened by the National Institutes of Health Office of Disease Prevention on October 12–14, 2021.

Key Messages

- Limited survey and claims data research suggests that provider-to-provider (P-P) telehealth is used to different extents for specific indications such as psychiatry, emergency, and stroke care. Use was increasing even before COVID-19 and likely to continue.
- P-P telehealth to support direct patient care may provide benefits for in patient care, for neonates in rural hospitals, outpatient management of depression and diabetes, and emergency care of stroke/heart attack/chest pain and trauma.
- Use of telehealth for provider education/mentoring, including programs like Extension for Community Healthcare Outcomes (ECHO) may improve patient outcomes, change provider behavior, and increase provider knowledge/confidence in treating specific conditions.
- Inadequate provider time, technology, and other resources, as well as limited understanding of the rural context and lack of long-term commitments to telehealth, are barriers to broader implementation of P-P telehealth in rural settings. Telehealth implementation was facilitated when there were sufficient resources, access to knowledge, and engagement of leadership, and the program addressed patient needs.

Evidence Gaps

Study Population

- Use of contemporary comparison groups and multiple sites to separate the impact of telehealth from historical change or the unique characteristics of specific sites or providers/consultants.
- Robust studies of P-P telehealth.

Interventions

- Studies need agreement on common outcomes and goals for P-P telehealth interventions so interventions and harms can be measured consistently.
- More complete descriptions of the content of telehealth and comparator interventions to help inform assessments of fit and help clarify when telehealth can replace or complement in-person services.

Study Design

- More RCTs are needed. However, recognizing potential ethical and logistical challenges, consider different trial designs (including adaptive trials) and more rigorous observational studies.
- Hybrid studies that more explicitly consider impact of the internal environment and local policies may be warranted.
- Studies that consider the larger policy context in which care was delivered, including payment, licensing, regulations, and competition across providers are needed.

Outcomes

- Measure outcomes at multiple time points to understand differences in short and long-term outcomes.
- Large studies across multiple sites to understand coding usage and associated patient outcomes.

Schedule of Visits and Televisits for Routine Antenatal Care

June 28, 2022

<https://effectivehealthcare.ahrq.gov/products/schedule-visits-antenatal-care/research>

Purpose of Review

The American College of Obstetricians and Gynecologists (ACOG) and the Society for Maternal-Fetal Medicine nominated the topic to develop clinical practice guidelines and consensus statements, both individually and jointly, to address the preferred frequency and timing of routine antenatal care visits and the use of televisits for routine antenatal care.

Key Messages

- Compared to traditional routine antenatal visit schedules, schedules with fewer visits did not show differences in gestational age at birth, likelihood of being small for gestational age, low birth weight, low Apgar score, neonatal intensive care unit (NICU) admission, preterm birth, or maternal anxiety.
- Studies comparing hybrid (televisits and in-person) visits and all in-person visits did not find differences in rates of preterm births or NICU admissions.
- Potential barriers to change included patient's emotional discomfort; potential gaps in patient knowledge; compromise of patients' antenatal care and psychosocial needs; no or limited information technology; patient literacy; potential liability concerns; and reimbursement policies.
- Potential facilitators for change included increased clinic availability for high-risk pregnancies; improved patient attendance; ability to manage low-risk pregnancies at home.
- Tradeoffs of barriers and facilitators for televisits from provider perspective included the lack of privacy versus increased ability of family to participate, and reduced training opportunities for junior clinicians versus improved team cohesion and case discussion.

Evidence Gaps

Study Population

- Studies that include diverse patient voices as well as providers from different settings and practice settings to understand how changes to routine antenatal care may affect current health disparities or are impacted by social determinants of health.

Interventions

- Studies to determine the optimal structure and safety for routine and alternative antenatal care incorporating telehealth, group visits, including location of services (e.g., clinic, home), components of care (e.g., ACOG-recommended services), provider of services (e.g., obstetrician, certified nurse practitioner, nurse midwife, doula), and the impact of shorter initial and followup visits, among others.
- Formal development of a core outcome set for process of care would help future researchers to focus on high priority outcomes.
- A stakeholder panel including a wide range of providers, policymakers, and, importantly, patients and their families should be convened to determine the scope of issues to be addressed by future qualitative research studies.

Study Design

- Nonrandomized controlled study (NRS) designs, ideally using a propensity score matching or equivalent methodology, particularly for the prioritized outcomes that occur infrequently (e.g., NICU admissions, preterm birth, and small for gestational age).

Outcomes

- Studies to understand which interventions achieve the best clinical outcomes, patient satisfaction, and are cost-effective for the health system, patients, and their caregivers.

Telehealth for Women's Preventive Services

June 16, 2022

<https://effectivehealthcare.ahrq.gov/products/telehealth-women/research>

Purpose

To address the decisional dilemma about the uncertainty regarding the effectiveness of telehealth for delivering specific preventive services for women and how to best mobilize telehealth to address women's healthcare needs, particularly for those who are geographically isolated or in underserved settings or populations. This review also serves as a resource for policymakers, practice leaders, and other stakeholders to inform future efforts to evaluate telehealth outcomes for women presenting for preventive health services and its role in serving populations adversely affected by disparities due to socioeconomic disadvantage, race or ethnicity, rural location, or other factors.

Key Findings

- Compared to in-person or usual care, outcomes of telehealth visits were generally similar for adolescent and adult women presenting for contraceptive care (screening, counseling, provision, followup care) or receiving services for screening, evaluation, or treatment of interpersonal violence (IPV).
- Most studies demonstrated that telehealth showed no differences in effectiveness compared to usual care for contraceptive care or IPV services.
- Compared with usual care alone, telehealth interventions to supplement in-person care resulted in similar rates of contraceptive use (oral contraception, condoms, or long-acting reversible contraception) at 6 months, sexually transmitted infection (STI), and pregnancy; impact on abortion rates was unclear.
- Compared with usual care, telehealth interventions for IPV services resulted in similar rates of repeat IPV, depression, fear of partner, coercive control, self-efficacy, post-traumatic stress disorder, and safety behaviors; the evidence on harms was unclear.

Evidence Gaps

Study Population

- Studies should include patients representing broader age ranges; with diverse backgrounds including those who are disadvantaged due to socioeconomic factors, rural location, or geographic isolation; and from other underserved groups at risk for health disparities based on race, ethnicity, disabilities, or gender identity.

Interventions

- Studies to inform telehealth interventions for routine preventive services, especially for family planning and STI screening.
- Studies to evaluate whether telehealth interventions should supplement or replace traditional screening services.
- Studies to explore the role of decision aids and patient navigation strategies that are amenable for use in the telehealth setting (e.g., mobile app used as a clinical adjunct for contraceptive decision support)
- Studies to identify the most effective approaches to deliver telehealth services and how to best mobilize telehealth, particularly for women facing barriers to healthcare.

Study Design

- Randomized controlled trials, with clearly defined comparison groups and health outcomes.

Outcomes

- Studies to understand the impact of telehealth on patient engagement, access to care, health equity, and harms.
- Studies to identify the disadvantages telehealth may pose in specific underserved populations
- Future studies should evaluate effectiveness of telehealth interventions and should include studies to assess whether telehealth platforms can increase the reach of services and improve effectiveness for communities.

Telehealth for Acute and Chronic Care Consultations

April 24, 2019

<https://effectivehealthcare.ahrq.gov/products/telehealth-acute-chronic/research>

Purpose

To assess the effectiveness of telehealth consultations and explore supplemental decision analysis.

Key Findings

- Results vary by setting and condition, with telehealth consultations producing generally either better outcomes or no difference from comparators in settings and clinical indications studied.
 - Remote intensive-care unit consultations likely reduce mortality.
 - Specialty telehealth consultations likely reduce patient time in the emergency department.
 - Telehealth consultations in emergency services likely reduce heart attack mortality.
 - Remote consultations for outpatient care likely improve access and clinical outcomes.

Evidence Gaps

Interventions

- Studies of systems-level implementation to understand operations that facilitate consultations throughout an organization, spread cost of technology, support workflow changes, and training needs across a system.

Study Design

- More rigorous, multisite studies of telehealth consultations across clinical areas and types of organizations, including rural or under resourced hospitals.
- Studies that include contemporary comparison groups so the effect of the telehealth consultations can successfully be isolated from historical changes or the idiosyncrasies of a specific organization.
- Studies, including multisite trials, that facilitate collecting economic data alongside trials or observational studies to understand effectiveness and economic impact.

Outcomes

- Studies across multiple sites to determine when the use of outpatient teleconsultations involving technology such as echocardiograms, ultrasound, or endoscopy might increase access to critical services, improve patient outcomes, and be cost effective.
- Hybrid studies that combine effectiveness and implementation assessments to understand the characteristics of the context and how outcomes are impacted.
- Studies need standard outcome measures for quality assessment, quality improvement, and research to facilitate comparisons.
- Detailed telehealth consult costs and outcomes data could improve modeling assumptions.